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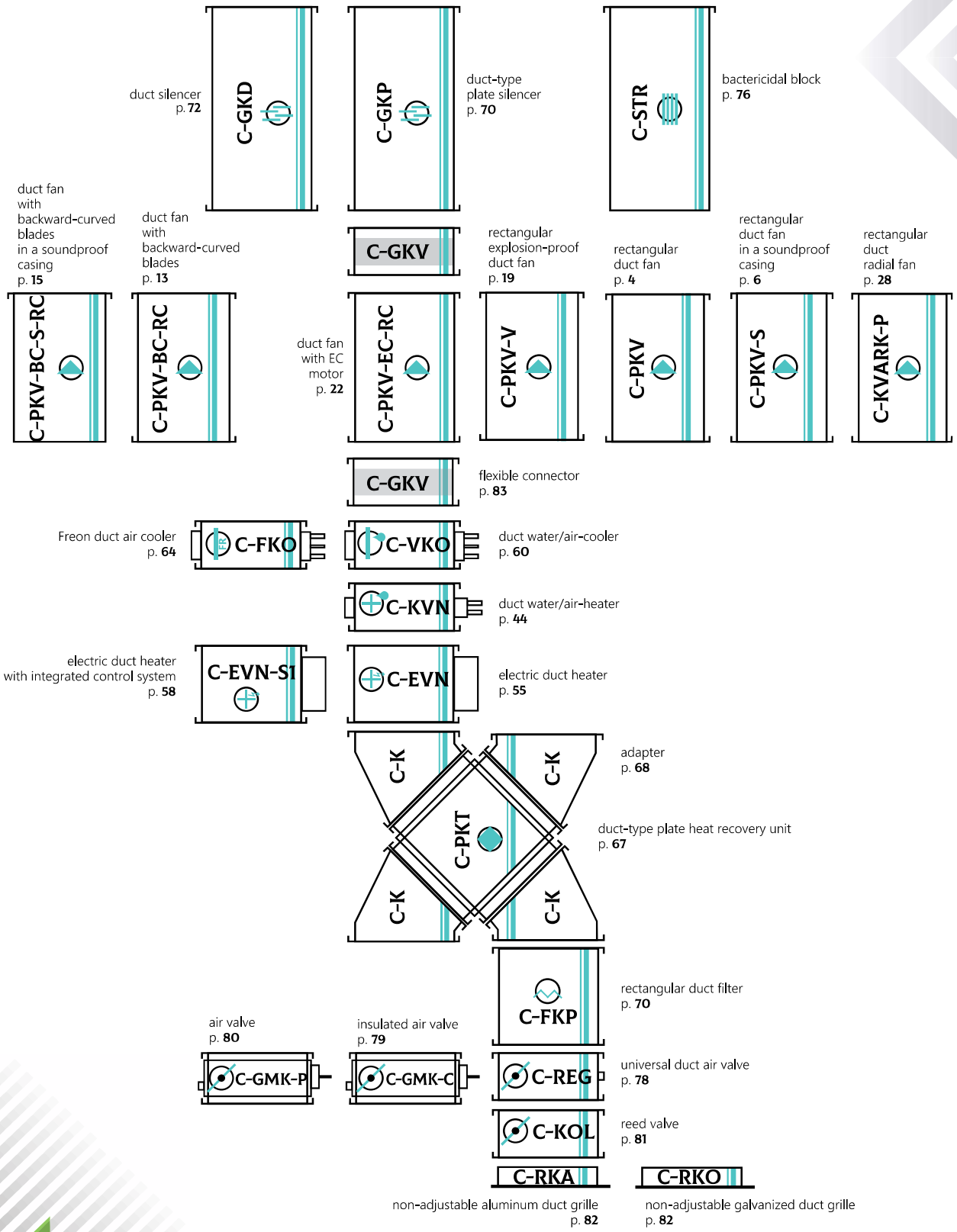
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DUCTED VENTILATION SYSTEMS FOR RECTANGULAR DUCTS



C-PKV | RECTANGULAR DUCT FAN



C-PKV-40-20-4-220

- rectangular duct fan
- standard size (for rectangular connection section BxH)
- number of electric motor poles
- electric motor supply voltage, 220 V or 380 V

NOTE:
For use with a round duct, an adapter C-P can be ordered separately

- for compact stationary systems of supply and exhaust ventilation, air conditioning of industrial, public and residential buildings;
- provide ease of installation and maintenance in confined spaces;
- universally combined with other elements of ducted ventilation systems;
- for the movement of air with a permissible content of dust and other solid impurities, which should not exceed 0.1 g/m3;
- presence of sticky, fibrous and abrasive components, as well as explosive impurities is not allowed.
- temperature range of the moved medium varies from -30°C to +40°C.
- ingress protection rating IP54.

The fan CASING made of galvanized steel provides reliable corrosion protection. A service cover is provided for all C-PKV sizes. The cover is necessary for direct access to the impeller and motor when installing or maintaining the fan. The fan is equipped with rotor motors from such manufacturers as Ziehl-Abegg and EBM-papst.

The IMPELLERS of duct fans with forward-curved blades are made of galvanized steel and undergo careful static and dynamic balancing.

Single-or three-phase asynchronous ELECTRIC MOTORS with an external rotor are characterized by low power consumption and a significant service life. The compact size and location of the fan impeller inside in the air flow ensure efficient cooling of the motor with incoming air, which increases the service life by reducing the thermal and mechanical load on the bearings.

Standard equipment of duct fan motors with thermal contact relays provides comprehensive thermal protection.

For single-phase electric motors, a starting capacitor is installed on the fan casing.

Ducted fans of this type can be mounted in any spatial position, provided that the fan service cover is freely accessible.

sound insulation


C-GKP


C-GKD

filtration/decontamination


C-FKP


C-STR

adjustment


C-REG


C-KOL


C-GMK-C


C-GMK-P

heat exchange


C-VKO


C-FKO


C-EVN


C-KVN

energy saving


C-PKT

ancillaries


C-P


C-GKV


C-RKA

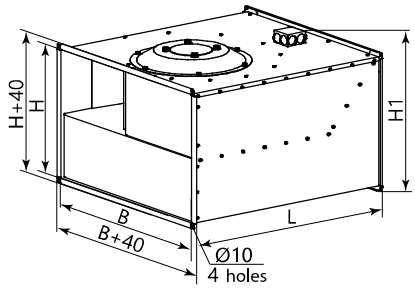

C-RKO

control

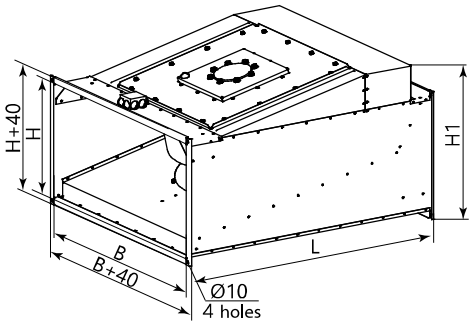

C-SAU


UWS

C-PKV



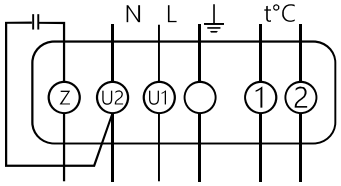
C-PKV-100-50-4-380



STANDARD SIZE	Dimensions, mm				Power consumption up to..., kW	Max current consumption, A	Motor speed, min^{-1}	Corrected sound pressure level, dB(A)	Weight, kg, max	Connection diagram
	B	H	H1	L						
C-PKV-40-20-4-220	400	200	265	502	0,33	1,52	1260	55	12	A2
C-PKV-40-20-4-380	400	200	265	502	0,33	0,63	1230	53	12	D1
C-PKV-50-25-4-220	500	250	315	532	0,51	2,3	1250	50	18	A2
C-PKV-50-25-4-380	500	250	315	532	0,56	0,95	1270	55	18	D1
C-PKV-50-30-4-220	500	300	365	562	0,9	4,1	1230	59	21	A2
C-PKV-50-30-4-380	500	300	365	562	0,93	1,9	1380	57	29	D1
C-PKV-60-30-4-220	600	300	365	642	1,6	7,3	1210	62	28	A2
C-PKV-60-30-4-380	600	300	365	642	1,7	3,2	1310	58	32	D1
C-PKV-60-30-6-380	600	300	365	642	0,45	0,85	780	58	32	D1
C-PKV-60-35-4-380	600	350	420	717	2,5	4,1	1300	61	38	D1
C-PKV-60-35-6-380	600	350	420	717	0,9	1,8	750	53	34	D1
C-PKV-70-40-4-380	700	400	465	787	3,7	6,0	1320	66	60	D1
C-PKV-70-40-6-380	700	400	465	787	1,15	2,3	790	56	43	D1
C-PKV-80-50-4-380	800	500	580	880	5,7	9,0	1140	68	78	D1
C-PKV-80-50-6-380	800	500	580	880	2,8	4,85	830	60	71	D1
C-PKV-90-50-6-380	900	500	580	980	3,75	6,8	840	62	90	D1
C-PKV-90-50-8-380	900	500	580	980	2	4,1	600	58	90	D1
C-PKV-100-50-4-380	1000	500	700	1210	4,3	6,8	1350	71	122	D1
C-PKV-100-50-6-380	1000	500	580	980	3,75	6,8	840	62	95	D1
C-PKV-100-50-8-380	1000	500	580	980	2	4,1	600	58	95	D1

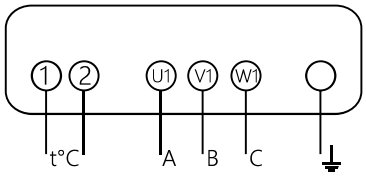
A2

220 V 1~



D1

~3 Ph 380 V 50 Hz



C-PKV-S

RECTANGULAR DUCT FAN IN A SOUNDPROOF CASING



- it is used in premises with increased noise level requirements and is manufactured in a soundproof casing;
- provides ease of installation and maintenance in confined spaces;
- universally combined with other elements of ducted ventilation systems;
- for the movement of air with a permissible content of dust and other solid impurities, which should not exceed 0.1 g/m3;
- presence of sticky, fibrous and abrasive components, as well as explosive impurities is not allowed.
- temperature range of the moved medium varies from -30° C to +40° C.
- ingress protection rating IP54.

C-PKV-S-40-20-4-220

- rectangular duct fan
- in a soundproof casing
- standard size (for rectangular connection section BxH))
- number of electric motor poles
- electric motor supply voltage, 220 V or 380 V

NOTE:
For use with a round duct, an adapter C-P can be ordered separately

The fan CASING made of galvanized steel provides reliable corrosion protection. A service cover is provided for all C-PKV-S sizes. A service cover is required for direct access to the impeller and motor when installing or maintaining the fan.

The SOUNDPROOF CASING distinguishes the C-PKV-S from the standard series. The casing is made of galvanized steel and is a box-shaped structure. The space between the walls of the soundproof casing is filled with non-flammable mineral wool, which is characterized by high soundproofing properties.

The IMPELLERS of C-PKV-S duct fans with forward-curved blades are made of galvanized steel and undergo careful static and dynamic balancing.

Single-or three-phase asynchronous electric motors with an external rotor are characterized by low power consumption and a significant service life. Standard equipment of duct fan motors with thermal contact relays provides comprehensive thermal protection.

The fans of this type can be mounted in any spatial position, provided that the fan service cover is freely accessible.

sound insulation


C-GKP


C-GKD

filtration/decontamination


C-FKP


C-STR

adjustment


C-REG


C-KOL


C-GMK-C


C-GMK-P

heat exchange


C-VKO


C-FKO


C-EVN


C-KVN

energy saving


C-PKT

ancillaries


C-P


C-GKV


C-RKA


C-RKO

control


C-SAU


UWS

RECOMMENDATIONS

To reduce losses associated with turbulence in the air flow, a straight section of the duct or silencer should be located at the inlet and outlet of the duct fan.
Recommended lengths of straight sections are:
For round ventilation ducts

- **THE MINIMUM LENGTH OF A STRAIGHT SECTION IS EQUAL TO 1 DIAMETER OF THE AIR DUCT ON THE INLET SIDE**
- **THE MINIMUM LENGTH OF A STRAIGHT SECTION IS EQUAL TO 3 DIAMETERS OF THE AIR DUCT ON THE OUTLET SIDE**

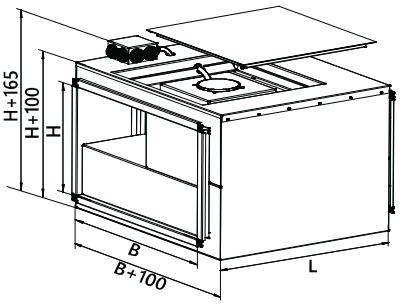
FOR RECTANGULAR VENTILATION DUCTS, THE EQUIVALENT DIAMETER OF THE AIR DUCTS IS CALCULATED USING THE FORMULA:

$$D = \sqrt{\frac{4 \times H \times B}{\pi}}$$

where:
D is the diameter of the equivalent round duct; ;
H is the height of a rectangular duct;
B is the width of a rectangular duct.

Compliance with this recommendation ensures stable operation of the ventilation equipment, fulfillment of the design technical parameters, stabilization of the electric motor operation, and also significantly affects the noise characteristics of the fan during operation.

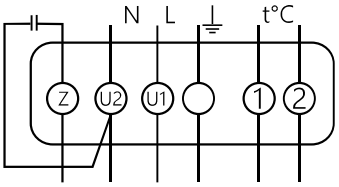
C-PKV-S



STANDARD SIZE	Dimensions, mm			Power consumption up to..., kW	Max current consumption, A	Corrected sound pressure level, dB(A)	Weight, kg, max	Connection diagram
	B	H	L					
C-PKV-S-40-20-4-220	400	200	502	0,33	1,52	36	13	A2
C-PKV-S-40-20-4-380	400	200	502	0,33	0,63	35	13	D1
C-PKV-S-50-25-4-220	500	250	532	0,51	2,3	38	20	A2
C-PKV-S-50-25-4-380	500	250	532	0,56	0,95	42	20	D1
C-PKV-S-50-30-4-220	500	300	562	0,9	4,1	42	23	A2
C-PKV-S-50-30-4-380	500	300	562	0,93	1,9	46	32	D1
C-PKV-S-60-30-4-220	600	300	642	1,6	7,3	47	31	A2
C-PKV-S-60-30-4-380	600	300	642	1,7	3,2	51	35	D1
C-PKV-S-60-30-6-380	600	300	642	0,45	0,85	52	35	D1
C-PKV-S-60-35-4-380	600	350	717	2,5	4,1	53	42	D1
C-PKV-S-60-35-6-380	600	350	717	0,9	1,8	44	37	D1
C-PKV-S-70-40-4-380	700	400	787	3,7	6,0	58	66	D1
C-PKV-S-70-40-6-380	700	400	787	1,15	2,3	47	47	D1
C-PKV-S-80-50-4-380	800	500	880	5,7	9,0	61	86	D1
C-PKV-S-80-50-6-380	800	500	880	2,8	4,85	51	78	D1
C-PKV-S-90-50-6-380	900	500	980	3,75	6,8	58	104	D1
C-PKV-S-90-50-8-380	900	500	980	2	4,1	50	104	D1
C-PKV-S-100-50-6-380	1000	500	980	3,75	6,8	60	104	D1
C-PKV-S-100-50-8-380	1000	500	980	2	4,1	52	104	D1

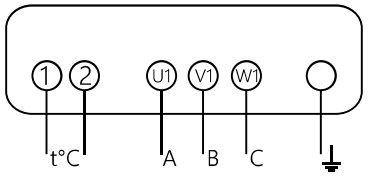
A2

220 V 1~

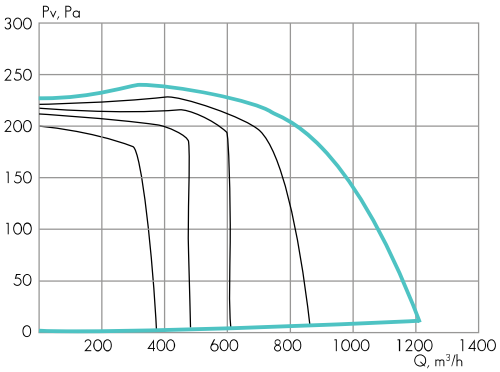


D1

~3 Ph 380 V 50 Hz



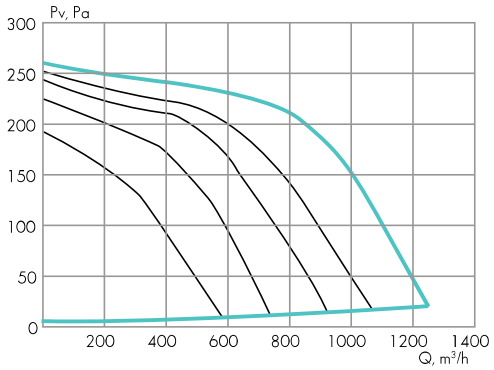
C-PKV-40-20-4-220, C-PKV-S-40-20-4-220



C-PKV	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	64	54	66	64	62	56	56	55	49
Output	dB(A)	70	55	63	67	65	65	63	61	54
Surrounding	dB(A)	59	38	45	59	55	56	49	46	41

C-PKV-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	63	41	43	51	57	61	54	51	52
Output	dB(A)	70	55	63	67	65	65	63	61	54
Surrounding	dB(A)	44	20	22	31	37	40	37	35	35

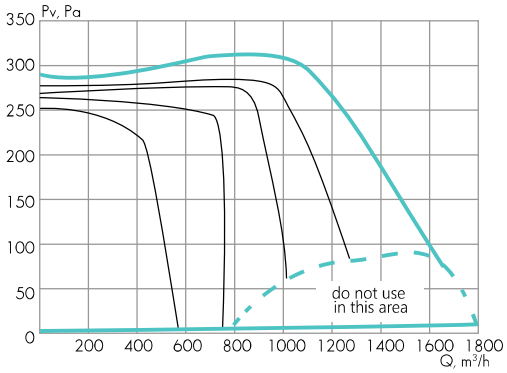
C-PKV-40-20-4-380, C-PKV-S-40-20-4-380



C-PKV	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	69	55	68	65	60	56	55	53	46
Output	dB(A)	69	54	64	69	64	65	62	59	52
Surrounding	dB(A)	60	33	41	58	51	59	44	40	33

C-PKV-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	61	29	37	49	55	59	53	49	50
Output	dB(A)	69	54	64	69	64	65	62	59	52
Surrounding	dB(A)	43	11	17	30	35	38	37	32	33

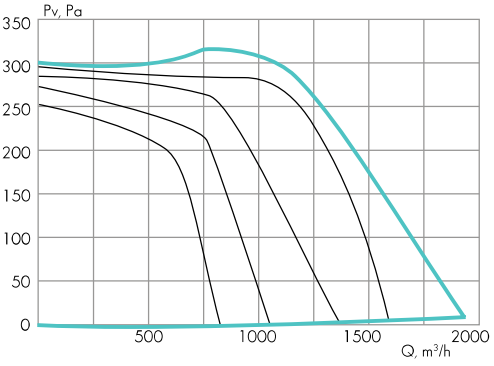
C-PKV-50-25-4-220, C-PKV-S-50-25-4-220



C-PKV	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	70	62	70	67	59	63	64	62	59
Output	dB(A)	76	55	64	67	69	72	70	68	64
Surrounding	dB(A)	60	35	47	57	58	55	51	46	50

C-PKV-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	63	50	44	50	58	59	55	53	51
Output	dB(A)	76	55	64	67	69	72	70	68	64
Surrounding	dB(A)	49	29	27	33	43	44	38	42	40

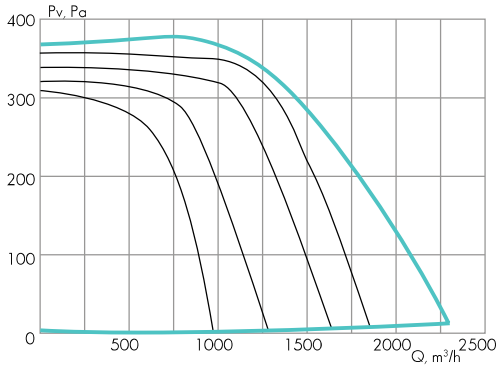
C-PKV-50-25-4-380, C-PKV-S-50-25-4-380



C-PKV	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	70	62	70	67	59	63	64	62	59
Output	dB(A)	76	55	64	67	69	72	70	68	64
Surrounding	dB(A)	60	35	47	57	58	55	51	46	50

C-PKV-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	66	40	47	53	59	62	59	56	55
Output	dB(A)	76	55	64	67	69	72	70	68	64
Surrounding	dB(A)	50	20	30	35	44	47	41	40	41

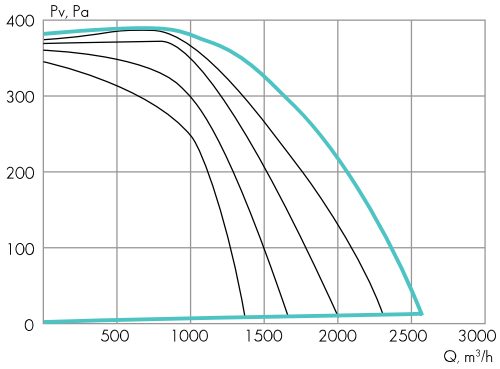
C-PKV-50-30-4-220, C-PKV-S-50-30-4-220



C-PKV	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	73	65	73	68	64	67	68	66	62
Output	dB(A)	80	60	69	68	71	76	73	72	66
Surrounding	dB(A)	64	38	54	62	58	61	55	51	47

C-PKV-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	65	53	50	52	55	59	58	58	56
Output	dB(A)	80	60	69	68	71	76	73	72	66
Surrounding	dB(A)	48	34	33	37	43	44	39	39	35

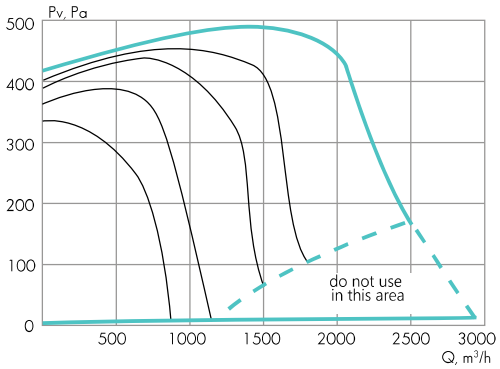
C-PKV-50-30-4-380, C-PKV-S-50-30-4-380



C-PKV	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	73	65	71	65	63	66	67	66	62
Output	dB(A)	79	63	70	68	70	74	72	71	66
Surrounding	dB(A)	64	38	54	62	58	61	55	51	47

C-PKV-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	70	45	55	54	60	65	63	62	63
Output	dB(A)	79	63	70	68	70	74	72	71	66
Surrounding	dB(A)	51	26	35	40	44	48	43	42	41

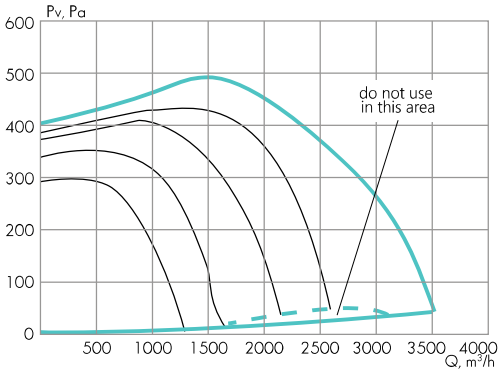
C-PKV-60-30-4-220, C-PKV-S-60-30-4-220



C-PKV	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	77	68	79	71	66	70	71	68	69
Output	dB(A)	83	63	79	71	73	79	76	74	67
Surrounding	dB(A)	66	40	62	66	60	63	57	51	48

C-PKV-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	70	67	59	54	61	66	64	61	59
Output	dB(A)	83	63	79	71	73	79	76	74	67
Surrounding	dB(A)	52	44	37	41	44	48	44	41	40

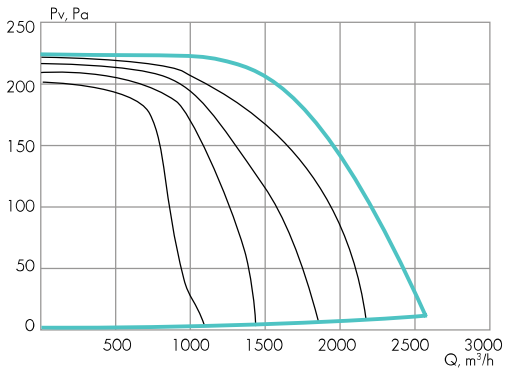
C-PKV-60-30-4-380, C-PKV-S-60-30-4-380



C-PKV	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	76	70	72	68	66	70	71	67	63
Output	dB(A)	80	59	70	68	73	76	73	73	68
Surrounding	dB(A)	62	40	55	60	60	57	54	52	47

C-PKV-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	75	52	64	58	65	70	69	66	64
Output	dB(A)	80	59	70	68	73	76	73	73	68
Surrounding	dB(A)	56	33	42	42	46	53	48	45	45

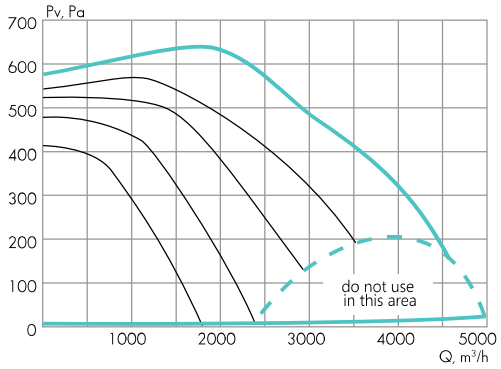
C-PKV-60-30-6-380, C-PKV-S-60-30-6-380



C-PKV	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	75	52	64	58	65	70	69	66	64
Output	dB(A)	67	55	64	59	62	62	60	59	52
Surrounding	dB(A)	56	33	42	42	46	53	48	45	45

C-PKV-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	63	59	62	57	56	58	56	54	46
Output	dB(A)	67	55	64	59	62	62	60	59	52
Surrounding	dB(A)	51	37	51	52	48	46	42	40	36

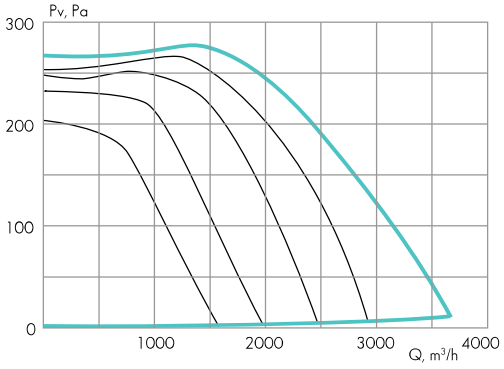
C-PKV-60-35-4-380, C-PKV-S-60-35-4-380



C-PKV	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	78	72	77	68	69	73	72	69	65
Output	dB(A)	83	67	74	73	76	79	77	75	70
Surrounding	dB(A)	64	49	62	62	60	60	55	52	48

C-PKV-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	76	56	61	59	64	72	69	67	66
Output	dB(A)	83	67	74	73	76	79	77	75	70
Surrounding	dB(A)	56	36	41	40	47	53	48	48	47

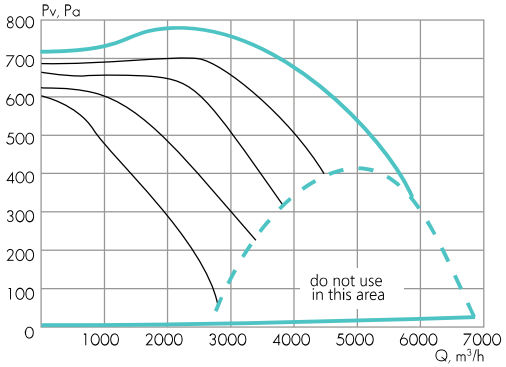
C-PKV-60-35-6-380, C-PKV-S-60-35-6-380



C-PKV	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	76	56	61	59	64	72	69	67	66
Output	dB(A)	72	58	65	63	68	67	65	64	57
Surrounding	dB(A)	56	36	41	40	47	53	48	48	47

C-PKV-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	66	64	67	58	60	61	60	58	54
Output	dB(A)	72	58	65	63	68	67	65	64	57
Surrounding	dB(A)	55	43	52	56	53	50	46	45	40

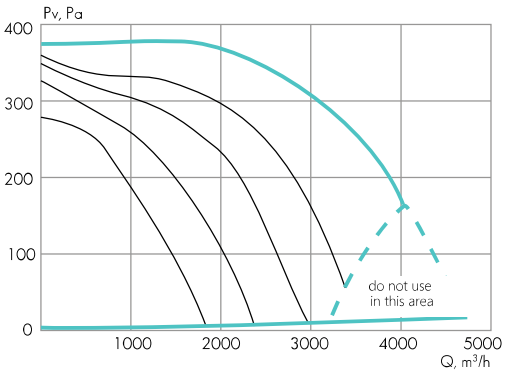
C-PKV-70-40-4-380, C-PKV-S-70-40-4-380



C-PKV	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	80	79	78	70	70	75	74	71	68
Output	dB(A)	85	73	76	75	79	81	79	77	72
Surrounding	dB(A)	72	56	65	67	65	68	63	63	59

C-PKV-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	79	60	60	66	68	76	73	69	68
Output	dB(A)	85	73	76	75	79	81	79	77	72
Surrounding	dB(A)	62	41	41	49	55	58	54	52	51

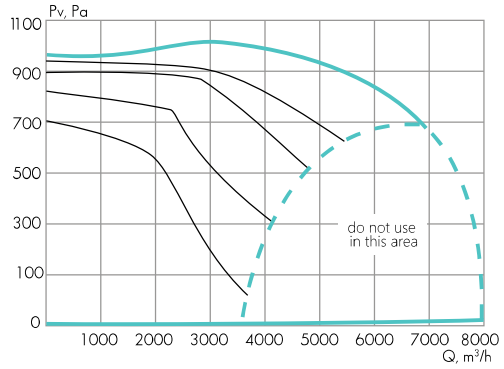
C-PKV-70-40-6-380, C-PKV-S-70-40-6-380



C-PKV	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	69	67	66	60	63	65	63	61	55
Output	dB(A)	75	64	67	65	70	70	68	67	60
Surrounding	dB(A)	60	49	57	57	59	55	50	46	41

C-PKV-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	64	57	62	62	62	57	58	55	49
Output	dB(A)	75	64	67	65	70	70	68	67	60
Surrounding	dB(A)	55	39	46	51	52	50	48	44	39

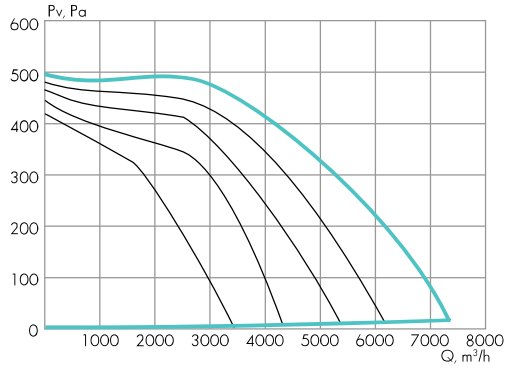
C-PKV-80-50-4-380, C-PKV-S-80-50-4-380



C-PKV	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	81	72	75	75	71	76	75	71	67
Output	dB(A)	90	71	78	77	82	86	84	81	75
Surrounding	dB(A)	72	57	68	69	67	69	64	60	58

C-PKV-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	82	64	65	64	69	80	74	71	71
Output	dB(A)	90	71	78	77	82	86	84	81	75
Surrounding	dB(A)	65	47	48	50	56	63	56	53	53

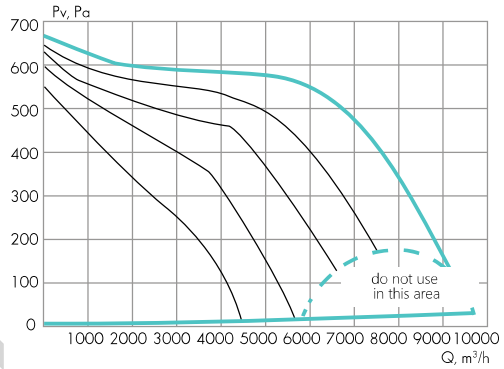
C-PKV-80-50-6-380, C-PKV-S-80-50-6-380



C-PKV	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	76	65	68	65	69	72	71	67	61
Output	dB(A)	81	63	68	69	77	76	75	72	66
Surrounding	dB(A)	64	49	57	60	62	60	55	51	50

C-PKV-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	71	63	69	66	67	65	65	61	58
Output	dB(A)	81	63	68	69	77	76	75	72	66
Surrounding	dB(A)	60	43	56	55	59	54	52	46	46

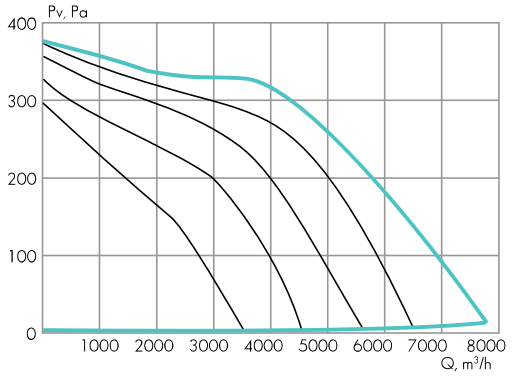
C-PKV-90-50-6-380, C-PKV-S-90-50-6-380



C-PKV	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	84	76	77	79	78	82	77	69	61
Output	dB(A)	90	73	78	84	85	87	82	75	66
Surrounding	dB(A)	75	58	59	60	74	72	64	54	47

C-PKV-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	75	68	73	71	72	70	68	62	59
Output	dB(A)	90	73	78	84	85	87	82	75	66
Surrounding	dB(A)	67	53	62	61	61	63	61	56	54

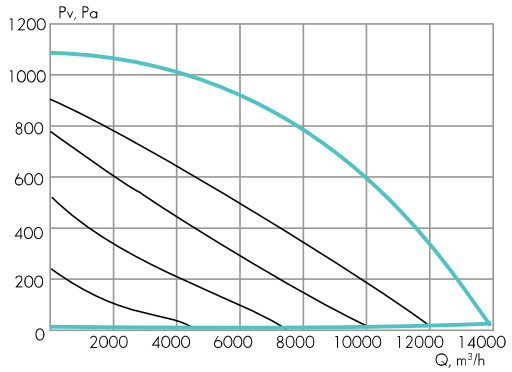
C-PKV-90-50-8-380, C-PKV-S-90-50-8-380



C-PKV	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	76	75	84	75	68	71	69	67	62
Output	dB(A)	81	76	88	78	77	75	73	72	63
Surrounding	dB(A)	58	66	69	58	52	51	49	47	45

C-PKV-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	74	73	85	76	66	64	63	61	58
Output	dB(A)	81	76	88	78	77	75	73	72	63
Surrounding	dB(A)	57	55	61	57	49	51	49	47	45

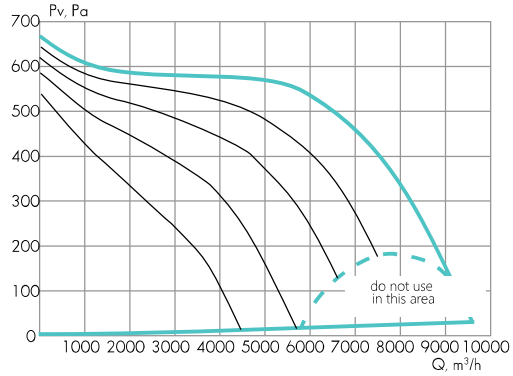
C-PKV-100-50-4-380



C-PKV	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	81	76	90	82	77	76	70	67	65
Output	dB(A)	86	83	91	87	83	81	74	70	67
Surrounding	dB(A)	71	75	81	70	64	64	62	61	58

NOTE:
C-PKV-100-50-4-380 —
it is not available in a soundproof casing

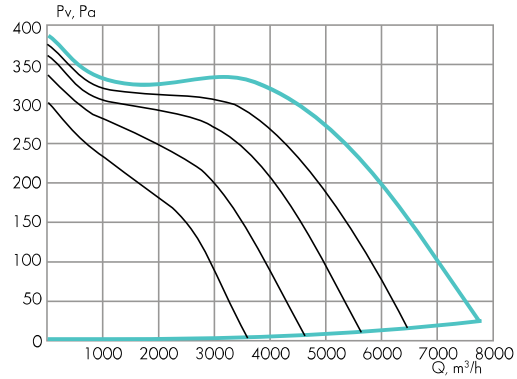
C-PKV-100-50-6-380, C-PKV-S-100-50-6-380



C-PKV	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	84	76	77	79	78	82	77	69	61
Output	dB(A)	90	73	78	84	85	87	82	75	66
Surrounding	dB(A)	75	58	59	60	74	72	64	54	47

C-PKV-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	75	68	73	71	72	70	68	62	59
Output	dB(A)	90	73	78	84	85	87	82	75	66
Surrounding	dB(A)	67	53	62	61	61	63	61	56	54

C-PKV-100-50-8-380, C-PKV-S-100-50-8-380



C-PKV	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	76	75	84	75	68	71	69	67	62
Output	dB(A)	81	76	88	78	77	75	73	72	63
Surrounding	dB(A)	58	66	69	58	52	51	49	47	45

C-PKV-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	74	73	85	76	66	64	63	61	58
Output	dB(A)	81	76	88	78	77	75	73	72	63
Surrounding	dB(A)	55	60	63	52	49	47	47	45	43

DUCT UNITS

RECTANGULAR DUCT FAN

C-PKV-BC-RC



- for compact stationary systems of supply and exhaust ventilation, air conditioning of industrial, public and residential buildings;
- provide ease of installation and maintenance in confined spaces;
- universally combined with other elements of ducted ventilation systems;
- for the movement of air with a permissible content of dust and other solid impurities, which should not exceed 0.1 g/m3;
- presence of sticky, fibrous and abrasive components, as well as explosive impurities is not allowed.
- Temperature range of the moved medium:
  - for 50-30(-RC), 60-30(-RC) from -25° C to +50° C;
  - for 60-35(-RC), 70-40(-RC), 80-50(-RC), 90-50(-RC) from -40° C to +55° C.
- ingress protection rating IP44.

The fan CASING made of galvanized steel provides reliable corrosion protection. Upon special request, the outer surface of the casing can be powder coated. A cover for direct access to the impeller and motor during fan installation or maintenance is provided for all C-PKV-BC-RC sizes.

The fan is equipped with rotor motors from such manufacturers as Ziehl-Abegg and EBM-papst.

The IMPELLERS of duct fans with backward-curved blades are made of a special polymer and undergo careful static and dynamic balancing.

C-PKV-BC, unlike the standard C-PKV series fans (with forward-curved blades), has a higher efficiency, providing energy savings. In addition, the C-PKV-BC-RC fan creates less noise during operation, ensuring a "quieter" operation of the system.

Single-or three-phase asynchronous ELECTRIC MOTORS with a compact external rotor. The location of the fan impeller inside the air flow ensures efficient cooling of the motor with incoming air, increasing the service life by reducing the thermal and mechanical load on the bearings.

Standard equipment of duct fan motors with thermal contact relays provides comprehensive thermal protection.

C-PKV-BC-50-30-4-220-RC

- rectangular duct fan
- with backward-curved blades
- standard size (for rectangular connection section BxH)
- number of electric motor poles
- electric motor supply voltage, 220V or 380V
- new series

NOTE:
For use with a round duct, an adapter C-P can be ordered separately

sound insulation


C-GKP


C-GKD

filtration/decontamination


C-FKP


C-STR

adjustment


C-REG


C-KOL


C-GMK-C


C-GMK-P

heat exchange


C-VKO


C-FKO


C-EVN


C-KVN

energy saving


C-PKT

ancillaries


C-P


C-GKV

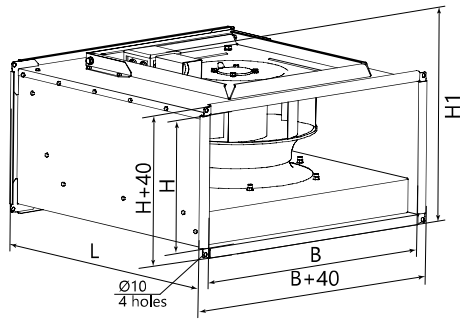

C-RKA


C-RKO

control


C-SAU

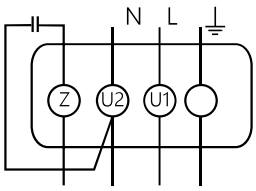

UWS



STANDARD SIZE	Dimensions, mm				Power consumption up to..., kW	Max current consumption, A	Motor speed, min^{-1}	Weight, kg, max	Connection diagram
	B	H	H1	L					
C-PKV-BC-50-30-2-220-RC	500	300	375	562	0,25	1,1	2750	23	A1
C-PKV-BC-50-30-4-220-RC	500	300	375	562	0,137	0,62	1325	22	A1
C-PKV-BC-60-30-2-380-RC	600	300	375	643	0,57	0,91	2500	27	D1
C-PKV-BC-60-30-4-220-RC	600	300	375	643	0,27	1,18	1330	28	A1
C-PKV-BC-60-35-4-220-RC	600	350	425	717	0,47	2,33	1340	29	A2
C-PKV-BC-70-40-4-380-RC	700	400	475	787	0,71	1,45	1350	48	D1
C-PKV-BC-80-50-4-380-RC	800	500	575	880	1,52	2,91	1370	65	D1
C-PKV-BC-90-50-4-380-RC	900	500	575	880	1,95	3,98	1390	70	D1

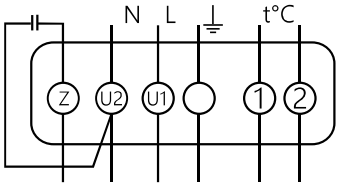
A1

220 V 1~



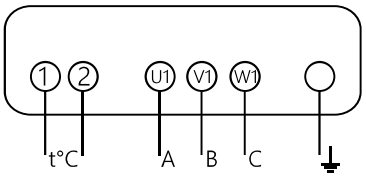
A2

220 V 1~



D1

~3 Ph 380 V 50 Hz



DUCT UNITS

RECTANGULAR DUCT FAN WITH BACKWARD-CURVED BLADES IN A SOUNDPROOF CASING

C-PKV-BC-S-RC

- it is used in premises with increased noise level requirements and is manufactured in a soundproof casing;
- provides ease of installation and maintenance in confined spaces;
- universally combined with other elements of ducted ventilation systems;
- for the movement of air with a permissible content of dust and other solid impurities, which should not exceed 0.1 g/m^3;
- presence of sticky, fibrous and abrasive components, as well as explosive impurities is not allowed.
- temperature range of the moved medium varies from -30° C to +40° C.
- ingress protection rating IP44.

The fan CASING made of galvanized steel provides reliable corrosion protection. All C-PKV-BC-S standard sizes have a cover for servicing the impeller and motor during installation or maintenance of the fan.

The soundproof casing distinguishes the C-PKV-BC-S-RC from the standard series. The casing is made of galvanized steel and is a box-shaped structure. The space between the walls of the sound-insulated casing is filled with non-flammable mineral wool, which is characterized by high soundproofing properties.

The IMPELLERS of duct fans with backward-curved blades are made of a special polymer and undergo careful static and dynamic balancing.

C-PKV-BC-S-RC, unlike the standard series fans with forward-curved blades, have higher efficiency, providing energy savings. In addition, C-PKV-BC-S-RC fans create less noise during operation, ensuring a "quieter" operation of the system.

Single-or three-phase asynchronous electric motors with an external rotor are characterized by low power consumption and a significant service life.

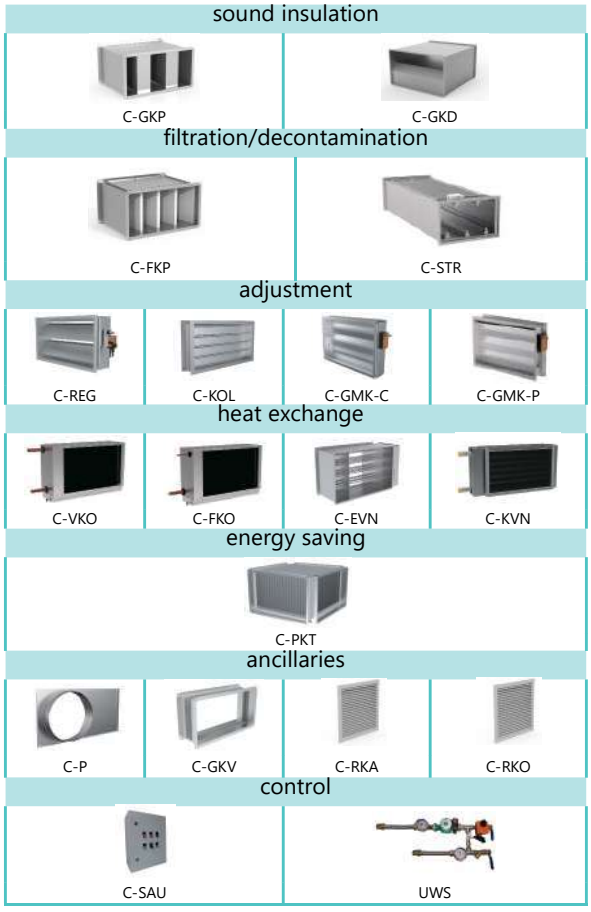
Precise balancing is achieved by combining the rotating elements of the fan, impeller and electric motor.

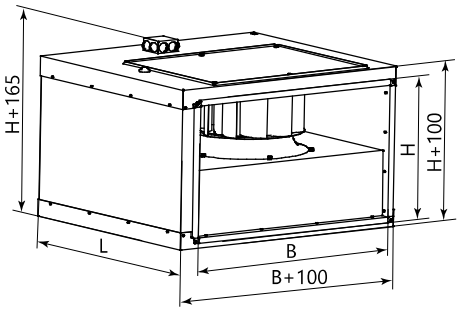


C-PKV-BC-S-40-20-4-220-RC

- rectangular duct fan with backward-curved blades
- in a soundproof casing
- standard size (for rectangular connection section BxH)
- number of electric motor poles
- electric motor supply voltage, 220 V or 380 V
- new series

NOTE:
For use with a round duct, an adapter C-P can be ordered separately

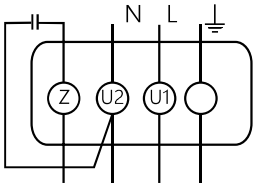




STANDARD SIZE	Dimensions, mm			Power consumption up to..., kW	Max current consumption, A	Motor speed, min^{-1}	Weight, kg, max	Connection diagram
	B	H	L					
C-PKV-BC-S-50-30-2-220-RC	500	300	562	0,25	1,1	2750	30	A1
C-PKV-BC-S-50-30-4-220-RC	500	300	562	0,137	0,62	1325	30	A1
C-PKV-BC-S-60-30-2-380-RC	600	300	643	0,57	0,91	2500	37	D1
C-PKV-BC-S-60-30-4-220-RC	600	300	643	0,27	1,18	1330	38	A1
C-PKV-BC-S-60-35-4-220-RC	600	350	717	0,47	2,33	1340	40	A2
C-PKV-BC-S-70-40-4-380-RC	700	400	787	0,71	1,45	1350	63	D1
C-PKV-BC-S-80-50-4-380-RC	800	500	880	1,52	2,91	1370	89	D1
C-PKV-BC-S-90-50-4-380-RC	900	500	880	1,95	3,98	1390	99	D1

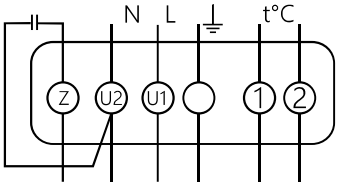
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220 V 1~



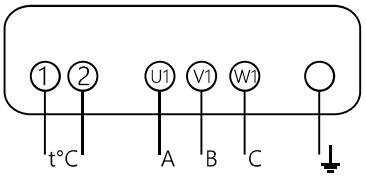
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220 V 1~

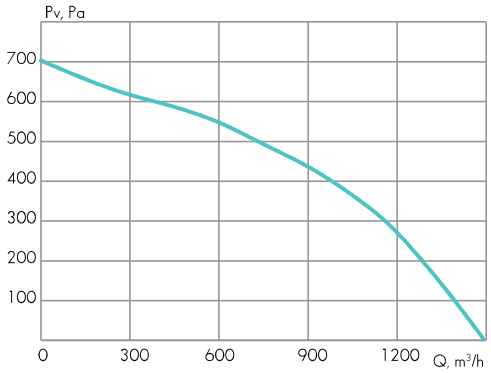


D1

~3 Ph 380 V 50 Hz



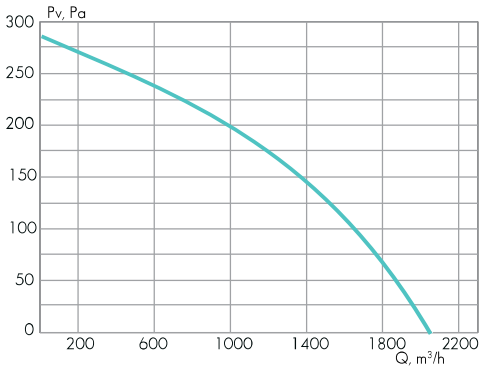
C-PKV-BC-50-30-2-RC, C-PKV-BC-S-50-30-2-RC



C-PKV-BC	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	69	66	64	64	63	65	61	59	55
Output	dB(A)	74	71	69	69	68	70	66	64	60
Surrounding	dB(A)	60	57	56	55	54	56	53	51	47

C-PKV-BC-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	60	54	41	48	54	57	51	51	49
Output	dB(A)	74	71	69	69	68	70	66	64	60
Surrounding	dB(A)	43	53	35	30	39	39	37	39	35

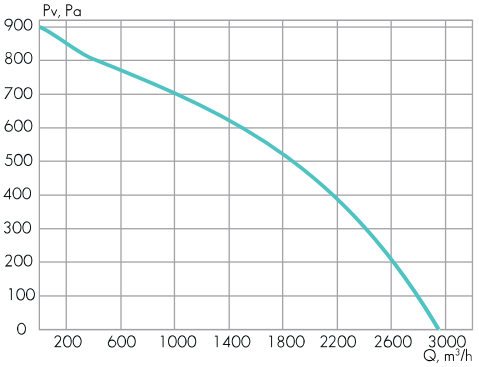
C-PKV-BC-50-30-4-RC, C-PKV-BC-S-50-30-4-RC



C-PKV-BC	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	54	52	61	54	52	48	44	39	37
Output	dB(A)	59	57	66	59	57	53	49	44	40
Surrounding	dB(A)	50	48	56	50	49	44	41	36	34

C-PKV-BC-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	45	40	38	38	43	40	34	31	31
Output	dB(A)	59	57	66	59	57	53	49	44	40
Surrounding	dB(A)	33	44	35	25	34	27	25	24	22

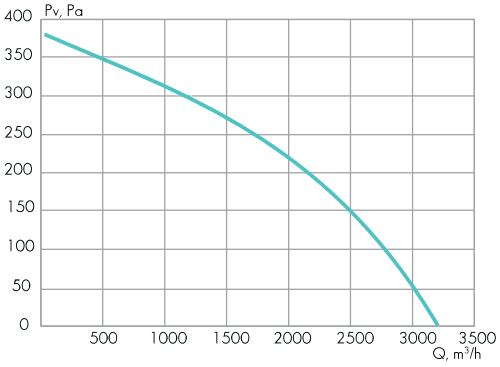
C-PKV-BC-60-30-2-RC, C-PKV-BC-S-60-30-2-RC



C-PKV-BC	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	71	67	69	72	68	66	61	57	54
Output	dB(A)	76	72	74	77	73	71	66	62	59
Surrounding	dB(A)	61	57	59	61	58	56	52	49	46

C-PKV-BC-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	66	66	49	55	63	62	54	50	44
Output	dB(A)	76	72	74	77	73	71	66	62	59
Surrounding	dB(A)	44	57	41	32	39	37	43	42	39

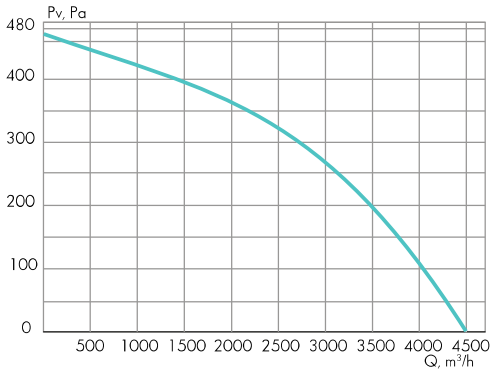
C-PKV-BC-60-30-4-RC, C-PKV-BC-S-60-30-4-RC



C-PKV-BC	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	59	58	63	57	59	53	49	46	39
Output	dB(A)	64	63	68	62	64	58	54	51	44
Surrounding	dB(A)	54	52	57	52	53	48	45	42	35

C-PKV-BC-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	54	57	43	40	54	49	42	39	29
Output	dB(A)	64	63	68	62	64	58	54	51	44
Surrounding	dB(A)	37	52	39	23	34	29	36	35	28

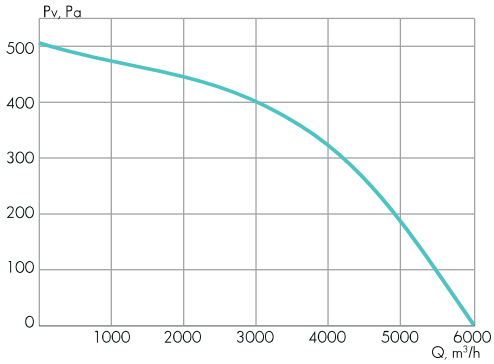
C-PKV-BC-60-35-4-RC, C-PKV-BC-S-60-35-4-RC



C-PKV-BC	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	65	69	71	64	63	58	54	50	52
Output	dB(A)	70	74	76	69	69	63	59	55	57
Surrounding	dB(A)	58	61	63	57	57	52	48	44	46

C-PKV-BC-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	63	53	55	55	58	57	51	48	52
Output	dB(A)	70	74	76	69	69	63	59	55	57
Surrounding	dB(A)	49	48	42	35	44	45	41	40	45

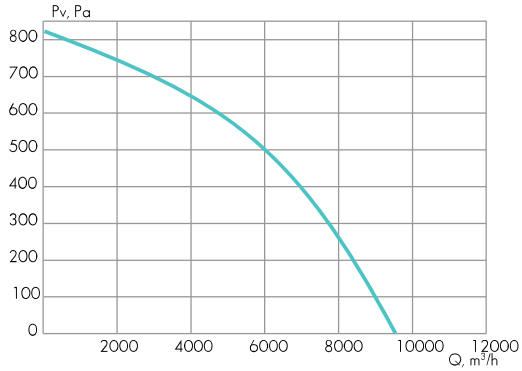
C-PKV-BC-70-40-4-RC, C-PKV-BC-S-70-40-4-RC



C-PKV-BC	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	69	65	68	69	67	63	61	54	46
Output	dB(A)	75	67	70	71	70	72	67	60	53
Surrounding	dB(A)	55	51	54	54	52	49	48	42	36

C-PKV-BC-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	68	46	50	65	65	63	60	52	46
Output	dB(A)	75	67	70	71	70	72	67	60	53
Surrounding	dB(A)	44	36	30	36	42	39	39	31	28

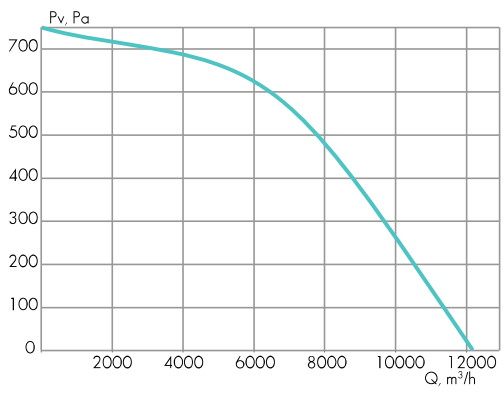
C-PKV-BC-80-50-4-RC, C-PKV-BC-S-80-50-4-RC



C-PKV-BC	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	70	64	70	68	67	66	52	58	54
Output	dB(A)	76	69	71	70	72	73	66	61	57
Surrounding	dB(A)	59	52	57	56	55	54	52	48	45

C-PKV-BC-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	68	56	60	57	65	62	51	58	50
Output	dB(A)	76	69	71	70	72	73	66	61	57
Surrounding	dB(A)	50	42	37	37	44	48	44	40	40

C-PKV-BC-90-50-4-RC, C-PKV-BC-S-90-50-4-RC



C-PKV-BC	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	76	71	74	76	74	69	69	63	60
Output	dB(A)	81	73	75	74	75	77	74	67	63
Surrounding	dB(A)	62	57	59	61	59	56	55	50	48

C-PKV-BC-S	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	67	63	70	68	68	57	60	56	58
Output	dB(A)	81	73	75	74	75	77	74	67	63
Surrounding	dB(A)	54	52	56	60	46	47	52	50	48

DUCT UNITS

RECTANGULAR DUCT EXPLOSION-PROOF FAN C-PKV-V

- it is used for premises with high requirements for explosion protection;
- provides ease of installation and maintenance in confined spaces;
- universally combined with other elements of ducted ventilation systems;
- for the movement of air with a permissible content of dust and other solid impurities, which should not exceed 0.1 g/m³;
- presence of sticky, fibrous and abrasive components is not allowed.
- temperature range of the moved medium varies from -20° C to +40° C.
- designed for moving gas- and steam-air explosive mixtures of Category 2 according to GOST 12.1.011.78.
- ingress protection rating IP44.



The fan CASING made of galvanized steel provides reliable corrosion protection. Upon special request, the outer surface of the casing can be powder coated. A cover for direct access to the impeller and motor during fan installation or maintenance is provided for all C-PKV-V sizes.

Upon special request, the C-PKV-V fan can be manufactured in a sound-insulated box casing (the price and delivery time are calculated individually).

The IMPELLERS of duct fans with forward-curved blades are made of galvanized steel and undergo careful static and dynamic balancing.

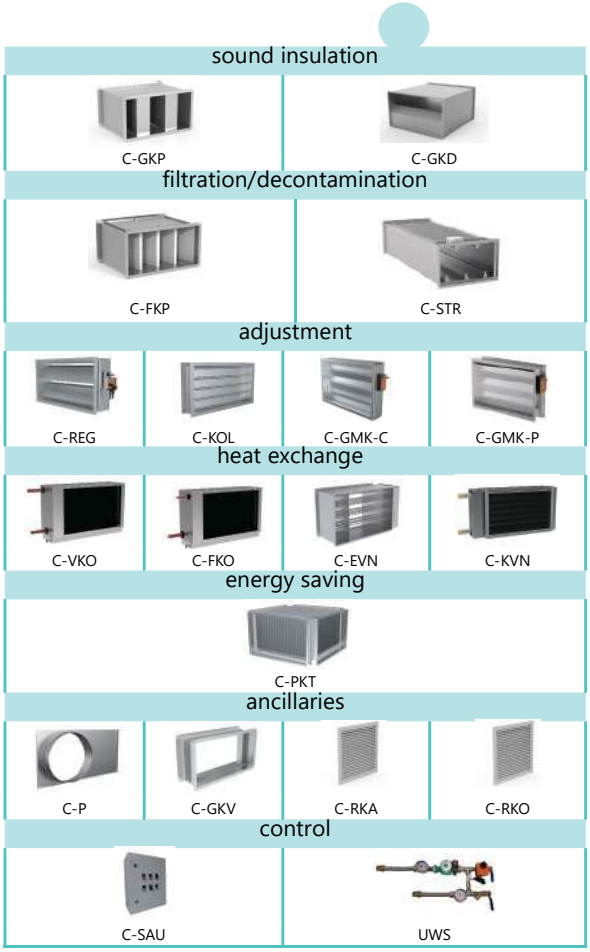
EXPLOSION-PROOF THREE-PHASE ASYNCHRONOUS ELECTRIC MOTOR with an external rotor, characterized by low power consumption and a significant service life. Compact dimensions and special design increase the service life by reducing the thermal and mechanical load on the bearings.

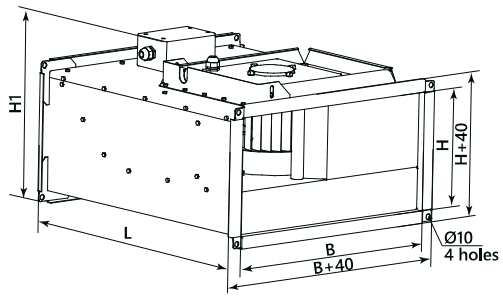
Precise balancing is achieved by combining the rotating elements of the fan, impeller and electric motor. Ensures the operation of the fan for moving the gas- and steam-air explosive mixtures according to GOST 12.1.011-78.

C-PKV-V-50-30-4-380

- rectangular duct fan
- explosion-proof
- standard size (for rectangular connection section BxH)
- number of electric motor poles
- electric motor supply voltage, 380 V

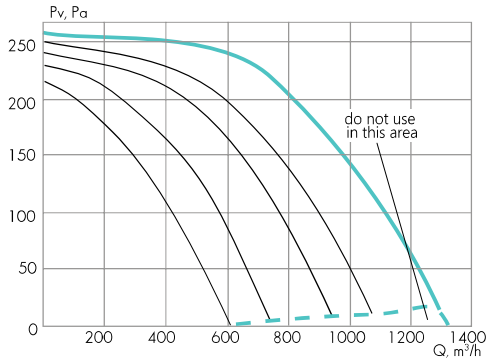
NOTE:
For use with a round duct, an adapter C-P can be ordered separately





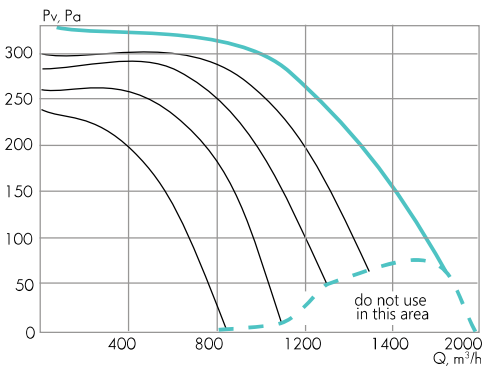
STANDARD SIZE	Dimensions, mm				Power consumption up to..., kW	Max current consumption, A	Motor speed, min^{-1}	Weight, kg, max
	B	H	H1	L				
C-PKV-V-40-20-4-380	400	200	265	502	0,281	0,5	1400	14
C-PKV-V-50-25-4-380	500	250	315	532	0,545	0,93	1430	18
C-PKV-V-50-30-4-380	500	300	351	562	0,9	1,8	1440	22,3
C-PKV-V-60-30-4-380	600	300	365	642	1,3	2,32	1440	23,5
C-PKV-V-60-35-4-380	600	350	420	717	2,044	3,9	1440	42,5
C-PKV-V-70-40-6-380	700	400	465	787	1,1	2	900	50
C-PKV-V-80-50-6-380	800	500	580	880	1,95	3,7	930	74

C-PKV-V-40-20-4-380



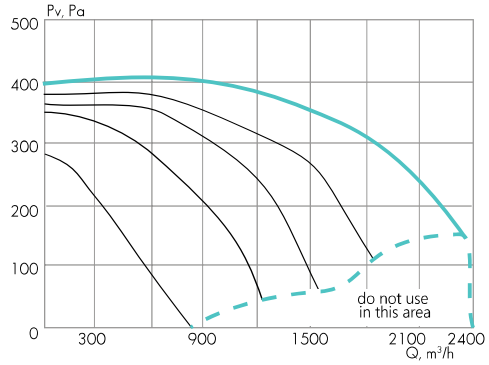
C-PKV-V	Hz	Total	125	250	500	1k	2k	4k	8k
Input	dB(A)	67	55	58	56	62	61	59	49
Output	dB(A)	73	51	59	64	69	67	65	56
Surrounding	dB(A)	61	48	52	54	56	54	49	42

C-PKV-V-50-25-4-380



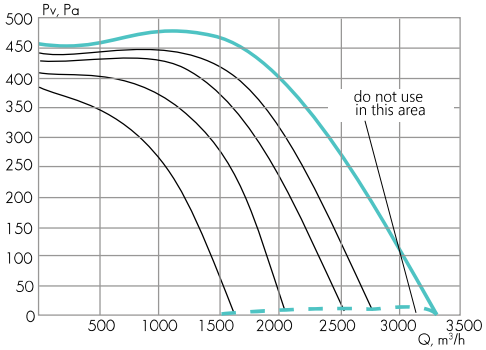
C-PKV-V	Hz	Total	125	250	500	1k	2k	4k	8k
Input	dB(A)	67	55	58	56	62	61	59	49
Output	dB(A)	73	51	59	64	69	67	65	56
Surrounding	dB(A)	61	48	52	54	56	54	49	42

C-PKV-V-50-30-4-380



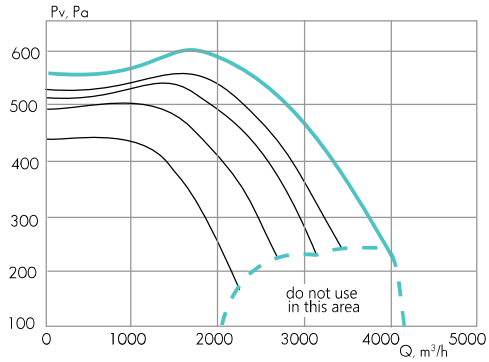
C-PKV-V	Hz	Total	125	250	500	1k	2k	4k	8k
Input	dB(A)	67	55	58	56	62	61	59	49
Output	dB(A)	73	51	59	64	69	67	65	56
Surrounding	dB(A)	61	48	52	54	56	54	49	42

C-PKV-V-60-30-4-380



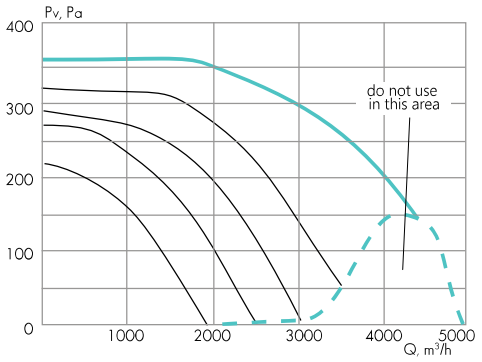
C-PKV-V	Hz	Total	125	250	500	1k	2k	4k	8k
Input	dB(A)	67	55	58	56	62	61	59	49
Output	dB(A)	73	51	59	64	69	67	65	56
Surrounding	dB(A)	61	48	52	54	56	54	49	42

C-PKV-V-60-35-4-380



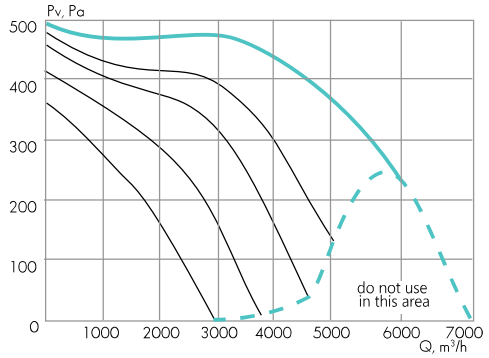
C-PKV-V	Hz	Total	125	250	500	1k	2k	4k	8k
Input	dB(A)	80	69	69	69	75	74	72	67
Output	dB(A)	86	67	71	78	82	80	78	69
Surrounding	dB(A)	71	62	61	66	65	63	59	49

C-PKV-V-70-40-6-380



C-PKV-V	Hz	Total	125	250	500	1k	2k	4k	8k
Input	dB(A)	75	65	63	66	70	68	67	56
Output	dB(A)	81	66	66	75	76	75	73	63
Surrounding	dB(A)	66	56	56	60	62	56	55	40

C-PKV-V-80-50-6-380



C-PKV-V	Hz	Total	125	250	500	1k	2k	4k	8k
Input	dB(A)	75	69	64	67	68	68	64	54
Output	dB(A)	80	65	70	74	74	74	71	61
Surrounding	dB(A)	67	60	59	62	60	57	52	40

DUCT UNITS

C-PKV-EC-RC

RECTANGULAR DUCT FAN WITH EC MOTOR



- for stationary ventilation and air conditioning systems of industrial, public and residential buildings;
- significantly reduces system power consumption;
- provides increased system performance while maintaining a compact size;
- it has additional options for adjusting parameters and automating work;
- provides easy maintenance and installation in confined spaces;
- for air with a permissible content of dust and solid impurities not exceeding 0.1 g/m^3.
- presence of sticky, fibrous and abrasive components, explosive impurities is not allowed.
- temperature range of the moved medium varies from -30° C to +40° C.
- ingress protection rating IP54.

C-PKV-EC-50-30-4-220-RC

- rectangular duct fan
- with EC motor
- standard size (for rectangular connection section BxH)
- number of electric motor poles
- electric motor supply voltage, 220 V or 380 V
- new series

NOTE:
For use with a round duct, an adapter C-P can be ordered separately

sound insulation


C-GKP


C-GKD

filtration/decontamination


C-FKP


C-STR

adjustment


C-REG


C-KOL


C-GMK-C


C-GMK-P

heat exchange


C-VKO


C-FKO


C-EVN


C-KVN

energy saving


C-PKT

ancillaries


C-P


C-GKV


C-RKA


C-RKO

control


C-SAU


UWS

The fan CASING made of galvanized steel is reliably protected from corrosion. The C-PKV-EC-RC casing for all sizes is equipped with a service cover for direct access to the impeller and motor during installation or maintenance.

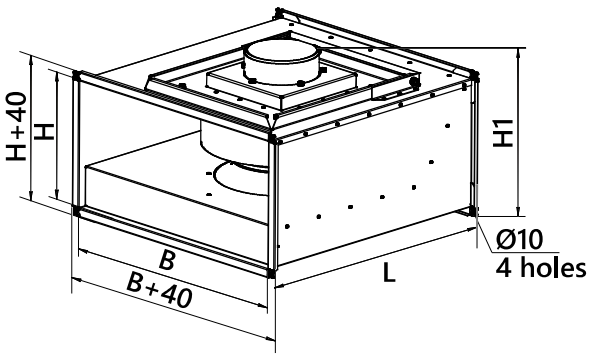
Fan IMPELLERS with backward-curved blades undergo careful static and dynamic balancing.

EC motors (electronically commutated motors) are external rotor DC motors with permanent magnets that support the control function.

The PRINCIPLE OF OPERATION OF THE EC MOTOR. Permanent magnets embedded in the rotor create a force field. Controlling the direction of current in the stator winding allows changing the magnetic field vector. A built-in switching controller creates the maximum shaft torque by applying voltage to the motor phase terminals. The controller calculates and sends a current polarity signal to the stator winding, ensuring continuous rotation of the rotor at a given speed. The built-in switching module allows connecting the electronically commutated DC motor to an AC source (220 V, 380 V).

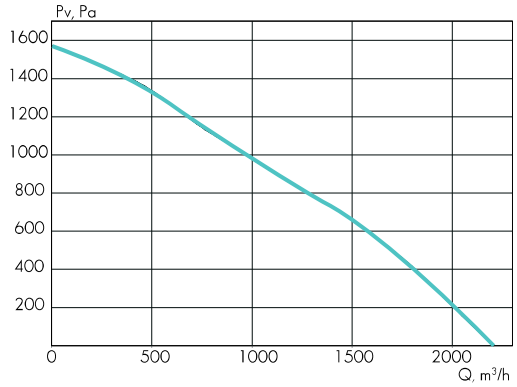
The EC controller allows controlling the operation of the fan using a signal from external devices in the room (temperature, pressure, humidity level and CO2 sensors).

The C-PKV-EC-RC fan remains operational regardless of its spatial orientation.



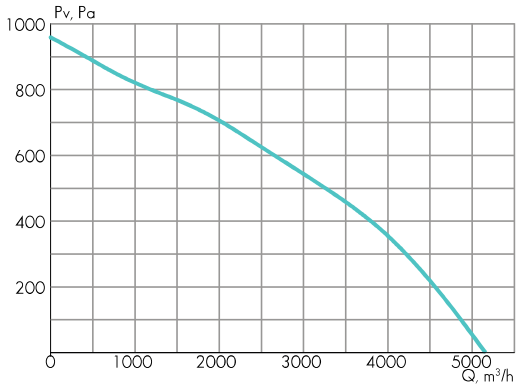
STANDARD SIZE	Dimensions, mm				Power consumption up to..., kW	Max current consumption, A	Motor speed, min^{-1}	Weight, kg, max	Connection diagram
	B	H	H1	L					
C-PKV-EC-50-30-2-220-RC	500	300	420	562	0,5	2,2	3740	23	EC-1
C-PKV-EC-60-30-2-220-RC	600	300	425	642	0,75	3,3	2100	27	EC-1
C-PKV-EC-60-30-4-220-RC	600	300	425	642	0,5	2,2	1850	28	EC-1
C-PKV-EC-60-35-2-380-RC	600	350	465	717	1,32	2,1	2000	29	EC-2
C-PKV-EC-60-35-4-220-RC	600	350	465	717	0,5	2,2	1500	29	EC-1
C-PKV-EC-70-40-6-220-RC	700	400	535	787	0,5	2,2	1260	50	EC-1
C-PKV-EC-70-40-4-380-RC	700	400	555	787	0,95	1,5	1550	51	EC-2
C-PKV-EC-80-50-6-380-RC	800	500	660	880	1,32	2,1	1320	60	EC-2
C-PKV-EC-80-50-4-380-RC	800	500	660	880	2,6	4	1700	65	EC-3
C-PKV-EC-100-50-4-380-RC	1000	500	660	980	2,9	6,6	1650	70	EC-3
C-PKV-EC-100-50-6-220-RC	1000	500	720	980	1,5	6,7	1340	73	EC-4

C-PKV-EC-50-30-2-220-RC



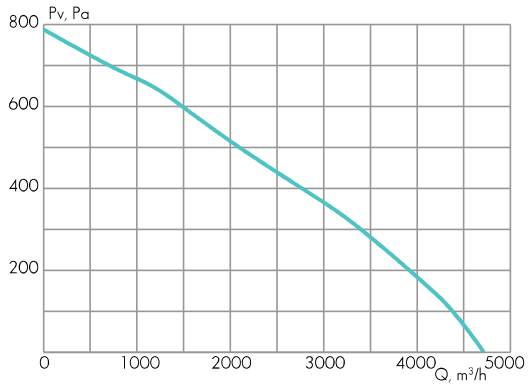
C-PKV-EC	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	76	72	73	73	71	71	69	66	62
Output	dB(A)	81	77	78	78	76	76	74	71	67
Surrounding	dB(A)	56	51	52	51	51	51	49	47	44

C-PKV-EC-60-30-2-220-RC



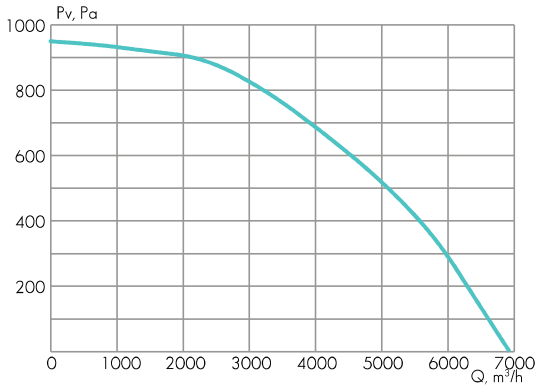
C-PKV-EC	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	72	65	68	73	71	65	63	60	53
Output	dB(A)	77	70	73	78	76	70	68	65	58
Surrounding	dB(A)	67	60	63	67	66	60	58	56	49

C-PKV-EC-60-30-4-220-RC



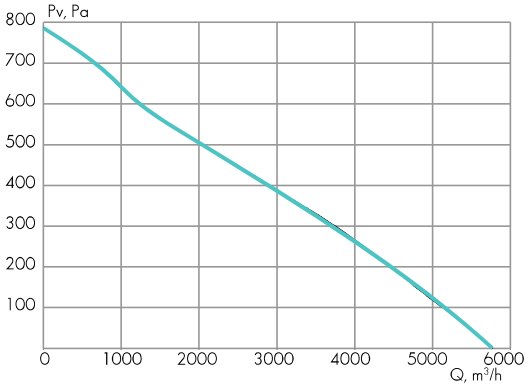
C-PKV-EC	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	68	64	73	69	66	60	59	56	48
Output	dB(A)	73	69	78	73	71	65	64	61	53
Surrounding	dB(A)	62	58	66	63	60	55	54	51	43

C-PKV-EC-60-35-2-380-RC



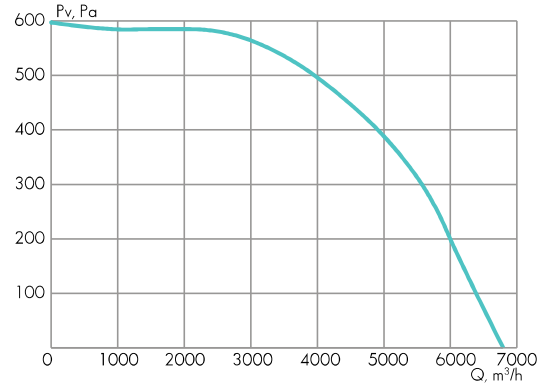
C-PKV-EC	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	73	66	65	72	72	66	65	60	60
Output	dB(A)	79	70	68	75	74	76	73	66	64
Surrounding	dB(A)	65	58	57	64	63	58	57	53	53

C-PKV-EC-60-35-4-220-RC



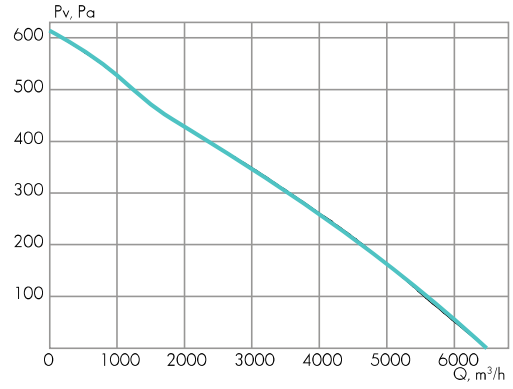
C-PKV-EC	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	65	70	70	64	64	59	56	50	52
Output	dB(A)	70	75	75	69	69	63	61	55	57
Surrounding	dB(A)	56	59	60	55	54	50	47	43	44

C-PKV-EC-70-40-4-380-RC



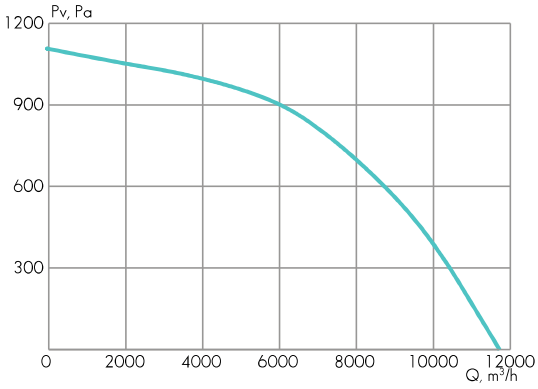
C-PKV-EC	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	72	64	71	70	68	65	66	60	52
Output	dB(A)	78	66	73	71	73	74	73	66	58
Surrounding	dB(A)	61	54	60	58	57	54	55	50	43

C-PKV-EC-70-40-6-220-RC



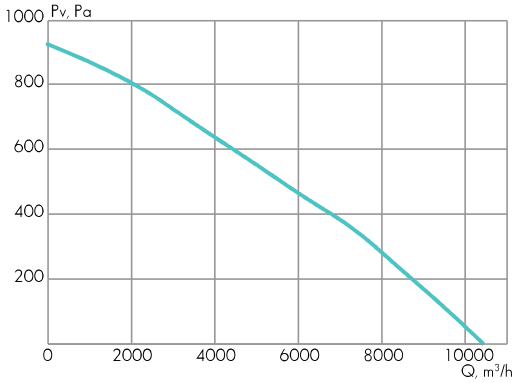
C-PKV-EC	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	66	60	66	65	63	58	59	53	60
Output	dB(A)	71	62	68	66	66	68	65	58	50
Surrounding	dB(A)	58	52	57	56	54	50	51	46	52

C-PKV-EC-80-50-4-380-RC



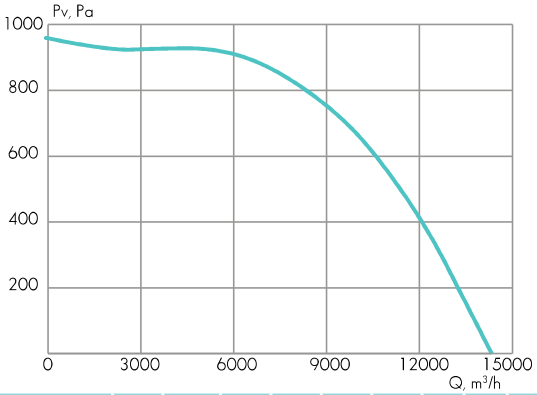
C-PKV-EC	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	82	67	74	74	77	70	77	58	42
Output	dB(A)	83	75	75	74	79	80	74	71	67
Surrounding	dB(A)	68	56	62	62	64	59	65	49	36

C-PKV-EC-80-50-6-380-RC



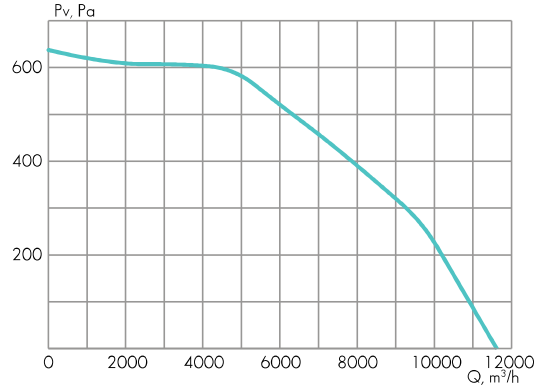
C-PKV-EC	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	69	68	68	67	66	63	62	59	54
Output	dB(A)	76	70	70	69	72	73	66	62	57
Surrounding	dB(A)	62	61	60	59	58	56	55	52	48

C-PKV-EC-100-50-4-380-RC

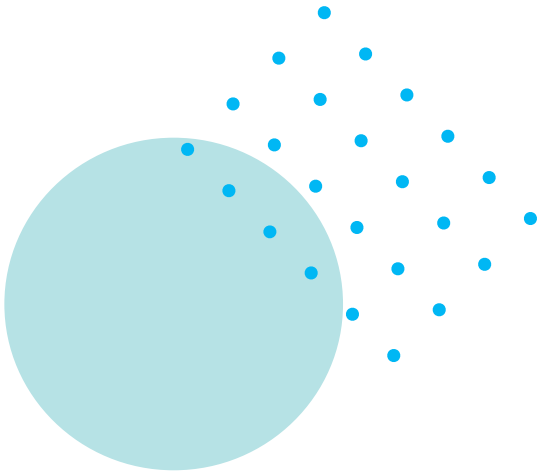


C-PKV-EC	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	75	64	72	73	72	69	67	64	64
Output	dB(A)	80	68	72	72	75	77	71	67	65
Surrounding	dB(A)	69	59	66	70	65	64	61	58	58

C-PKV-EC-100-50-6-220-RC

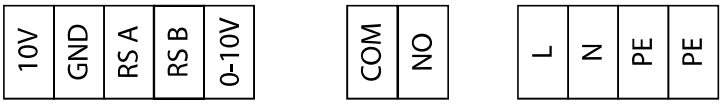


C-PKV-EC	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	72	73	75	72	69	68	62	59	57
Output	dB(A)	78	73	73	71	74	77	66	61	58
Surrounding	dB(A)	64	64	66	64	61	59	54	52	50



EC-1

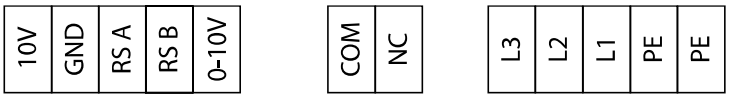
KL1



No.	Connec.	Model designation	Color	Function/purpose
1	1, 2	PE	green/yellow	Protective conductor
1	3	N	blue	Supply voltage, neutral conductor, 50/60 Hz
1	5	L	black	Supply voltage, phase conductor, 50/60 Hz
1	6	NC	white 1	Status relay; floating status contact with zero potential; open contact in case of error, contact load 250 V AC/2A (AC1) min. 10 mA, basic isolation relative to the network and enhanced isolation relative to the control interface
1	7	COM	white 2	Status relay; floating status contact with zero potential; common connection, contact load 250 VAC/2 A (AC1) min. 10 mA, basic isolation relative to the network and enhanced isolation relative to the control interface
2	8	0-10V	yellow	Analog input (setpoint); 0-10V; Ri = 100 kOhm; parametric curve
2	10	RSB	brown	RS485-interface for MODBUS, RSB
2	11	RSA	white	RS485-interface for MODBUS, RSA
2	12	GND	blue	Reference potential for the control interface, SELV
2	13	+10V	red	DC output 10 V+10 V +/-3%; max. 10 mA; with permanent short circuit protection; power supply of external devices (such as a potentiometer)

EC-2

KL1

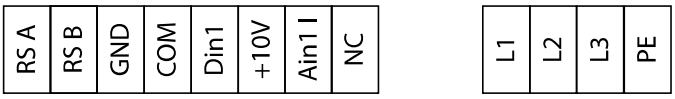


No.	Connec.	Model designation	Color	Function/purpose
1	1, 2	PE	green/yellow	Protective conductor
1	3	L1	black	Supply voltage
1	4	L2	black	Supply voltage
1	5	L3	black	Hanpyra Supply voltage
1	6	NC	white1	Status relay, floating status contact with zero potential, open contact in case of error, contact load 250 V AC/max. 2 A (AC1)/min. 10 mA, enhanced isolation relative to the network and basic isolation relative to the control interface
1	7	COM	white 2	Status relay, floating status contact with zero potential, open contact in case of error, contact load 250 V AC/max. 2 A (AC1)/min. 10 mA, enhanced isolation relative to the network and basic isolation relative to the control interface
2	8	0-10V	yellow	Analog input (setpoint); 0-10 V; Ri = 100 kOhm; parametric curve, SELV
2	10	RSB	brown	RS485 interface for MODBUS, RSB; SELV
2	11	RSA	white	RS485 interface for MODBUS, RSA; SELV
2	12	GND	blue	Grounding for the control interface, SELV
2	13	+10V	red	Output of direct voltage 10 V DC, +10V +/-3%, max. 10 mA, with constant short circuit protection, power supply of external devices (such as a potentiometer); SELV 24 V DC input, current for parameterization via MODBUS without mains voltage

EC-3

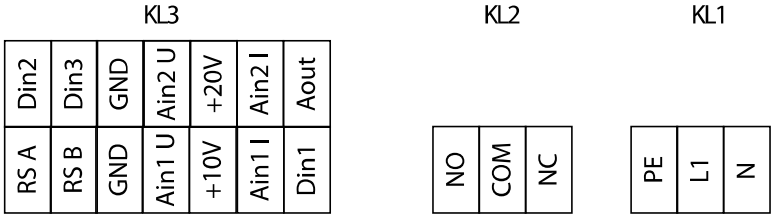
KL2

KL1



No.	Conn.	Model designation	Function/purpose
KL 1	1	L1	Mains connection, 3-phase supply voltage 380-480 V AC; 50/60 Hz
KL 1	2	L2	Mains connection, 3-phase supply voltage 380-480 V AC; 50/60 Hz
KL 1	3	L3	Mains connection, 3-phase supply voltage 380-480 V AC; 50/60 Hz
PE		PE	Ground terminal, earth-wire terminal (PE)
KL 2	1	RSA	Connection via RS485 bus; RSA; MODBUS RTU; SELV
KL 2	2	RSB	Connection via RS485 bus; RSB; MODBUS RTU; SELV
KL 2	3	GND	Grounding for the control interface; SELV
KL2	4	C	Status relay; floating status contact with zero potential; open contact in case of error; contact load 250 V AC/max. 2 A (AC1)/min. 10 mA
KL 2	5	Din1	Digital input 1, turning on the electronics, switching on: open contact or applied voltage 5-50 V DC Blocking: conductive bridge to the ground bus or applied voltage < 1V DC Reset function: start the reset function when the voltage level changes to < 1V; SELV
KL 2	6	+ 10 V	Output of direct voltage 10V DC, +10V +/-3%, max. 10 mA, with constant short circuit protection, power supply of external devices (such as a potentiometer); SELV Alternative: +24V DC, current for parameterization via MODBUS without mains voltage
KL 2	7	Ain1 U	Analog input 1 (setpoint) 0-10V; Ri = 100 kOhm; parameterized curve; SELV
KL2	8	NC	Status relay, volt-free signal contact of status messages; open in case of error

EC-4



No.	Conn.	Model designation	Function/purpose
KL1	1	L1	Mains connection, supply voltage, rated voltage range - see technical data
KL1	2	N	Mains connection, supply voltage, rated voltage range - see technical data
PE		PE	Ground terminal, protective earth connection
KL2	1	NO	Status relay; floating status contact with zero potential; closed in case of error
KL2	2	COM	Status relay; floating status contact with zero potential; changeover contact, common connection; contact load 250 V AC/max. 2 A (AC1)/min. 10 mA
KL2	3	NC	Status relay, floating status contact with zero potential; open in case of error
KL3	1	RSA	Connection via RS485 bus; RSA; MODBUS RTU; SELV
KL3	2	RSB	Connection via RS485 bus; RSB; MODBUS RTU; SELV
KL3	3	GND	Basic size for the control interface; SELV
KL3	4	Ain1 U	Analog input 1, setpoint: 0-10V, Ri = 100 kOhm, parameterized characteristic; use only as an alternative to the Ain1 I input; SELV
KL3	5	+ 10 V	DC output 10V DC, +10V +/-3%, max. 10 mA, permanent short circuit protection, power supply of external devices (such as a potentiometer), SELV
KL3	6	Ain1 I	Analog input 1, setpoint: 4-20 mA, Ri = 100 kOhm, parameterized characteristic; use only as an alternative to the Ain1 U input; SELV
KL3	7	Din1	Digital input 1: electronics activation, switching on: open contact or applied voltage 5-50 V DC blocking: conductive bridge to ground bus or applied voltage < 1V DC, reset function: start the reset function when the voltage level changes to < 1V DC; SELV
KL3	8	Din2	Digital input 2: switch the parameter set 1/2; after configuring the EEPROM, the valid or used parameter set can be selected either via the bus or via the DIN2 digital input. Parameter set 1: open contact or applied voltage 5-50 V DC, parameter set 2: conductive bridge to ground bus or applied voltage < 1V DC; SELV
KL3	9	Din3	Digital input 3: polarity of the built-in controller; according to the EEPROM settings the polarity of the built-in controller can be selected using the bus or digital input DIN3; direct open contact or applied voltage 5-50 V DC inverse: conductive bridge to the ground bus or applied voltage < 1V DC; SELV
KL3	10	GND	Grounding for the control interface, SELV
KL3	11	Ain2 U	Analog input 2, valid value: 0-10 V, Ri = 100 kOhm, parametric characteristic; use only as an alternative to input Ain2 I; SELV
KL3	12	+ 20 V	DC output 20V DC +20V + 25/-10%, max. 50 mA, permanent short circuit protection, power supply of external devices (such as sensors), SELV Alternatively: +24V DC, current for parameterization without mains voltage
KL3	13	Ain2 I	Analog input 2, valid value: 4-20 mA, Ri = 100 kOhm, parameterized characteristic; use only as an alternative to the Ain2 U input; SELV
KL3	14	Aout	Analog output 0-10V DC; max. 5 mA; output of the current motor operating cycle/current motor speed parameterized curve, SELV

DUCT UNITS

C-KVARK-P

RECTANGULAR DUCT RADIAL FAN



- designed for installation in compact stationary systems of supply and exhaust ventilation, as well as air conditioning of industrial, public and residential buildings;
- duct fan is used to move air whose permissible content of dust and other solid impurities should not exceed 0.1 g/m^3;
- presence of sticky, fibrous and abrasive components, as well as explosive impurities is not allowed.
- temperature range of the moved medium varies from -30° C to +40° C.
- ingress protection rating IP54.

C-KVARK-P-60-35-31-2-380

- rectangular duct radial fan
- standard size (for rectangular connection section BxH)
- impeller diameter
- number of electric motor poles
- electric motor supply voltage, 220 V or 380 V

C-KVARK-P-V-60-35-31-2-380

- design version (V - explosion-proof)

NOTE: only for the specified group of fans with an electric motor voltage of 380 V. For motors "220 V" version "V" is not available.

The duct fan CASING made of galvanized steel provides reliable corrosion protection.

The IMPELLERS of the duct fan with backward-curved blades undergo careful static and dynamic balancing. The use of impellers of this type allows maintaining a uniform air velocity along the outlet section of the fan, ensures an optimal flow rate in the ventilation duct, and, accordingly, reduces energy consumption and noise levels.

ELECTRIC MOTOR. The fan is equipped with single-or three-phase asynchronous electric motors that allow adjusting the rotation speed of the impeller using frequency converters. Upon additional request, the fans are equipped with single-phase electric motors with a power of more than 1.5 kW.

Installation of the fan can be carried out in any spatial position while maintaining its operability.

sound insulation


C-GKP


C-GKD

filtration/decontamination


C-FKP


C-STR

adjustment


C-REG


C-KOL


C-GMK-C


C-GMK-P

heat exchange


C-VKO


C-FKO


C-EVN


C-KVN

energy saving


C-PKT

ancillaries


C-P


C-GKV


C-RKA


C-RKO

control


C-SAU


UWS

RECOMMENDATIONS

SPEED CONTROL of single-phase asynchronous motors.

C-KVARK-P fans with single-phase asynchronous motors simultaneously use starting and operating capacitors that provide high energy performance in the rated mode and good starting properties.

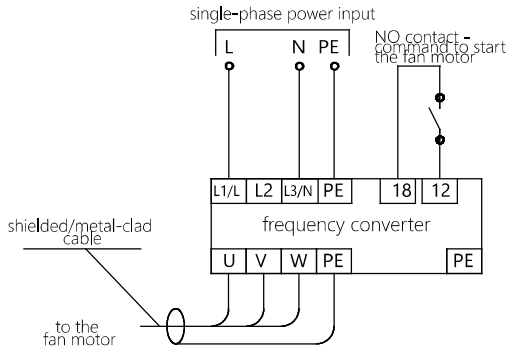
However, it should be taken into account that speed control for asynchronous electric motors using special frequency converters is a costly task.

A more reasonable and cost-effective way to regulate air performance if the facility only has a 220V power supply is to use a fan with a three-phase motor and a frequency converter with an input supply voltage of 1×220 V and an output voltage of 3×220 V.

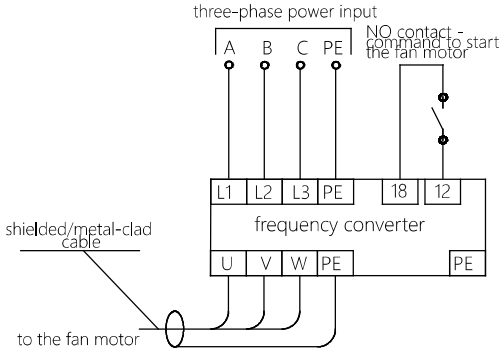
Recommended connection diagrams for the fan speed controller are shown in the figure below. The fan motor must be connected in accordance with the passport data and nameplate information of the electric motor, and the recommendations of the frequency converter manufacturer must also be taken into account.

The DANFOSS VLT Micro Drive FC-051 frequency converter can be successfully used for the described adjustment method. It has vector and scalar motor control systems. The converter is also perfectly suitable for complex system automation. Information about this frequency converter is available in the AUTOMATIC CONTROL SYSTEMS AND ELEMENTS section of this catalog.

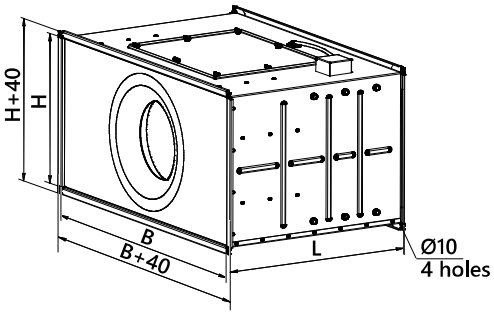
TO A SINGLE-PHASE POWER SUPPLY NETWORK



TO THE THREE-PHASE POWER SUPPLY NETWORK



STANDARD SIZE	Dimensions, mm			Number of poles	Weight, kg, max
	B	H	L		
C-KVARK-P-40-20-18-2	400	200	360	2	17,6
C-KVARK-P-50-25-20-2	500	250	415	2	20,0
C-KVARK-P-50-25-22-2	500	250	415	2	20,5
C-KVARK-P-50-30-22-2	500	300	460	2	22,0
C-KVARK-P-50-30-25-2	500	300	460	2	22,0
C-KVARK-P-60-30-25-2	600	300	500	2	24,6
C-KVARK-P-60-30-28-2	600	300	500	2	30,8
C-KVARK-P-60-35-28-2	600	350	500	2	33,9
C-KVARK-P-60-35-31-2	600	350	500	2	40,6
C-KVARK-P-70-40-31-2	700	400	570	2	43,5
C-KVARK-P-70-40-35-2	700	400	570	2	57,4
C-KVARK-P-80-50-35-2	800	500	635	2	79,6
C-KVARK-P-80-50-40-4	800	500	635	4	78,0
C-KVARK-P-90-50-35-2	900	500	650	2	80,3
C-KVARK-P-90-50-40-2	900	500	650	2	80,7
C-KVARK-P-90-50-40-4	900	500	650	4	81,4
C-KVARK-P-100-50-40-2	1000	500	670	2	81,8
C-KVARK-P-100-50-45-4	1000	500	670	4	82,6



WITH SINGLE-PHASE ELECTRIC MOTOR

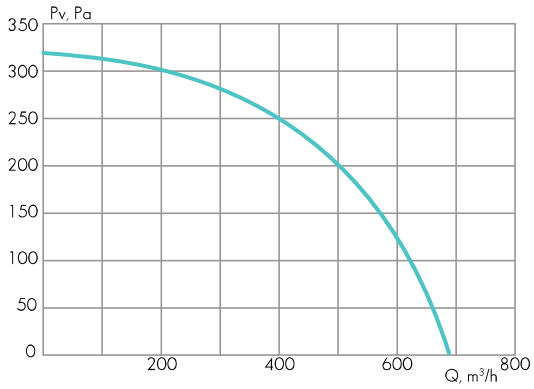
STANDARD SIZE	Motor speed, min^{-1}	Motor installed power, kW	Rated current, A	Corrected sound pressure level, dB(A)		
				Input	Output	Surrounding
C-KVARK-P-40-20-18-2-220	3000	0,25	2	71,1	73,2	67,8
C-KVARK-P-50-25-20-2-220	3000	0,25	2	72,8	76,2	69,5
C-KVARK-P-50-25-22-2-220	3000	0,55	4,5	77,0	80,3	73,1
C-KVARK-P-50-30-22-2-220	3000	0,55	4,5	78,0	81,0	74,1
C-KVARK-P-50-30-25-2-220	3000	0,55	4,5	68,0	68,0	55,0
C-KVARK-P-60-30-25-2-220	3000	0,55	4,5	70,0	70,0	57,0
C-KVARK-P-60-30-28-2-220	3000	0,75	5,7	86,4	88,3	77,5
C-KVARK-P-60-35-28-2-220	3000	0,75	5,7	74,0	74,0	61,0
C-KVARK-P-60-35-31-2-220	3000	1,5	9,44	87,4	90,2	80,0
C-KVARK-P-70-40-31-2-220	3000	1,5	9,44	77,0	77,0	64,0
C-KVARK-P-80-50-40-4-220	1500	0,75	6,1	78,7	81,6	72,1
C-KVARK-P-90-50-40-4-220	1500	0,75	6,1	78,7	81,6	72,1

WITH THREE-PHASE ELECTRIC MOTOR

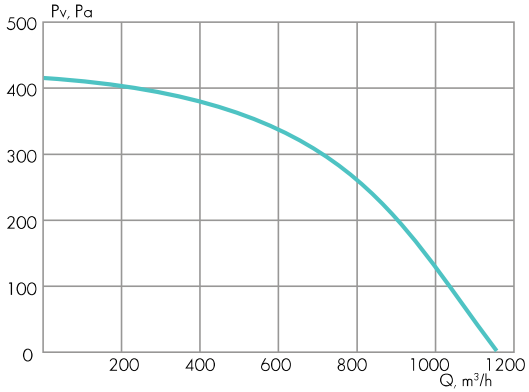
STANDARD SIZE	Motor speed, min^{-1}	Motor installed power, kW	Rated current, A	Corrected sound pressure level, dB(A)		
				Input	Output	Surrounding
C-KVARK-P-40-20-18-2-380	3000	0,25	0,82	71,1	73,2	67,8
C-KVARK-P-50-25-20-2-380	3000	0,25	0,82	72,8	76,2	69,5
C-KVARK-P-50-25-22-2-380	3000	0,55	1,4	77,0	80,3	73,1
C-KVARK-P-50-30-22-2-380	3000	0,55	1,4	78,0	81,0	74,1
C-KVARK-P-(V)-50-30-25-2-380*	3000	0,55	1,4	68,0	68,0	55,0
C-KVARK-P-(V)-60-30-25-2-380*	3000	0,55	1,4	70,0	70,0	57,0
C-KVARK-P-(V)-60-30-28-2-380*	3000	0,75	1,9	86,4	88,3	77,5
C-KVARK-P-(V)-60-35-28-2-380*	3000	0,75	1,9	74,0	74,0	61,0
C-KVARK-P-(V)-60-35-31-2-380*	3000	1,5	3,2	87,4	90,2	80,0
C-KVARK-P-(V)-70-40-31-2-380*	3000	1,5	3,2	77,0	77,0	64,0
C-KVARK-P-(V)-70-40-35-2-380*	3000	3,0	6,5	90,7	87,3	81,0
C-KVARK-P-(V)-80-50-35-2-380*	3000	3,0	6,5	81,0	81,0	68,0
C-KVARK-P-(V)-80-50-40-4-380*	1500	0,75	2	78,7	81,6	72,1
C-KVARK-P-(V)-90-50-35-2-380*	3000	3,0	6,5	88,4	91,7	81,3
C-KVARK-P-(V)-90-50-40-2-380*	3000	5,5	11	93,5	97,1	88,8
C-KVARK-P-(V)-90-50-40-4-380*	1500	0,75	2	78,7	81,6	72,1
C-KVARK-P-(V)-100-50-40-2-380*	3000	5,5	11	84,0	84,0	71,0
C-KVARK-P-(V)-100-50-45-4-380*	1500	1,5	3,6	83,3	86,5	75,6

NOTE:* This fan can be ordered in "V" version – explosion-proof only for 380 V motors.

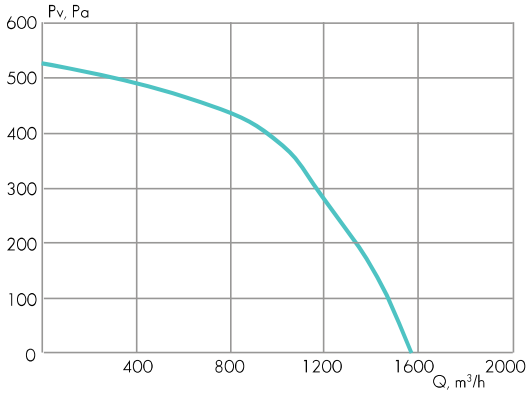
C-KVARK-P-40-20-18-2



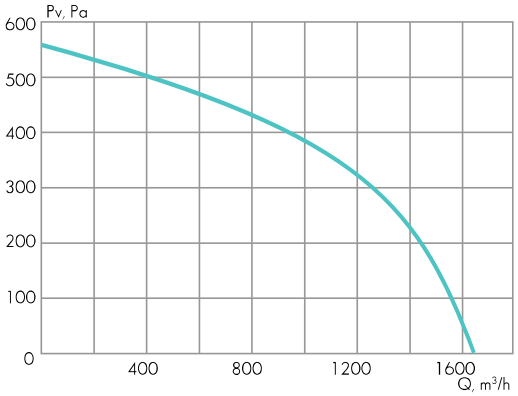
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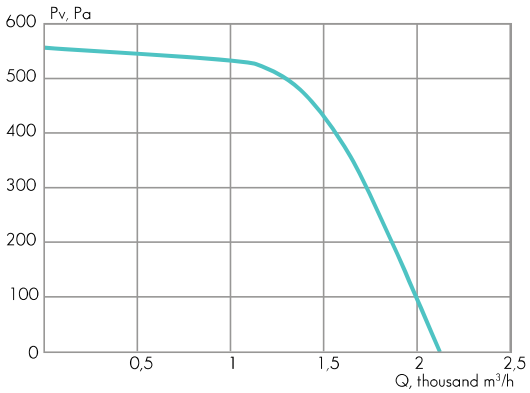
C-KVARK-P-50-25-22-2



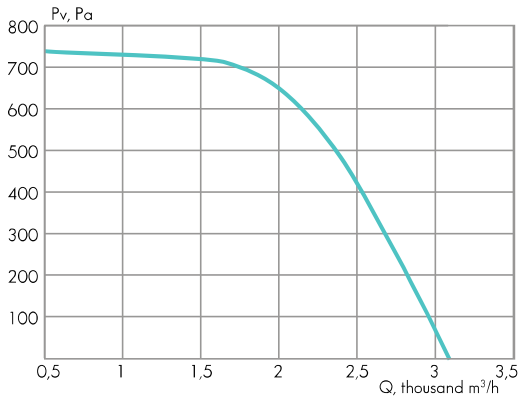
C-KVARK-P-50-30-22-2



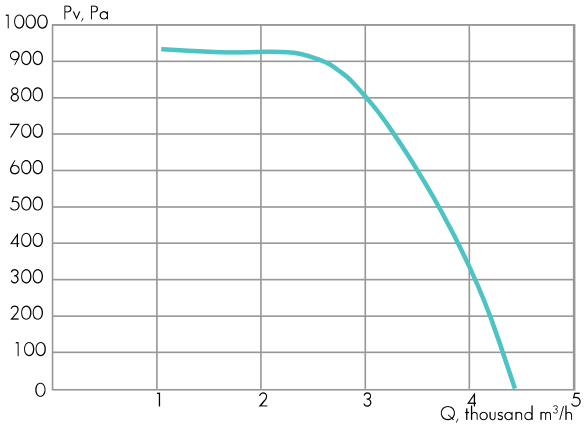
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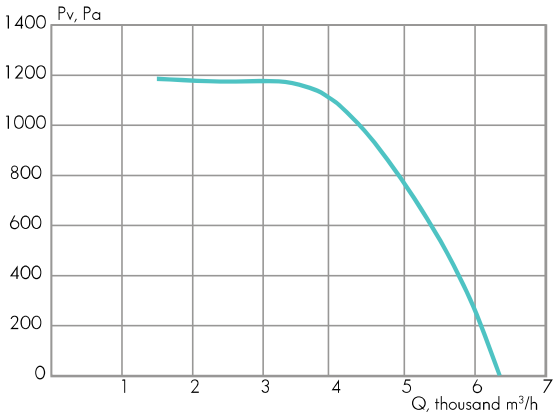
C-KVARK-P-60-30-28-2, C-KVARK-P-60-35-28-2



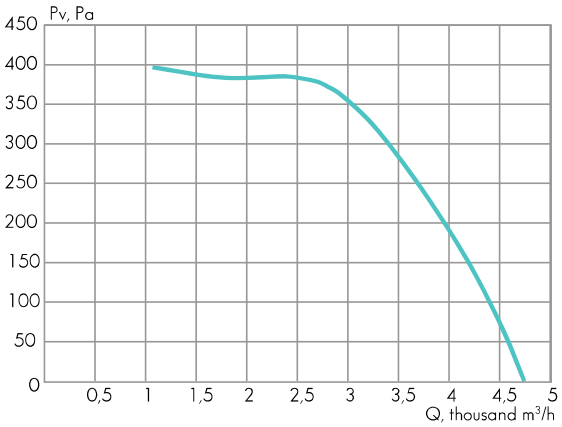
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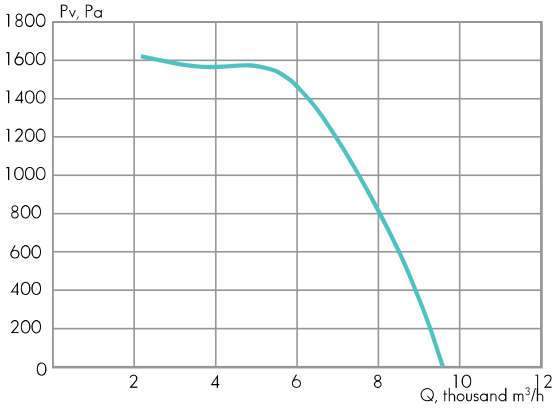
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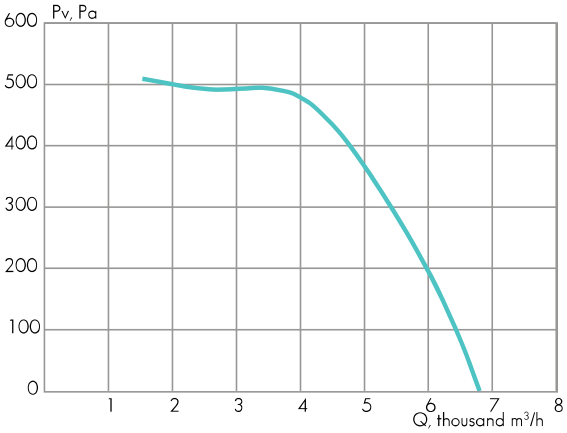
C-KVARK-P-80-50-40-4, C-KVARK-P-90-50-40-4



C-KVARK-P-90-50-40-2, C-KVARK-P-100-50-40-2,



C-KVARK-P-100-50-45-4



DUCT UNITS

FAN WITH SIDE-MOUNTED ELECTRIC MOTOR AND BACKWARD-CURVED BLADES

C-KVARK-BC

- designed for use in exhaust systems for moving high temperature air;
- presence of sticky, fibrous and abrasive components is not allowed, in which the content of dust and other solid impurities should not exceed 0.1 g/m^3;
- temperature range of the moved medium varies from -30° C to +80° C with high humidity. Upon special request, it is possible to design a version in which the temperature of the moved medium is up to +100° C;
- Ingress protection rating IP54.

The fan casing is made of galvanized steel, for corrosion-resistant design it is made of stainless steel. Upon special request, the outer surface of the casing can be powder coated.

The impellers of duct fans with backward-curved blades are made of stainless steel or black steel with powder coating. In explosion-proof fans, the impellers and inlet manifolds are made of materials that do not cause sparks when they rub or come into contact with each other. The impellers undergo careful static and dynamic balancing.

Single-or three-phase asynchronous electric motors are characterized by low power consumption and a significant service life. Placing the motor outside the air duct protects it from the influence of unwanted impurities in the air flow (water vapor, grease, etc.) and ensures increased fan performance.

To ensure proper operation of the fan, it is recommended to install an oil-and-grease filter in front of it, which must be regularly cleaned or replaced.

C-KVARK-BC-VCR and C-KVARK-BC-V fans are designed for moving gas and steam-air explosive mixtures of Category 2 in accordance with GOST 12.1.011.78

Fans are not designed to move gas-steam-air mixtures away from process installations where explosive substances can be heated above the auto-ignition temperature or be under excessive pressure.

C-KVARK-BC-N, C-KVARK-BC-V, C-KVARK-BC-CR and C-KVARK-BC-VCR fans are manufactured as standard in the Y3 climate version. It is allowed to place the fan of category Y2, provided that the fan is protected from precipitation and direct sunlight. Upon special request, the Y1 version is possible.



general purpose industrial; corrosion-resistant; explosion-proof; explosion-proof corrosion-resistant version

sound insulation


C-GKP


C-GKD

filtration/decontamination


C-FKP


C-STR

adjustment


C-REG


C-KOL


C-GMK-C


C-GMK-P

heat exchange


C-VKO


C-FKO


C-EVN


C-KVN

energy saving


C-PKT

ancillaries


C-P


C-GKV


C-RKA


C-RKO

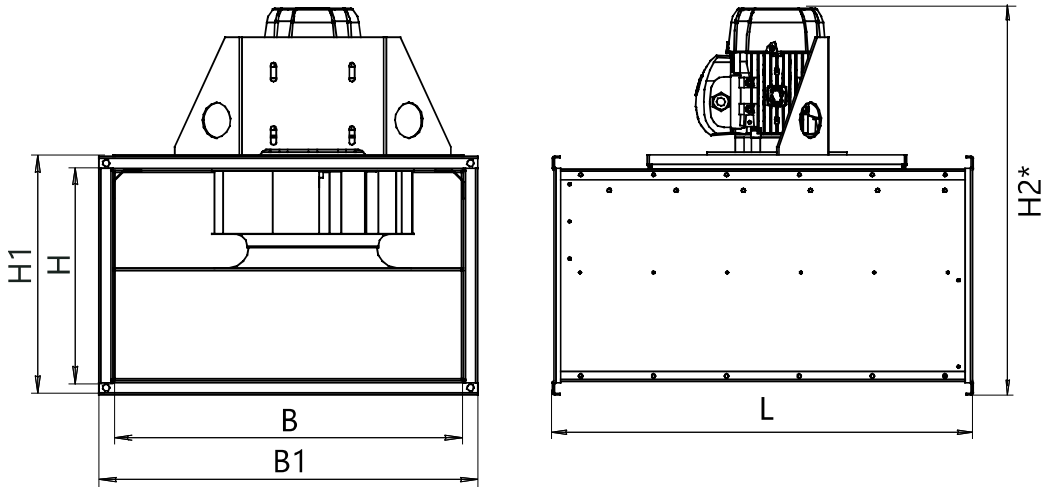
control


C-SAU


UWS

C-KVARK-BC-CR-80-50-45-4-380

- rectangular duct radial fan
- with backward-curved blades
- version (CR - corrosion-resistant; N - general purpose industrial; V -explosion-proof; VCR - explosion-proof corrosion-resistant)
- standard size (for rectangular connection section)
- impeller diameter
- number of electric motor poles
- electric motor supply voltage (220 V; 380 V)



STANDARD SIZE	Dimensions, mm							Weight, kg, max	
	B	B1	H	H1	L	H2* (design version N, CR)	H2* (design version V, VCR)	design version N, CR	design version V, VCR
C-KVARK-BC-30-15-16-2-220 (380)	300	340	150	190	340	383	435	15,0	24,0
C-KVARK-BC-40-20-18-2-220 (380)	400	440	200	240	365	433	485	16,8	26,0
C-KVARK-BC-40-20-20-2-220 (380)	400	440	200	240	365	433	485	16,8	26,0
C-KVARK-BC-50-25-22-2-220 (380)	500	540	250	290	455	510	535	23,8	31,5
C-KVARK-BC-50-25-25-2-220 (380)	500	540	250	290	455	510	535	25,5	33,3
C-KVARK-BC-50-25-25-4-220 (380)	500	540	250	290	455	483	535	23,0	32,5
C-KVARK-BC-50-30-28-2-220 (380)	500	540	300	340	475	595	605	35,5	44,0
C-KVARK-BC-50-30-28-4-220 (380)	500	540	300	340	475	533	585	30,4	40,0
C-KVARK-BC-50-30-31-2-380	500	540	300	340	530	640	640	48,0	57,0
C-KVARK-BC-50-30-31-4-220 (380)	500	540	300	340	530	560	585	34,5	43,5
C-KVARK-BC-60-35-35-2-380	600	640	350	390	585	720	750	67,0	86,9
C-KVARK-BC-60-35-35-4-220 (380)	600	640	350	390	585	610	635	48,3	56,3
C-KVARK-BC-70-40-40-4-220 (380)	700	740	400	440	665	695	705	63,8	72,8
C-KVARK-BC-80-50-45-4-220 (380)	800	840	500	540	835	840	840	79,4	89,4
C-KVARK-BC-80-50-50-4-380	800	840	500	540	835	870	900	88,8	100,8
C-KVARK-BC-100-50-56-4-380	1000	1040	500	540	950	900	940	110,6	129,6

* this size can be changed.

DESIGN VERSION N, CR

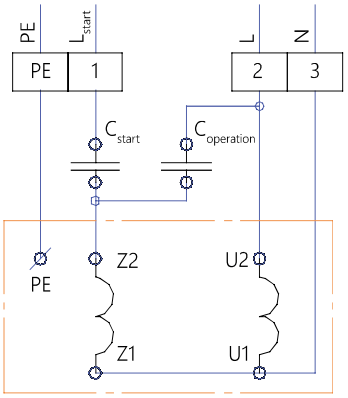
STANDARD SIZE	Motor speed, min^{-1}	Motor installed power, kW	Rated current (at 220 V), A	Rated current (at 380 V), A	Corrected sound pressure level, dB(A)	
					Input	Output
C-KVARK-BC-30-15-16-2-220 (380)	2700	0,25	1,3	0,73	62	66
C-KVARK-BC-40-20-18-2-220 (380)	2700	0,25	1,3	0,73	67	74
C-KVARK-BC-40-20-20-2-220 (380)	2700	0,25	1,3	0,73	69	73
C-KVARK-BC-50-25-22-2-220 (380)	2730	0,37	2,73	1	72	79
C-KVARK-BC-50-25-25-2-220 (380)	2770	0,55	3,88	1,4	76	80
C-KVARK-BC-50-25-25-4-220 (380)	1325	0,18	1,7	0,7	57	61
C-KVARK-BC-50-30-28-2-220 (380)	2790	1,1	7,02	2,7	62	69
C-KVARK-BC-50-30-28-4-220 (380)	1325	0,18	1,7	0,7	60	64
C-KVARK-BC-50-30-31-2-380	2840	2,2	—	5	66	73
C-KVARK-BC-50-30-31-4-220 (380)	1325	0,25	2,02	0,82	65	69
C-KVARK-BC-60-35-35-2-380	2845	3	—	6,5	81	88
C-KVARK-BC-60-35-35-4-220 (380)	1325	0,37	2,95	1,12	67	71
C-KVARK-BC-70-40-40-4-220 (380)	1360	0,75	5,45	2,2	72	76
C-KVARK-BC-80-50-45-4-220 (380)	1390	1,5	9,83	3,95	75	79
C-KVARK-BC-80-50-50-4-380	1400	2,2	—	5,3	79	83
C-KVARK-BC-100-50-56-4-380	1420	4	—	9,3	80	84

DESIGN VERSION V, VCR

STANDARD SIZE	Motor speed, min^{-1}	Motor installed power, kW	Rated current A	Corrected sound pressure level, dB(A)	
				Input	Output
C-KVARK-BC-30-15-16-2-380	2730	0,37	0,9	62	66
C-KVARK-BC-40-20-18-2-380	2730	0,37	0,9	67	74
C-KVARK-BC-40-20-20-2-380	2730	0,37	0,9	69	73
C-KVARK-BC-50-25-22-2-380	2730	0,37	0,9	72	79
C-KVARK-BC-50-25-25-2-380	2770	0,55	1,3	76	80
C-KVARK-BC-50-25-25-4-380	1325	0,25	0,7	57	61
C-KVARK-BC-50-30-28-2-380	2790	1,1	2,4	62	69
C-KVARK-BC-50-30-28-4-380	1325	0,25	0,7	60	64
C-KVARK-BC-50-30-31-2-380	2840	2,2	4,4	66	73
C-KVARK-BC-50-30-31-4-380	1325	0,25	0,7	65	69
C-KVARK-BC-60-35-35-2-380	2845	3	6,4	81	88
C-KVARK-BC-60-35-35-4-380	1325	0,37	1	67	71
C-KVARK-BC-70-40-40-4-380	1360	0,75	1,9	72	76
C-KVARK-BC-80-50-45-4-380	1390	1,5	3,6	75	79
C-KVARK-BC-80-50-50-4-380	1400	2,2	5,2	79	83
C-KVARK-BC-100-50-56-4-380	1420	4	8,7	80	84

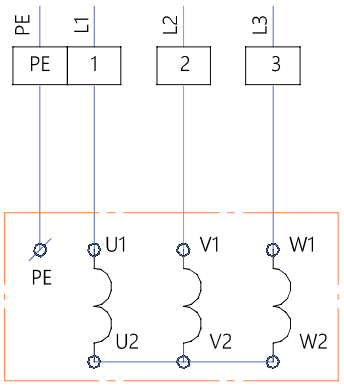
SINGLE-PHASE MOTOR

~1 Ph 220 V 50 Hz

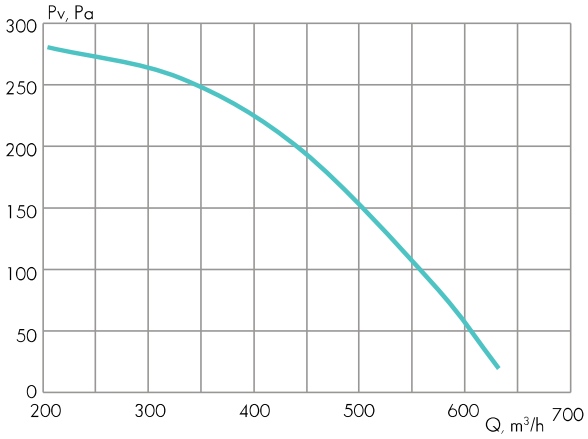


THREE-PHASE MOTOR

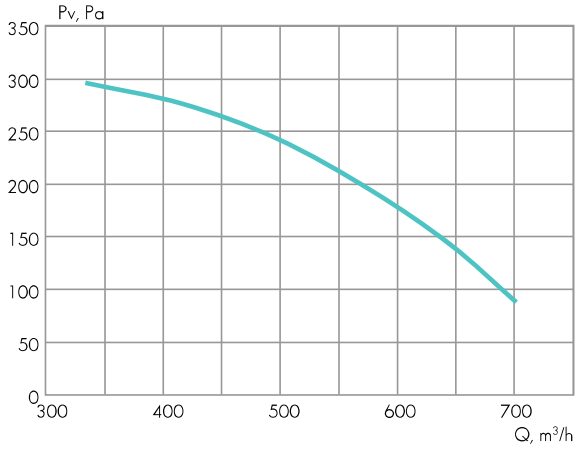
~3 Ph 380 V 50 Hz



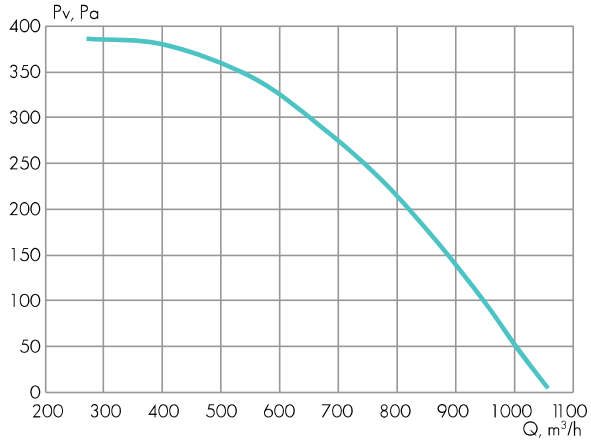
C-KVARK-BC-30-15-16-2



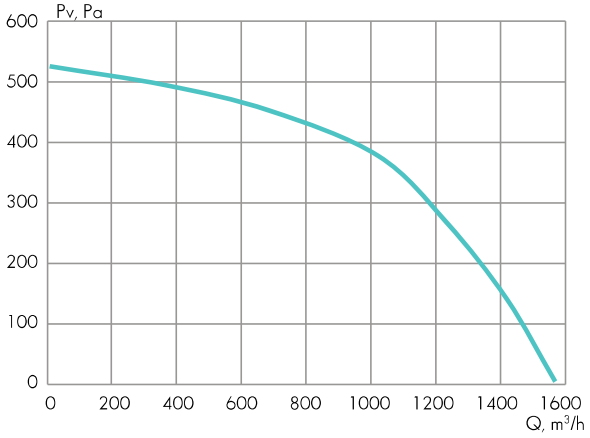
C-KVARK-BC-40-20-18-2



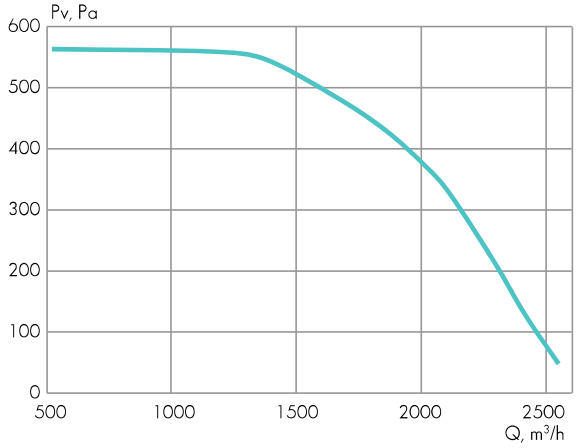
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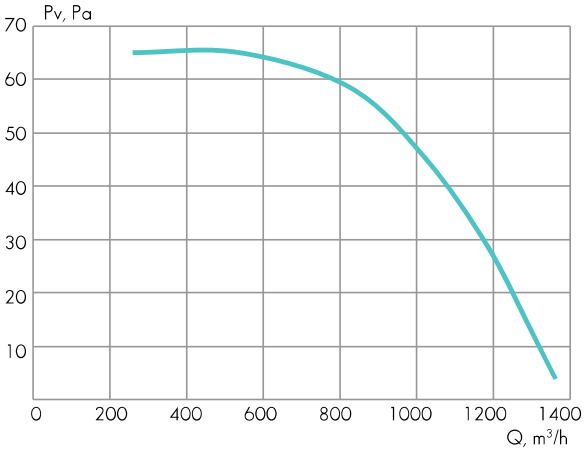
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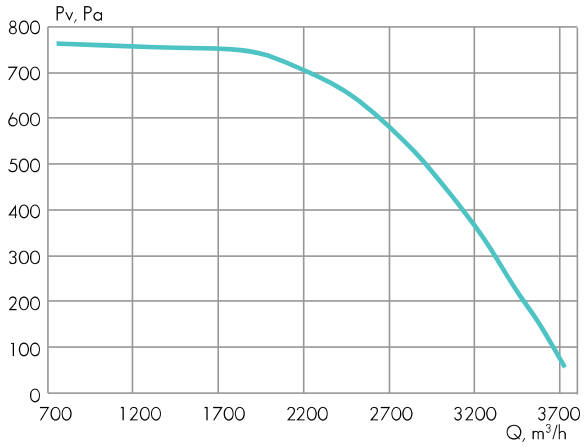
C-KVARK-BC-50-25-25-2



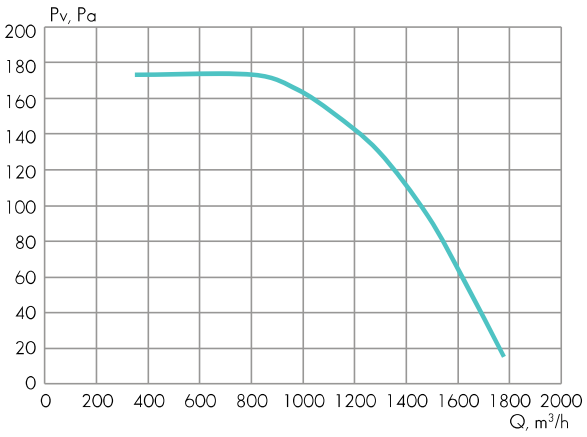
C-KVARK-BC-50-25-25-4



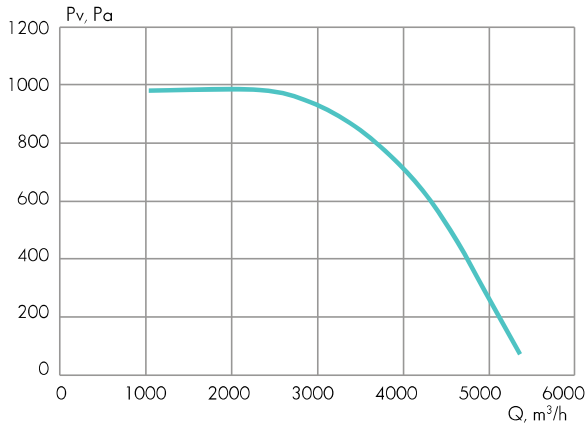
C-KVARK-BC-50-30-28-2



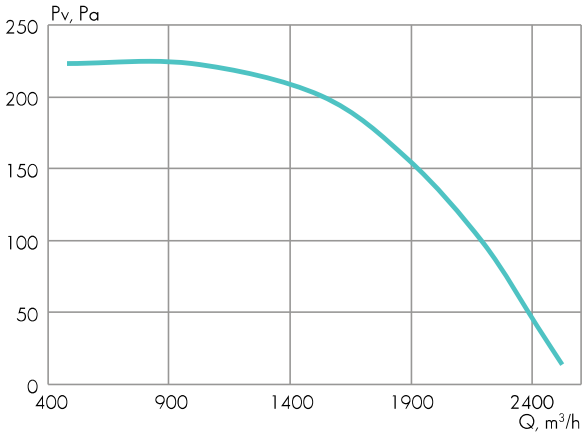
C-KVARK-BC-50-30-28-4



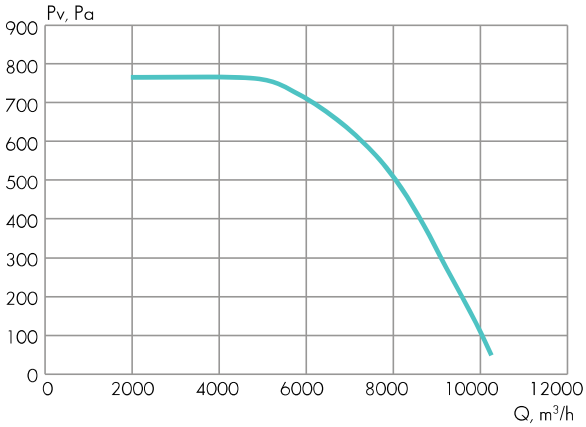
C-KVARK-BC-50-30-31-2



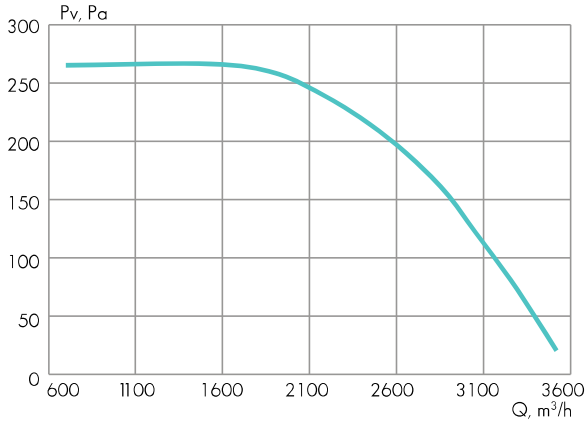
C-KVARK-BC-50-30-31-4



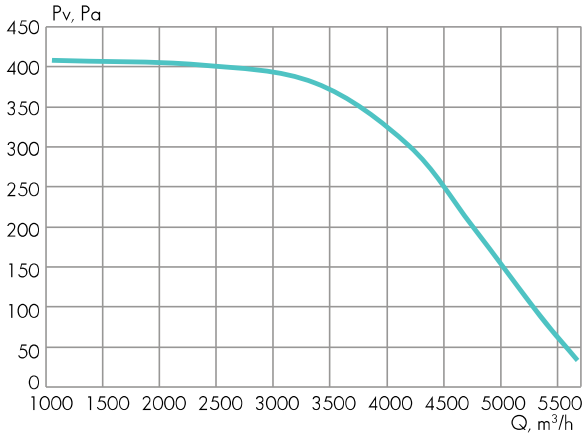
C-KVARK-BC-60-35-35-2



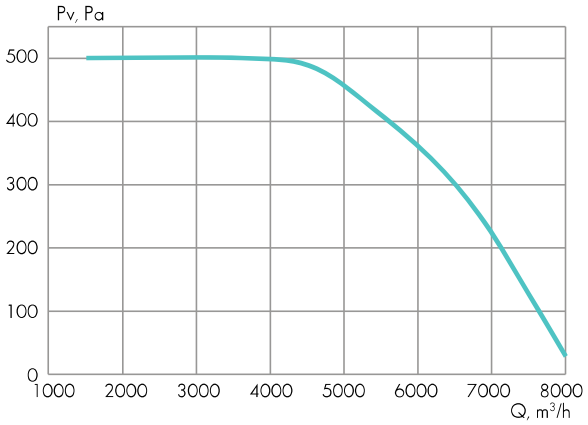
C-KVARK-BC-60-35-35-4



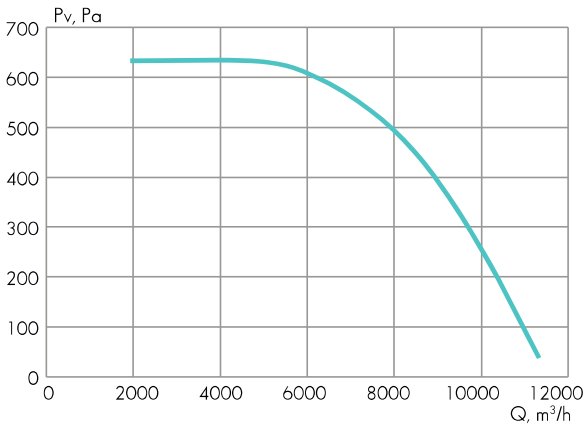
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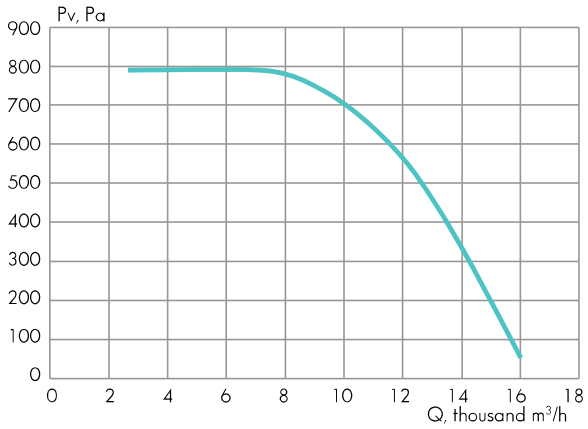
C-KVARK-BC-80-50-45-4



C-KVARK-BC-80-50-50-4



C-KVARK-BC-100-50-56-4



DUCT UNITS

FAN WITH SIDE-MOUNTED ELECTRIC MOTOR AND FORWARD-CURVED BLADES

C-KVARK-PF

- designed for use in exhaust systems for moving high temperature air;
- presence of sticky, fibrous and abrasive components is not allowed, in which the content of dust and other solid impurities should not exceed 0.1 g/m^3;
- temperature range of the moved medium varies from -30° C to +80° C with high humidity. Upon special request, it is possible to design a version in which the temperature of the moved medium is up to +100° C;
- ingress protection rating IP54.



general purpose industrial; corrosion-resistant; explosion-proof; explosion-proof corrosion-resistant version

The fan casing is made of galvanized steel, for corrosion-resistant design it is made of stainless steel. Upon special request, the outer surface of the casing can be powder coated.

The impellers of duct fans with forward-curved blades are made of stainless steel or black steel with powder coating. In explosion-proof fans, the impellers and inlet manifolds are made of materials that do not cause sparks when they rub or come into contact with each other. The impellers undergo careful static and dynamic balancing.

Single-or three-phase asynchronous electric motors are characterized by low power consumption and a significant service life. Placing the motor outside the air duct protects it from the influence of unwanted impurities in the air flow (water vapor, grease, etc.) and ensures increased fan performance.

To ensure proper operation of the fan, it is recommended to install an oil-and-grease filter in front of it, which must be regularly cleaned or replaced.

C-KVARK-PF-VCR and C-KVARK-PF-V fans are designed for moving gas and steam-air explosive mixtures of Category 2 in accordance with GOST 12.1.011.78

Fans are not designed to move gas-steam-air mixtures away from process installations where explosive substances can be heated above the auto-ignition temperature or be under excessive pressure.

C-KVARK-PF-N, C-KVARK-PF-V, C-KVARK-PF-CR and C-KVARK-PF-VCR fans are manufactured as standard in the Y3 climate version. It is allowed to place the fan of category Y2, provided that the fan is protected from precipitation and direct sunlight. Upon special request, the Y1 version is possible.

sound insulation


C-GKP


C-GKD

filtration/decontamination


C-FKP


C-STR

adjustment


C-REG


C-KOL


C-GMK-C


C-GMK-P

heat exchange


C-VKO


C-FKO


C-EVN


C-KVN

energy saving


C-PKT

ancillaries


C-P


C-GKV


C-RKA


C-RKO

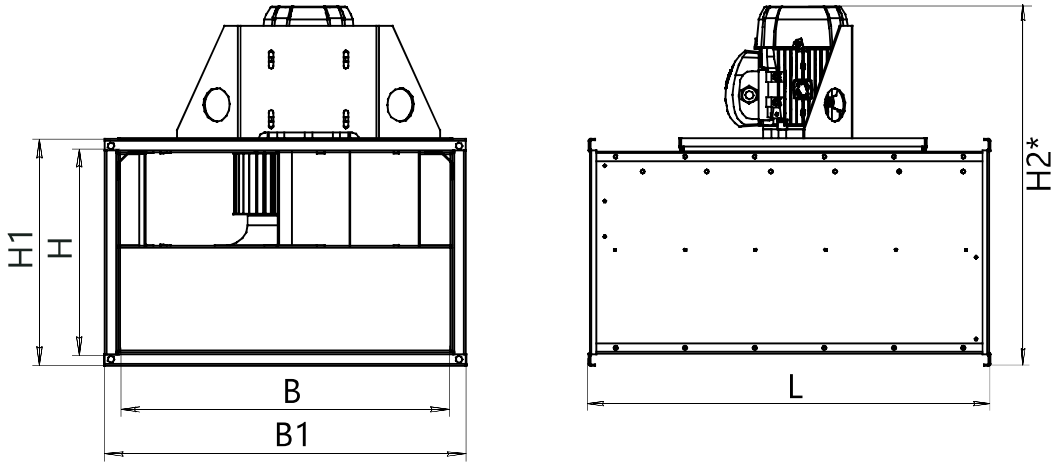
control


C-SAU


UWS

C-KVARK-PF-CR-80-50-35-4-380

- rectangular duct radial fan
- with forward-curved blades
- version (CR - corrosion-resistant; N - general purpose industrial; V -explosion-proof; VCR - explosion-proof corrosion-resistant)
- standard size (for rectangular connection section)
- impeller diameter
- number of electric motor poles
- electric motor supply voltage (220 V; 380 V)



STANDARD SIZE	Dimensions, mm							Weight, kg, max	
	B	B1	H	H1	L	H2* (design version N, CR)	H2* (design version V, VCR)	design version N, CR	design version V, VCR
C-KVARK-PF-50-25-20-4-220 (380)	500	540	250	290	550	510	535	18,4	26,5
C-KVARK-PF-50-30-22-4-220 (380)	500	540	300	340	600	595	605	20,7	30,0
C-KVARK-PF-60-30-25-4-220 (380)	600	640	300	340	680	610	640	37,0	45,5
C-KVARK-PF-60-35-28-4-220 (380)	600	640	350	390	720	690	690	56,8	65,3
C-KVARK-PF-70-40-31-4-380	700	740	400	440	780	800	840	64,0	83,0
C-KVARK-PF-80-50-35-4-380	800	840	500	540	900	860 (950)	945	72,0	87,0
C-KVARK-PF-80-50-35-6-380	800	840	500	540	900	900	940	90,5	105,5
C-KVARK-PF-90-50-40-4-380	900	940	500	540	1035	1075	992	131	144,0
C-KVARK-PF-90-50-40-6-380	900	940	500	540	1035	950	945	102	120,0

* this size can be changed.

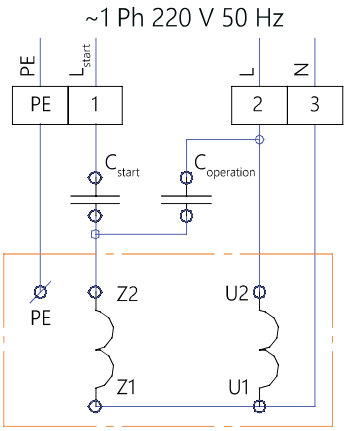
DESIGN VERSION N, CR

ТИПОРОЗМІР	Motor speed, min^{-1}	Motor installed power, kW	Rated current (at 220 V), A	Rated current (at 380 V), A	Corrected sound pressure level, dB(A)	
					Input	Output
C-KVARK-PF-50-25-20-4-220 (380)	1325	0,37	2,95	1,12	71	74
C-KVARK-PF-50-30-22-4-220 (380)	1350	0,55	4,25	1,75	74	77
C-KVARK-PF-60-30-25-4-220 (380)	1375	1,1	7,45	3,04	77	80
C-KVARK-PF-60-35-28-4-220 (380)	1390	1,5	9,83	3,95	80	83
C-KVARK-PF-70-40-31-4-380	1420	4	—	9,3	83	86
C-KVARK-PF-80-50-35-4-380	1430	5,5	—	12,3	87	89
C-KVARK-PF-80-50-35-6-380	930	2,2	—	5,9	67	71
C-KVARK-PF-90-50-40-4-380	1450	11	—	23,1	89	91
C-KVARK-PF-90-50-40-6-380	935	4	—	10,3	82	84

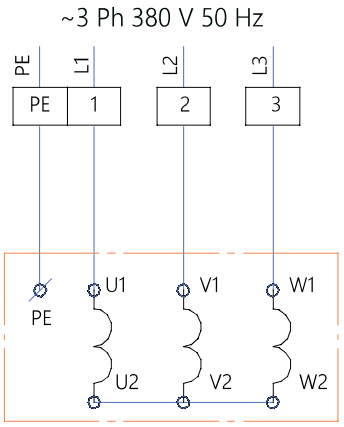
DESIGN VERSION V, VCR

ТИПОРОЗМІР	Motor speed, min^{-1}	Motor installed power, kW	Rated current A	Corrected sound pressure level, dB(A)	
				Input	Output
C-KVARK-PF-50-25-20-4-380	1325	0,37	1	71	74
C-KVARK-PF-50-30-22-4-380	1350	0,55	1,4	74	77
C-KVARK-PF-60-30-25-4-380	1375	1,1	2,6	77	80
C-KVARK-PF-60-35-28-4-380	1390	1,5	3,6	80	83
C-KVARK-PF-70-40-31-4-380	1420	4	8,7	83	86
C-KVARK-PF-80-50-35-4-380	1430	5,5	11,6	87	89
C-KVARK-PF-80-50-35-6-380	930	2,2	5,5	67	71
C-KVARK-PF-90-50-40-4-380	1450	11	21,5	89	91
C-KVARK-PF-90-50-40-6-380	935	4	9,3	82	84

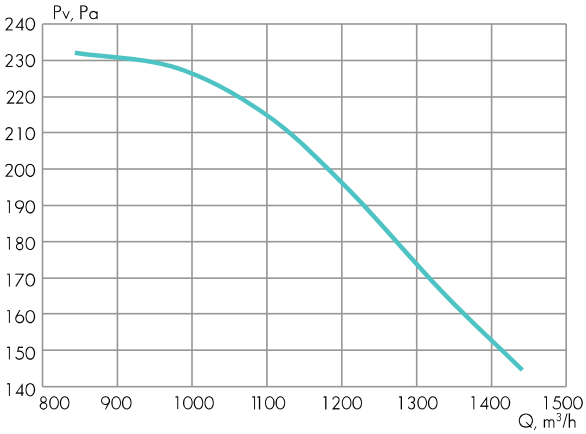
SINGLE-PHASE MOTOR



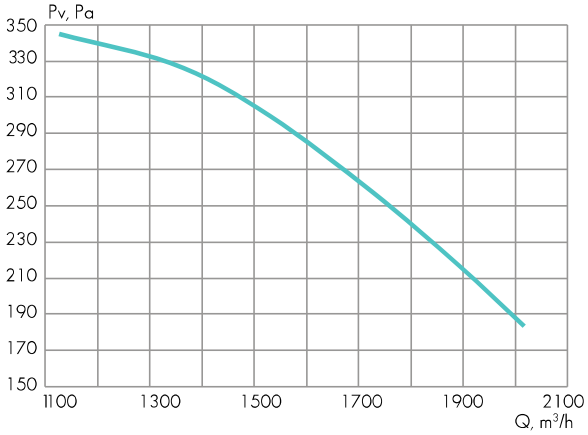
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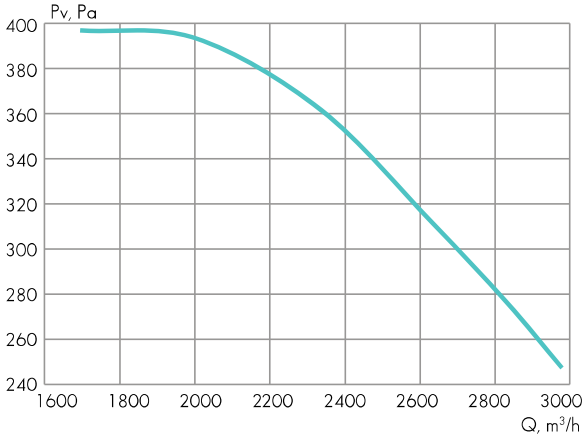
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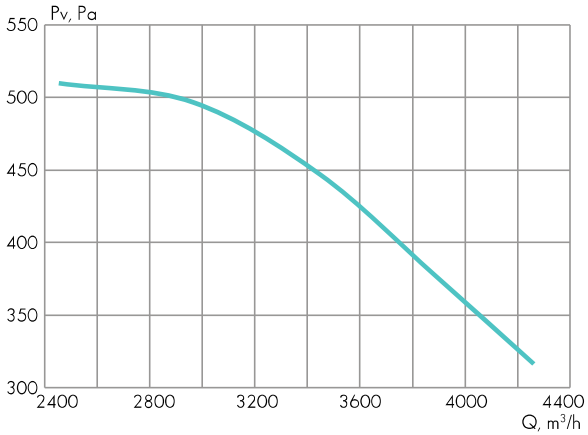
C-KVARK-PF-50-30-22-4



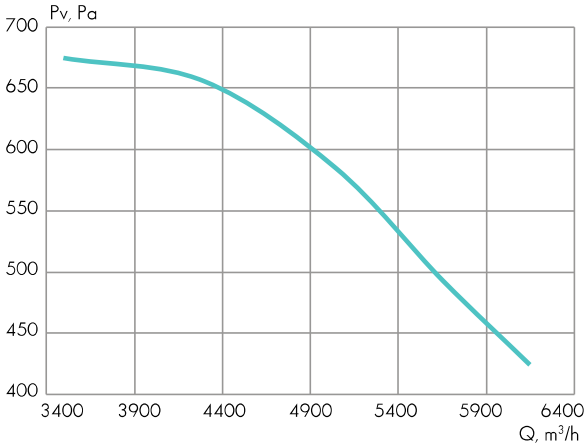
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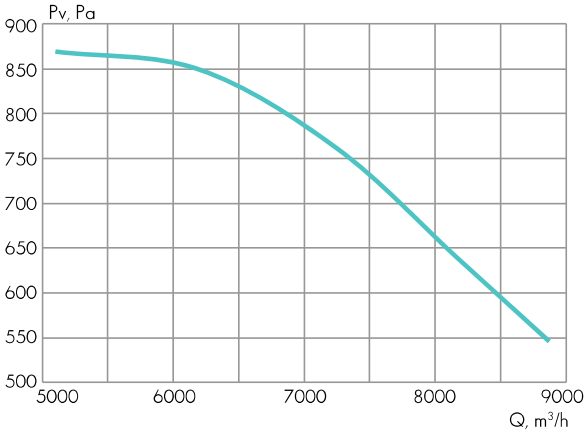
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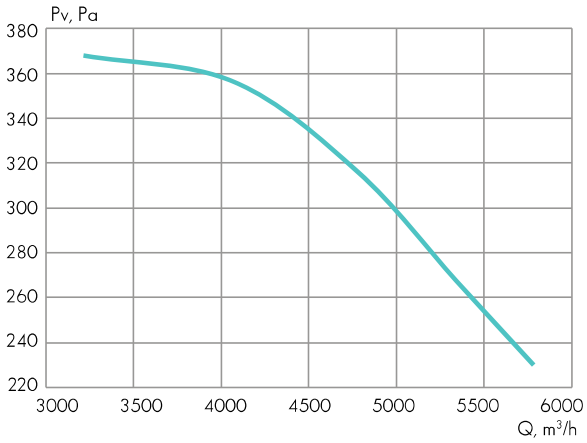
C-KVARK-PF-70-40-31-4



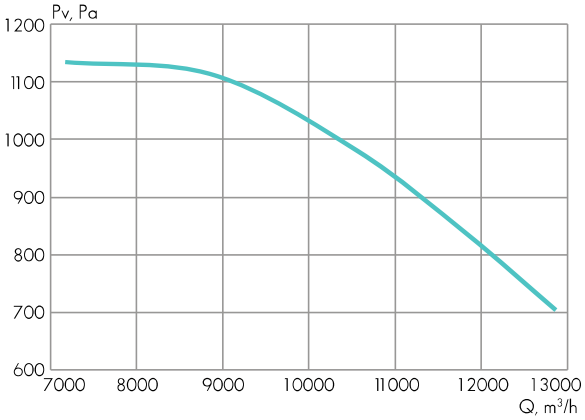
C-KVARK-PF-80-50-35-4



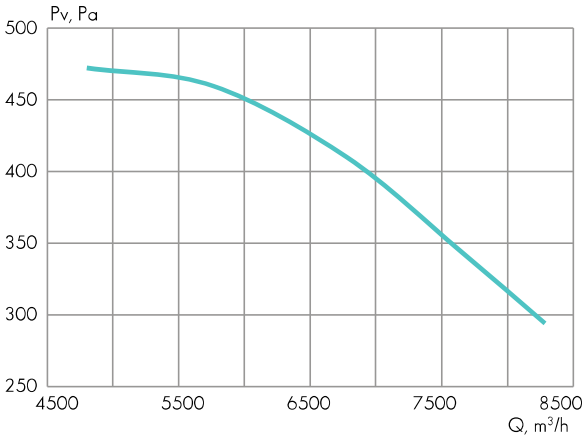
C-KVARK-PF-80-50-35-6



C-KVARK-PF-90-50-40-4



C-KVARK-PF-90-50-40-6



C-KVN | DUCT WATER/AIR-HEATER



- designed to heat air using hot water as a heat carrier;
- it is used for heating the supply, recirculating air or their mixture in compact stationary ventilation and air conditioning systems of industrial, public or residential buildings;
- processed air must be treated and free of solid, fibrous, sticky or aggressive impurities that can cause corrosion of copper, aluminum and zinc;

REQUIREMENTS FOR THE HEAT CARRIER (WATER):

- maximum permissible temperature should not exceed 150° C;
- maximum allowable pressure is not more than 1.6 MPa.

C-KVN-40-20-2

- duct water/air-heater
- standard size (for rectangular connection section BxH)
- number of rows

The duct air heater CASING is made of galvanized steel.

The HEAT EXCHANGE SURFACE is formed by rows of copper tubes finned with corrugated plates of aluminum foil.

The heater manifolds are made of steel pipes.

The materials used ensure high efficiency, reliability and durability of duct heaters.

The UNIFIED DIMENSIONS of duct heaters allow them to be universally combined with other elements of ducted ventilation.

This makes it easy to install and maintain in confined spaces.

The series of air heaters provides nine standard sizes, depending on the size of the connection duct.

The standard size range allows choosing a heater for any air flow provided by a duct fan.



WARNING!

Special care must be taken when connecting the inlet and outlet pipes of the heat exchanger to the network. During installation, it is forbidden to bend or deform the pipes.

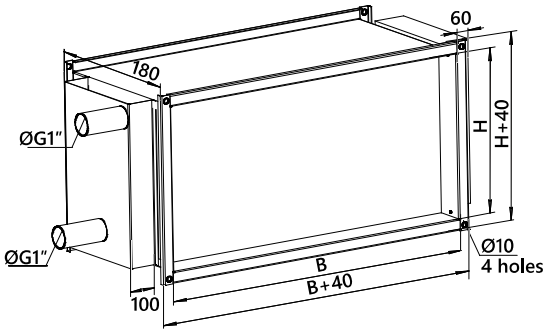
RECOMMENDATIONS

When installing, operating and servicing duct heaters, the following rules and recommendations must be observed:

- if water is used as a heat carrier, air heaters must be installed exclusively inside premises where the temperature must not fall below the freezing point of the heat carrier (the latter requirement does not apply to the temperature of the processed air);
- outdoor installation of heaters is only possible if antifreeze mixtures (for example, ethylene glycol solutions) are used as a heat carrier;
- the heaters remain operational in any position, which allows for air removal and heat carrier drainage;
- the heater must be accessible to monitor its condition and perform service works;
- an air filter must be installed in front of the heater in the air duct;
- to achieve maximum power, the heater must be connected as a counter-flow heater;
- if the heater is located in front of the fan in the air duct, the heater power must be adjusted so that the temperature of the air being moved does not exceed the maximum allowable value set for the fan;
- if the heater is located behind the fan in the air duct, it is recommended to provide a section of the duct equal to three hydraulic diameters of the ventilation duct between the fan and the heater.

If it is necessary to determine the operating parameters of heaters under conditions different from those listed in this catalog, we recommend sending the following data to the nearest company office:

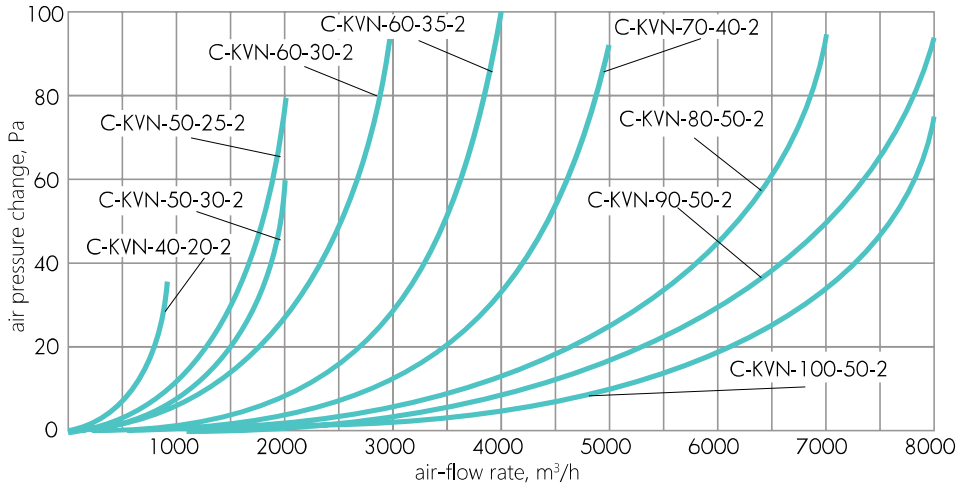
- air flow rate (cross-section velocity);
- calculated air temperature at the inlet and outlet of the heat exchanger;
- design temperature of the heat carrier at the inlet and outlet of the heater.



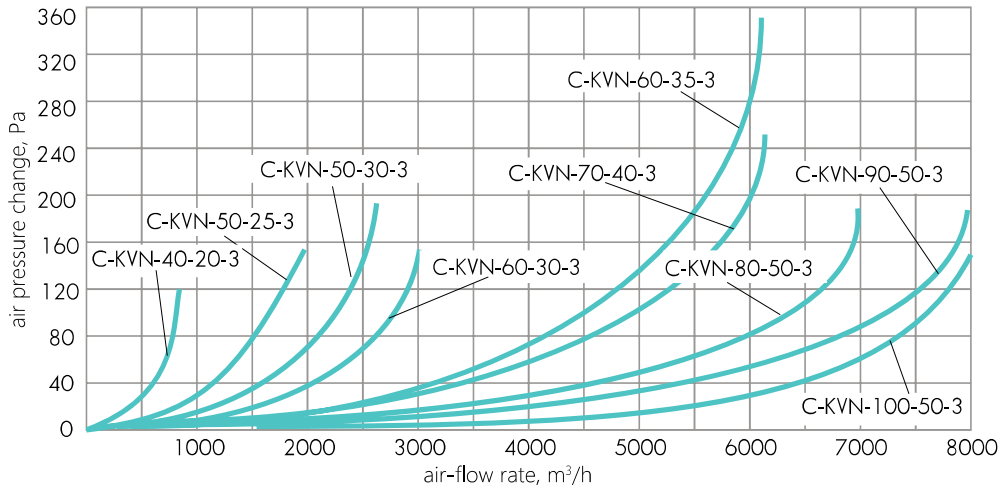
STANDARD SIZE	Dimensions, mm		Weight of 2-row C-KVN, kg, max	Weight of 3-row C-KVN, kg, max	Weight of 4-row C-KVN, kg, max
	B	H			
C-KVN-40-20	400	200	3,3	4,1	4,8
C-KVN-50-25	500	250	5,2	6,2	7,4
C-KVN-50-30	500	300	6,2	7,4	8,4
C-KVN-60-30	600	300	7,4	8,9	10,2
C-KVN-60-35	600	350	8,7	10,4	12,2
C-KVN-70-40	700	400	11,5	13,8	15,9
C-KVN-80-50	800	500	14,3	17,5	21,3
C-KVN-90-50	900	500	15,5	19,1	23,2
C-KVN-100-50	1000	500	16,8	20,6	25,1

AERODYNAMIC CHARACTERISTICS

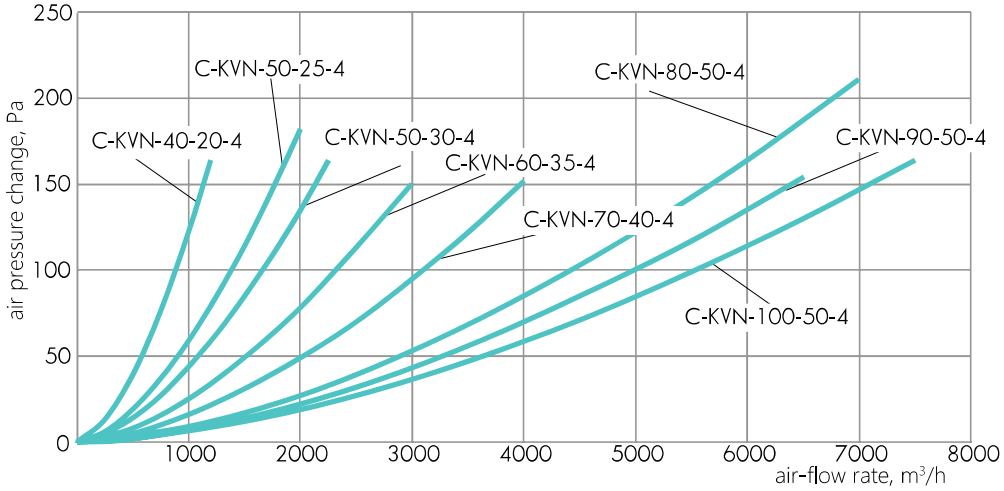
2-ROW



3-ROW

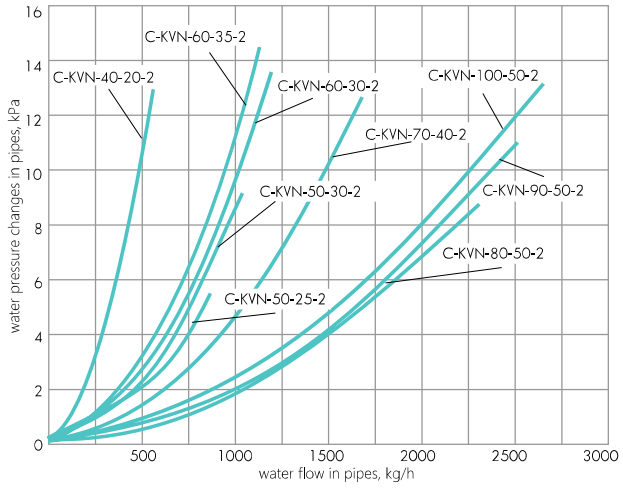


4-ROW

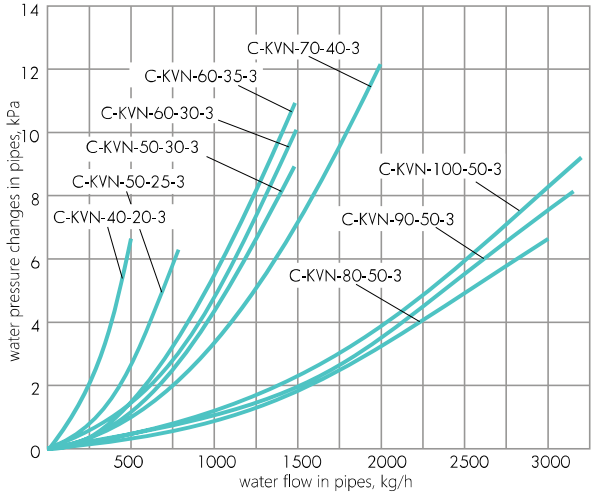


HYDRAULIC CHARACTERISTICS

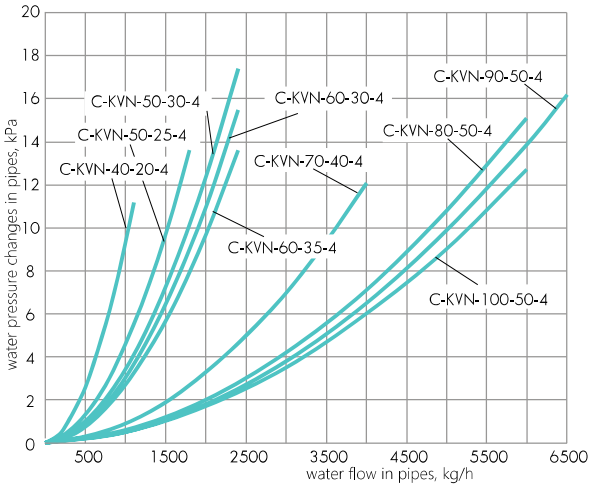
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3-ROW



4-ROW

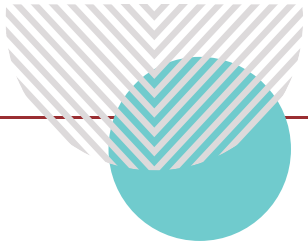


THERMOTECHNICAL CHARACTERISTICS

C-KVN-40-20-2

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa
500	-30	19	8,2	353	5,5	16	14	7,3	314	4,5	16	—	—	—	—	—	—	—	—	—	—
	-25	22	7,8	336	5	16	17	7	300	4,2	16	11,8	6,2	265	3	16	—	—	—	—	—
	-20	24	7,3	314	4,5	16	20	6,7	276	3,5	16	14,4	5,8	248	2,7	16	—	—	—	—	—
	-15	27	7	300	4,2	16	22	6,2	264	3,3	16	16,9	5,3	230	2,3	16	11,8	4,5	193	1,8	16
	-10	30	6,7	286	3,7	16	25	5,8	250	3	16	19,5	4,9	213	2	16	14,4	4,1	176	1,5	16
700	-30	15	10,5	450	8,7	27	10	9,3	400	6,7	27	—	—	—	—	—	—	—	—	—	—
	-25	18	10	430	8	27	12	8,6	370	6	27	—	—	—	—	—	—	—	—	—	—
	-20	20	9,3	400	6,7	27	15	8,2	350	5,5	27	10,8	7,2	310	4	27	—	—	—	—	—
	-15	23	8,9	380	6	27	18	7,7	330	5	27	13,7	6,7	290	3,6	27	—	—	—	—	—
	-10	26	8,4	360	5,6	27	21	7,2	310	4,5	27	16,5	6,2	268	3,1	27	11,8	5,1	221	2,2	27
900	-30	10	12	468	9,3	41	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-25	13	11,4	444	8,7	41	10	10,5	409	6,8	41	—	—	—	—	—	—	—	—	—	—
	-20	16	10,8	421	8	41	15	10,5	409	6,8	41	—	—	—	—	—	—	—	—	—	—
	-15	20	10,5	409	7	41	19	10,2	397	6,7	41	11,2	7,9	341	4,8	41	—	—	—	—	—
	-10	23	9,9	386	6,2	41	22	9,6	374	6,1	41	14,3	7,3	315	4,1	41	10	6	261	3	41
1100	-30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-25	10	12,7	500	11	57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-20	14	12,5	486	9,9	57	10	11	471	9,7	57	—	—	—	—	—	—	—	—	—	—
	-15	16	11,4	443	8,7	57	15	11	470	9,3	57	—	—	—	—	—	—	—	—	—	—
	-10	20	11	429	8	57	19	10,6	456	8,8	57	12,5	8,3	357	5,2	57	—	—	—	—	—



C-KVN-40-20-3

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа
500	-30	41,4	12	513	2,1	29	33,8	10,7	460	1,8	29	26,1	9,4	405	1,4	29	18,2	8,1	348	1,1	29
	-25	42,8	11,4	488	1,9	29	35,2	10,1	434	1,6	29	27,4	8,8	377	1,3	29	19,5	7,5	322	1	29
	-20	44,2	10,7	460	1,7	29	36,6	9,5	408	1,4	29	28,8	8,2	351	1,1	29	20,9	6,9	296	0,8	29
	-15	—	—	—	—	—	38	8,9	382	1,3	29	30,2	7,6	326	1	29	22,2	6,2	268	0,7	29
	-10	—	—	—	—	—	39,3	8,3	355	1,1	29	31,6	7	299	0,8	29	23,6	5,6	243	0,6	29
700	-30	36,2	15,5	667	3,4	51	29	13,8	595	2,8	51	21,9	12,2	525	2,3	51	14,5	10,4	450	1,8	51
	-25	37,7	14,7	630	3,1	51	30,7	13	560	2,5	51	23,5	11,4	490	2	51	16,1	9,6	415	1,6	51
	-20	39,4	13,9	598	2,8	51	32,3	12,3	527	2,3	51	25,1	10,6	455	1,8	51	17,8	8,9	381	1,3	51
	-15	41,1	13,2	565	2,5	51	34	11,5	495	2	51	26,8	9,8	423	1,6	51	19,5	8,1	348	1,1	51
	-10	42,8	12,4	532	2,3	51	35,6	10,7	460	1,8	51	28,5	9	388	1,3	51	21,1	7,3	315	0,9	51
900	-30	31,9	18,7	800	4,8	77	25,3	16,7	718	4	77	18,5	14,6	630	3,2	77	11,6	12,5	540	2,5	77
	-25	33,8	17,7	760	4,4	77	27,1	15,7	675	3,6	77	20,4	13,7	590	2,9	77	13,5	11,6	499	2,2	77
	-20	35,6	16,8	720	4	77	29	14,8	636	3,2	77	22,3	12,7	550	2,5	77	15,4	10,7	460	1,9	77
	-15	37,5	15,8	680	3,6	77	30,8	13,8	593	2,8	77	24,1	11,8	508	2,2	77	17,3	9,7	420	1,6	77
	-10	39,4	14,9	640	3,2	77	32,7	12,9	552	2,5	77	26	10,9	468	1,9	77	19,1	8,8	378	1,3	77
1100	-30	25,8	21,5	925	6,3	107	22,2	19,2	825	5,2	107	15,8	16,9	728	4,2	107	—	—	—	—	—
	-25	30,5	20,5	880	5,7	107	24,2	18,1	781	4,7	107	17,8	15,8	680	3,7	107	11,3	13,4	575	2,8	107
	-20	32,5	19,4	830	5,1	107	26,2	17	732	4,1	107	19,9	14,7	633	3,2	107	13,4	12,3	530	2,4	107
	-15	34,6	18,3	785	4,6	107	28,3	15,9	685	3,7	107	21,9	13,6	585	2,8	107	15,4	11,2	482	2	107
	-10	36,6	17,2	735	4,1	107	30,3	14,9	640	3,2	107	24	12,5	540	2,4	107	17,4	10,1	435	1,7	107

C-KVN-40-20-4

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа
550	-30	—	—	—	—	—	42,5	13,3	575	3,5	46	34	11,8	507	2,9	46	25,4	10,2	440	2,3	46
	-25	—	—	—	—	—	43,4	12,6	542	3,2	46	34,9	11	475	2,6	46	26,4	9,5	408	2	46
	-20	—	—	—	—	—	44,3	11,9	509	2,8	46	35,69	10,3	442	2,2	46	27,3	8,7	375	1,7	46
	-15	—	—	—	—	—	—	—	—	—	—	36,8	9,5	410	2	46	28,3	8	344	1,5	46
	-10	—	—	—	—	—	—	—	—	—	—	37,8	8,8	380	1,7	46	29,2	7,2	312	1,2	46
750	-30	—	—	—	—	—	38,4	17,2	738	5,6	76	30,4	15,2	652	4,5	76	22,2	13,1	565	3,6	76
	-25	—	—	—	—	—	39,6	16,2	698	5	76	31,5	14,2	610	4	76	23,4	12,2	524	3,1	76
	-20	—	—	—	—	—	40,7	15,3	655	4,5	76	32,7	13,2	570	3,6	76	24,6	11,2	483	2,7	76
	-15	—	—	—	—	—	41,9	14,3	615	4	76	34	12,3	530	3,1	76	25,8	10,2	441	2,3	76
	-10	—	—	—	—	—	43,2	13,4	575	3,5	76	35,1	11,3	488	2,7	76	27	9,3	402	2	76
950	-30	42,6	23,1	991	9,5	112	35	20,7	890	7,9	112	27,4	18,3	788	6,4	112	19,6	15,8	680	5	112
	-25	43,9	21,9	940	8,6	112	36,4	19,5	840	7,1	112	28,7	17,1	735	5,7	112	21	14,6	630	4,4	112
	-20	—	—	—	—	—	37,8	18,4	791	6,3	112	30,1	15,9	685	4,3	112	22,4	13,5	580	3,8	112
	-15	—	—	—	—	—	39,1	17,2	740	5,6	112	31,5	14,8	635	4,3	112	23,7	12,3	530	3,2	112
	-10	—	—	—	—	—	40,5	16,1	690	4,9	112	32,9	13,6	588	3,8	112	25,1	11,2	482	2,7	112
1150	-30	38,2	26,3	1050	10,5	153	32	23,9	1025	10,2	153	24,8	21,1	908	8,3	153	17,3	18,2	785	6,5	153
	-25	39,8	25	999	9,6	153	33,6	22,6	970	9,2	153	26,3	19,8	850	7,4	153	18,9	16,9	730	5,7	153
	-20	41,6	23,7	970	9,1	153	35,2	21,2	915	8,3	153	27,9	18,4	795	6,5	153	20,5	15,6	672	4,9	153
	-15	43,6	22,6	950	8,8	153	36,7	19,9	855	7,3	153	29,4	17,1	735	5,7	153	22	14,3	615	4,2	153
	-10	—	—	—	—	—	38,2	18,6	800	6,5	153	30,9	15,8	680	4,9	153	23,5	12,9	555	3,5	153

C-KVN-50-25-2

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа
800	-30	24	14,4	617	2,8	17	22	13,9	594	2,7	17	15,1	12,1	930	6,2	18	—	—	—	—	—
	-25	26	13,6	583	2,6	17	25	13,3	571	2,6	17	17,8	11,5	920	6,1	18	—	—	—	—	—
	-20	29	13,1	560	2,5	17	28	12,8	549	2,5	17	20,5	10,9	915	6	18	—	—	—	—	—
	-15	32	12,5	537	2,4	17	30	12	514	2,4	17	23,3	10,2	908	5,9	18	11,7	7,1	308	0,9	18
	-10	35	12	514	2,2	17	34	11,7	503	2,2	17	26	9,6	899	5,8	18	14	6,4	277	0,7	18
1000	-30	18	16	686	3,4	26	14	14,7	571	2,6	26	—	—	—	—	—	—	—	—	—	—
	-25	20	15	643	3	26	17	14	545	2,5	26	10	11,7	506	2,1	26	—	—	—	—	—
	-20	25	15	642	3	26	20	13,3	519	2,4	26	12,5	10,9	468	1,8	26	—	—	—	—	—
	-15	28	14,3	614	2,8	26	23	12,7	493	2,1	26	15,2	10,1	435	1,6	26	10	8,4	365	1,2	26
	-10	30	13,3	571	2,7	26	26	12	468	2	26	17,7	9,3	399	1,3	26	12,5	7,5	325	1	26
1200	-30	16	18,4	789	4,6	35	14	17,6	754	4	35	—	—	—	—	—	—	—	—	—	—
	-25	19	17,6	754	4	35	17	16,8	720	3,6	35	—	—	—	—	—	—	—	—	—	—
	-20	23	17,2	737	3,7	35	21	16,4	703	3,5	35	10,6	12,3	530	2,2	34	—	—	—	—	—
	-15	26	16,4	703	3,5	35	24	15,6	669	3,4	35	13,4	11,4	491	1,9	34	—	—	—	—	—
	-10	30	16	686	3,4	35	28	15,2	651	3	35	16,1	10,5	453	1,7	34	11,1	8,5	365	1,2	34
1400	-30	12	19,6	579	2,6	44	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-25	15	18,6	552	2,5	44	11	16,8	554	2,5	44	—	—	—	—	—	—	—	—	—	—
	-20	18	17,7	524	2,3	44	14	15,9	523	2,4	44	—	—	—	—	—	—	—	—	—	—
	-15	21	16,8	497	2,1	44	18	15,4	508	2,2	44	11,9	12,6	542	2,3	44	—	—	—	—	—
	-10	23	15,4	455	1,9	44	21	14,5	477	2	44	14,8	11,6	500	2	44	10	9,4	405	1,4	44

C-KVN-50-25-3

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа
900	-30	44	22	950	8,5	37	36	20	860	7,4	37	28,5	17,6	760	6,1	37	20,8	15,3	660	4,8	37
	-25	45	21	930	8,4	37	38	19	820	6,8	37	29,8	16,5	710	5,4	37	22,2	14,2	613	4,2	37
	-20	46	20	860	7,2	37	39	18	760	6,2	37	31,2	15,4	665	4,8	37	23,5	13,1	565	3,7	37
	-15	—	—	—	—	—	40	17	720	5,3	37	32,6	14,3	618	4,2	37	24,9	12	518	3,1	37
	-10	—	—	—	—	—	42	16	670	4,7	37	34	13,3	572	3,6	37	26,3	10,9	472	2,6	37
1200	-30	35	26	857	7,2	59	30	23,9	890	7,9	59	24,9	22	950	9,2	59	17,6	19,1	822	7,2	59
	-25	38	25,2	831	6,9	59	32	22,8	850	7,2	59	26,4	20,7	890	8,1	59	19,2	17,8	765	6,3	59
	-20	40	24	823	6,8	59	35	22	820	6,8	59	28	19,3	830	7,2	59	20,8	16,4	705	5,5	59
	-15	42	23	815	6,8	59	38	21,2	790	6,5	59	29,6	17,9	770	6,3	59	22,4	15	649	4,7	59
	-10	43	21	780	6,4	59	41	20,4	760	6,2	59	31,2	16,5	712	5,4	59	24	13,7	590	4	59
1500	-30	31	31	990	9	85	24	27	857	7,4	85	21,8	26	1120	12,4	85	15	22,6	975	9,9	85
	-25	33	29	965	8,7	85	25	25	794	6,5	85	23,6	24,4	1050	11	85	16,7	21	902	8,5	85
	-20	35	28	930	8,3	85	28	24	755	6,2	85	25,4	22,8	980	9,7	85	18,5	19,3	832	7,4	85
	-15	37	26	899	7,9	85	30	22	724	5,3	85	27,1	21,2	910	8,5	85	20,3	17,7	765	6,3	85
	-10	40	25	867	7,4	85	32	21	695	5	85	28,9	19,5	840	7,3	85	22,1	16,1	695	5,3	85
1800	-30	25	33,2	890	7,9	115	20	30	857	7,4	115	13	25,9	745	6	115	12,7	25,7	1105	12,4	115
	-25	28	32	880	7,7	115	22	28	830	6,9	115	14,9	24	690	5,2	115	14,7	23,9	1030	10,9	115
	-20	30	30	870	7,4	115	24	27	799	6,5	115	16,8	22,2	638	4,5	115	16,6	22,1	950	9,4	115
	-15	33	29	855	7,2	115	26	25	748	6	115	18,8	20,4	585	3,8	115	18,5	20,2	870	8	115
	-10	35	27	812	6,8	115	29	23	710	5,3	115	20,7	18,5	532	3,2	115	20,5	18,4	790	6,7	115

C-KVN-50-25-4

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа
900	-30	—	—	—	—	—	41,8	21,7	930	4,1	49	33,3	19,1	820	3,4	49	24,8	16,5	712	2,7	49
	-25	—	—	—	—	—	42,8	20,4	880	3,7	49	34,4	17,9	770	3	49	25,9	15,3	662	2,3	49
	-20	—	—	—	—	—	43,7	19,2	824	3,3	49	35,4	16,7	720	2,7	49	26,9	14,1	610	2	49
	-15	—	—	—	—	—	—	—	—	—	—	36,3	15,5	665	2,3	49	27,8	12,9	555	1,7	49
	-10	—	—	—	—	—	—	—	—	—	—	37,4	14,3	615	2	49	28,8	11,7	505	1,4	49
1200	-30	—	—	—	—	—	38	27,3	1175	6,4	79	30	24,1	1040	5,2	79	21,9	20,9	900	4,1	79
	-25	—	—	—	—	—	39,2	25,8	1110	5,7	79	31,2	22,6	970	4,6	79	23,1	19,4	835	3,6	79
	-20	—	—	—	—	—	40,3	24,2	1040	5,1	79	32,4	21,1	905	4	79	24,4	17,8	770	3,1	79
	-15	—	—	—	—	—	41,6	22,8	980	4,6	79	33,6	19,5	839	3,5	79	25,5	16,3	700	2,6	79
	-10	—	—	—	—	—	42,8	21,2	910	4	79	34,8	18	775	3	79	26,8	14,8	638	2,2	79
1500	-30	42,3	36,3	1558	10,6	114	34,8	32,5	1400	8,8	114	27,1	28,7	1235	7,1	114	19,4	24,8	1070	5,6	114
	-25	-	-	-	-	-	36,1	30,7	1320	7,9	114	28,5	26,9	1160	6,3	114	20,8	23	990	4,9	114
	-20	-	-	-	-	-	37,5	28,9	1240	7	114	29,9	25,1	1080	5,6	114	22,2	21,2	915	4,2	114
	-15	-	-	-	-	-	38,9	27,1	1165	6,3	114	31,3	23,2	1000	4,8	114	23,6	19,4	835	3,6	114
	-10	-	-	-	-	-	40,3	25,3	1085	5,5	114	32,7	21,5	925	4,2	114	25	17,6	760	3	114
1800	-30	38,6	41,3	1700	12,5	154	32	37,4	1610	11,4	154	24,7	33	1420	9,2	154	17,3	28,5	1230	7,2	154
	-25	40,2	39,3	1630	11,5	154	33,6	35,3	1530	10,4	154	26,2	30,9	1330	8,1	154	18,8	26,4	1140	6,3	154
	-20	42	37,4	1580	10,9	154	35,1	33,2	1430	9,2	154	27,7	28,8	1240	7,2	154	20,4	24,3	1050	5,4	154
	-15	43,6	35,3	1500	9,9	154	36,5	31,1	1335	8,1	154	29,3	26,7	1150	6,2	154	21,9	22,3	960	4,6	154
	-10	—	—	—	—	—	38,1	29	1250	7,1	154	30,8	24,6	1060	5,4	154	23,5	20,2	870	3,8	154

C-KVN-50-30-2

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа
1100	-30	21	18,7	801	5,7	23	20	18,3	786	5,5	23	10	14,7	640	2,4	22	—	—	—	—	—
	-25	24	17,9	770	5,4	23	23	17,6	754	4,9	23	12,4	13,8	595	3,4	22	—	—	—	—	—
	-20	27	17,2	739	4,9	23	26	16,8	723	4,8	23	14,9	12,9	554	3	22	—	—	—	—	—
	-15	29	16,1	691	4,2	23	28	15,8	676	4,1	23	17,5	12	515	2,6	22	12,1	10	430	2	22
	-10	31	15	644	3,7	23	30	14,7	629	3,5	23	20	11	475	2,3	22	14,6	9,1	392	1,7	22
1400	-30	17	21,9	940	7,8	33	12	19,6	840	19,6	33	—	—	—	—	—	—	—	—	—	—
	-25	19	20,5	880	6,8	33	15	18,6	800	5,7	33	12,9	17,8	1200	12,3	33	—	—	—	—	—
	-20	22	19,6	840	6,3	33	18	17,7	760	4,9	33	15,9	16,8	1190	12,1	33	—	—	—	—	—
	-15	25	18,6	800	5,7	33	21	16,8	720	4,8	33	18,8	15,9	1170	11,7	33	—	—	—	—	—
	-10	28	17,7	760	5,3	33	24	15,9	680	4,1	33	21,6	14,8	1100	10,4	33	12,8	10,7	460	2,2	33
1700	-30	14	24,9	1069	10	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-25	17	23,8	1020	9,1	45	12	20,9	899	7,2	45	—	—	—	—	—	—	—	—	—	—
	-20	20	22,6	971	8,3	45	15	19,8	850	6,5	45	10,2	17,2	740	5,1	45	—	—	—	—	—
	-15	23	21,5	923	7,7	45	18	18,7	801	5,7	45	13,1	16	690	4,5	45	—	—	—	—	—
	-10	26	20,4	874	6,8	45	21	17,5	753	4,8	45	15,9	14,8	635	3,8	45	11,2	12,1	520	2,7	45
2000	-30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-25	13	25,3	987	8,4	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-20	16	24	935	7,8	60	13	22	943	7,9	60	—	—	—	—	—	—	—	—	—	—
	-15	19	22,6	883	6,9	60	16	20,6	886	6,9	60	11,5	17,7	765	5,4	59	—	—	—	—	—
	-10	22	21,3	831	6,3	60	19	19,3	829	6,3	60	14,4	16,4	705	4,6	59	—	—	—	—	—

C-KVN-50-30-3

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа
1300	-30	37	29	1270	6,7	50	30	26	1114	5,3	50	23,2	23,2	1000	4,4	50	15,9	20	860	3,5	50
	-25	38	27,3	1170	5,8	50	32	24,7	1059	4,7	50	24,8	21,7	935	3,9	50	17,6	18,6	800	3	50
	-20	40	26	1114	5,3	50	34	23	995	4,3	50	26,4	20,2	870	3,4	50	19,2	17,1	735	2,6	50
	-15	42	24,7	1059	4,7	50	35	22	920	3,8	50	28,1	18,8	810	3	50	20,9	15,6	675	2,2	50
	-10	44	23	1010	4,3	50	37	20	890	3,5	50	29,7	17,3	745	2,6	50	22,5	14	610	1,9	50
1600	-30	33	33,6	1440	8,6	71	27	30,4	1303	7,1	71	20,4	27	1165	5,9	71	13,5	23,3	1004	4,6	71
	-25	35	32	1371	7,9	71	29	28,8	1234	6,7	71	22,2	25,3	1090	5,2	71	15,3	21,6	930	4	71
	-20	37	30,4	1303	7,1	71	31	27,2	1166	5,8	71	24	26,6	1014	4,6	71	17,2	19,9	860	3,5	71
	-15	39	28,8	1234	6,6	71	33	25,6	1097	5,1	71	25,8	21,9	940	4	71	19,1	18,3	790	3	71
	-10	41	27,2	1166	5,8	71	36	24,5	1051	4,7	71	27,7	20,2	870	3,4	71	20,8	16,5	710	2,4	71
1900	-30	28	36,7	1312	7,9	93	23	33,5	1438	8,5	93	18,1	30,6	1320	7,4	93	11,5	26,4	1140	5,8	93
	-25	30	34,8	1244	6,7	93	26	32,3	1384	7,9	93	20	28,7	1235	6,5	93	13,5	24,5	1055	5	93
	-20	33	33,5	1199	6,6	93	29	31	1330	7,5	93	22	26,7	1150	5,7	93	15,4	22,5	970	4,3	93
	-15	36	32,3	1154	5,8	93	32	29,7	1276	6,7	93	23,9	24,8	1065	5	93	17,4	20,6	890	3,7	93
	-10	39	31	1108	5,3	93	35	28,5	1221	6,6	93	25,9	22,9	987	4,3	93	19,3	18,7	804	3,1	93
2200	-30	25	40,3	1383	7,9	119	20	36,6	1366	7,9	119	16	33,9	1460	8,9	119	—	—	—	—	—
	-25	28	38,8	1333	7,5	119	24	35,9	1339	7,5	119	18,1	31,8	1370	7,9	119	11,8	27,1	1170	6,1	119
	-20	32	37,1	1307	7,1	119	27	34,4	1284	6,7	119	20,2	29,6	1275	6,9	119	13,69	25	1080	5,2	119
	-15	34	35,9	1232	6,7	119	30	33	1230	6,6	119	22,3	27,5	1180	6	119	16	22,8	985	4,4	119
	-10	37	34,4	1182	5,8	119	33	31,5	1175	5,7	119	24,4	25,3	1090	5,2	119	18,1	20,7	890	3,7	119

C-KVN-50-30-4

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа
1300	-30	—	—	—	—	—	39	30,1	1290	4,4	67	30,9	26,5	1144	3,6	67	22,7	22,9	990	2,8	67
	-25	—	—	—	—	—	40,2	28,4	1220	4	67	32,1	24,8	1071	3,2	67	23,7	21,2	914	2,4	67
	-20	—	—	—	—	—	41,3	26,7	1145	3,5	67	33,2	23,2	998	2,8	67	24,9	19,5	840	2,1	67
	-15	—	—	—	—	—	42,4	25	1074	3,1	67	34,3	21,5	927	2,4	67	26	17,9	770	1,8	67
	-10	—	—	—	—	—	43,6	23,3	1003	2,8	67	35,4	19,8	850	2,1	67	27,1	16,2	695	1,5	67
1600	-30	43,9	39,6	1700	7,2	94	36,1	35,4	1520	5,9	94	28,4	31,3	1350	4,9	94	20,3	27	1160	3,8	94
	-25	—	—	—	—	—	37,5	33,5	1440	5,4	94	29,6	29,3	1260	4,3	94	21,7	25	1080	3,3	94
	-20	—	—	—	—	—	38,7	31,5	1350	4,8	94	30,9	27,3	1175	3,8	94	22,9	23	990	2,8	94
	-15	—	—	—	—	—	40	29,5	1269	4,3	94	32,2	25,3	1090	3,3	94	24,3	21,1	910	2,4	94
	-10	—	—	—	—	—	41,3	27,5	1182	3,7	94	33,5	23,3	1005	2,8	94	25,5	19,1	820	2	94
1900	-30	41,1	45,2	1940	9,2	125	33,7	40,5	1745	7,7	125	26,1	35,7	1540	6,2	125	18,4	30,8	1330	4,8	125
	-25	42,5	43	1840	8,4	125	35	38,2	1640	6,8	125	27,5	33,4	1441	5,5	125	19,9	28,5	1230	4,2	125
	-20	44	40,7	1750	7,6	125	36,5	36	1550	6,2	125	28,9	31,1	1338	4,8	125	21,3	26,3	1130	3,6	125
	-15	—	—	—	—	—	37,9	33,7	1450	5,4	125	30,3	28,9	1240	4,2	125	22,7	24	1034	3,1	125
	-10	—	—	—	—	—	39,3	31,4	1349	4,8	125	31,8	26,6	1148	3,6	125	24,2	21,7	935	2,5	125
2200	-30	38,6	50,5	2170	11,4	158	31,4	45,2	1950	9,4	158	24	39,8	1710	7,5	158	16,7	34,4	1480	5,9	158
	-25	40,1	48	2060	10,3	158	32,9	42,7	1840	8,5	158	25,7	37,3	1610	6,7	158	18,2	31,8	1370	5,1	158
	-20	41,7	45,4	1950	9,3	158	34,5	40,2	1730	7,5	158	27,2	37,8	1500	5,9	158	19,8	29,3	1260	4,4	158
	-15	43,2	42,9	1840	8,4	158	36	37,6	1620	6,7	158	28,8	32,2	1390	5,1	158	21,4	26,8	1155	3,7	158
	-10	44,8	40,4	1730	7,4	158	37,6	35,1	1510	5,9	158	30,3	29,7	1280	4,4	158	22,9	24,3	1045	3,1	158

C-KVN-60-30-2

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa
1300	-30	21	22,1	947	8,7	21	16	19,9	854	7,3	21	10,7	17,7	765	6,2	22	—	—	—	—	—
	-25	24	21,2	910	8	21	19	19	817	6,4	21	13,2	16,6	715	5,5	22	—	—	—	—	—
	-20	27	20,3	873	7,4	21	22	18,2	780	6	21	15,7	15,6	669	4,9	22	10,4	13,2	570	3,7	22
	-15	29	19	817	6,4	21	25	17,3	743	5,6	21	18,3	14,5	625	4,3	22	12,4	12,2	524	3,2	22
	-10	32	18,2	780	6	21	28	16,5	706	5	21	20,8	13,4	578	2,4	22	15,5	11,1	478	2,7	22
1700	-30	17	26,6	1141	12,8	33	12	23,5	1020	10,5	33	—	—	—	—	—	—	—	—	—	—
	-25	20	25,5	1093	11,5	33	15	22,6	971	9,4	33	—	—	—	—	—	—	—	—	—	—
	-20	23	24,3	1044	10,6	33	18	21,5	923	8,5	33	12,8	18,7	805	6,8	34	—	—	—	—	—
	-15	26	23,2	996	10,2	33	22	20,9	899	8	33	15,5	17,4	750	6	34	10,6	14,6	630	4,5	34
	-10	29	22,1	947	8,7	33	25	19,7	850	7,3	33	18,2	16,1	690	5,1	34	13,3	13,3	571	3,7	34
2100	-30	12	29,4	1260	15	48	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-25	15	28	1200	14	48	11	25,2	1080	11,8	48	—	—	—	—	—	—	—	—	—	—
	-20	18	26,6	1140	12,8	48	15	24,5	1050	10,7	48	10,5	21,4	924	8,8	47	—	—	—	—	—
	-15	22	25,9	1110	12	48	19	23,8	1020	10,5	48	13,4	20	860	7,7	47	—	—	—	—	—
	-10	25	24,5	1050	10,6	48	22	22,4	960	10,4	48	16,2	18,5	795	6,7	47	11,7	15,2	655	4,8	47
2500	-30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-20	15	29,1	1042	10,6	63	12	26,6	994	9,5	63	—	—	—	—	—	—	—	—	—	—
	-15	18	27,5	982	9,4	63	15	25	932	8,6	63	11,6	22,3	960	9,4	63	—	—	—	—	—
	-10	21	25,8	923	8,5	63	18	23,3	870	7,4	63	14,6	20,6	887	8,1	63	—	—	—	—	—

C-KVN-60-30-3

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa
1400	-30	40	32,6	1400	9,1	42	33	29,4	1260	7,7	42	25,4	26	1120	6,2	42	18,1	22,5	970	4,9	42
	-25	41	30,8	1320	8,3	42	34	27,5	1180	6,8	42	27	24,4	1050	5,6	42	19,6	20,9	900	4,3	42
	-20	40	28,9	1240	7,2	42	36	26,1	1120	6	42	28,5	22,8	980	4,9	42	21,1	19,3	830	3,7	42
	-15	44	27,5	1180	6,7	42	38	24,7	1060	5	42	30,1	21,1	910	4,3	42	22,7	17,7	760	3,2	42
	-10	46	26,1	1120	6	42	39	23	995	4,8	42	31,6	19,5	840	3,7	42	24,2	16	690	2,7	42
1800	-30	34	38,4	1431	9,3	63	28	34,8	1420	9,5	63	22,1	31,4	1350	8,8	63	15,2	27,3	1175	7	63
	-25	36	36,6	1364	8,5	63	30	33	1347	8,4	63	23,9	29,5	1270	7,9	63	17	25,3	1090	6,1	63
	-20	39	35,4	1319	8,3	63	33	31,8	1298	7,8	63	25,6	27,5	1185	6,9	63	18,7	23,3	1005	5,3	63
	-15	41	33,6	1252	7,4	63	36	30,6	1246	7,4	63	27,4	25,5	1100	6	63	20,4	21,4	920	4,5	63
	-10	43	31,8	1185	6,8	63	39	29,4	1200	6,9	63	29,1	23,6	1015	5,2	63	22,2	19,4	835	3,8	63
2200	-30	29	43,2	1426	9,5	88	24	39,6	1475	10	88	19,4	36,4	1570	11,6	88	12,8	31,6	1360	9,1	88
	-25	31	41	1354	8,4	88	27	38,1	1421	9,5	88	21,3	34,1	1470	10,3	88	14,7	29,3	1260	7,9	88
	-20	33	38,8	1281	7,6	88	30	36,6	1366	8,5	88	23,2	31,8	1370	9	88	16,7	27	1164	6,9	88
	-15	35	36,6	1209	6,9	88	33	35,2	1312	8,3	88	25,1	29,6	1270	7,9	88	18,6	24,7	1064	5,8	88
	-10	38	35,2	1160	6,7	88	36	33,7	1257	7,4	88	27,1	27,3	1175	6,8	88	20,5	22,5	968	4,9	88
2600	-30	25	47,6	1459	9,8	116	21	44,2	1406	9,1	116	17	40,9	1755	14,3	116	10,8	35,5	1530	11,3	116
	-25	28	45,9	1406	9,1	116	24	42,4	1348	8,4	116	19,1	38,4	1650	12,7	116	12,8	33	1420	9,9	116
	-20	31	44,2	1353	8,4	116	27	40,7	1293	7,8	116	21,2	35,8	1540	11,2	116	14,9	30,4	1310	8,5	116
	-15	34	42,4	1300	8,2	116	30	39	1238	7,2	116	23,2	33,3	1430	9,8	116	17	27,8	1200	7,3	116
	-10	38	41,6	1276	7,7	116	33	37,2	1183	6,8	116	25,3	30,7	1320	8,4	116	19	25,3	1090	6,1	116

C-KVN-60-30-4

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa
1400	-30	—	—	—	—	—	41,3	33,4	1440	6,1	56	33	29,5	1270	4,9	56	24,7	25,6	1105	3,9	56
	-25	—	—	—	—	—	42,4	31,6	1360	5,5	56	34,3	27,7	1190	4,4	56	25,7	23,8	1025	3,4	56
	-20	—	—	—	—	—	43,4	29,7	1280	4,9	56	35,1	25,8	1110	3,9	56	26,8	21,9	945	2,9	56
	-15	—	—	—	—	—	44,5	27,9	1200	4,4	56	36,1	24	1030	3,4	56	27,8	20,1	864	2,5	56
	-10	—	—	—	—	—	—	—	—	—	—	37,3	22,2	955	2,9	56	28,9	18,2	785	2,1	56
1800	-30	—	—	—	—	—	37,9	40,9	1760	8,8	85	30	36,2	1560	7,2	85	22	31,4	1350	5,6	85
	-25	—	—	—	—	—	39,1	38,7	1660	7,9	85	31,3	33,9	1465	6,4	85	23,3	29,1	1254	4,9	85
	-20	—	—	—	—	—	40,4	36,4	1564	7,1	85	32,5	31,7	1365	5,6	85	24,5	26,8	1153	4,2	85
	-15	—	—	—	—	—	41,6	34,1	1470	6,3	85	33,7	29,4	1265	4,9	85	25,8	24,6	1060	3,6	85
	-10	—	—	—	—	—	42,9	31,9	1374	5,6	85	34,9	27,1	1165	4,2	85	27	22,3	960	3	85
2200	-30	42,5	53,4	2290	14,3	117	35	47,9	2060	11,8	117	27,4	42,3	1820	9,6	117	19,8	36,7	1580	7,5	117
	-25	43,9	50,8	2180	13	117	36,4	45,3	1950	10,7	117	28,8	39,7	1710	8,5	117	21,2	34,1	1470	6,6	117
	-20	—	—	—	—	—	37,8	42,6	1830	9,5	117	30,2	37	1590	7,5	117	22,6	31,4	1350	5,6	117
	-15	—	—	—	—	—	39,2	39,9	1720	8,5	117	31,6	34,4	1480	6,5	117	24	28,7	1240	4,8	117
	-10	—	—	—	—	—	40,6	37,3	1605	7,5	117	33	31,7	1365	5,6	117	25,4	26,1	1120	4	117
2600	-30	38,1	59,3	2300	14,5	154	32,2	54,2	2298	14,5	154	25,2	48	2070	12,1	154	17,8	41,6	1790	9,5	154
	-25	40,2	56,8	2280	14,1	154	34	51,4	2210	13,5	154	26,7	45	1940	10,8	154	19,3	38,6	1660	8,2	154
	-20	42,3	54,2	2259	13,9	154	35,5	48,3	2080	12,1	154	28,2	42	1810	9,5	154	20,9	35,6	1530	7,1	154
	-15	44,3	51,6	2220	13,4	154	37	45,3	1950	10,7	154	29,8	39	1680	8,2	154	22,4	32,6	1400	6	154
	-10	—	—	—	—	—	38,6	42,3	1820	9,4	154	31,3	36	1550	7,1	154	24	29,6	1275	5,1	154

C-KVN-60-35-2

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa
1500	-30	20	25	893	9,2	20	16	23	896	9,2	20	11,1	20,7	890	9,4	21	—	—	—	—	—
	-25	23	24	857	8,6	20	19	22	857	8,6	20	13,6	19,4	835	8,3	21	—	—	—	—	—
	-20	26	23	821	7,7	20	22	21	818	7,7	20	16,1	18,1	780	7,4	21	10,8	15,5	665	5,7	21
	-15	29	22	786	7,1	20	25	20	779	7,1	20	18,6	16,9	725	6,5	21	13,3	14,2	614	4,9	21
	-10	32	21	750	6,6	20	28	19	740	6,3	20	21,1	15,6	673	5,6	21	15,8	13	558	4,1	21
2000	-30	14	29,3	898	9,2	34	10	26,6	914	9,5	34	—	—	—	—	—	—	—	—	—	—
	-25	17	28	857	8,6	34	13	25,3	869	8,7	34	—	—	—	—	—	—	—	—	—	—
	-20	20	26,6	816	7,7	34	16	24	823	7,7	34	12,9	22,1	950	10,6	34	—	—	—	—	—
	-15	23	25,3	775	7	34	19	22,6	777	7	34	15,6	20,5	884	9,3	34	10,8	17,3	744	6,9	34
	-10	26	24	735	6,3	34	22	21,3	731	6,3	34	18,4	19	820	8,1	34	13,5	15,8	680	5,9	34
2500	-30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-25	12	30,8	881	9,1	49	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-20	15	29,1	833	8	49	12	26,6	879	8,7	49	10,5	25,5	1100	13,8	49	—	—	—	—	—
	-15	18	27,5	786	7,1	49	15	25	824	7,7	49	13,3	23,7	1020	12	49	—	—	—	—	—
	-10	21	25,8	738	6,3	49	18	23,3	769	7	49	16,2	22	945	10,5	49	11,7	18,2	784	7,6	49
3000	-30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-20	13	33	912	9,5	66	10	30	914	9,5	66	—	—	—	—	—	—	—	—	—	—
	-15	16	31	857	8,6	66	13	28	857	8,6	66	11,5	26,7	1150	15	66	—	—	—	—	—
	-10	19	29	802	7,4	66	18	28	857	8,6	66	14,5	24,7	1060	12,9	66	—	—	—	—	—

C-KVN-60-35-3

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa
1500	-30	42	36	1452	10,6	37	35	33	1380	9,8	37	28,4	29,3	1260	8,4	37	20,8	25,5	1100	6,7	37
	-25	44	34	1350	9,2	37	37	31	1349	9,2	37	29,8	27,5	1185	7,5	37	22,2	23,7	1020	5,9	37
	-20	—	—	—	—	—	39	29	1250	8,2	37	31,1	25,7	1104	6,6	37	23,6	21,9	945	5,1	37
	-15	—	—	—	—	—	40	28	1199	7,6	37	32,5	23,9	1029	5,8	37	24,9	20,1	865	4,4	37
	-10	—	—	—	—	—	42	26	1110	6,6	37	33,9	22,1	950	5	37	26,3	18,2	785	3,7	37
2000	-30	35	43,1	1480	10,9	59	29	39,3	1405	10	59	24,7	36,7	1580	12,8	59	17,5	31,8	1370	10,1	59
	-25	37	41,3	1417	10,1	59	32	38	1357	9,2	59	26,3	34,4	1480	11,4	59	19,2	29,6	1272	8,8	59
	-20	39	39,3	1349	9,2	59	35	36,3	1309	8,7	59	27,9	32,1	1379	10	59	20,8	27,3	1175	7,6	59
	-15	41	37,3	1280	8,5	59	38	35,3	1262	8,3	59	29,5	29,8	1282	8,7	59	22,4	25	1078	6,5	59
	-10	43	35,3	1211	7,6	59	41	34	1214	7,7	59	31,1	27,5	1183	7,5	59	24,1	22,8	985	5,5	59
2500	-30	29	49,1	1453	10,6	84	24	45	1429	10,3	84	21	42,7	1750	15,5	84	14,9	37,6	1620	13,7	84
	-25	32	47,5	1404	9,8	84	27	43,3	1376	9,8	84	22,9	40,1	1650	13,9	84	16,8	35	1510	12	84
	-20	35	45,8	1355	9,3	84	30	41,6	1323	8,9	84	25,1	37,7	1600	13,1	84	18,5	32,3	1390	10,3	84
	-15	38	44,1	1305	8,7	84	33	40	1270	8,3	84	27,1	35,2	1515	11,9	84	20,3	29,6	1275	8,8	84
	-10	41	42,5	1256	8,2	84	36	38,3	1217	7,7	84	28,9	32,5	1400	10,2	84	22,1	26,9	1160	7,4	84
3000	-30	23	52,9	1298	8,7	114	17	47	1343	9,1	114	17,2	47,4	1760	15,7	114	11,9	42,1	1700	15	114
	-25	26	50,9	1249	8,2	114	20	45	1286	8,5	114	19,5	44,7	1700	14,7	114	14,4	39,6	1670	14,5	114
	-20	29	49	1200	7,6	114	23	43	1229	7,8	114	22	42,2	1670	14,2	114	16,6	36,8	1590	13,2	114
	-15	32	47	1151	6,9	114	26	41	1171	7,3	114	24,4	39,6	1620	13,4	114	18,6	33,7	1450	11,2	114
	-10	35	45	1102	6,6	114	29	39	1114	6,6	114	27	37,1	1600	13,1	114	20,5	30,7	1320	9,4	114

C-KVN-60-35-4

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa
1500	-30	—	—	—	—	—	42,8	36,6	1570	8,1	49	34,4	32,4	1390	6,6	49	26	28,1	1210	5,5	49
	-25	—	—	—	—	—	43,8	34,5	1485	7,3	49	35,4	30,4	1310	5,9	49	27	26,1	1125	4,6	49
	-20	—	—	—	—	—	44,8	32,5	1400	6,5	49	36,4	28,3	1220	5,2	49	28	24,1	1040	4	49
	-15	—	—	—	—	—	—	—	—	—	—	37,4	26,3	1130	4,5	49	28,9	22,1	950	3,4	49
	-10	—	—	—	—	—	—	—	—	—	—	38,4	24,3	1045	3,9	49	29,9	20,1	865	2,8	49
2000	-30	—	—	—	—	—	39	46,2	1990	12,5	78	31,1	40,9	1760	10,2	78	23,1	35,5	1530	8	78
	-25	—	—	—	—	—	40,2	43,7	1880	11,3	78	32,3	38,4	1650	9	78	24,3	33	1420	7	78
	-20	—	—	—	—	—	41,4	41,1	1770	10,1	78	33,5	35,8	1540	7,9	78	25,5	30,4	1310	6	78
	-15	—	—	—	—	—	42,6	38,6	1660	9	78	34,6	33,3	1430	6,9	78	26,6	27,9	1200	5,1	78
	-10	—	—	—	—	—	43,4	36	1550	7,9	78	35,8	30,7	1320	6	78	27,8	25,3	1090	4,3	78
2500	-30	41,1	59,5	2200	14,9	113	34,9	54,4	2200	15,1	113	28,2	48,8	2100	14,1	113	20,6	42,4	1830	11,1	113
	-25	42,9	56,9	2170	14,6	113	36,8	51,8	2170	14,7	113	29,6	45,7	1964	12,4	113	22	39,4	1700	9,7	113
	-20	44,8	54,3	2140	14,2	113	38,6	49	2110	14	113	31	42,7	1870	11	113	23,3	36,3	1560	8,3	113
	-15	—	—	—	—	—	39,9	46	1980	12,4	113	32,4	39,7	1710	9,6	113	24,7	33,2	1430	7,1	113
	-10	—	—	—	—	—	41,3	42,9	1845	10,9	113	33,8	36,6	1580	8,3	113	26,1	30,2	1300	6	113
3000	-30	36,2	66,5	2200	15	152	30,3	60,6	2180	14,9	152	24,5	54,8	2170	15	152	18,5	48,7	2100	14,4	152
	-25	38,3	63,6	2180	14,7	152	32,4	57,6	2140	14,4	152	26,8	52	2160	14,8	152	20	45,2	1950	12,5	152
	-20	39,8	60,1	2050	13,1	152	34,4	54,7	2100	13,9	152	28,8	49	2110	14,2	152	21,5	41,7	1800	10,8	152
	-15	41,8	57	2000	12,5	152	36,4	51,7	2050	13,3	152	30,3	45,6	1960	12,4	152	23	38,2	1650	9,2	152
	-10	43,9	54,1	1970	12,2	152	38,5	48,7	2000	12,7	152	31,9	42,1	1810	10,7	152	24,6	34,7	1500	7,7	152

C-KVN-70-40-2

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа
2000	-30	20	33,3	1429	9,4	21	15	30	1286	7,7	21	—	—	—	—	—	—	—	—	—	—
	-25	22	31,3	1343	8,4	21	18	28,6	1229	7,1	21	12,3	25	1075	2,8	21	—	—	—	—	—
	-20	26	30,6	1314	8,2	21	21	27,3	1171	6,5	21	14,8	23,3	1005	2,5	21	—	—	—	—	—
	-15	28	28,6	1229	7,1	21	24	26	1114	5,6	21	17,4	21,7	935	2,2	21	11,9	18	775	1,6	21
	-10	30	26,6	1143	6,2	21	27	24,6	1057	5,4	21	19,9	20	860	1,9	21	14,4	16,4	705	1,6	21
2600	-30	15	39	1671	12,5	33	11	35,5	1523	10,5	33	—	—	—	—	—	—	—	—	—	—
	-25	18	37,2	1597	11,6	33	14	33,8	1448	9,7	33	—	—	—	—	—	—	—	—	—	—
	-20	21	35,5	1523	10,6	33	17	32	1374	8,7	33	12	27,9	1200	3,5	33	—	—	—	—	—
	-15	24	33,8	1448	9,7	33	20	30,3	1300	8	33	14,7	25,9	1116	3	33	—	—	—	—	—
	-10	27	32	1374	8,7	33	23	28,6	1226	7,1	33	17,4	23,9	1030	2,6	33	12,4	19,5	840	1,8	33
3200	-30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-25	12	39,4	1611	11,8	46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-20	15	37,3	1524	10,5	46	14	36,2	1554	11	46	—	—	—	—	—	—	—	—	—	—
	-15	18	35,2	1437	9,6	46	17	34,1	1463	9,8	46	12,6	29,6	1275	3,9	46	—	—	—	—	—
	-10	22	34,1	1393	8,9	46	21	33	1417	9,3	46	15,5	27,3	1175	3,3	46	10,8	22,3	960	2,4	46
3800	-30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-20	10	38	1551	11	61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-15	13	35,4	1448	9,7	61	12	34,2	1466	9,9	61	10,9	33	1420	4,7	61	—	—	—	—	—
	-10	17	34,2	1396	9	61	16	32,9	1411	9,2	61	13,9	30,5	1310	4,1	61	—	—	—	—	—

C-KVN-70-40-3

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа
2000	-30	40	46,4	1990	12	37	34	42,6	1828	10,4	37	27,1	38,3	1650	8,9	37	19,7	33,3	1430	7	37
	-25	42	44,6	1914	11,3	37	36	40,6	1743	9,6	37	28,6	35,9	1550	8	37	21,1	30,9	1330	6,2	37
	-20	45	44	1886	10,8	37	38	39	1686	9	37	30	33,5	1440	7	37	22,6	28,6	1230	5,6	37
	-15	—	—	—	—	—	39	36	1599	8	37	31,5	31,2	1340	6,1	37	24,1	26,2	1130	4,6	37
	-10	—	—	—	—	—	41	34	1499	7,4	37	33	28,8	1239	5,3	37	25,6	23,9	1030	3,9	37
2600	-30	34	55,7	1990	12	56	29	51	1990	12	56	23,8	46,8	2020	13	56	16,7	40,7	1750	10,2	56
	-25	36	52,8	1888	10,8	56	30	47,6	1857	10,7	56	25,4	43,9	1890	11,5	56	18,4	37,8	1625	8,9	56
	-20	38	50,2	1795	10	56	32	45	1756	9,7	56	27,1	41	1768	10,1	56	20,1	34,9	1500	7,7	56
	-15	40	47,6	1702	9,1	56	35	43	1710	9,2	56	28,8	38,1	1640	8,8	56	21,8	32	1380	6,6	56
	-10	42	45	1680	8,9	56	37	41	1670	8,8	56	30,4	35,2	1515	7,6	56	23,5	29,2	1260	5,6	56
3200	-30	29	62,6	1990	12	79	24	57,5	1975	12	79	20,9	54,6	2345	17,1	79	14,3	47,5	2050	13,6	79
	-25	31	59,7	1896	11	79	27	55,4	1902	11	79	22,8	51,2	2210	15,3	79	16,1	44,1	1900	11,8	79
	-20	33	56,5	1795	10	79	30	53,3	1828	10,4	79	24,6	47,8	2060	13,4	79	18	40,7	1750	10,2	79
	-15	35	53,3	1693	9	79	33	51,1	1755	9,7	79	26,5	44,4	1910	11,7	79	19,9	37,4	1610	8,7	79
	-10	37	50	1510	7,5	79	36	49	1682	8,9	79	28,3	41,1	1764	10,1	79	21,7	34	1460	7,3	79
3800	-30	25	69,6	1990	12	105	20	62,6	1990	12	105	17,5	60,5	2400	17,9	105	12,2	53,7	2320	17,1	105
	-25	28	67,1	1918	11,5	105	23	60,7	1930	11,4	105	19,9	57,2	2340	17,1	105	14,2	49,9	2150	14,8	105
	-20	31	64,5	1846	10,5	105	26	58,2	1850	10,7	105	22,5	54,1	2320	16,8	105	16,2	46,1	1990	12,9	105
	-15	33	60,7	1737	9,4	105	29	55,7	1769	9,8	105	24,5	50,3	2160	14,7	105	18,2	42,2	1820	10,69	105
	-10	37	59,5	1701	9,1	105	32	53,1	1689	8,9	105	26,5	26,5	2000	12,7	105	20,2	38,5	1660	9,2	105

C-KVN-70-40-4

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа
2200	-30	—	—	—	—	—	39,9	51,5	2220	4,1	57	31,5	45,3	1950	3,2	57	23	39,1	1680	2,5	57
	-25	—	—	—	—	—	41	48,6	2090	3,6	57	32,6	42,5	1830	2,9	57	24,1	36,2	1560	2,2	57
	-20	—	—	—	—	—	42	45,7	1960	3,2	57	33,7	39,5	1700	2,5	57	25,2	33,3	1440	1,9	57
	-15	—	—	—	—	—	43,1	42,8	1840	2,9	57	34,8	36,7	1580	2,2	57	26,3	30,4	1310	1,6	57
	-10	—	—	—	—	—	44,2	39,9	1720	2,5	57	35,58	33,7	1450	1,9	57	27,3	27,5	1185	1,3	57
2800	-30	44,5	69,9	3000	7,1	85	36,6	62,4	2680	5,8	85	28,6	55	2365	4,6	85	20,5	47,4	2040	3,6	85
	-25	—	—	—	—	—	37,5	58,9	2530	5,2	85	29,9	51,5	2215	4,1	85	21,8	43,9	1890	3,1	85
	-20	—	—	—	—	—	39,1	55,4	2380	4,6	85	31,1	47,9	2060	3,6	85	23	40,4	1740	2,7	85
	-15	—	—	—	—	—	40,3	51,9	2230	4,1	85	32,4	44,4	1910	3,1	85	24,3	36,9	1590	2,3	85
	-10	—	—	—	—	—	41,6	48,4	2080	3,6	85	33,6	40,9	1760	2,7	85	25,6	33,4	1440	1,9	85
2500	-30	41,4	81,3	3490	9,4	116	33,8	72,7	3130	7,7	116	26,2	64	2760	6,2	116	18,4	55,1	2380	4,8	116
	-25	42,8	77,2	3320	8,6	116	35,2	68,6	2950	6,9	116	27,6	59,9	2580	5,4	116	19,8	51	2200	4,1	116
	-20	44,2	73,1	3140	7,7	116	36,6	64,4	2770	6,1	116	28,69	55,7	2400	4,8	116	21,2	46,9	2020	3,5	116
	-15	—	—	—	—	—	38	60,4	2600	5,5	116	30,3	51,6	2220	4,1	116	22,6	42,8	1840	3	116
	-10	—	—	—	—	—	39,4	56,3	2420	4,8	116	31,8	47,6	2050	3,5	116	24	38,7	1670	2,5	116
4000	-30	38,6	91,9	3950	11,9	152	31,3	82,2	3540	9,7	152	23,9	72,3	3110	7,7	152	16,4	62,2	2680	5,9	152
	-25	40,1	87,3	3750	10,8	152	32,9	77,5	3340	8,7	152	25,5	67,6	2910	6,8	152	18	57,6	2480	5,1	152
	-20	41,7	82,6	3550	9,7	152	34,4	72,9	3140	7,8	152	27	63	2710	6	152	19,5	53	2280	4,4	152
	-15	43,2	78	3350	8,7	152	35,9	68,3	2940	6,9	152	28,6	58,3	2510	5,2	152	21,1	48,3	2080	3,7	152
	-10	44,7	73,3	3150	7,58	152	37,5	63,6	2740	6	152	30,1	53,7	2310	4,4	152	22,6	43,7	1879	3,1	152

C-KVN-80-50-2

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа
2500	-30	22	43,3	1857	6	18	17	39,1	1678	4,9	18	12	35,2	1510	4,2	17	—	—	—	—	—
	-25	25	41,6	1786	5,5	18	20	37,5	1607	4,4	18	14,4	33	1420	3,7	17	—	—	—	—	—
	-20	28	40	1714	5,1	18	23	35,8	1536	4,1	18	16,8	30,9	1330	3,3	17	11,2	26,2	1125	2,5	17
	-15	31	38,3	1643	4,8	18	26	34,1	1464	3,8	18	19,3	28,7	1235	2,9	17	13,7	24	1035	2,1	17
	-10	34	36,6	1571	4,3	18	29	32,5	1393	3,4	18	21,7	26,5	1145	2,5	17	16,1	21,8	940	1,8	17
3500	-30	14	51,3	2200	8	30	12	49	2102	7,5	30	—	—	—	—	—	—	—	—	—	—
	-25	17	49	2100	7,5	30	15	46,6	1998	7	30	10,5	41,6	1790	5,7	30	—	—	—	—	—
	-20	20	46,6	1999	7	30	18	44,3	1900	6	30	13,1	38,9	1670	5	30	—	—	—	—	—
	-15	23	44,3	1900	6	30	21	42	1803	5,6	30	15,8	36,2	1560	4,4	30	10,8	30,2	1300	3,2	30
	-10	26	42	1801	5,6	30	25	40,8	1750	5,3	30	18,5	33,4	1440	3,8	30	13,4	27,4	1180	2,7	30
4500	-30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-25	10	52,4	2045	7	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-20	13	49,5	1928	6,1	45	10	45	1928	6,3	45	10,4	45,9	1980	6,9	45	—	—	—	—	—
	-15	16	46,5	1812	5,8	45	13	42	1800	5,6	45	13,3	42,6	1840	6	45	—	—	—	—	—
	-10	19	43,5	1695	5	45	17	40,5	1736	5,3	45	16,1	39,4	1700	5,2	45	11,5	32,4	1400	3,7	45
5500	-30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-25	10	64,1	1896	5,9	62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-20	13	60,4	1788	5,5	62	10	54,9	1886	5,9	62	—	—	—	—	—	—	—	—	—	—
	-15	16	56,8	1680	4,9	62	13	51,3	1760	5,4	62	—	—	—	—	—	—	—	—	—	—
	-10	19	53,1	1571	4,3	62	16	47,6	1634	4,8	62	10,2	37,1	1065	2,2	62	—	—	—	—	—

C-KVN-80-50-3

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа
2500	-30	42	60	2501	6,7	29	35	54	2350	6	29	27,4	48,1	2070	4,8	29	19,7	41,6	1790	3,8	29
	-25	44	58	2450	64	29	36	51	2201	5,3	29	28,8	45	1940	4,3	29	21,1	38,6	1660	3,3	29
	-20	45	55	2349	5,9	29	38	48	2060	4,7	29	30,2	42	1810	3,8	29	22,4	35,5	1530	2,8	29
	-15	—	—	—	—	—	39	45	1940	4,2	29	31,6	39	1680	3,3	29	23,8	32,5	1400	2,4	29
	-10	—	—	—	—	—	40	42	1800	3,7	29	33	36	1550	2,8	29	25,2	29,5	1270	2	29
3500	-30	36	76,9	3300	8,2	51	30	69,9	2999	6,7	51	23,2	62,3	2680	7,8	51	17,9	56,2	2420	14,3	51
	-25	38	73,4	3150	7,3	51	33	67,6	2900	6,4	51	24,9	58,4	2520	7	51	19,6	52,2	2250	12,5	51
	-20	40	69,9	2999	6,7	51	36	65,3	2801	6	51	26,5	54,5	2350	6,1	51	21,2	48,3	2080	10,8	51
	-15	41	65,3	2800	6	51	39	62,9	2701	5,5	51	28,1	50,6	2180	5,3	51	22,8	44,3	1910	9,3	51
	-10	43	61,8	2650	5,4	51	42	60,6	2566	5,1	51	29,8	46,6	2010	4,6	51	24,4	40,4	1740	7,8	51
4500	-30	30	89,9	3086	7,1	77	25	82,4	3074	7,1	77	19,8	75,1	3230	11,1	77	13,1	65	2800	8,6	77
	-25	33	86,9	2983	6,6	77	28	79,4	2963	6,6	77	21,7	70,4	3030	9,8	77	15	60,3	2600	7,5	77
	-20	36	83,9	2880	6,2	77	31	76,4	2851	6,1	77	23,6	65,7	2830	8,6	77	16,8	55,5	2390	6,4	77
	-15	39	80,9	2777	5,8	77	33	71,9	2683	5,6	77	25,4	60,9	2628	7,5	77	18,7	50,8	2190	5,5	77
	-10	42	77,9	2674	5,5	77	36	68,9	2571	5,1	77	27,3	56,2	2420	6,4	77	20,6	46,1	1990	4,6	77
5500	-30	25	100,7	3201	7,8	107	20	92,3	3300	8,2	107	17,1	86,7	3730	14,5	107	10,7	75	3240	11,3	107
	-25	28	97,1	3085	7,1	107	23	87,9	3143	7,3	107	19,1	81,2	3490	12,8	107	12,7	69,5	3000	9,8	107
	-20	31	93,4	2968	6,5	107	26	84,2	3012	6,8	107	21,1	75,8	3260	11,2	107	14,8	64	2760	8,4	107
	-15	33	87,9	2794	5,9	107	29	80,6	2881	6,2	107	23,1	70,2	3020	9,7	107	16,8	58,5	2520	7,1	107
	-10	36	84,2	2677	5,5	107	32	76,9	2750	5,7	107	25,2	64,8	2790	8,4	107	18,8	53	2280	5,9	107

C-KVN-80-50-4

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа
2700	-30	—	—	—	—	—	42,5	65,5	2820	3,2	45	34	57,8	2490	2,6	45	25,4	50,1	2160	2,1	45
	-25	—	—	—	—	—	43,4	61,9	2660	2,9	45	34,9	54,2	2330	2,3	45	26,3	46,4	2000	1,8	45
	-20	—	—	—	—	—	44,4	58,2	2500	2,6	45	35,8	50,5	2170	2	45	27,2	42,7	1840	1,6	45
	-15	—	—	—	—	—	—	—	—	—	—	36,8	46,9	2020	1,8	45	28,2	39	1680	1,3	45
	-10	—	—	—	—	—	—	—	—	—	—	37,8	43,2	1860	1,5	45	29,1	35,4	1520	1,1	45
3700	-30	—	—	—	—	—	38,4	84,8	3650	5,2	75	30,3	74,7	3210	4,2	75	22,1	64,6	2780	3,3	75
	-25	—	—	—	—	—	39,6	80,1	3450	4,6	75	31,5	70	3010	3,7	75	23,3	59,9	2580	2,9	75
	-20	—	—	—	—	—	40,7	75,3	3240	4,1	75	32,7	65,3	2809	3,3	75	24,6	55,2	2380	2,5	75
	-15	—	—	—	—	—	41,9	70,6	3040	3,7	75	33,9	60,6	2610	2,8	75	25,8	50,5	2180	2,1	75
	-10	—	—	—	—	—	43,1	65,8	2830	3,2	75	35,1	55,9	2410	2,5	75	26,9	45,7	1970	1,8	75
4700	-30	42,5	114,2	4900	8,8	110	35	102,3	4400	7,3	110	27,3	90,2	3890	5,9	110	19,5	77,9	3350	4,6	110
	-25	43,9	108,5	4660	8	110	36,3	96,6	4160	6,6	110	28,7	84,5	3640	5,2	110	20,9	72,3	3120	4	110
	-20	—	—	—	—	—	37,7	90,8	3910	5,9	110	30	78,8	3390	4,6	110	22,3	66,6	2870	3,5	110
	-15	—	—	—	—	—	39,1	85,2	3670	5,2	110	31,4	73	3140	4	110	23,6	60,8	2620	2,9	110
	-10	—	—	—	—	—	40,5	79,4	3420	4,6	110	32,7	67,3	2890	3,4	110	25	55,2	2380	2,5	110
5700	-30	39,3	132,3	5680	11,6	151	32	118,4	5100	9,6	151	24,7	104,4	4490	7,7	151	17,3	90,3	3900	6,1	151
	-25	40,8	125,7	5400	10,5	151	33,5	111,7	4800	8,6	151	26,2	97,7	4200	6,8	151	18,8	83,7	3610	5,3	151
	-20	42,4	119	5120	9,5	151	35	105,1	4510	7,6	151	27,7	91,1	3920	6	151	20,3	77	3320	4,5	151
	-15	43,9	112,4	4830	8,5	151	36,6	98,5	4240	6,8	151	29,3	84,5	3640	5,2	151	21,9	70,4	3030	3,8	151
	-10	—	—	—	—	—	38,2	91,9	3960	6	151	30,8	78	3360	4,5	151	23,4	63,7	2740	3,2	151

C-KVN-90-50-2

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа
3500	-30	18	55,9	2400	10,1	25	14	51,3	2201	8,9	25	—	—	—	—	—	—	—	—	—	—
	-25	21	53,6	2300	9,4	25	17	49	2099	8	25	12,3	43,7	1880	6,8	24	—	—	—	—	—
	-20	24	51,3	2201	8,9	25	20	46,6	2000	7,4	25	14,9	40,9	1760	6	24	—	—	—	—	—
	-15	27	49	2099	8	25	23	44,3	1902	6,8	25	17,5	38	1640	5,3	24	12,3	32	1380	3,9	24
	-10	30	46,6	1999	7,4	25	26	42	1800	6,1	25	20	35,2	1510	4,5	24	14,8	29,1	1250	3,3	24
4500	-30	13	64,4	2211	8,9	37	10	59,9	2236	9	37	—	—	—	—	—	—	—	—	—	—
	-25	16	61,4	2108	8	37	13	56,9	2124	8,4	37	—	—	—	—	—	—	—	—	—	—
	-20	19	58,4	2006	7,5	37	16	53,9	2012	7,6	37	12,1	48,4	2080	8,2	37	—	—	—	—	—
	-15	22	55,4	1903	6,8	37	19	50,9	1901	6,8	37	14,9	45	1940	7,2	37	—	—	—	—	—
	-10	25	52,4	1800	6,1	37	23	49,5	1845	6,4	37	17,6	41,6	1790	6,2	37	12,8	34,4	1480	4,5	37
5500	-30	10	73,3	2417	10,3	51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-25	13	69,6	2297	9,4	51	10	64,1	2292	9,4	51	—	—	—	—	—	—	—	—	—	—
	-20	16	65,9	2176	8,4	51	13	60,4	2161	8,4	51	10	55,2	2390	10,6	51	—	—	—	—	—
	-15	19	62,3	2055	7,8	51	16	56,8	2030	7,8	51	12,8	51,2	2200	9,1	51	—	—	—	—	—
	-10	22	58,6	1934	7	51	19	53,1	1899	6,8	51	15,7	47,4	2040	7,9	51	11,3	39,2	1690	5,7	51
6500	-30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-20	14	73,6	2428	10,5	68	10	64,9	2321	9,6	68	—	—	—	—	—	—	—	—	—	—
	-15	17	69,3	2286	9,4	68	13	60,6	2167	8,4	68	11,1	56,9	2450	11,1	67	—	—	—	—	—
	-10	20	64,9	2143	8,3	68	16	56,3	2012	7,5	68	14,2	52,7	2270	9,3	67	—	—	—	—	—

C-KVN-90-50-3

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа
3500	-30	38	79,3	3400	9,5	42	32	72,3	3100	7,9	42	25,2	64,8	2790	9,1	42	17,9	56,2	2420	7,1	42
	-25	40	75,8	3250	8,6	42	35	69,9	3000	7,5	42	26,8	60,7	2610	8	42	19,5	52,1	2250	6,2	42
	-20	42	72,3	3100	7,9	42	38	67,6	2900	7,2	42	28,3	56,7	2440	7,1	42	21	48,1	2070	5,3	42
	-15	44	68,8	2950	7,4	42	41	65,3	2800	6,8	42	29,9	52,6	2270	6,2	42	22,6	44	1900	4,5	42
	-10	46	65,3	2800	6,8	42	43	61,8	2650	6,2	42	31,4	48,5	2090	5,3	42	24,1	39,9	1720	3,8	42
4500	-30	30	89,9	2857	7	63	27	85,4	3053	7,6	63	22	78,3	3380	13	63	15,1	67,9	2930	10,1	63
	-25	33	86,9	2762	6,7	63	30	82,4	2946	7,4	63	23,7	73,4	3170	11,5	63	16,8	63	2710	8,7	63
	-20	36	83,9	2667	6,3	63	33	79,4	2839	7	63	25,4	68,5	2950	10,1	63	18,5	58,1	2500	7,5	63
	-15	39	80,9	2571	5,9	63	36	76,4	2732	6,6	63	27,2	63,6	2730	8,7	63	20,3	53,2	2290	6,4	63
	-10	42	77,9	2476	5,5	63	39	73,4	2625	6,1	63	28,9	58,7	2520	7,5	63	22	48,3	2080	5,4	63
5500	-30	27	104,4	3199	8,3	88	22	95,2	3143	8	88	19,2	90,7	3900	17	88	12,7	78,6	3390	13,3	88
	-25	30	101	3087	7,9	88	25	91,6	3022	7,6	88	21,2	85	3670	15,1	88	14,6	73	3150	11,6	88
	-20	33	97,1	2974	7,5	88	28	87,9	2901	7,2	88	23,1	79,3	3420	13,3	88	16,5	67,3	2900	9,9	88
	-15	36	93,4	2862	7,1	88	31	84,2	2780	6,7	88	25	73,7	3180	11,6	88	18,4	61,6	2650	8,4	88
	-10	39	89,7	2750	6,6	88	33	78,8	2599	6	88	26,9	68	2930	9,9	88	20,4	55,9	2410	7	88
6500	-30	23	115	3281	8,6	116	18	104	3184	8,1	116	16,9	102,1	4400	21,3	116	10,6	88,4	3800	16,4	116
	-25	26	110	3157	8	116	21	100	3051	7,7	116	19	95,7	4120	18,8	116	12,7	82	3530	14,3	116
	-20	29	106	3033	7,8	116	24	95,2	2918	7,4	116	21	89,3	3840	16,5	116	14,8	75,7	3260	12,3	116
	-15	32	102	2909	7,3	116	27	90,9	2786	6,8	116	23,1	82,9	3570	14,4	116	16,8	69,3	2990	10,5	116
	-10	35	97	2786	6,7	116	30	86,6	2653	6,3	116	25,2	76,5	3300	12,4	116	18,9	63	2720	8,8	116

C-KVN-90-50-4

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа
3500	-30	—	—	—	—	—	41,3	83,5	3600	5,5	56	33	73,8	3180	4,5	56	24,6	64	2760	3,5	56
	-25	—	—	—	—	—	42,3	78,9	3400	5	56	34	69,2	2980	4	56	25,6	59,4	2560	3,1	56
	-20	—	—	—	—	—	43,3	74,3	3200	4,4	56	35,1	64,5	2780	3,5	56	26,7	54,7	2360	2,7	56
	-15	—	—	—	—	—	44,4	69,6	3000	3,9	56	36,1	59,9	2580	3,1	56	27,7	50,1	2160	2,3	56
	-10	—	—	—	—	—	—	—	—	—	—	37,2	55,3	2380	2,6	56	28,8	45,5	1960	1,9	56
4500	-30	—	—	—	—	—	37,8	102,3	4400	8	85	30	90,4	3900	6,5	85	22	78,3	3380	5,1	85
	-25	—	—	—	—	—	39,1	96,6	4160	7,2	85	31,2	84,7	3650	5,8	85	23,2	72,7	3140	4,4	85
	-20	—	—	—	—	—	40,3	90,8	3900	6,4	85	32,4	79	3400	5,1	85	24,5	67	2890	3,9	85
	-15	—	—	—	—	—	41,5	85,2	3660	5,7	85	33,6	73,3	3150	4,4	85	25,7	61,4	2650	3,3	85
	-10	—	—	—	—	—	42,8	79,5	3420	5	85	34,9	67,6	2910	3,8	85	26,9	55,7	2400	2,8	85
5500	-30	42,4	133,4	5720	12,8	117	34,9	119,6	5150	10,7	117	27,4	105,7	4560	8,7	117	19,7	91,5	3940	6,8	117
	-25	43,8	126,8	5450	11,7	117	36,3	112,9	4860	9,6	117	28,8	99	4270	7,7	117	21,1	84,9	3650	5,9	117
	-20	—	—	—	—	—	37,7	106,3	4570	8,6	117	30,1	92,4	3980	6,7	117	22,5	78,3	3370	5,1	117
	-15	—	—	—	—	—	39,1	99,6	4280	7,6	117	31,5	85,7	3690	5,9	117	23,9	71,6	3080	4,3	117
	-10	—	—	—	—	—	40,5	93	3990	6,7	117	32,9	79,1	3400	5,1	117	25,3	65	2800	3,6	117
6500	-30	39,2	150,6	6300	15,4	154	32,3	135,7	5820	13,4	154	25,1	119,9	5160	10,9	154	17,7	103,9	4480	8,6	154
	-25	41,1	143,9	6180	14,8	154	33,9	128,2	5520	12,2	154	26,6	112,3	4830	9,6	154	19,3	96,4	4160	7,5	154
	-20	42,5	136,1	5800	13,2	154	35,4	120,7	5200	10,9	154	28,1	104,7	4500	8,5	154	20,8	88,8	3830	6,4	154
	-15	44,1	128,6	5480	11,8	154	37	113,1	4870	9,6	154	29,7	97,2	4180	7,4	154	22,3	81,3	3500	5,5	154
	-10	—	—	—	—	—	38,5	105,6	4540	8,5	154	31,2	89,7	3860	6,4	154	23,9	73,7	3170	4,6	154

C-KVN-100-50-2

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа	tвк, °C	Q, кW	Gж, kg/h	dPж, кPа	dPж, кPа
4000	-30	19	65,3	2333	10,6	26	15	59,9	2571	12,6	26	—	—	—	—	—	—	—	—	—	—
	-25	22	62,6	2238	9,9	26	18	57,3	2457	11,6	26	12,3	50	2150	9,4	26	—	—	—	—	—
	-20	25	59,9	2143	9,1	26	21	54,6	2343	10,6	26	14,9	46,7	2010	8,3	26	—	—	—	—	—
	-15	28	57,3	2048	8,5	26	24	51,9	2228	9,7	26	17,5	43,5	1870	7,2	26	12,4	36,7	1580	5,4	26
	-10	31	54,6	1952	7,7	26	27	49,3	2114	9	26	20,1	40,3	1730	6,3	26	15	33,7	1440	4,6	26
5200	-30	13	74,5	2457	11,6	40	10	69,3	2377	11	40	—	—	—	—	—	—	—	—	—	—
	-25	16	71	2343	10,6	40	13	65,8	2258	10	40	—	—	—	—	—	—	—	—	—	—
	-20	19	67,5	2228	9,7	40	17	64,1	2199	9,6	40	12	55,7	2400	11,5	39	—	—	—	—	—
	-15	22	64,1	2114	9	40	20	60,6	2080	8,7	40	14,8	51,9	2240	10,1	39	10,1	43,7	1880	7,5	39
	-10	25	60,6	2000	8,3	40	23	57,1	1961	7,7	40	17,6	48	2070	8,7	39	12,9	39,8	1720	6,3	39
6300	-30	10	83,9	2571	12,6	53	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-25	14	81,8	2507	11,9	53	10	73,4	2423	11,3	53	—	—	—	—	—	—	—	—	—	—
	-20	18	79,7	2443	11,4	53	13	69,2	2285	10,1	53	—	—	—	—	—	—	—	—	—	—
	-15	22	77,6	2378	11	53	16	65	2146	9,1	53	12,8	58,7	2530	12,7	54	—	—	—	—	—
	-10	26	75,5	2314	10,4	53	19	60,8	2008	8,3	53	15,8	54,3	2340	11	54	11,3	45	1940	7,9	54
7500	-30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-20	13	82,4	2357	10,8	72	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	-15	17	79,9	2286	10,1	72	13	69,9	2400	11,2	72	11,1	65,5	2820	15,5	72	—	—	—	—	—
	-10	21	77,4	2214	9,7	72	16	64,9	2228	9,7	72	14,1	60,6	2610	13,4	72	—	—	—	—	—

C-KVN-100-50-3

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa
4000	-30	36	87,9	3143	9,1	44	31	81,3	3169	9,1	44	25,3	74	3180	12,4	44	18	64,4	2770	9,8	44
	-25	39	85,2	3047	8,6	44	34	78,6	3065	8,7	44	26,9	69,5	3000	11,1	44	19,6	59,7	2570	8,5	44
	-20	42	82,6	2952	8,1	44	37	75,9	2961	8,4	44	28,4	64,9	2800	9,8	44	21,1	55,1	2370	7,3	44
	-15	44	78,6	2809	7,3	44	40	73,3	2857	7,6	44	30	60,3	2600	8,5	44	22,7	50,6	2180	6,3	44
	-10	46	74,6	2667	6,7	44	43	70,6	2753	7,1	44	31,6	55,7	2400	7,4	44	24,3	46	1980	5,3	44
5200	-30	30	106	3300	10	68	25	96	3300	10	68	21,6	90,4	3900	18,2	68	15	78,4	3380	14,2	68
	-25	33	100	3200	9,5	68	28	91	3210	9,5	68	23,6	84,7	3650	16,1	68	16,8	72,8	3130	12,3	68
	-20	35	95	3100	9	68	30	87	3180	9,4	68	25,4	79	3400	14,1	68	18,6	67,2	2890	10,6	68
	-15	37	91	3010	8,5	68	32	82	3100	9	68	27,2	73,4	3160	12,3	68	20,4	61,6	2650	9	68
	-10	39	86	2910	8,1	68	35	77	3020	8,5	68	29	67,9	2930	10,7	68	22,1	56	2410	7,6	68
6300	-30	25	115	3300	10	93	21	107	3400	10,4	93	19,2	103,9	4480	23,6	93	12,7	90,2	3880	18,3	93
	-25	27	109	3120	9	93	24	103	3267	9,6	93	21,1	97,3	4180	20,7	93	14,7	83,7	3610	16	93
	-20	30	105	3000	8,5	93	27	98,6	3133	9	93	23,1	90,9	3910	18,3	93	16,7	77,3	3340	13,8	93
	-15	33	101	2880	7,7	93	30	94,4	3000	8,5	93	25	84,4	3630	15,9	93	18,6	70,9	3060	11,8	93
	-10	36	96,5	2760	7,1	93	34	92,3	2933	8	93	27	78	3360	13,8	93	20,5	64,4	2780	9,8	93
7500	-30	18	119	3400	10,4	123	16	115	3286	10	123	14,4	111,5	4000	19,1	123	10,6	102	4400	23,2	123
	-25	22	117	3357	10,3	123	20	112	3214	9,3	123	17,1	105,7	3950	18,7	123	12,7	94,7	4080	20,1	123
	-20	25	112	3214	9,3	123	23	107	3071	8,7	123	19,7	99,8	3900	18,2	123	14,8	87,4	3760	17,3	123
	-15	28	107	3071	8,7	123	26	102	2928	8	123	22,4	94	3850	17,8	123	16,9	80	3440	14,6	123
	-10	31	102	2928	8	123	30	99,9	2857	7,6	123	25,1	88,2	3800	17,3	123	19	72,7	3130	12,3	123

C-KVN-100-50-4

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/	tвн, °C	90/70					80/60					70/50					60/40				
		tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa	tвк, °C	Q, кW	Gж, kg/h	dPж, кPa	dPж, кPa
4000	-30	—	—	—	—	—	41,3	95,5	4100	7,6	59	33,1	84,5	3630	6,2	59	24,8	73,5	3170	5	59
	-25	—	—	—	—	—	42,3	90,2	3880	6,9	59	34,1	79,2	3410	5,5	59	25,9	68,2	2940	4,3	59
	-20	—	—	—	—	—	43,4	85	3660	6,2	59	35,2	74	3190	4,9	59	26,9	62,9	2710	3,7	59
	-15	—	—	—	—	—	44,5	79,7	3430	5,5	59	36,3	68,7	2960	4,3	59	28	57,6	2480	3,2	59
	-10	—	—	—	—	—	—	—	—	—	—	37,3	63,4	2730	3,7	59	29	52,3	2250	2,7	59
5200	-30	—	—	—	—	—	37,7	117,9	5060	11,2	90	29,9	104,4	4500	9,2	90	22	90,6	3900	7,2	90
	-25	—	—	—	—	—	39	111,5	4800	10,2	90	31,2	97,9	4220	8,2	90	23,3	84,1	3620	6,3	90
	-20	—	—	—	—	—	40,3	104,9	4520	9,1	90	32,5	91,4	3940	7,2	90	24,5	77,6	3340	5,5	90
	-15	—	—	—	—	—	41,5	98,4	4240	8,1	90	33,7	84,9	3660	6,3	90	25,8	71,1	3060	4,7	90
	-10	—	—	—	—	—	42,8	91,9	3960	7,1	90	35	78,4	3380	5,4	90	27,1	64,6	2790	3,9	90
6300	-30	40,8	149,5	5800	14,3	123	34,8	136,6	5820	14,6	123	27,4	121,1	5200	12	123	19,8	105,1	4520	9,5	123
	-25	42,3	142	5520	13,1	123	36,3	129,3	5550	13,3	123	28,8	113,5	4880	10,7	123	21,2	97,6	4200	8,3	123
	-20	44,1	135,2	5400	12,5	123	37,7	121,9	5250	12	123	30,2	106	4560	9,4	123	22,7	90,1	3880	7,2	123
	-15	—	—	—	—	—	39,2	114,3	4920	10,7	123	31,7	98,5	4250	8,3	123	24,1	82,5	3560	6,1	123
	-10	—	—	—	—	—	40,6	106,7	4590	9,4	123	33,1	90,9	3920	7,1	123	25,6	75	3240	5,2	123
7500	-30	36,2	166,3	5800	14,3	164	30,5	151,9	5810	14,5	164	24,5	137	5690	14,2	164	17,7	119,9	5170	12,1	164
	-25	38,2	158,8	5700	13,9	164	32,5	144,5	5705	14	164	26,6	129,6	5590	13,7	164	19,3	111,3	4790	10,5	164
	-20	40,3	151,4	5600	13,4	164	34,6	137,1	5603	13,6	164	28,1	120,9	5200	12	164	20,9	102,7	4430	9,1	164
	-15	42,3	144	5500	13	164	36,7	129,8	5500	13,1	164	29,7	112,2	4820	10,4	164	22,4	94,1	4050	7,7	164
	-10	44,4	136,7	5400	12,5	164	38,4	121,7	5230	11,9	164	31,2	103,6	4450	9	164	24	85,5	3680	6,5	164

ELECTRIC DUCT HEATER C-EVN

- for heating air in stationary ventilation systems, air conditioning of industrial, public and residential buildings, installation in rectangular ventilation ducts..

REQUIREMENTS:

- air must be free of sticky and fibrous materials, explosive gas mixtures and aggressive substances;
- content of dust and other solid impurities should not exceed 0.1 g/m³;
- MAXIMUM AIR TEMPERATURE at the outlet of the air heater is 40° C;
- MINIMUM AIR FLOW RATE corresponds to the minimum air velocity in the casing cross-section of 1.5 m/s;
- heater supply voltage - 380 V;
- power supply voltage of the tubular heating elements is 220 V.
- ingress protection rating IP40.

The CASING and SWITCHBOARD of the electric duct heater are made of galvanized steel.

The HEATING ELEMENTS are made of stainless steel.

The air heater is equipped with two-stage protection against overheating.

The first stage sensor (with automatic return to its original position) is triggered when the air temperature on the heater casing reaches 60° C.

The second stage sensor (with manual return to its original position) is triggered when the air temperature on the heater casing reaches 90° C.

If the ventilation system, which includes an electric air heater, is adjusted manually, when the system is turned off, the air heater must first be turned off, and after the tubular heating element is completely cooled, the fan must be turned off.



C-EVN-40-20-6

- electric duct heater
- standard size (for rectangular connection section BxH)
- power (kW)

RECOMMENDATIONS

The required heating capacity of an electric heater can be calculated by the formula

$$Q = \frac{L \cdot p \cdot Cp \cdot (t_{вих} - t_{вх})}{3600}, \text{ kW}$$

where:

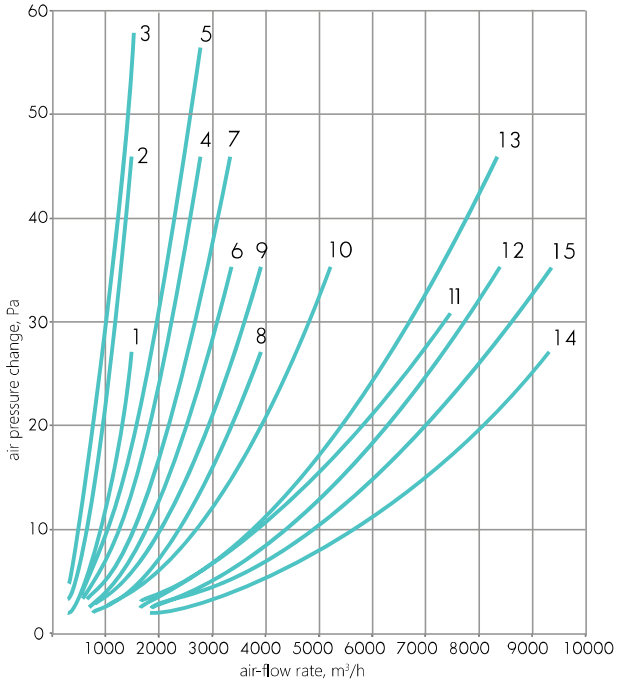
L - flow rate of heated air, m³/h

p - air density, kg/m³

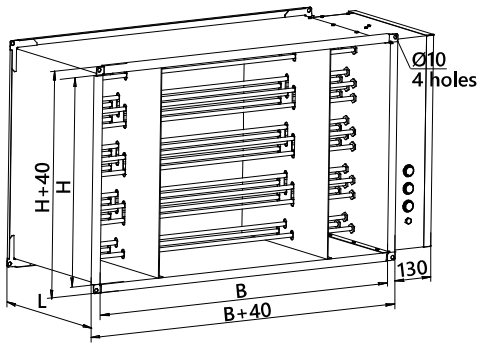
Cp - air heat capacity, kJ/kg x °C

tвх – tвих - initial and final temperatures of the heated air, °C

AERODYNAMIC CHARACTERISTICS



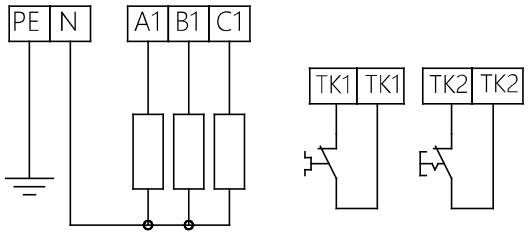
1 - C-EVN-40-20-6
2 - C-EVN-40-20-12
3 - C-EVN-40-20-18
4 - C-EVN-50-25-18
C-EVN-50-30-24
5 - C-EVN-50-25-24
C-EVN-50-30-12
C-EVN-50-30-30
6 - C-EVN-50-25-12
C-EVN-60-30-22,5
7 - C-EVN-50-30-18
C-EVN-60-30-27
C-EVN-60-30-31,5
8 - C-EVN-60-35-22,5
9 - C-EVN-50-30-12
C-EVN-60-30-15
C-EVN-60-35-27
C-EVN-60-35-31,5
10 - C-EVN-60-35-16,5
C-EVN-70-40-27
C-EVN-70-40-31,5
C-EVN-70-40-45
11 - C-EVN-80-50-60
12 - C-EVN-90-50-67,5
13 - C-EVN-90-50-90
C-EVN-100-50-90
14 - C-EVN-80-50-31,5
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C-EVN-100-50-45
15 - C-EVN-90-50-45
C-EVN-100-50-67,5



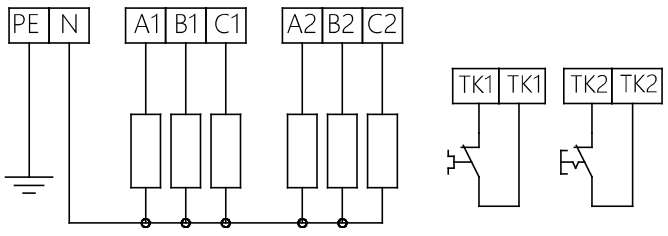
STANDARD SIZE	Dimensions, mm			Power, kW	Heating stages	Current consumption, A	Minimum air flow, m³/h	Weight, kg, max	Connection diagram
	B	H	L						
C-EVN-40-20-6	400	200	170	6	6	9,1	450	7,0	A1
C-EVN-40-20-12	400	200	220	12	6+6	18,3	450	9,6	A2
C-EVN-40-20-18	400	200	280	18	12+6	27,4	450	10,6	A2
C-EVN-50-25-12	500	250	220	12	6+6	18,3	700	10,6	A2
C-EVN-50-25-18	500	250	280	18	12+6	27,4	700	11,7	A2
C-EVN-50-25-24	500	250	330	24	12+6+6	36,5	700	14,7	A3
C-EVN-50-30-12	500	300	220	12	6+6	18,3	850	11,0	A2
C-EVN-50-30-18	500	300	280	18	12+6	27,4	850	13,0	A2
C-EVN-50-30-24	500	300	330	24	12+6+6	36,5	850	16,0	A3
C-EVN-50-30-30	500	300	390	30	12+12+6	45,6	850	17,2	A3
C-EVN-60-30-15	600	300	370	15	6+9	22,8	1000	13,2	A2
C-EVN-60-30-22,5	600	300	370	22,5	9+13,5	34,2	1000	13,8	A2
C-EVN-60-30-27	600	300	370	27	9+9+9	41	1000	15,6	A3
C-EVN-60-30-31,5	600	300	370	31,5	9+9+13,5	47,9	1000	16,0	A3
C-EVN-60-35-16,5	600	350	370	16,5	7,5+9	25	1200	13,8	A2
C-EVN-60-35-22,5	600	350	370	22,5	9+13,5	34,2	1200	15,6	A2
C-EVN-60-35-27	600	350	370	27	9+9+9	41	1200	18,0	A3
C-EVN-60-35-31,5	600	350	370	31,5	9+9+13,5	47,9	1200	19,3	A3
C-EVN-70-40-27	700	400	370	27	9+9+9	41	1600	18,1	A3
C-EVN-70-40-31,5	700	400	370	31,5	9+9+13,5	47,9	1600	18,7	A3
C-EVN-70-40-45	700	400	500	45	9+9+13,5+13,5	68,4	1600	20,3	A4
C-EVN-80-50-31,5	800	500	370	31,5	9+9+13,5	47,9	2200	20,3	A3
C-EVN-80-50-45	800	500	500	45	9+9+13,5+13,5	68,4	2200	22,5	A4
C-EVN-80-50-60	800	500	500	60	9+9+13,5+13,5+15	91,2	2200	26,4	A5
C-EVN-90-50-45	900	500	370	45	7,5+7,5+15+15	68,4	2500	31,1	A4
C-EVN-90-50-67,5	900	500	500	67,5	7,5+15+15+15+15	102,6	2500	33,0	A5
C-EVN-90-50-90	900	500	500	90	15+15+15+15+15+15	136,8	2500	33,7	A6
C-EVN-100-50-45	1000	500	370	45	7,5+7,5+15+15	68,4	2800	33,1	A4
C-EVN-100-50-67,5	1000	500	500	67,5	7,5+15+15+15+15	102,6	2800	33,9	A5
C-EVN-100-50-90	1000	500	500	90	15+15+15+15+15+15	136,8	2800	35,6	A6

ELECTRICAL CONNECTION DIAGRAMS

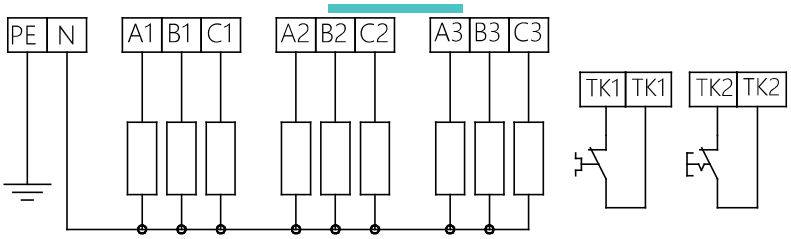
A1



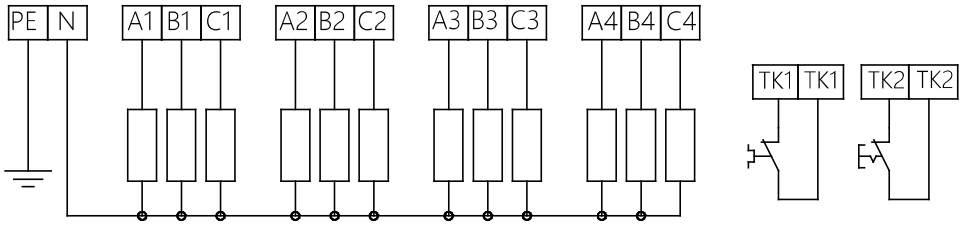
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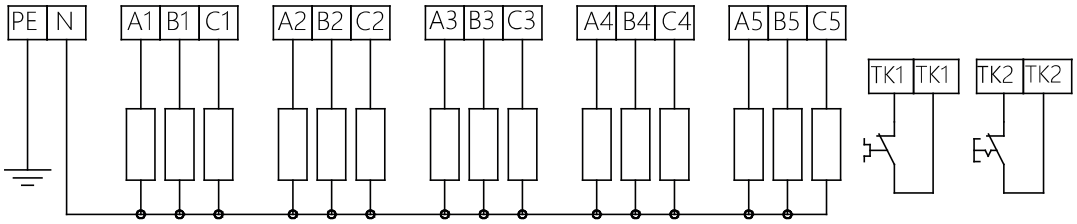
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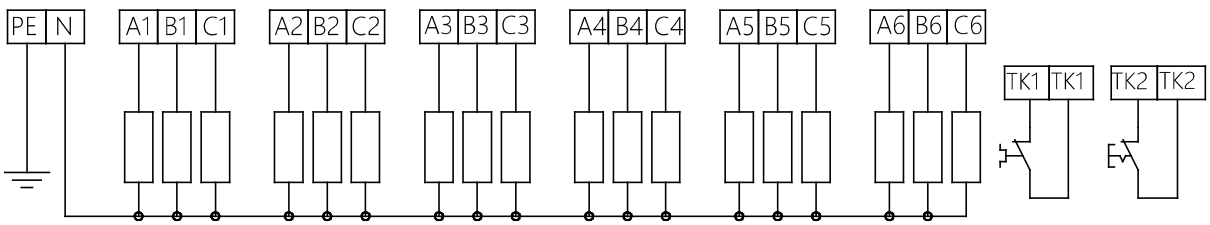
A4



A5



A6



DUCT UNITS

ELECTRIC DUCT HEATER FOR RECTANGULAR DUCTS WITH INTEGRATED CONTROL SYSTEM

C-EVN-S1

- for heating air in stationary ventilation systems, air conditioning of industrial, public and residential buildings, installation in rectangular ventilation ducts.

REQUIREMENTS:

- air must be free of sticky and fibrous materials, explosive gas mixtures and aggressive substances;
- content of dust and other solid impurities should not exceed 0.1 g/m³.
- maximum air temperature at the outlet of the air heater is 40° C;
- minimum air flow rate corresponds to the minimum air velocity in the casing cross-section of 1.5 m/s;
- heater supply voltage - 380 V;
- power supply voltage of the tubular heating elements is 220 V.
- ingress protection rating IP40.



The heater is designed to heat the supply air entering the ventilation system. The built-in temperature control module allows maintaining the air temperature in the duct at the set value automatically.

The wide range of C-EVN-S1 models makes it easy to choose the required heater power (from 6 to 45 kW) in the standard range of C-EVN sizes.

The first stage load is switched by a semiconductor device (triac), which allows for smooth heating regulation. The second and third stages of heating (if any) are implemented using discrete control.

C-EVN-S1 heaters are equipped with two overheat protection thermostats:

main protection with automatic restart (response temperature +65°C). After cooling, the thermostat automatically closes the heater control circuit;

emergency protection with manual restart (response temperature +90°C). When power is triggered, the heater can only be supplied after manual reset of the alarm.

A control potentiometer is installed on the C-EVN-S1 casing. The C-EVN-S1 air temperature is maintained via a duct temperature sensor (sensor included).

C-EVN-S1-40-20-6

- electric duct heater
- type of air heater control:

S1 - with a built-in temperature controller

- standard size (for rectangular connection section BxH)
- power (kW)

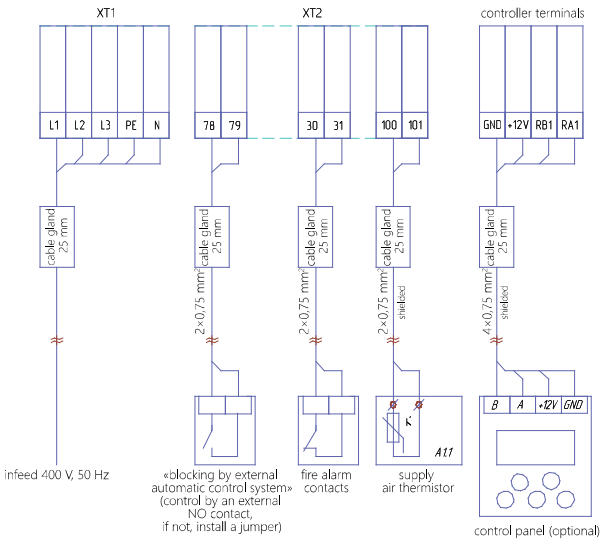
STANDARD FEATURES

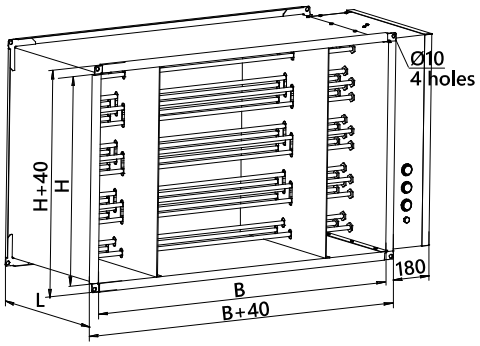
- fan shutdown delay signal (blowing C-EVN-S1);
- permission signal for the "Heating" function to operate;
- Fire alarm monitoring;
- data transmission over the ModBus network;
- clogging signal "Filter", (via the ModBus network).

ADDITIONAL FEATURES (OPTIONS)

Remote control unit:

- fan operation monitoring;
- room sensor (built into the remote-control unit), allowing for cascade control of the C-EVN-S1 for more precise control of the room temperature;
- scheduled operation.





STANDARD SIZE	Dimensions, mm			Power, kW	Heating stages	Current consumption, A	Minimum air flow, m³/h	Weight, kg, max
	B	H	L					
C-EVN-S1-40-20-6	400	200	220	6	6	9,1	450	8,4
C-EVN-S1-40-20-12	400	200	220	12	6+6	18,3	450	11
C-EVN-S1-40-20-18	400	200	280	18	12+6	27,4	450	12
C-EVN-S1-50-25-12	500	250	220	12	6+6	18,3	700	12,2
C-EVN-S1-50-25-18	500	250	280	18	12+6	27,4	700	13,3
C-EVN-S1-50-25-24	500	250	330	24	12+6+6	36,5	700	16,5
C-EVN-S1-50-30-12	500	300	220	12	6+6	18,3	850	13
C-EVN-S1-50-30-18	500	300	280	18	12+6	27,4	850	15
C-EVN-S1-50-30-24	500	300	330	24	12+6+6	36,5	850	18
C-EVN-S1-50-30-30	500	300	390	30	12+12+6	45,6	850	18,9
C-EVN-S1-60-30-15	600	300	370	15	6+9	22,8	1000	14,2
C-EVN-S1-60-30-22,5	600	300	370	22,5	9+13,5	39,4	1000	14,8
C-EVN-S1-60-30-27	600	300	500	27	9+9+9	41	1000	17,3
C-EVN-S1-60-30-31,5	600	300	500	31,5	9+9+13,5	47,9	1000	17,7
C-EVN-S1-60-35-16,5	600	350	370	16,5	7,5+9	25	1200	14,8
C-EVN-S1-60-35-22,5	600	350	370	22,5	9+13,5	39,4	1200	16,6
C-EVN-S1-60-35-27	600	350	500	27	9+9+9	41	1200	19,7
C-EVN-S1-60-35-31,5	600	350	500	31,5	9+9+13,5	47,9	1200	21
C-EVN-S1-70-40-27	700	400	370	27	9+9+9	41	1600	19,8
C-EVN-S1-70-40-31,5	700	400	370	31,5	9+9+13,5	47,9	1600	20,4
C-EVN-S1-70-40-40,5	700	400	500	40,5	13,5+13,5+13,5	61,6	1600	22
C-EVN-S1-80-50-31,5	800	500	370	31,5	9+9+13,5	47,9	2200	22
C-EVN-S1-80-50-40,5	800	500	500	40,5	13,5+13,5+13,5	61,6	2200	28,1
C-EVN-S1-90-50-45	900	500	370	45	15+15+15	68,4	2500	32,8
C-EVN-S1-100-50-45	1000	500	370	45	15+15+15	68,4	2800	35,6

C-VKO DUCT WATER/AIR-COOLER



- designed for cooling and dehumidifying supply, recirculation air or their mixture;
- in compact stationary ventilation and air conditioning systems of industrial, public or residential buildings;
- cooler is connected directly to the rectangular air ducts;
- processed air must be free of solid, fibrous, sticky or aggressive impurities that contribute to the corrosion of copper, aluminum and zinc;
- water or antifreeze mixtures can be used as a refrigerant in coolers;
- maximum allowable liquid pressure in the coolers is 1.6 MPa.

C-VKO-40-20

- duct water/air-cooler
- standard size (for rectangular connection section BxH)

NOTE:
The duct air cooler is supplied complete with a drip catcher and a pan. The siphon must be ordered and delivered separately.

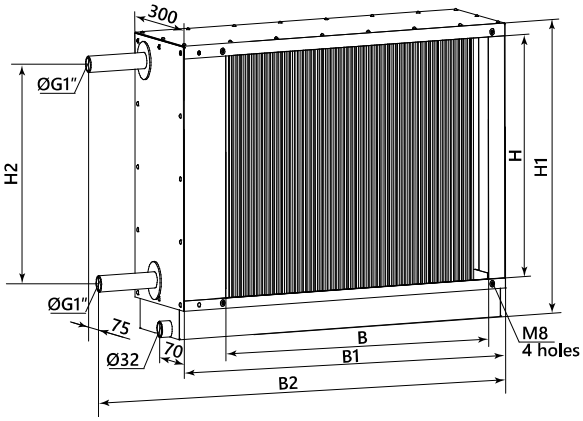
The design of the cooler is a casing made of galvanized steel, inside which a heat exchanger, a drip catcher and a pan are installed.

The HEAT EXCHANGER is made of copper tubes with aluminum fins arranged in a staggered order.

DRIP CATCHERS have a set of special plastic plates that effectively capture condensate and collect it in a pan located at the bottom of the cooler casing.

The PAN is additionally heat-insulated and equipped with a discharge pipe for condensate draining.

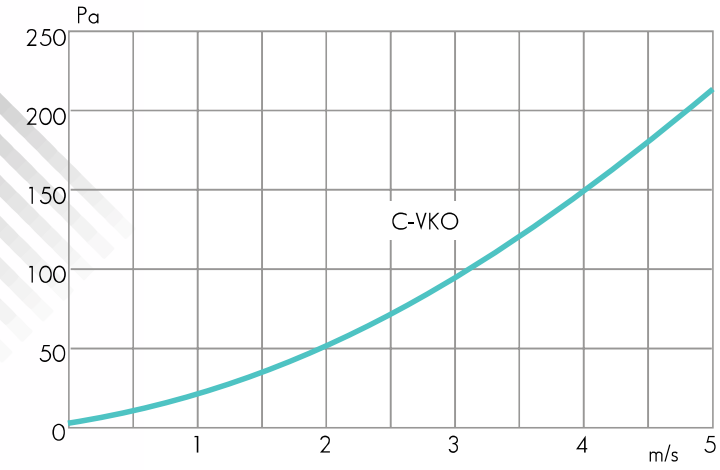
Duct coolers have unified dimensions, which allows them to be universally combined with other elements of ducted ventilation, provides easy installation and maintenance in conditions of limited space.

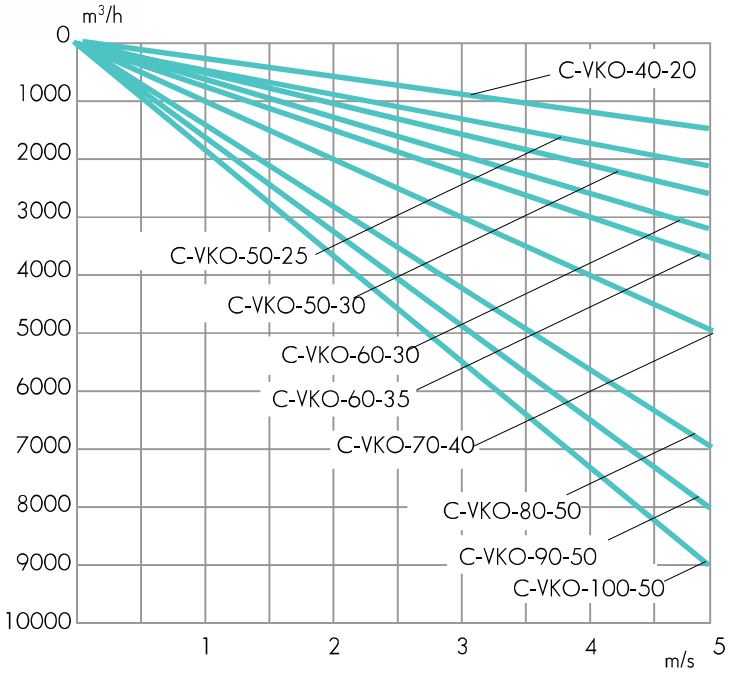


WARNING!
Special care must be taken when connecting the inlet and outlet pipes of the heat exchanger to the network. During installation, it is FORBIDDEN to bend or deform the pipes. The air cooler is designed exclusively for horizontal positioning during operation.

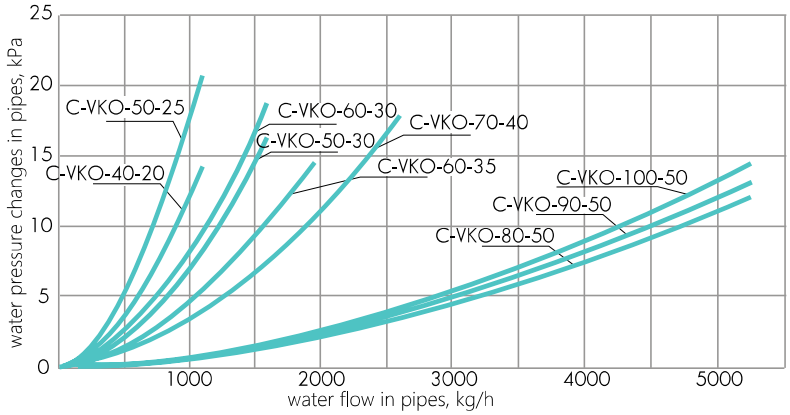
STANDARD SIZE	Dimensions, mm						Weight, kg, max
	B	B1	B2	H	H1	H2	
C-VKO-40-20	400	552	629	200	281	160	16
C-VKO-50-25	500	652	729	250	331	210	19
C-VKO-50-30	500	652	729	300	381	260	21
C-VKO-60-30	600	752	829	300	381	310	23
C-VKO-60-35	600	752	829	350	431	310	25
C-VKO-70-40	700	852	929	400	481	360	28
C-VKO-80-50	800	952	1029	500	581	460	38
C-VKO-90-50	900	1052	1129	500	581	460	42
C-VKO-100-50	1000	1152	1229	500	581	460	45

АЕРОДИНАМІЧНІ ХАРАКТЕРИСТИКИ





ГІДРАВЛІЧНІ ХАРАКТЕРИСТИКИ



C-VKO-40-20

L, m³/h	tвн, C	water 7/12				
		tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa
500	35	19	4,1	711	6,5	46
	33	18	4	678	6	46
	30	16	3,4	586	4,6	46
	28	14	2,3	398	2,3	46
700	35	20	5,4	928	10,5	80
	33	19	5,1	878	9,5	80
	30	17	4,4	762	7,3	80
	28	15	3	516	3,7	80
900	35	22	6	1028	12,5	117
	33	20,5	5,8	990	11,7	117
	30	18	5,3	905	9,9	117
	28	16	3,6	612	5	117
1100	35	24	6	1025	12,5	163
	33	22,5	5,7	983	11,7	163
	30	20	5,4	922	10,4	163
	28	18	3,6	622	5,2	163

C-VKO-50-25

L, m³/h	tвн, C	water 7/12				
		tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa
800	35	20	6	1030	18,6	55
	33	19	5,9	1003	17,5	55
	30	17	5,1	871	13,6	55
	28	14	3,7	636	7,9	55
1000	35	23	6	1030	18,6	75
	33	21,5	5,8	997	17,3	75
	30	19	5,4	922	15,1	75
	28	16	4	680	8,8	75
1200	35	24,8	6	1030	18,6	99
	33	24	5,2	888	14,1	99
	30	22	4,7	805	11,7	99
	28	18	4	679	8,8	99
1400	35	26	6	1029	18,6	124
	33	25	5,2	892	14,2	124
	30	23	4,8	822	12,3	124
	28	20	3,7	631	7,7	124

C-VKO-50-30

L, m³/h	tвн, C	water 7/12				
		tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa
1100	35	18,8	8,8	1510	14,8	70
	33	18	8,7	1493	14,6	70
	30	16	7,5	1290	11,1	70
	28	14	5,1	875	5,5	70
1400	35	22,4	8,8	1510	14,8	97
	33	21	8,6	1468	13,9	97
	30	18	8,2	1408	13	97
	28	16	5,6	952	6,4	97
1700	35	25	8,4	1441	13,5	130
	33	23	8,4	1432	13,5	130
	30	21	7,5	1282	11	130
	28	18	5,6	961	6,5	130
2000	35	26	8,8	1503	14,6	168
	33	25	7,4	1274	10,8	168
	30	23	6,8	1174	9,4	168
	28	20	5,3	901	5,8	168

Water parameters: tж = 7/12; air humidity: φвн = 35%

C-VKO-60-30

L, m³/h	tвн, C	water 7/12				
		tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa
1300	35	21	9	1550	17,8	68
	33	20	8,7	1497	16,7	68
	30	18	7,6	1307	12,9	68
	28	15	5,6	959	7,6	68
1700	35	24	9	1550	17,8	102
	33	22,5	8,9	1520	17,1	102
	30	20	6,3	1084	9,5	102
	28	17	6,2	1059	9	102
2100	35	26	9	1550	17,8	139
	33	24,5	8,6	1471	16,6	139
	30	21	6,5	1122	10	139
	28	19	6,2	1067	9	139
2500	35	27	9	1550	17,8	177
	33	25,5	8,5	1463	16,5	177
	30	23,5	7,9	1362	14,1	177
	28	21	5,7	983	8	177

C-VKO-60-35

L, m³/h	tвн, C	water 7/12				
		tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa
1500	35	20,4	11	1890	13,8	66
	33	19	11	1881	13,7	66
	30	18	8,8	1508	9	66
	28	16	6	1020	4,4	66
2000	35	23,9	11	1890	13,8	101
	33	22,2	10,8	1850	13,3	101
	30	20	9,8	1676	11,2	101
	28	17	7,3	1246	6,6	101
2500	35	25,9	11	1890	13,8	140
	33	24,5	10	1721	11,7	140
	30	22	9,8	1676	11,2	140
	28	18	8,2	1414	8,2	140
3000	35	27	11	1890	13,8	188
	33	25,5	10,2	1756	12,2	188
	30	23,5	9,5	1635	10,5	188
	28	19	8,9	1524	9,3	188

C-VKO-70-40

L, m³/h	tвн, C	water 7/12				
		tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa
2000	35	20,6	14,5	2490	16,6	68
	33	21	9,5	1623	7,7	68
	30	20,5	9,3	1592	7,4	68
	28	16	7,9	1361	5,4	68
2600	35	23,7	14,5	2490	16,6	96
	33	22,5	13,6	2324	14,4	96
	30	21	11,4	1961	10,5	96
	28	17	9,4	1619	7,7	96
3200	35	25,6	14,5	2490	16,6	131
	33	23,8	14,5	2433	15,8	131
	30	22	12,5	2146	12,7	131
	28	17,5	11,1	1901	10	131
3800	35	27	14,5	2490	16,6	172
	33	25	14,1	2420	15,6	172
	30	23	13	2230	13,6	172
	28	18	12,5	2149	12,6	172

Water parameters: tж = 7/12; air humidity: φвн = 35%

C-VKO-80-50

L, m³/h	tвн, C	water 7/12				
		tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa
2500	35	20	19,3	3315	5,3	52
	33	19	18,3	3135	4,8	52
	30	17	15,6	2723	3,7	52
	28	14	11,6	1988	2,2	52
3500	35	21	25,1	4306	8,5	85
	33	20	23,5	4029	7,5	85
	30	18	20,5	3519	5,9	85
	28	15	15,1	2582	3,4	85
4500	35	21,9	29,7	5100	11,5	124
	33	21	27,5	4717	10	124
	30	19	24,2	4148	7,9	124
	28	16	17,9	3061	4,6	124
5500	35	24,1	29,7	5100	11,5	170
	33	22,3	29,3	5030	11,2	170
	30	20	26,9	4609	9,5	170
	28	17	20	3426	5,6	170

C-VKO-90-50

L, m³/h	tвн, C	water 7/12				
		tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa
3500	35	18,1	30	5140	12,8	74
	33	17	29,8	5109	12,6	74
	30	15	25,7	4389	9,6	74
	28	14	16,2	2783	4,4	74
4500	35	21,8	30	5140	12,8	106
	33	20	29,4	5042	12,3	106
	30	18	26,4	4525	10,2	106
	28	16	17,9	3061	5	106
5500	35	24	30	5140	12,8	142
	33	22	30	5136	12,8	142
	30	19	29,6	5070	12,4	142
	28	17	20	3426	9,3	142
6500	35	25,5	30	5140	12,8	186
	33	24	27,7	4741	11	186
	30	21,5	27	4631	10,5	186
	28	21,4	18	3675	7	186

C-VKO-100-50

L, m³/h	tвн, C	water 7/12				
		tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa
4000	35	20,1	30	5150	14	76
	33	19	29,3	5016	13,3	76
	30	17	25,4	4357	10,3	76
	28	15	17,2	2951	5,1	76
5200	35	23,4	30	5150	14	113
	33	22	28,7	4916	12,9	113
	30	19	28	4793	12,2	113
	28	16	20,6	3537	7,1	113
6300	35	25.2	30	5150	14	150
	33	24	27,2	4660	11,7	150
	30	21.5	26,2	4488	11	150
	28	17	22,9	3924	8,6	150
7500	35	26.6	30	5150	14	198
	33	25	27,9	4776	12,1	198
	30	23	25,7	4401	10,5	198
	28	19	22,2	3810	8,1	198

Water parameters: tк = 7/12; air humidity: φвн = 35%

ADDITIONAL EQUIPMENT

SIP – each condensate drain system must be equipped with a separate siphon connector for condensate drain, which is installed on the discharge side.

The siphon is designed to remove condensate during the operation of the air cooler in air conditioning and ventilation systems. Unlike conventional drain devices, it is made of polypropylene, which is resistant to corrosion and decay. For more information, see the corresponding section of this catalog.

The siphon is a separate product and must be ordered separately from the air cooler.

C-FKO | FREON DUCT AIR COOLER

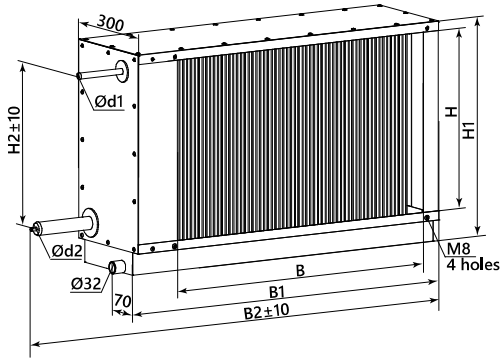


- designed for cooling air in ducted air conditioning and ventilation systems;
- it can be used for dehumidification;
- it is installed directly in rectangular air ducts;
- processed air must be free of solid, fibrous, sticky or aggressive impurities;
- content of substances that cause corrosion or decomposition of aluminum, copper, and zinc is unacceptable;
- as refrigerants, it is permissible to use the following Freon brands: R22, R407C, R410A.

C-FKO-40-20

- Freon duct air cooler
- standard size (for rectangular connection section BxH)

NOTE:
During delivery, Freon heat exchangers are filled with inert gas, which must be removed when connected to the refrigeration circuit.



The design of the air cooler provides for the installation of a Freon heat exchanger, a drip catcher and a pan inside the casing.

The cooler casing is made of galvanized steel.

The Freon HEAT EXCHANGER is made of copper tubes arranged in a staggered order, with aluminum fins. It differs from a water cooler in the design of the distribution unit ("spider") and the specifics of the refrigerant supply.

Freon heat exchanger manifolds are made of copper tubes.

Connection to the refrigerant supply pipelines is carried out by soldering.

R22, R407C, R410A Freon brands can be used as a refrigerant in direct cooling heat exchangers of duct-type coolers.

During delivery, the heat exchangers are filled with inert gas, which must be removed when connected to the refrigeration circuit.

Drip catchers have a set of special plastic plates that effectively capture condensate and collect it in a pan located at the bottom of the cooler casing.

The PAN is equipped with a discharge pipe for condensate draining.

When installing the air cooler, it is necessary to ensure its horizontal position.

When placing the cooler under the ceiling, it is necessary to provide service access.

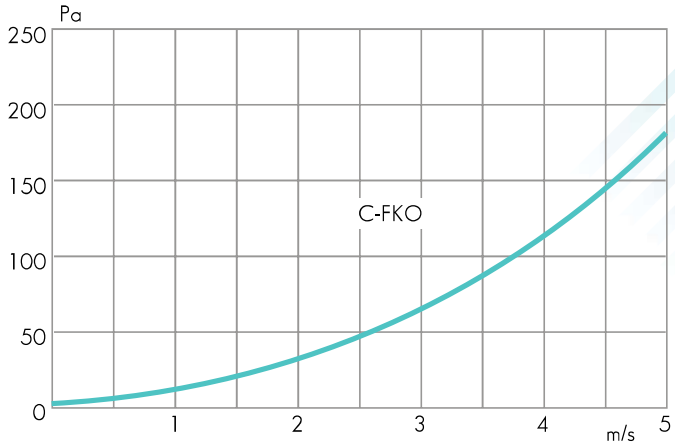
To protect the cooler, it is recommended to install a filter in the ventilation network in front of it.

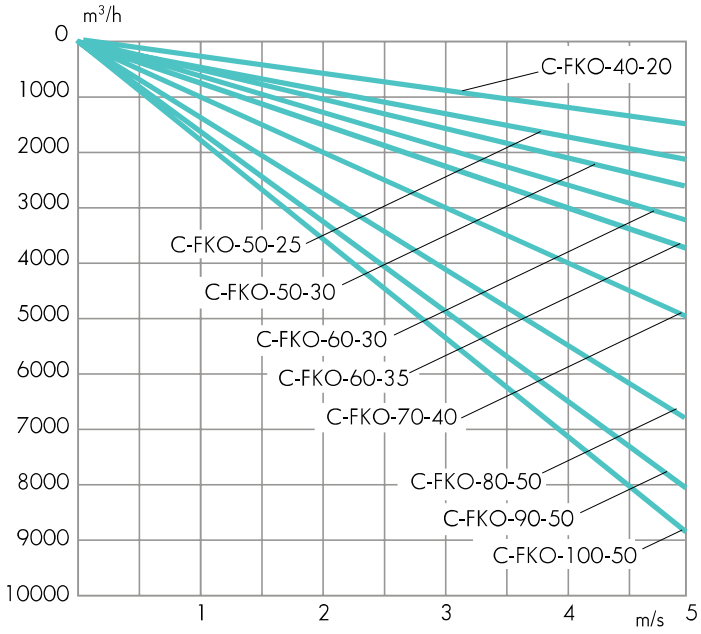
RECOMMENDED: to achieve maximum cooling capacity, the cooler must be connected counter-flow.

WARNING! Special care must be taken when connecting the inlet and outlet pipes of the heat exchanger to the network. During installation, it is forbidden to bend or deform the pipes.

STANDARD SIZE	Dimensions, mm								Weight, kg, max
	B	B1	B2	H	H1	H2	d1	d2	
C-FKO-40-20	400	552	719	200	283	127	12	28	16
C-FKO-50-25	500	652	819	250	333	177			18
C-FKO-50-30	500	652	819	300	383	227			19
C-FKO-60-30	600	752	919	300	433	227			21
C-FKO-60-35	600	752	919	350	433	271	16	35	23
C-FKO-70-40	700	852	1019	400	483	321			26
C-FKO-80-50	800	952	1119	500	583	422			32
C-FKO-90-50	900	1052	1219	500	583	422			36
C-FKO-100-50	1000	1152	1319	500	583	422			42

АЕРОДИНАМІЧНІ ХАРАКТЕРИСТИКИ





ADDITIONAL EQUIPMENT

SIP – each condensate drain system must be equipped with a separate siphon connector for condensate drain, which is installed on the discharge side.

The siphon is designed to remove condensate during the operation of the air cooler in air conditioning and ventilation systems. Unlike conventional drain devices, it is made of polypropylene, which is resistant to corrosion and decay. For more information, see

the corresponding section of this catalog.

The siphon is a separate product and must be ordered separately from the air cooler.

C-FKO-40-20

L, m³/h	tвн, C	R407C tкип=7° C		
		tвк, C	Q, kW	dPв, Pa
500	35	19	3,3	52
	33	18	3,2	52
	30	16	2,7	52
	28	14	1,9	52
700	35	20	4,3	87
	33	19	4,1	87
	30	17	3,6	87
	28	15	2,4	87
900	35	22	4,8	125
	33	20,5	4,6	125
	30	18	4,2	125
	28	16	2,9	125
1100	35	25,9	4,9	169
	33	22,5	4,6	169
	30	20	4,3	169
	28	18	2,9	169

C-FKO-50-25

L, m³/h	tвн, C	R407C tкип=7° C		
		tвк, C	Q, kW	dPв, Pa
800	35	21,9	5,3	56
	33	19	4,7	56
	30	17	4,1	56
	28	14	3	56
1000	35	24,8	5	78
	33	21,5	4,7	78
	30	19	4,3	78
	28	16	3,2	78
1200	35	26,7	4,7	103
	33	24	4,1	103
	30	22	3,8	103
	28	18	3,2	103
1400	35	—	—	—
	33	25	4,2	130
	30	23	3,8	130
	28	20	2,6	130

C-FKO-50-30

L, m³/h	tвн, C	R407C tкип=7° C		
		tвк, C	Q, kW	dPв, Pa
1100	35	20,8	7,8	70
	33	18	7	70
	30	16	6	70
	28	14	4,1	70
1400	35	23	6,8	96
	33	21,5	6,5	96
	30	18,5	6,3	96
	28	16	4,4	96
1700	35	25	6,7	130
	33	23	6,7	130
	30	21	6	130
	28	18	4,5	130
2000	35	26	7	166
	33	25	5,9	166
	30	23	5,5	166
	28	20	4,2	166

C-FKO-60-30

L, m³/h	tвн, C	R407C tкип=7° C		
		tвк, C	Q, kW	dPв, Pa
1300	35	22,9	7,8	65
	33	20	7	65
	30	18	6,1	65
	28	15	4,5	65
1700	35	26,1	7,3	97
	33	22,5	7,1	97
	30	20	6,6	97
	28	17	4,6	97
2100	35	—	—	—
	33	24,1	7,2	133
	30	22,2	6,4	133
	28	19	5	133
2500	35	—	—	—
	33	26	6,2	168
	30	24	5,9	168
	28	21	4,6	168

C-FKO-60-35

L, m³/h	tвн, C	R407C tкип=7° C		
		tвк, C	Q, kW	dPв, Pa
1500	35	22,2	9,4	64
	33	20	8,1	64
	30	18	7	64
	28	16	4,8	64
2000	35	24	8,8	100
	33	22,2	8,6	100
	30	20	7,8	100
	28	17	5,8	100
2500	35	26	8,8	139
	33	24,5	8	139
	30	22	7,8	139
	28	18	6,6	139
3000	35	—	—	—
	33	25,7	8,2	185
	30	23,5	8,2	185
	28	19	7,1	185

C-FKO-70-40

L, m³/h	tвн, C	R407C tкип=7° C		
		tвк, C	Q, kW	dPв, Pa
2000	35	22,3	12,4	67
	33	21	9,8	67
	30	20	7,8	67
	28	16	6,4	67
2600	35	24	11,4	96
	33	22,5	10,8	96
	30	21	9,2	96
	28	17	7,6	96
3200	35	27,7	11,1	132
	33	25	9,5	132
	30	22,5	9,4	132
	28	17	9,3	132
3800	35	—	—	—
	33	25	11,3	172
	30	23	10,4	172
	28	18	10	172

C-FKO-80-50

L, m³/h	tвн, C	R407C tкип=7° C		
		tвк, C	Q, kW	dPв, Pa
2500	35	20	15,5	52
	33	19	14,6	52
	30	17	12,7	52
	28	14	9,3	52
3500	35	21	20,1	85
	33	20	18,8	85
	30	18	16,4	85
	28	15	12,1	85
4500	35	23,6	25,5	125
	33	22	19,9	125
	30	20	17,6	125
	28	16	13,1	125
5500	35	25,9	24,1	171
	33	23	21,6	171
	30	20	21,5	171
	28	17	16	171

C-FKO-90-50

L, m³/h	tвн, C	R407C tкип=7° C		
		tвк, C	Q, kW	dPв, Pa
3500	35	19,5	27,1	74
	33	17	23,8	74
	30	15	20,5	74
	28	14	13	74
4500	35	22	23,8	106
	33	20,5	23,1	106
	30	18	21,1	106
	28	16	14,3	106
5500	35	25,8	24,3	143
	33	23	21,6	143
	30	20,5	20,4	143
	28	17	16	143
6500	35	26	22,8	186
	33	24	22,4	186
	30	22	20,3	186
	28	21	11,9	186

C-FKO-100-50

L, m³/h	tвн, C	R407C tкип=7° C		
		tвк, C	Q, kW	dPв, Pa
4000	35	21,9	26,4	76
	33	20	21,5	76
	30	17	20,3	76
	28	15	13,8	76
5200	35	25,2	24,8	113
	33	23	20,4	113
	30	20	20,3	113
	28	16	16,5	113
6300	35	26	22,1	151
	33	24	21,8	151
	30	22	19,7	151
	28	17	18,3	151
7500	35	—	—	—
	33	25	22,3	199
	30	23	20,5	199
	28	19	17,8	199

Air humidity: φвн = 35%

The selection of the external MAKK unit is possible, see the "MAKK compressor-condenser units" catalog

DUCT-TYPE PLATE HEAT RECOVERY UNIT C-PKT

- it is installed in ducted ventilation and air conditioning systems of industrial and residential buildings;

utilizes the thermal energy of the exhaust air;

- allows using the saved energy for heating (cooling) the supply air;
- use of a heat recovery unit with a cross-flow heat exchanger is advisable in cases where there is no air recirculation or as an additional energy saving measure;
- efficiency of heat recovery depends on the ratio of the flow rate of supply and exhaust air and the temperature difference at the inlets to the heat exchanger, and can reach 70%;
- processed air must be free of sticky and fibrous materials, explosive gas mixtures and aggressive substances;
- content of dust and solid impurities should not exceed 0.1 g/m^3.

The heat recovery unit consists of a regenerative cross-flow heat exchanger inside a special casing.

The heat recovery unit CASING is made of galvanized steel.

The heat exchange surface of the heat recovery unit is formed by corrugated plates made of aluminum foil.

OPERATING PRINCIPLE. Exhaust air removed from the premise flows through every second channel between the plates of the recuperative heat exchanger, heating them (in winter) or cooling them (in summer). The processed supply air flows through other channels of the heat exchanger, absorbing the heat of the heated plates or, conversely, cooling down.

INSTALLATION RECOMMENDATIONS. The heat recovery unit provides for both horizontal and vertical installation.

At the same time, condensate must be removed from the exhaust ventilation duct. For this purpose, it is necessary to ensure the slope of the corresponding section of the ventilation duct with a length of 1-3 m, which must be reliably sealed. At the lowest point of the duct, it is necessary to provide a branch pipe for draining condensate.

It is also recommended to install a C-KP duct drip catcher on the exhaust section after the waste heat recovery unit.

The direction of air supply – through the heat recovery unit or bypassing it to the next section of the supply ventilation system – is regulated by a specific bypass valve, which must be provided separately in the system.

When installing the heat recovery unit, it is necessary to provide service access for servicing the heat recovery unit: periodically, it is necessary to clean the heat exchange surface of the heat recovery unit.



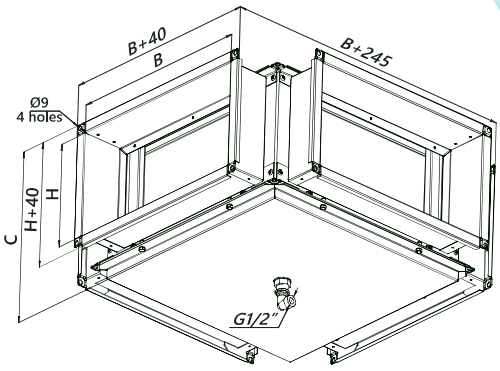
C-PKT-40-20

- duct-type plate heat recovery unit
- standard size (for rectangular connection section BxH)

NOTE:

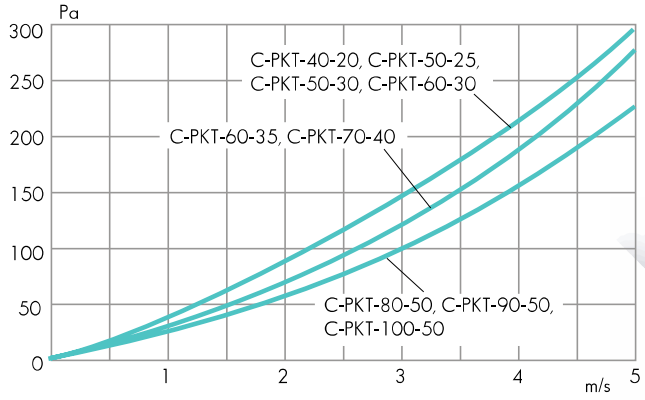
TO SELECT a duct-type heat recovery unit, the following data must be provided:

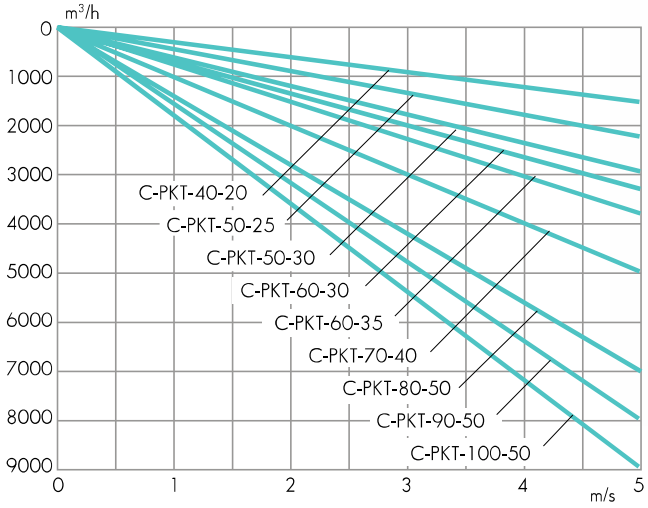
- air capacity of supply and exhaust air (m^3/h);
- exhaust air temperature;
- supply air temperature;
- relative humidity of the exhaust air.



STANDARD SIZE	Dimensions, mm			Weight, kg, max
	B	H	C	
C-PKT-40-20	400	200	265	25
C-PKT-50-25	500	250	315	33
C-PKT-50-30	500	300	365	35
C-PKT-60-30	600	300	365	40
C-PKT-60-35	600	350	415	45
C-PKT-70-40	700	400	465	55
C-PKT-80-50	800	500	565	75
C-PKT-90-50	900	500	583	90
C-PKT-100-50	1000	500	583	105

AERODYNAMIC CHARACTERISTICS





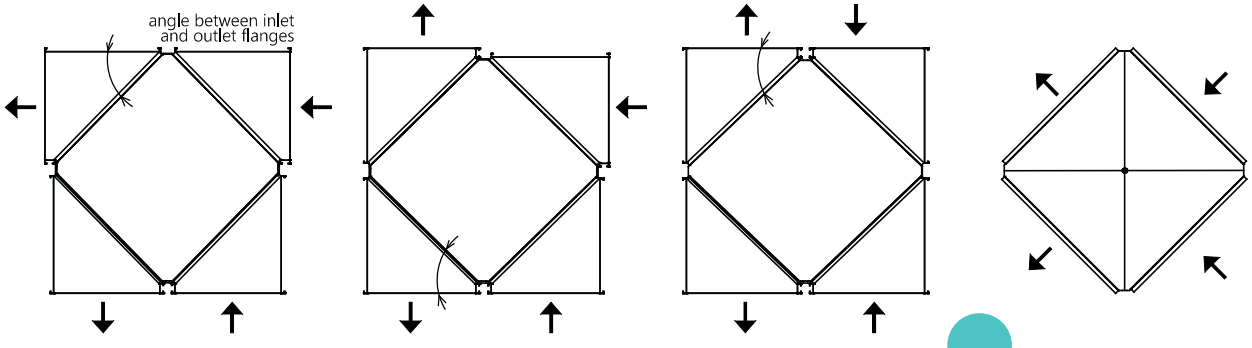
C-K DUCT ADAPTER



For the convenience of installation of duct-type heat recovery units in compact stationary ventilation and air conditioning systems, the company supplies a number of adapters of the C-K type that allow changing the direction of air duct routing, and supplying and removing air flows from the heat recovery unit.

C-K-40-20-45

- adapter
- standard size (for rectangular connection section BxH)
- angle between inlet and outlet flanges



DUCT UNITS

DUCT DRIP CATCHER C-KP

- for installation in rectangular duct ventilation systems;
- for removing condensed droplets from the air in ventilation ducts

The CASING of the drip catcher is made of galvanized steel.

Supplied as standard in left-hand version. The drip catcher is equipped with a special pan for condensate drainage.

When installing the drip catcher, it is necessary to ensure its horizontal position (pan down) for the possibility of condensate drainage.

It is recommended to place the drip catcher in the air stream behind the cooler or recuperative heat exchanger.

The connection points of the drip catcher to the cooler or recuperative heat exchanger must be sealed.

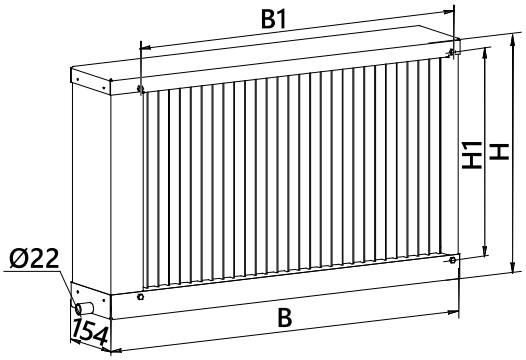
During installation, free access to the drip catcher and condensate drainage system must be provided.



C-KP-40-20

- duct drip catcher
- standard size (for rectangular connection section BxH)

NOTE:
The duct air cooler is supplied complete with a drip catcher and a pan. The siphon must be ordered and delivered separately.



STANDARD SIZE	Dimensions, mm				Weight, kg, max
	B	H	B1	H1	
C-KP-40-20	506	285	420	220	7,3
C-KP-50-25	606	335	520	270	8,3
C-KP-50-30	606	385	520	320	9,5
C-KP-60-30	706	385	620	320	10,3
C-KP-60-35	706	435	620	370	11,5
C-KP-70-40	806	485	720	420	13,3
C-KP-80-50	911	585	820	520	15,5
C-KP-90-50	1011	585	920	520	16,5
C-KP-100-50	1111	585	1020	520	18,5

C-FKP | RECTANGULAR DUCT FILTER



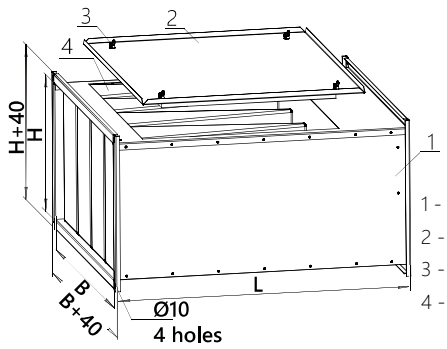
C-FKP-40-20-F8-BAG

- rectangular duct filter
- standard size (for rectangular connection section BxH)
- air filtration class
- filter type (bag filter; panel filter)

filter cassette C-FKP-40-20-F8-BAG

- filter cassette
- standard size (for rectangular connection section BxH)
- air filtration class
- filter type (bag filter; panel filter)

NOTE:
as standard, the G4 class provides for a panel design.



1 - casing
2 - cover
3 - tightening screw
4 - filter cassette

- designed for filtering air from dust and fibrous particles in forced ventilation systems;
- protects premises and components of the ducted ventilation system against the ingress of various mechanical impurities contained in the air;
- permissible temperature of the moved air is from -30°C to +50°C.
- replacement cassettes can be supplied as part of C-FKP or separately.

RECOMMENDED: use the filter in front of the electric heater and fan;

- Air filtration class G4 - F9.

The duct filter CASING has a box-shaped structure made of galvanized steel. For easy maintenance and replacement of the filter cassette, the casing is equipped with a removable cover.

The filter cassette is installed as standard in the casing or can be ordered separately for replacement during operation. The cassette casing is made of galvanized steel or plastic profile. The filter insert has a flat panel cassette (G4) or a bag-type cassette (G4, F5-F9) made of synthetic material. As standard, filters are equipped with cassettes of filtration classes from G4 to F9. Upon additional request, filters can be equipped with cassettes of other filtration classes.

Duct filters are mounted regardless of spatial orientation.

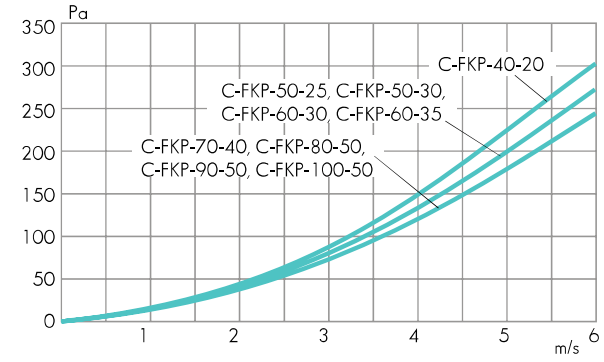
When installed in a vertical position, the air flow passing through the filter cross-section should move from top to bottom.

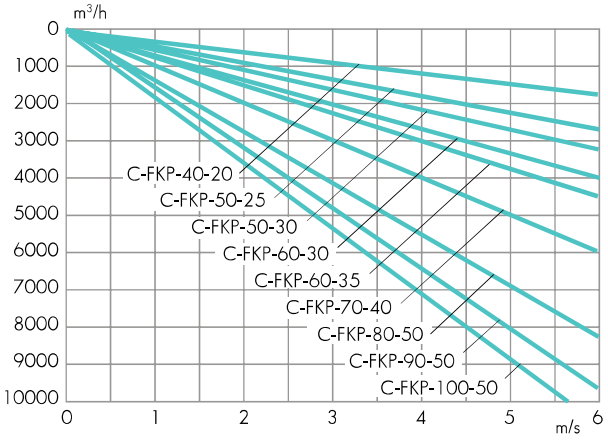
NOT!
Operation of the ducted ventilation system without a filter, or with a maximally clogged filter, is not recommended, as this reduces the quality of the processed air and leads to failure of the duct fan bearings and the tubular heating element.

STANDARD SIZE	Dimensions, mm					Number of bags	Weight, kg, max
	B	H	L				
			panel filter	bag filter			
			G4	G4, F5, F6	F7, F8, F9		
C-FKP-40-20	400	200	240	500	740	3	11,5
C-FKP-50-25	500	250				5	13,5
C-FKP-50-30	500	300				5	14,0
C-FKP-60-30	600	300				6	15,5
C-FKP-60-35	600	350				6	16,1
C-FKP-70-40	700	400				6	18,1
C-FKP-80-50	800	500				7	20,7
C-FKP-90-50	900	500				7	22,2
C-FKP-100-50	1000	500				8	23,7

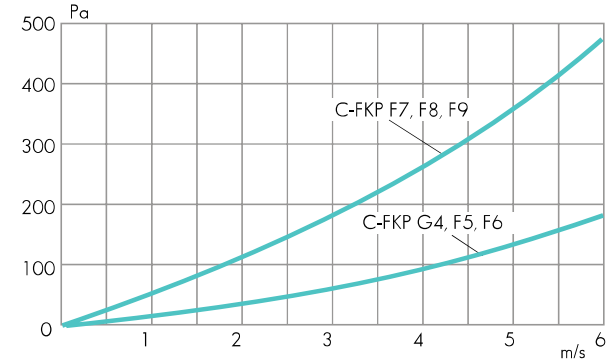
AERODYNAMIC CHARACTERISTICS

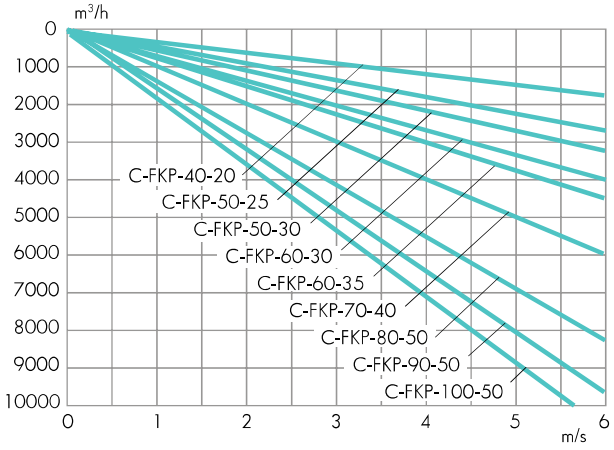
WITH PANEL FILTER





WITH BAG FILTER





C-GKD DUCT SILENCER



- to protect against noise in serviced premises and to reduce noise coming from fans outside;
- it is used in rectangular indoor air ducts;
- it is used as an element of supply and exhaust systems;
- air must not contain solid, sticky or aggressive impurities;
- permissible temperature of the moved air is from -30° C to +50° C.

C-GKD-40-20

- duct silencer
- standard size (for rectangular connection section BxH)

The silencer CASING and PLATE CASING are made of galvanized steel.

The plates are filled with sound-absorbing mineral wool with a protective coating that prevents the fibers from blowing out.

The standard length of the silencer casing for all standard sizes is 950 mm.

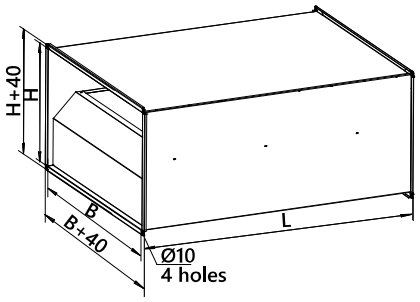
Upon additional request, the silencer can be made in a different length casing.

Preferably, C-GKD is installed between fans and main air ducts. In mechanical ventilation exhaust systems, silencers are used both to protect against noise in serviced premises and to reduce noise coming from fans to the outside.

INSTALLATION of the silencer is carried out regardless of the spatial orientation, while maintaining its operability.

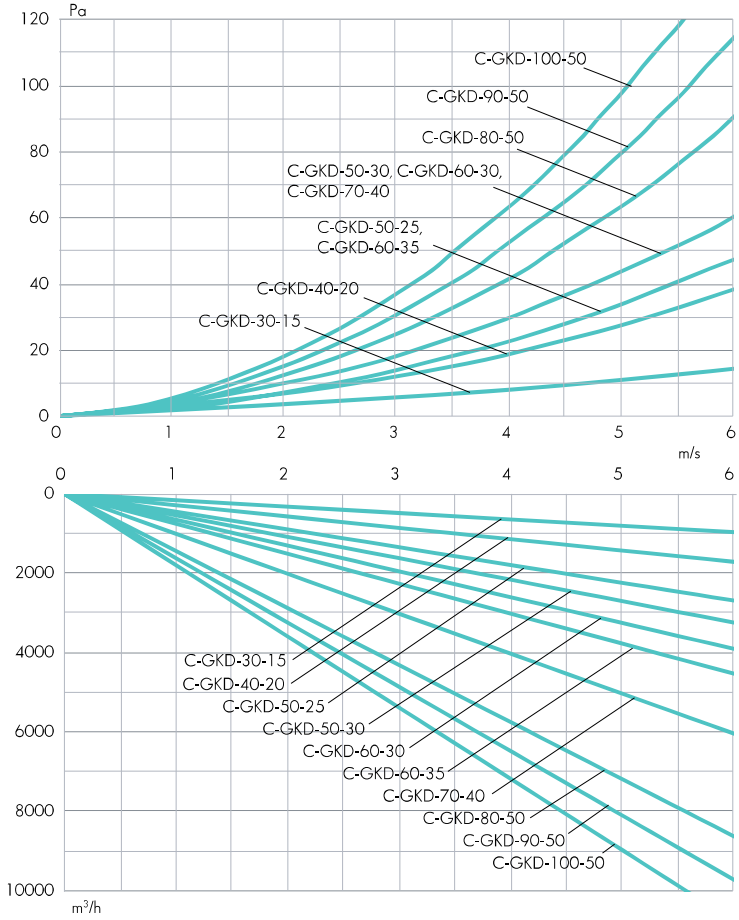
The advantage of this silencer is that there is no need to install a straight section of the duct in front of the silencer to equalize the air velocity along the cross-section of the duct.

To further reduce the noise level, several silencers can be used, installed one after the other.

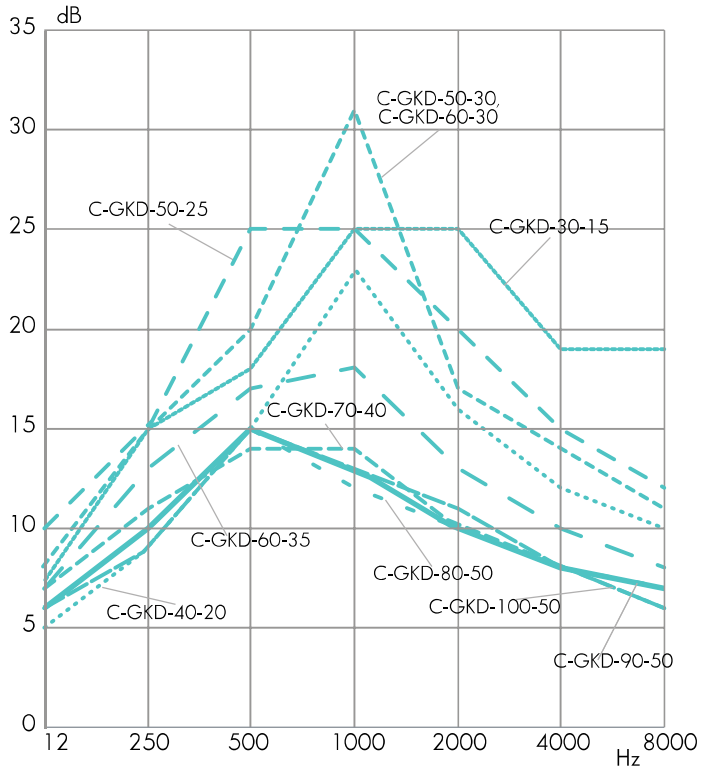


STANDARD SIZE	Dimensions, mm			Weight, kg, max
	B	H	L	
C-GKD-30-15	300	150	950	11
C-GKD-40-20	400	200		13
C-GKD-50-25	500	250		20
C-GKD-50-30	500	300		22
C-GKD-60-30	600	300		24
C-GKD-60-35	600	350		25
C-GKD-70-40	700	400		30
C-GKD-80-50	800	500		37
C-GKD-90-50	900	500		40
C-GKD-100-50	1000	500		43

AERODYNAMIC CHARACTERISTICS



NOISE REDUCTION EFFICIENCY BY OCTAVE FREQUENCY BAND

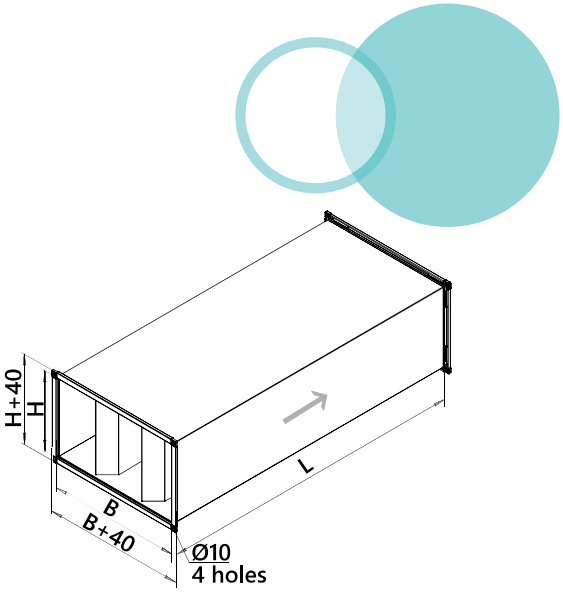


C-GKP | DUCT-TYPE PLATE SILENCER



C-GKP-40-20

- duct-type plate silencer
- standard size (for rectangular connection section BxH)



- to protect against noise in serviced premises and to reduce noise coming from fans outside;
- it is used in rectangular indoor air ducts;
- it is used as an element of supply and exhaust systems;
- air must not contain solid, sticky or aggressive impurities;
- permissible temperature of the moved air is from -30° C to +50° C.

The silencer CASING and PLATE CASINGS are made of galvanized steel.

The plates are filled with sound-absorbing mineral wool with a protective coating that prevents the fibers from blowing out.

The standard length of the silencer casing for all standard sizes is +1190±5 mm (*without notification of the customer, it is possible to supply old-style silencers with a casing length of 1000 mm).

Upon additional request, silencers can be made in a casing of a different length (preferably a multiple of 500 mm).

When mounted outdoors, they must be additionally protected by a casing to prevent moisture penetration (the casing is additionally made by special order).

Preferably, C-GKP are installed between the fans and the main air ducts. In mechanical ventilation exhaust systems, silencers are used both to protect against noise in serviced premises and to reduce noise coming from fans to the outside.

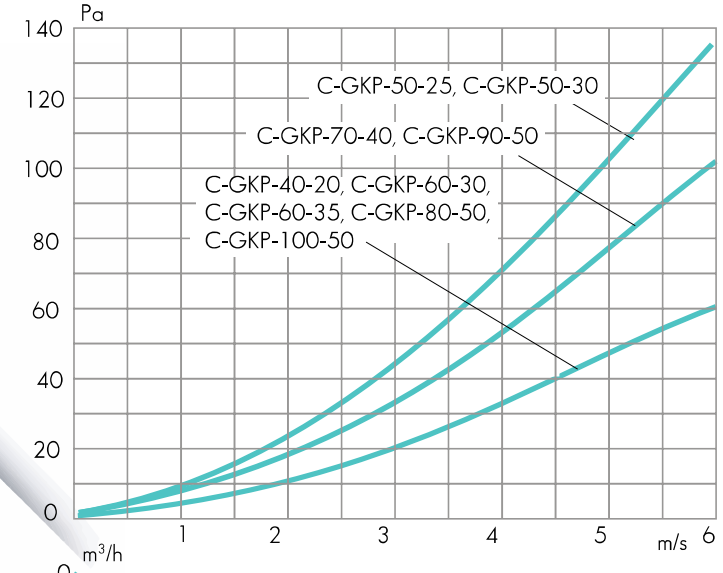
INSTALLATION of the silencers is carried out regardless of the spatial orientation, while maintaining its operability.

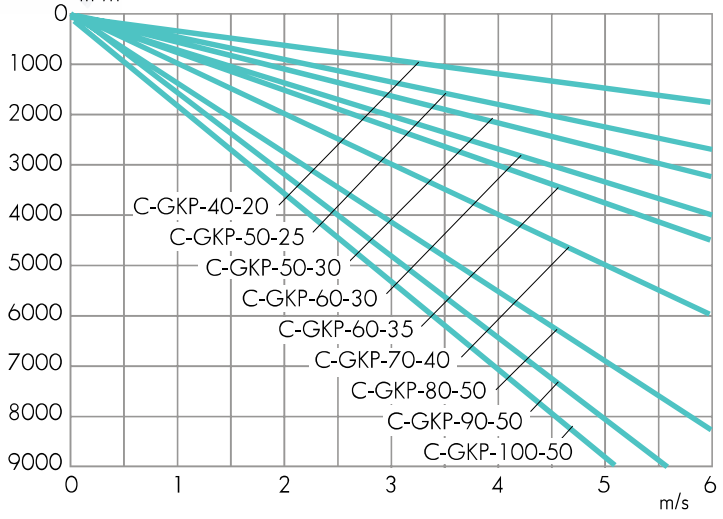
It is recommended to install a straight section of the duct with a length of at least 1-1.5 m in front of the silencer. This measure is necessary to equalize the air velocity along the cross-section of the duct.

To further reduce the noise level, several silencers can be used, installed one after the other.

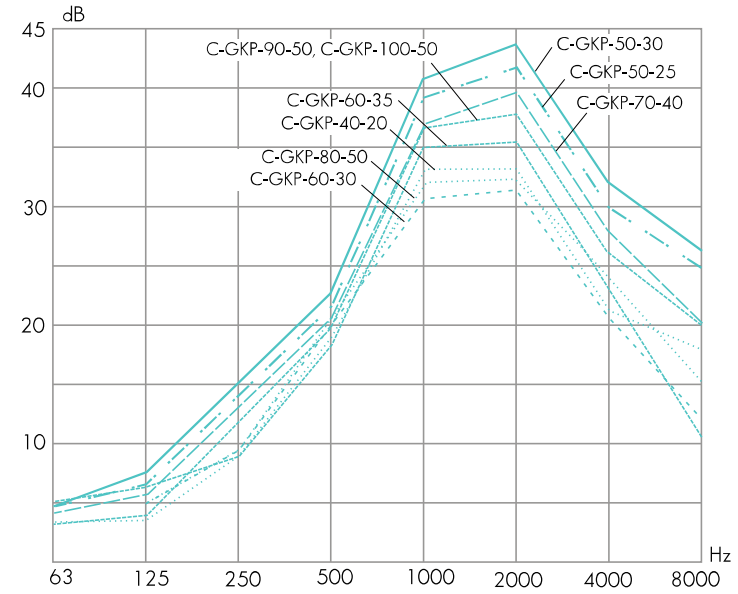
STANDARD SIZE	Dimensions, mm			Weight, kg, max
	B	H	L	
C-GKP-30-15	300	150	1190±5	21
C-GKP-40-20	400	200		26
C-GKP-50-25	500	250		27
C-GKP-50-30	500	300		30
C-GKP-60-30	600	300		32
C-GKP-60-35	600	350		37
C-GKP-70-40	700	400		48
C-GKP-80-50	800	500		58
C-GKP-90-50	900	500		64
C-GKP-100-50	1000	500		70

AERODYNAMIC CHARACTERISTICS





NOISE REDUCTION EFFICIENCY BY OCTAVE FREQUENCY BAND



C-STR BACTERICIDAL BLOCK



- for air disinfection with ultraviolet radiation in ventilation and air conditioning systems in medical, children's, sports and other premises;
- they can be installed in any position;
- presence of sticky, fibrous and abrasive components, as well as explosive impurities is not allowed;
- temperature range of the moved medium varies from -30° C to + 60° C.

Bactericidal blocks are available in nine standard sizes, 4 version types each. They differ in the number of installed lamps and, as a result, the power of the bactericidal flux, which increases the functionality of the product line of rectangular equipment.

The casing of the bactericidal blocks is made of galvanized or stainless-steel sheet.

The number of low-pressure mercury gas-discharge bactericidal lamps with a power of 75 W and a power supply of 230 V in the block is determined by the standard size and the required bactericidal flux.

Upon additional request, the blocks are equipped with a lamp operation control device using light indicators, as well as a device for recording operating hours - a digital four-digit counter with an audible and visual indicator to remind about the need to replace the lamps.

C-STR-40-20-2-ZS

- bactericidal block
- standard size (for rectangular connection section)
- number of lamps
- material (ZS - galvanized steel, NS - stainless steel)

SELECTION METHOD

The required number of lamps is calculated using the formula:

$$Nл = \frac{Пвп \times Hv \times Kз}{Фбк.л \times Kф \times 3600}$$

where: **Nл** – required number of lamps;
Пвп – air-flow rate, m^3/h;
Hv – required volumetric bactericidal dose, J/m^3;
Кз – light loss factor (for supply and exhaust ventilation 1.5);
Фбк.л – bactericidal flow of the 1st lamp (25.5 W);
Кф – coefficient of utilization of the bactericidal flux (for "bare" cylindrical bulbs 0.9).

So, the final formula for calculation:

$$Nл = \frac{Пвп \times Hv \times 1,5}{25,5 \times 0,9 \times 3600} = \frac{Пвп \times Hv \times 1,5}{82\,620}$$

Next, a section/several sections are selected with a total number of lamps greater than the calculated one. At the same time, the air flow rate through the selected section should not exceed the maximum allowable.

CALCULATION EXAMPLE:

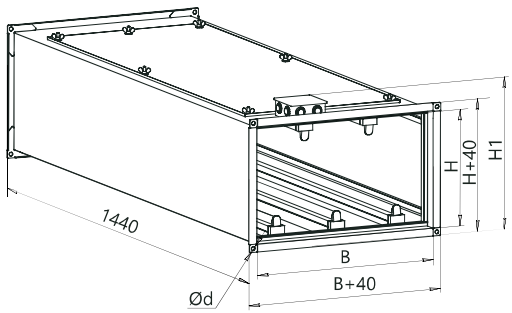
Given Пвп = 4,000 m^3/h, 3rd premise category.

CALCULATION:

$$Nл = \frac{4\,000 \times 167 \times 1,5}{82\,620} = 12,1 \text{ lamps}$$

Select the C-STR-60-35-14 block with 14 lamps.

Premise category	Premise type	Volumetric bactericidal dose Hv, J/m^3
1	surgery rooms, pre-surgical rooms, lying-in wards, sterile areas of the sterilization center, children's wards of maternity hospitals	385
2	dressing wards, intensive care units, non-sterile areas of the sterilization center, bacteriological and virological laboratories, pharmaceutical workshops	256
3	wards, offices and other premises of medical preventive institutions (not included in categories 1 and 2)	167
4	children's playrooms, school classrooms, utility premises of industrial and public buildings with large crowds of people during long stays	130
5	public toilets and stairwells of medical preventive institutions	105



STANDARD SIZE	Dimensions, mm				Max. air flow through the section, m³/h	Total power consumption, kW	Number of lamps	Bactericidal flux, W	Weight, kg, max
	H	B	H1	d					
C-STR-40-20-2	200	400	280	9	1 700	0,15	2	32	21,3
C-STR-40-20-4						0,3	4	63	27,4
C-STR-40-20-6						0,45	6	95	33,5
C-STR-40-20-9						0,68	9	143	42,1
C-STR-50-25-2	250	500	330	9	2 700	0,15	2	32	25,4
C-STR-50-25-4						0,3	4	63	31,5
C-STR-50-25-7						0,53	7	11	40,5
C-STR-50-25-10						0,75	10	159	48,5
C-STR-50-30-3	300	500	380	9	3 200	0,22	3	47	30,1
C-STR-50-30-5						0,38	5	79	36,2
C-STR-50-30-7						0,53	7	111	41,5
C-STR-50-30-11						0,83	11	174	51,5
C-STR-60-30-3	300	600	380	9	3 800	0,22	3	47	32,7
C-STR-60-30-5						0,38	5	79	38,8
C-STR-60-30-8						0,6	8	127	47,1
C-STR-60-30-12						0,9	12	190	57,7
C-STR-60-35-4	350	600	430	9	4 500	0,3	4	63	39,2
C-STR-60-35-6						0,45	6	95	45,3
C-STR-60-35-9						0,68	9	143	52,4
C-STR-60-35-14						1,05	14	222	65,1
C-STR-70-40-4	400	700	480	9	6 000	0,3	4	63	55,4
C-STR-70-40-7						0,53	7	111	64,5
C-STR-70-40-11						0,83	11	174	75,3
C-STR-70-40-17						1,28	17	270	91,5
C-STR-80-50-5	500	800	580	9	8 600	0,38	5	79	64,9
C-STR-80-50-8						0,6	8	127	74,1
C-STR-80-50-13						0,98	13	206	88,1
C-STR-80-50-19						1,43	19	302	103,5
C-STR-90-50-6	500	900	580	9	9 700	0,45	6	95	71,1
C-STR-90-50-10						0,75	10	159	83,2
C-STR-90-50-15						1,13	15	238	97,1
C-STR-90-50-23						1,73	23	365	118,5
C-STR-100-50-7	500	1 000	580	9	10 800	0,53	7	111	77,1
C-STR-100-50-12						0,9	12	190	92,2
C-STR-100-50-17						1,28	17	270	105,7
C-STR-100-50-25						1,88	25	397	127,3

C-REG | UNIVERSAL DUCT VALVE



C-REG-40-20-HD

- universal duct valve
- standard size (for rectangular connection section BxH)
- drive type (HD - manual or electric drive type ("open-closed", smooth adjustment M24-SR, M220-SR, two-position M24, M220; spring return, smooth adjustment F24-SR, two-position F24, F220), 0 - to use with drive)

NOTE:
For universal model designation of electric drive, see Reference information. On special request, the valve can be supplied in an explosion-proof design.

- designed to regulate the flow rate of supply and exhaust air in ducted ventilation and air conditioning systems;
- can be used for recirculating air;
- it is used for sealing the internal volume of ventilation networks;
- processed air must be treated and free of solid, fibrous, sticky or aggressive impurities;
- use of the valve for external use should take into account the protection of the valve from possible icing of the blades;
- permissible temperature of the moved air is from -30° C to +50° C.

The valve has a rectangular cross-section and is a prefabricated structure consisting of a casing and blades made of galvanized steel. A special seal is installed at the connection points of the blades.

The drive kinematic diagram of this valve has a system of levers and rods, which ensures parallel opening of the blades. The valves have a fixed standard-size range of useful cross-sections, corresponding to the European standard-size range of duct units.

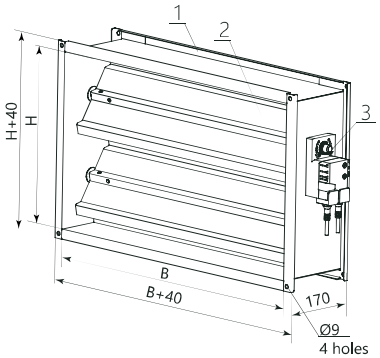
It can be supplied with:

- without drive (to use with drive);
- manual drive for local manual control;
- electric drive for remote control of the valve.

For air valves, open-closed drives are used either with a smoothly adjusted spring return, or two-position 220 V or 24 V.

Regardless of the actuator configuration, the valve remains operational regardless of its spatial orientation.

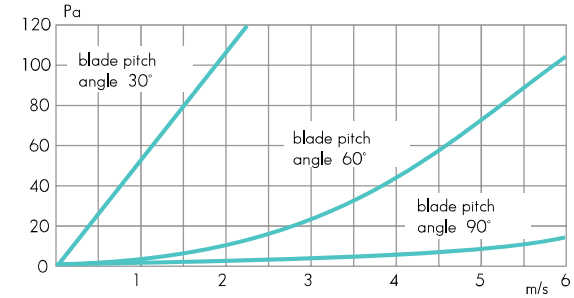
WARNING! Valves up to 300 mm high have a blade extension beyond the size of the casing. This must be taken into account when installing directly to other elements of the duct system.

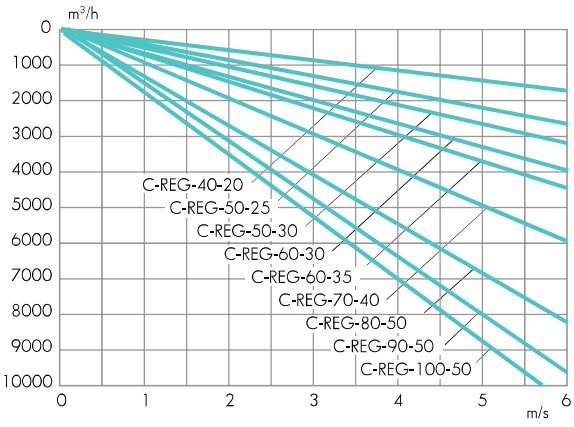


1 - casing
2 - blade
3 - drive axis

STANDARD SIZE	Dimensions, mm		Weight, kg, max	
	B	H	with manual drive	with electric drive
C-REG-40-20	400	200	4,5	4,8
C-REG-50-25	500	250	5,3	5,6
C-REG-50-30	500	300	6,3	6,6
C-REG-60-30	600	300	6,7	7,1
C-REG-60-35	600	350	7,4	8,1
C-REG-70-40	700	400	8,6	8,9
C-REG-80-50	800	500	9,9	10,2
C-REG-90-50	900	500	10,7	11,1
C-REG-100-50	1000	500	11,3	11,6

PRESSURE DROP CHART





DUCT UNITS

INSULATED DUCT AIR VALVE C-GMK-C

- for regulating the flow rate of supply, recirculating or exhaust air in ducted ventilation and air conditioning systems;
- it features perimeter heating and protection against blade icing;
- it differs from standard air valves in the increased contact tightness of the blades;
- it differs in a smaller volume of flow through the valve;
- special design allows reducing heat loss through the valve flaps;
- processed air must be free of solid, fibrous, sticky or aggressive impurities;
- it is equipped with an electric drive and controlled remotely or by means of a handle;
- operating pressure up to 1800 Pa;
- permissible temperature of the moved air is from -40° C to +50° C.

The CASING is made of galvanized steel with reinforced aluminum profile blades installed inside.

The increased RIGIDITY OF THE CASING protects the valve from distortions in conditions of large changes in the average daily temperature.

PERIMETER HEATING is a feature of the valves. The use of perimeter heating in the design in the form of a flexible self-regulating heating cable located along the outer perimeter, constantly connected to 220 V AC mains.

The heating cable has automatic control without a rheostat and does not require an additional automatic control circuit. Externally, the cable is covered with a special insulated casing that does not extend beyond the outer dimensions of the valve flanges.

The blade adjoining is made by means of a rubber seal.

An electric drive ("open-closed", with a spring return, smooth adjustment or two-position 220 V or 24 V) can be used as an actuator.

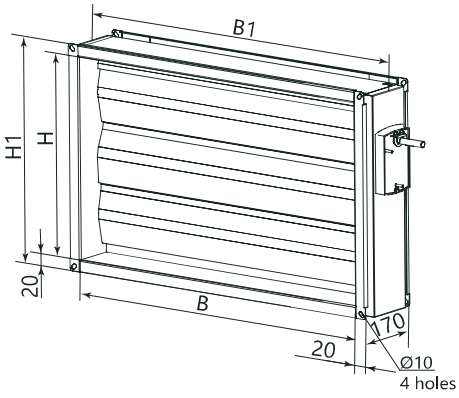
The valve is also equipped with a terminal box for connecting automation and alarm systems.



C-GMK-C-40-20-0

- insulated air valve
- standard size (for rectangular connection section BxH)
- drive type (HD - manual or electric drive type ("open-closed", smooth adjustment M24-SR, M220-SR, two-position M24, M220; spring return, smooth adjustment F24-SR, two-position F24, F220), 0 - to use with drive)

NOTE:
for universal model designation of electric drive, see Reference information.



STANDARD SIZE	Dimensions, mm				Number of blades	Heating power, kW	Weight, kg, max
	H	H1	B	B1			
C-GMK-C-40-20	215	285	400	485	2	0,047	8,5
C-GMK-C-50-25	250	335	500	585	2	0,059	10,0
C-GMK-C-50-30	315	385	500	585	3	0,062	11,0
C-GMK-C-60-30	315	385	600	685	3	0,070	12,0
C-GMK-C-60-35	350	435	600	685	3	0,074	14,0
C-GMK-C-70-40	415	485	700	785	4	0,086	16,5
C-GMK-C-80-50	515	585	800	885	5	0,101	21,0
C-GMK-C-90-50	515	585	900	985	5	0,109	23,0
C-GMK-C-100-50	515	585	1000	1085	5	0,117	25,0

C-GMK-P | DUCT AIR VALVE



C-GMK-P-40-20-0

- duct air valve
- standard size (for rectangular connection section BxH)
- drive type (HD - manual or electric drive type ("open-closed", smooth adjustment M24-SR, M220-SR, two-position M24, M220; spring return, smooth adjustment F24-SR, two-position F24, F220), 0 - to use with drive)

NOTE:
For universal model designation of electric drive, see Reference information.
Upon special request, it is possible to manufacture the valve in the following design versions: CR – corrosion-resistant, VCR – explosion-proof, corrosion-resistant, V – explosion-proof.

- for regulating the flow rate of supply, recirculating or exhaust air in ducted ventilation and air conditioning systems;
- there is no perimeter heating or protection against blade icing;
- it differs from standard air valves in the increased contact tightness of the blades; it differs in a smaller volume of flow through the valve;
- special design allows reducing heat loss through the valve flaps;
- processed air must be free of solid, fibrous, sticky or aggressive impurities; it is equipped with an electric drive and controlled remotely or by means of a handle;
- operating pressure up to 1800 Pa;
- permissible temperature of the moved air is from -40° C to +50° C.

The valves are intended to be of exclusively rectangular design.

The four-wall CASING is made of galvanized steel with reinforced aluminum profile blades installed inside. The valve has a special spring-elastic seal on the ends of the flaps.

The increased rigidity of the casing protects the valve from distortions in conditions of large changes in the average daily air temperature.

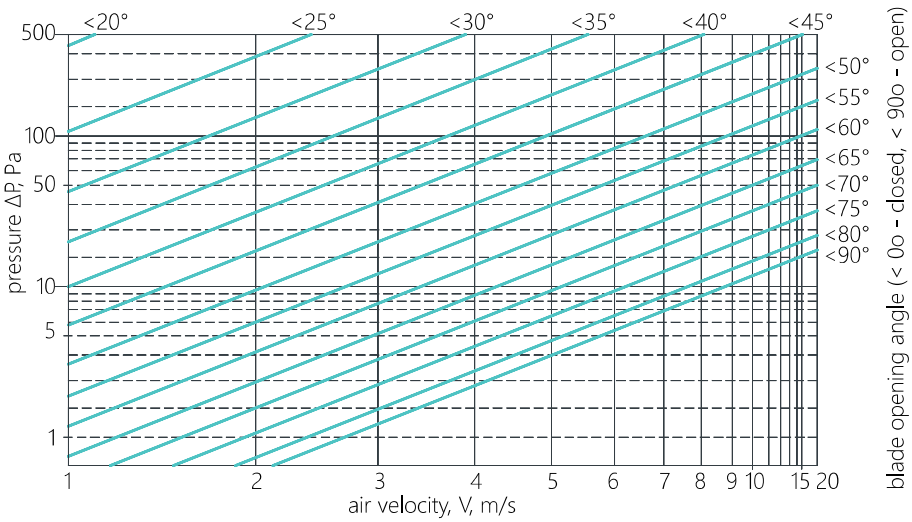
An elastic seal is provided in the flaps adjoining area.

The C-GMK-P valve does not contain any heating elements.

PARALLEL OPENING OF THE BLADES is ensured by the drive kinematic diagram of this valve, which has a system of levers and rods.

The blade adjoining is made by means of a rubber seal. As an actuator, a handle or electric drive can be used ("open-closed", with a spring return, smooth adjustment or two-position 220 V or 24 V).

C-GMK-C, C-GMK-P PRESSURE DROP CHART



DUCT REED VALVE C-KOL

- prevents the flow of air and non-explosive air mixtures from different premises of the same ventilation system;
- prevents outside air and precipitation from entering the serviced area after the fan is turned off;
- moved air must not contain substances that are aggressive to aluminum and aluminum alloys;
- permissible temperature of the moved air is from -30° C to +50° C.
- content of sticky substances and fibrous materials is not allowed;
- permissible content of dust and solid impurities not more than 0.1 g/m^3;
- minimum air velocity through the valve cross-section must be:
  on a horizontal section of at least 1.5 – 2 m/s;
  on a vertical section of at least 4 m/s;
- maximum air velocity through the valve cross-section is not more than 12 m/s. .



C-KOL-40-20

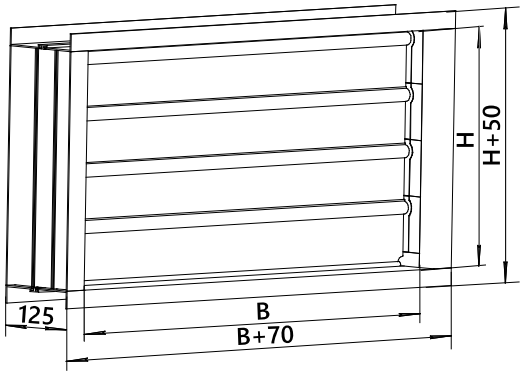
- duct reed valve
- standard size (for rectangular connection section BxH)

The valve consists of a rectangular casing, which is made of aluminum profile, and aluminum profile blades installed inside it.

Under the influence of the air flow when the fan is on, the blades are kept in the open position.

After the fan is switched off, the valve blades return to their original position and close the valve cross-section.

C-KOL valves can be used to replace other network elements, for example, as self-closing louvre shutters, as well as instead of reed valves of the KL type, rectangular check valves of the KOp type.



STANDARD SIZE	Dimensions, mm		Weight, kg, max
	B	H	
C-KOL-40-20	400	180	1,2
C-KOL-50-25	500	260	2,1
C-KOL-50-30	500	340	2,5
C-KOL-60-30	600	340	2,9
C-KOL-60-35	600	340	2,9
C-KOL-70-40	700	420	3,7
C-KOL-80-50	800	500	4,5
C-KOL-90-50	900	500	4,9
C-KOL-100-50	1000	500	5,3

C-RKO(RKA) NON-ADJUSTABLE DUCT GRILLE

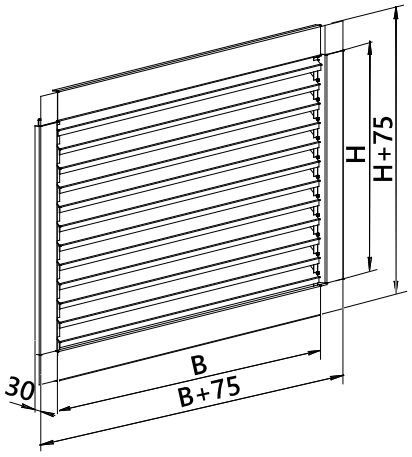


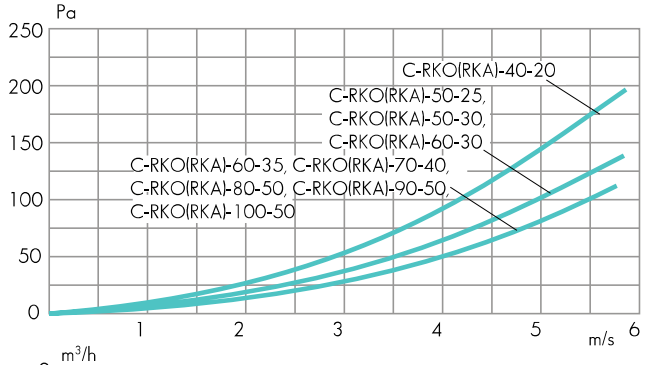
- decorative function of the grille – the unified design of the grille allows it to be easily integrated into the overall appearance of the building and structure;
- C-RKO - non-adjustable galvanized duct grille;
- C-RKA - non-adjustable aluminum duct grille;
- it is installed indoors or on the facade of a building;
- it is characterized by easy installation, providing free flow of supply, recirculating or exhaust air in ducted ventilation and air conditioning systems.

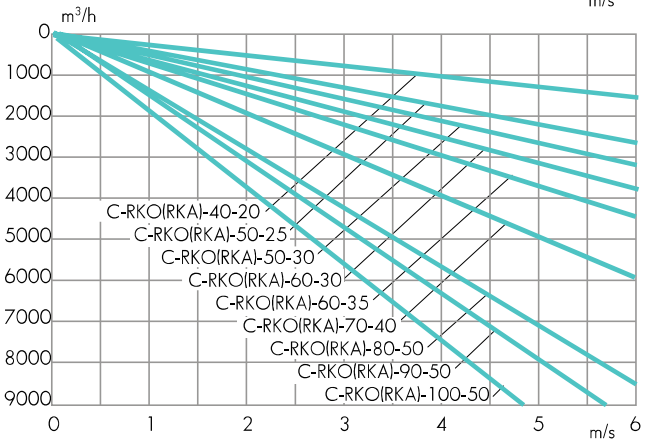
The grille is manufactured from standardized elements made of galvanized steel (C-RKO) or aluminum profile (C-RKA). Upon special request, the C-RKO type grille (made of galvanized steel) can be painted in a RAL color (please check additionally for the possibility of ordering a specific color).

C-RKO(RKA)-40-20

- type of non-adjustable duct grille
- standard size (for rectangular connection section BxH)







STANDARD SIZE	Dimensions, mm		Weight, kg, max	
	B	H	C-RKO	C-RKA
C-RKO (RKA)-40-20	400	200	1,9	1,5
C-RKO (RKA)-50-25	500	250	2,7	1,9
C-RKO (RKA)-50-30	500	300	3,1	2,2
C-RKO (RKA)-60-30	600	300	3,6	2,6
C-RKO (RKA)-60-35	600	350	4,1	2,9
C-RKO (RKA)-70-40	700	400	5,3	3,5
C-RKO (RKA)-80-50	800	500	7,1	4,7
C-RKO (RKA)-90-50	900	500	7,9	5,1
C-RKO (RKA)-100-50	1000	500	8,7	5,5

FLEXIBLE DUCT CONNECTOR C-GKV

- to absorb mechanical vibrations generated by the fan in the ducted ventilation system when moving the air;
- to ensure quick and easy installation of the fan;
- to reduce vibration that occurs in the air duct system;
- permissible temperature of the moved air is from -30° C to +50° C.

WARNING! The flexible duct connector is not designed to withstand the mechanical loads. .

The casing is made of two flanges connected to each other by an insulating material that ensures the tightness of the duct.

Flexible connector flanges are made of a special profile made of galvanized steel.

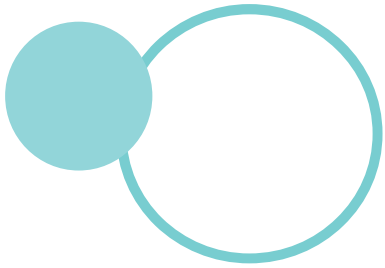
The flexible connector can be used as a load-bearing part of the air duct system, it is not intended to bear mechanical loads.

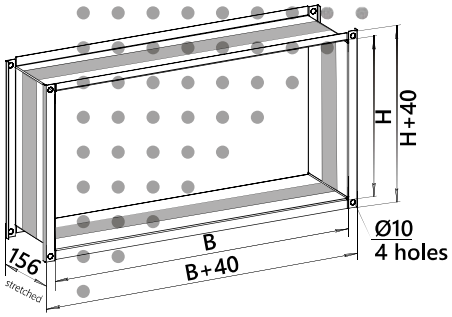
Provides easy and convenient installation of fans in the system. Flexible connectors are a mounting element of the ventilation system. For installation, it is necessary to match the holes of the flexible connector flange and the main equipment (or air duct) and then secure with screws or clamps. When installing a flexible connector, it is necessary to pay attention and prevent both excessive sagging of the insulating material and its excessive tension.



C-GKV-40-20

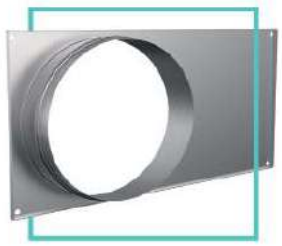
- flexible duct connector
- standard size (for rectangular connection section BxH)





STANDARD SIZE	Dimensions, mm		Weight, kg, max
	B	H	
C-GKV-40-20	400	200	1,6
C-GKV-50-25	500	250	2,1
C-GKV-50-30	500	300	2,2
C-GKV-60-30	600	300	2,3
C-GKV-60-35	600	350	2,4
C-GKV-70-40	700	400	2,8
C-GKV-80-50	800	500	3,9
C-GKV-90-50	900	500	4,2
C-GKV-100-50	1000	500	4,5

C-P RECTANGULAR ADAPTER



- for connecting rectangular duct fans to ventilation systems with round ducts;
- for installation of square-type fans in a rectangular air duct system;
- provides convenient and fast installation of equipment in the duct;
- it can be ordered either as a set with a fan or as a separate element of the system (optional);
- specially designed for fans of the C-PKV and C-KVARK-V type.

C-P-40-20/200

- adapter
- size of a rectangular duct

(for rectangular connection section BxH)

- round duct size

C-P-KVARK-V-40-20/200

- adapter
- size of a rectangular duct

(for rectangular connection section BxH)

- round duct size

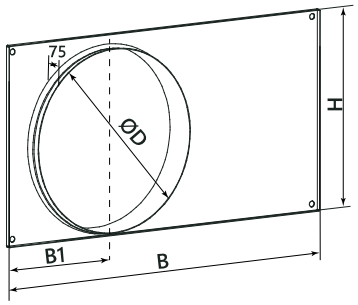
C-P-35-35/40-20

- adapter
- size of a square duct

(for rectangular connection section BxH)

- size of a rectangular duct

(for rectangular connection section BxH)



RECTANGULAR DUCT SIZE	Dimensions, mm				Weight, kg, max
	B	B1	H	D	
C-P-40-20/200	420	110	220	200	0,97
C-P-50-25/250	520	135	270	250	1,3
C-P-50-30/315	520	170	320	315	1,4
C-P-60-30/315	620	170	320	315	1,6
C-P-60-35/355	620	178	370	355	1,75
C-P-70-40/400	720	210	420	400	2,2
C-P-80-50/500	820	260	520	500	2,8
C-P-90-50/500	920	260	520	500	3,25
C-P-100-50/500	1020	260	520	500	3,7

SQUARE DUCT SIZE	Duct cross-section □A, mm	RECTANGULAR DUCT SIZE, MM								
		40x20	50x25	50x30	60x30	60x35	70x40	80x50	90x50	100x50
C-P-35-35	350	+	+	+						
C-P-40-40	400			+	+	+				
C-P-45-45	450					+	+			
C-P-50-50	500							+	+	
C-P-56-56	560							+	+	
C-P-63-63	630								+	+
C-P-71-71	710									+
C-P-80-80	800									+

DUCT UNITS

CONDENSATE DRAIN SIPHON FOR INSTALLATION ON THE SUCTION SIDE OF THE TEKI P.04.00.000 SB

SIP

When operating low-pressure air conditioning systems, it is necessary to remove condensate.

Each system for removing condensate from the cooling sections in air conditioning and ventilation systems must be equipped with a separate special connector (siphon).

The connector (siphon) features increased resistance to long-term exposure to moisture and has a universal design that eliminates air suction when the siphon dries out. There are two types of connectors (siphons): for installation on the suction side and for installation on the discharge side.

The connector is made of polypropylene, which is resistant to corrosion and destruction under the influence of moisture. The design provides for the removal of condensate in low-pressure air conditioning systems. The built-in ball valve prevents air from being sucked in through the outlet when there is no condensate.

The product is designed as standard for a maximum pressure of 2200 Pa. In the case of extremely low pressure, the extension tube or "elbow" can be shortened or the tube can be placed in an inclined position.

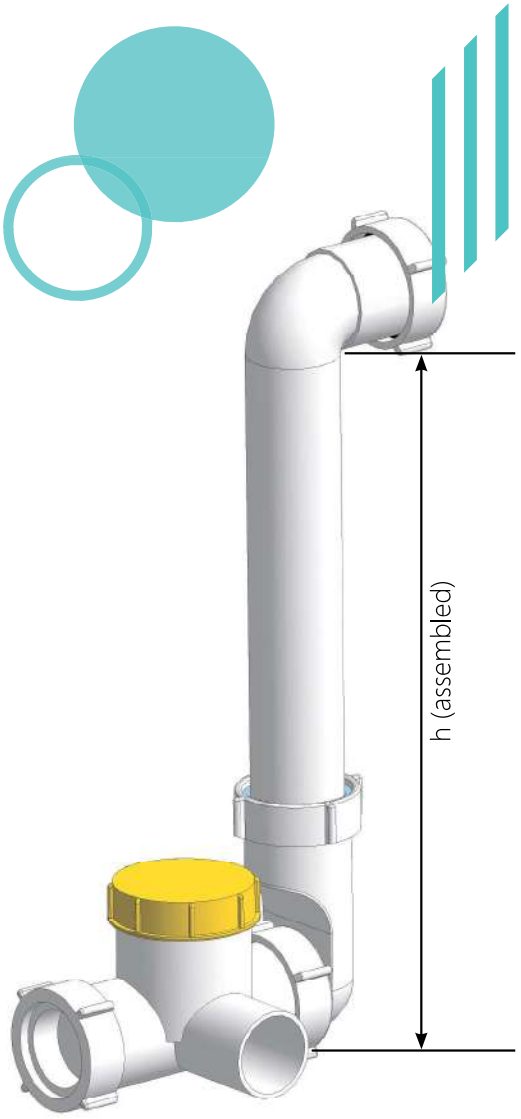
This connector is easy to maintain and service. The universal design of the connector is easy to install with different types of pipelines from the range of drain pipes available on the market.

Connection diameter is 32 mm.

Each condensate drainage system must be equipped with a separate siphon.

The height of the siphon is set depending on the pressure in the system. The extension tube or connecting elbow can be shortened according to this table.

SYSTEM PRESSURE, PA	HEIGHT OF SIPHON CONNECTION, h
2200	280
2100	270
2000	260
1900	250
1800	240
1700	230
1600	220
1500	210
1400	200
1300	190
1200	180
1100	170
1000	160
800	140
600	120
400	100



SIP CONDENSATE DRAIN SIPHON FOR INSTALLATION ON THE DISCHARGE SIDE OF THE TEKI P.04.00.000 SB

It is made of polypropylene, which is resistant to corrosion and destruction under the influence of moisture. It is used for condensate drainage in low-pressure air conditioning systems. The built-in ball valve prevents air from being sucked in through the outlet when there is no condensate.

The product is designed as standard for a maximum pressure of 1900 Pa. In the case of extremely low pressure, the extension tube or "elbow" can be shortened or the siphon can be placed in an inclined position.

This connector is easy to maintain and service. The universal design of the connector is easy to install with different types of pipelines from the range of drain pipes available on the market.

Connection diameter is 32 mm.

Each condensate drainage system must be equipped with a separate siphon.

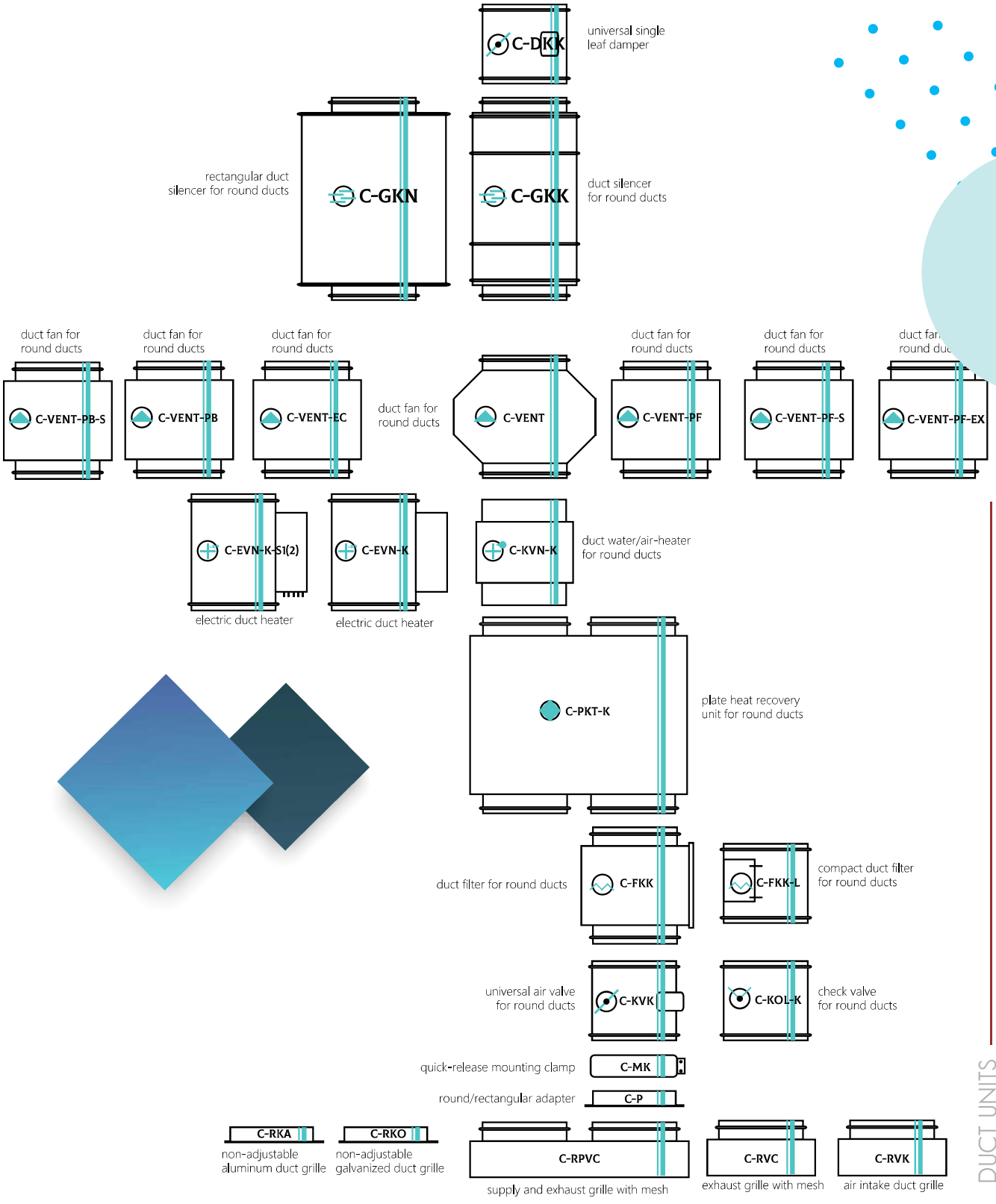
SIP TEKI 11.04.00.000 SB

- TEKI 11.04.00.000 SB – for installation on the suction side
- TEKI 11.05.00.000 SB – for installation on the discharge side

SYSTEM PRESSURE, PA	HEIGHT OF SIPHON CONNECTION, h
1900	250
1800	240
1700	230
1600	220
1500	210
1400	200
1300	190
1200	180
1100	170
1000	160
800	140
600	120
400	100
800	140
600	120
400	100



СИСТЕМИ КАНАЛЬНОЇ ВЕНТИЛЯЦІЇ ДЛЯ КРУГЛИХ КАНАЛІВ



DUCT UNITS

RADIAL FAN FOR ROUND DUCTS | C-VENT

- for operation in supply and exhaust ventilation and air conditioning systems with round air ducts;
- for industrial, public and residential buildings;
- for premises with high noise requirements;
- for use in confined spaces;
- permissible content of dust and other solid impurities in the air is not more than 0.1 g/m^3;
- presence of sticky, fibrous, abrasive components, as well as explosive impurities in the moved medium is not allowed;
- temperature range of the moved medium varies from -20° C to +50° C.
- terminal box ingress protection rating IP44.



C-VENT-100

- radial fan for round ducts
- size (for round connection section)

The fan has a round casing made of galvanized steel, which provides reliable protection against corrosion.

The impeller with backward-curved blades is installed inside the casing.

The IMPELLER before assembly and the fan after assembly undergo careful static and dynamic balancing.

A single-phase ELECTRIC MOTOR with an external rotor is used, which allows the rotation speed of the impeller to be adjusted using speed controllers (supplied separately). Thermal protection of motors is achieved using thermal contacts.

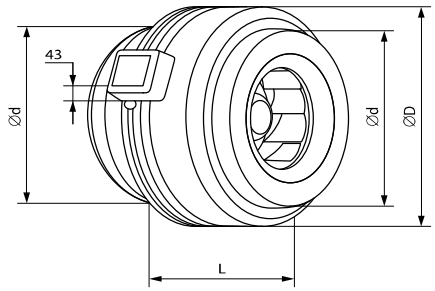
The design of the fans ensures the straightness of the air flow passing through it.

The low noise level during operation allows the use of fans in premises with strictly regulated noise requirements.

The use of fans of this type allows the creation of ventilation networks in conditions of limited space using quick-assembled flexible or semi-rigid air ducts, as well as plastic or galvanized air ducts of standard diameter.

The fans provide ease of installation, maintaining functionality in any spatial position.

Connection is made directly to stationary round air ducts, without requiring additional adapters, as well as using flexible air ducts.



STANDARD SIZE	Dimensions, mm			Weight, kg, max
	Ød	L	D	
C-VENT-100	100	208	246	2,6
C-VENT-125	100	208	246	2,7
C-VENT-160	160	196	270	3,2
C-VENT-200	200	255	333	4,4
C-VENT-250	250	234	331	5,3
C-VENT-315	315	283	401	6,9
C-VENT-355	355	225	401	14

sound insulation


C-GKK


C-GKN

filtration


C-FKK


C-FKK-L


C-FKK-BAG

adjustment


C-DKK


C-KVK


C-KOL-K

heat exchange


C-KVN-K


C-EVN-K


C-EVN-K-S1 (S2)

energy saving


C-PKT-K

ancillaries


C-MK


C-P


C-RVK


C-RVC


C-RPVC


C-RKA (RKO)

control

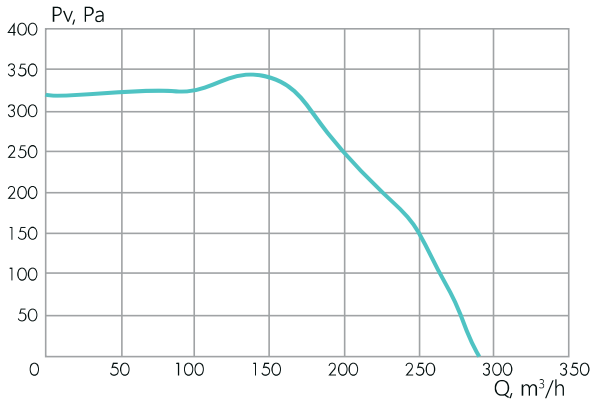

C-SAU


UWS

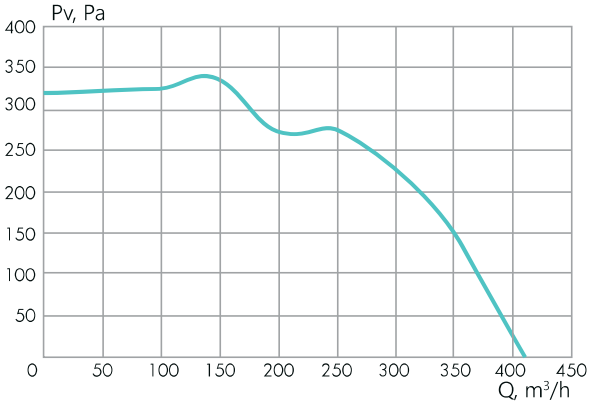
STANDARD SIZE	Power, W	Current consumption, A*	Speed, rpm	Air-flow rate, m³/h	Noise level, dB(A)
C-VENT-100	80	0,4	2 600	290	47
C-VENT-125	80	0,4	2 600	410	47
C-VENT-160	85	0,4	2 600	710	51
C-VENT-200	122	0,6	2 675	1 000	52
C-VENT-250	145	0,8	2 685	1 120	54
C-VENT-315	210	1,1	2 615	1 750	57
C-VENT-355	380	1,9	2 480	2 200	59

* current consumption is indicated approximately and may vary slightly depending on the manufacturer of the electric motor.

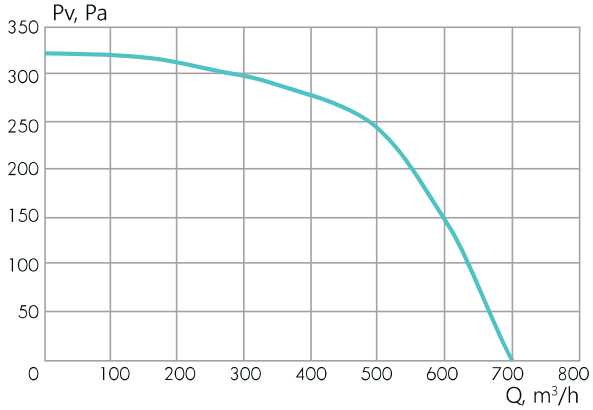
C-VENT-100



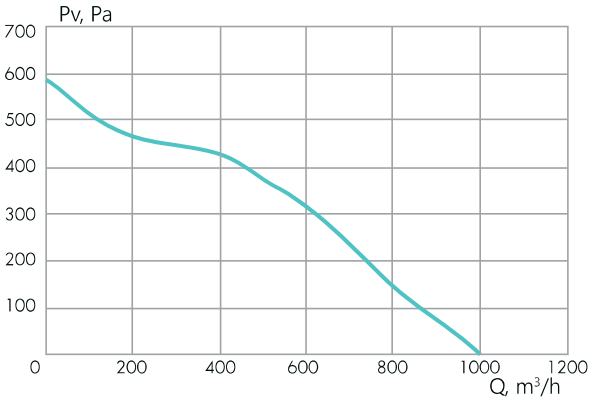
C-VENT-125



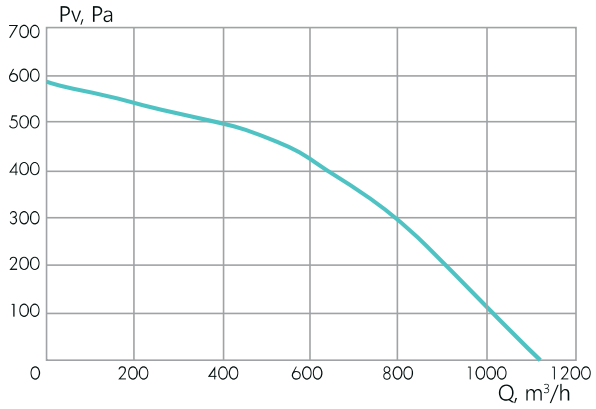
C-VENT-160



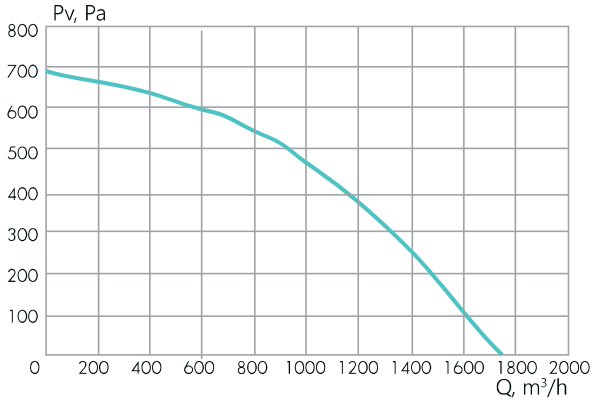
C-VENT-200



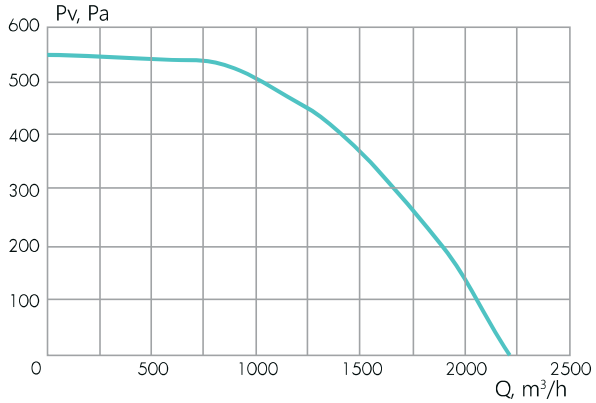
C-VENT-250



C-VENT-315



C-VENT-355



C-VENT-K-EC

DUCT FAN FOR ROUND DUCTS WITH EC MOTOR



C-VENT-K-EC-160

- duct fan for round ducts
- with EC motor
- size (for round connection section)

- high motor efficiency (90%), ensures low fan power consumption;
- required power output is achieved with a lower speed, which ensures noise reduction;
- extended operating range: one EC fan can replace multiple conventional non-adjustable fans;
- it does not require maintenance.

The fan is designed to move air, the permissible content of dust and other solid impurities in which does not exceed 0.1 g/m^3. The presence of sticky, fibrous, abrasive components, as well as explosive impurities in the moved medium is not allowed. The temperature range of the moved medium is from -30° C to + 60° C.

The C-VENT-K-EC duct fan for round ducts is used in compact stationary supply and exhaust ventilation systems, as well as in air conditioning systems of industrial, public and residential buildings. The use of fans of this type allows the creation of ventilation networks in conditions of limited space.

The fan has a round casing made of galvanized steel, which provides reliable protection against corrosion.

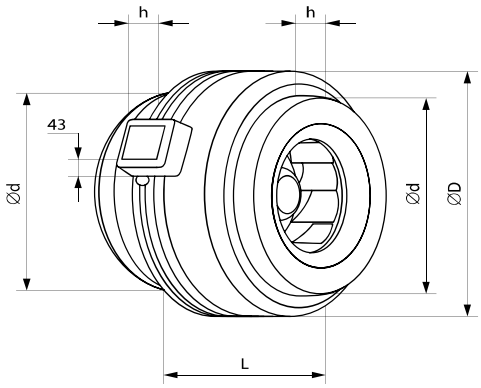
An impeller with backward-curved blades is installed inside the casing. The fan is equipped with a single-phase electric motor with an external rotor, which allows the rotation speed of the impeller to be adjusted using a speed controller. Motor ingress protection rating IP44.

AUTOMATIC THERMAL PROTECTION. Stepless speed controller (supplied separately).

The design of the fans ensures the straightness of the air flow passing through it.

The low noise level allows fans to be used in premises where noise requirements are strictly regulated. The fans provide ease of installation, maintaining functionality in any spatial position.

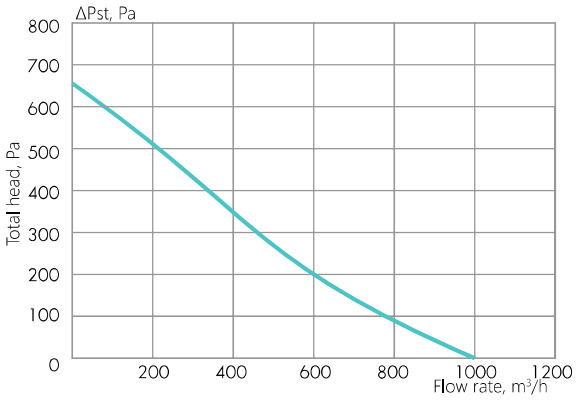




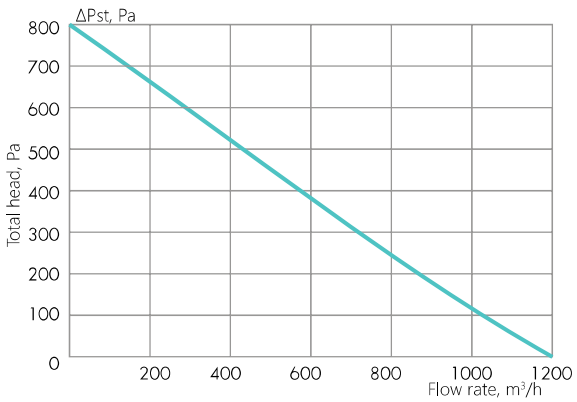
STANDARD SIZE	Dimensions, mm				Number of phases/ motor supply voltage, V	Weight, kg, maxe
	Ød	ØD	L	h		
C-VENT-K-EC-160	159	332	222	28	1/230	4,0
C-VENT-K-EC-200	199	332	243	25		5,3
C-VENT-K-EC-250	249	332	248	27		5,3
C-VENT-K-EC-315	315	402	269	25		9,5

STANDARD SIZE	Air capacity, m^3/h	Motor speed, min^{-1}	Motor power consumption, kW	Current consumption, A	Triac speed controller	Corrected sound power level LpA, dB(A)
C-VENT-K-EC-160	1000	2580	0,085	0,7	MTP	56
C-VENT-K-EC-200	1200	2440	0,115	1,1	MTP	55
C-VENT-K-EC-250	1500	2510	0,17	1,4	MTP	53
C-VENT-K-EC-315	2300	1910	0,168	1,4	MTP	54

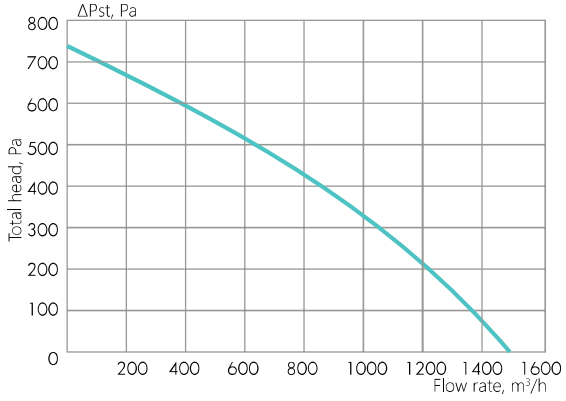
C-VENT-K-EC-160



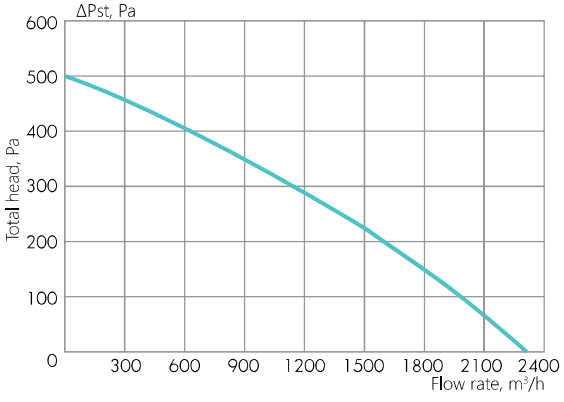
C-VENT-K-EC-200



C-VENT-K-EC-250

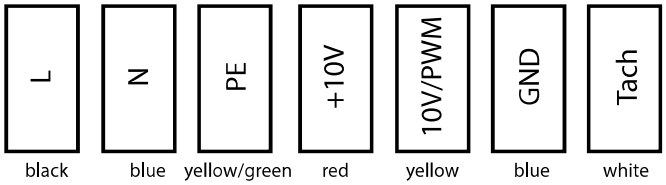


C-VENT-K-EC-315



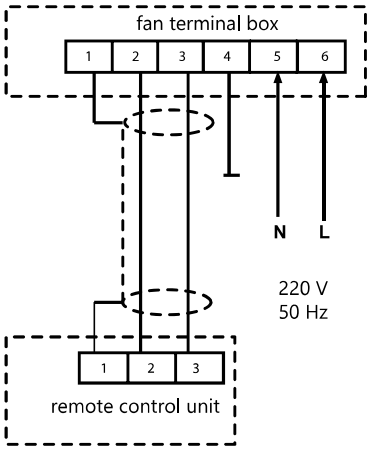
ELECTRICAL CONNECTION DIAGRAMS

C-VENT-K-EC-160, 200, 250



Cable	Terminal group	Contact	Name
1	L	black	mains 50-60 Hz, phase
	N	blue	mains 50-60 Hz, neutral
	PE	yellow/green	protective earthing
2	GND	blue	common ("ground", 0V)
	10V/PWM	yellow	control signal input
	+10V	red	power supply + 10 V max. 1.1 mA
	Tach	white	tacho-signal output, 1 pulse per revolution

C-VENT-K-EC-315



DUCT FAN FOR ROUND DUCTS WITH EC MOTOR | C-VENT-EC

- for stationary ventilation and air conditioning systems of industrial, public and residential buildings;
- significantly reduces system power consumption;
- provides increased system performance while maintaining compact dimensions;
- features additional capabilities for adjusting parameters and automating operation;
- ensures ease of maintenance and installation in confined spaces;
- for air with a permissible content of dust and solid impurities not exceeding 0.1 g/m^3;
- presence of sticky, fibrous and abrasive components, explosive impurities is not allowed.
- temperature range of the moved medium varies from -30° C to +40° C.
- ingress protection rating IP54.

The fan CASING is made of galvanized steel, reliably protected from corrosion. The C-VENT-EC casing for all sizes is equipped with a service cover for direct access to the impeller and motor during installation or maintenance.

Fan IMPELLERS with backward-curved blades undergo careful static and dynamic balancing.

EC MOTORS (electronically commutated motors) are external rotor DC motors with permanent magnets that support the control function, they are also called BLDC – brushless DC motors.

The PRINCIPLE OF OPERATION of the EC motor. Permanent magnets embedded in the rotor create a force field. Controlling the direction of current in the stator winding allows changing the magnetic field vector. A built-in switching controller creates the maximum shaft torque by applying voltage to the motor phase terminals. The controller calculates and sends a current polarity signal to the stator winding, ensuring continuous rotation of the rotor at a given speed. The built-in switching module allows connecting the electronically commutated DC motor to an AC source (220 V, 380 V).

The EC controller allows controlling the operation of the fan using a signal from external devices in the room (temperature, pressure, humidity level and CO2 sensors).

Duct fans of the C-VENT-EC type remain operational regardless of spatial orientation.

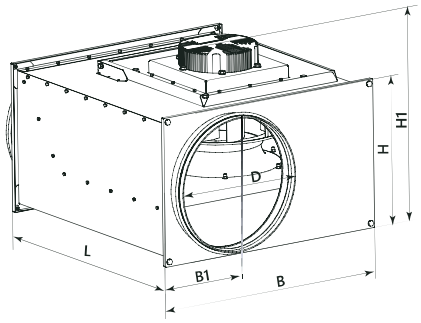
The fan is highly efficient. When selecting, it is necessary to pay attention to the air velocity in the cross-section of the air duct.



C-VENT-EC-250-4-220

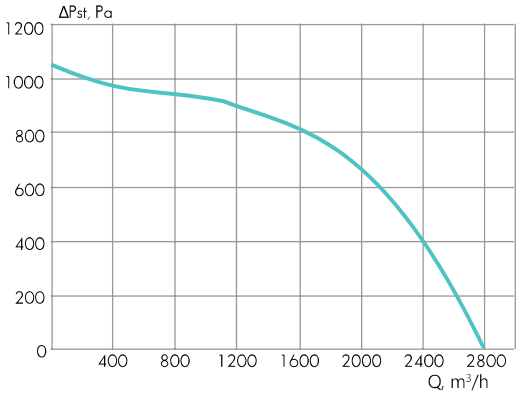
- duct fan for round ducts with EC motor
- size (for round connection section)
- number of electric motor poles
- electric motor supply voltage, 220 V or 380 V





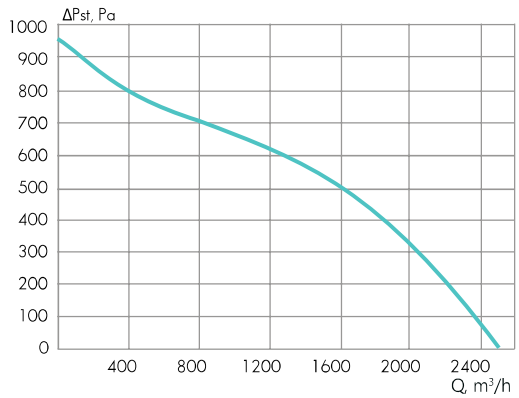
STANDARD SIZE	Dimensions, mm						Power consumption up to..., kW	Max. current consumption, A	Motor speed, min^{-1}	Weight, kg, max	Connection diagram
	D	B	B1	H	H1	L					
C-VENT-EC-250-2-220	250	540	185	340	420	562	0,69	4,12	2920	23	EC-3
C-VENT-EC-250-4-220	250	540	185	340	400	562	0,42	2,5	3450	25	EC-5
C-VENT-EC-315-2-220	315	640	174	340	425	642	0,67	2,93	2800	27	EC-3
C-VENT-EC-315-4-220	315	640	174	340	425	642	0,48	3,1	2580	28	EC-3
C-VENT-EC-355A-2-380	355	640	228	390	465	717	0,99	1,7	2580	29	EC-2
C-VENT-EC-355A-4-380	355	640	228	390	465	717	1,0	1,75	2140	29	EC-2
C-VENT-EC-355B-2-380	355	740	224	440	535	787	1,7	2,6	2600	50	EC-4
C-VENT-EC-355B-4-380	355	740	224	440	555	787	1,8	2,9	2180	51	EC-4

C-VENT-EC-250-2-220



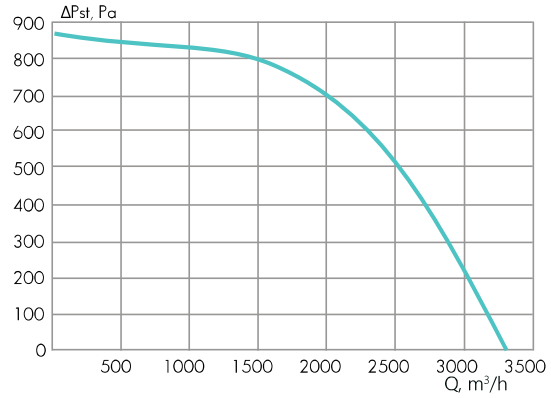
C-VENT-EC	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	76	54	60	62	68	71	70	69	59
Output	dB(A)	81	61	69	67	76	77	75	73	64
Surrounding	dB(A)	56	44	55	53	51	53	48	43	36

C-VENT-EC-250-4-220



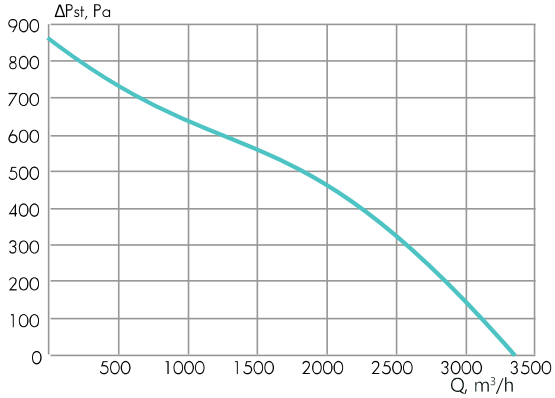
C-VENT-EC	Hz	Total	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	73	47	57	59	65	68	67	66	56
Output	dB(A)	78	55	66	64	73	74	72	70	61
Surrounding	dB(A)	53	40	52	50	48	50	45	40	33

C-VENT-EC-315-2-220



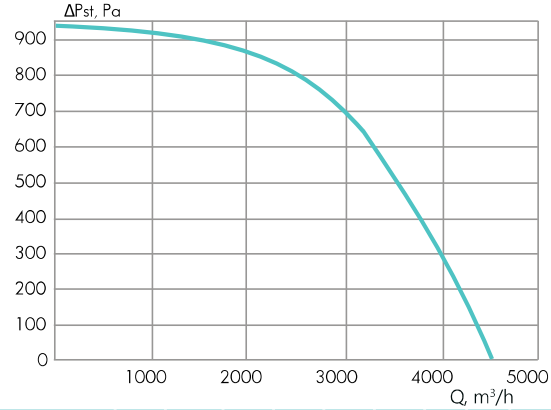
C-VENT-EC	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	76	51	60	62	68	71	70	69	59
Output	dB(A)	81	62	69	67	76	77	75	73	64
Surrounding	dB(A)	56	48	55	53	51	53	48	43	36

C-VENT-EC-315-4-220



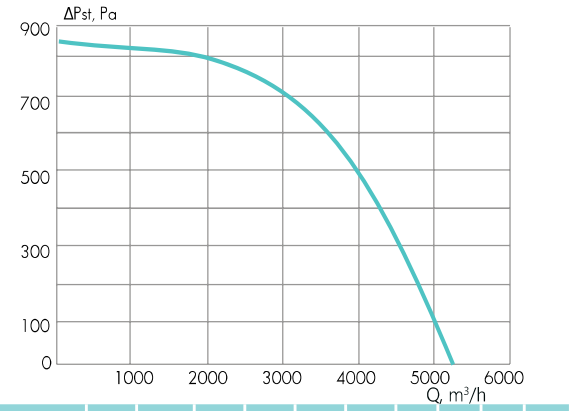
C-VENT-EC	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	78	68	78	68	65	71	74	70	69
Output	dB(A)	83	62	77	73	77	78	78	74	70
Surrounding	dB(A)	65	42	64	64	64	60	57	51	49

C-VENT-EC-355A-2-380



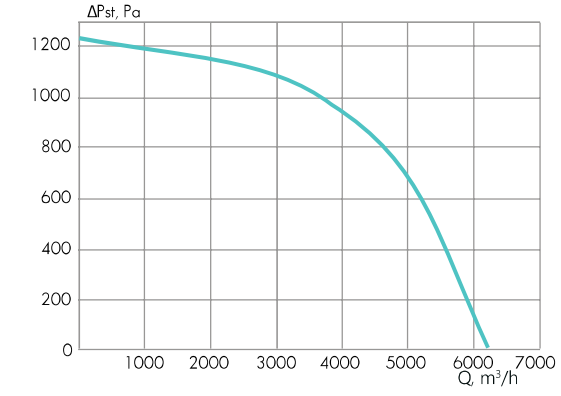
C-VENT-EC	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	78	71	77	67	69	72	72	70	65
Output	dB(A)	83	67	75	71	74	77	77	77	70
Surrounding	dB(A)	64	52	63	65	61	60	56	50	46

C-VENT-EC-355A-4-380



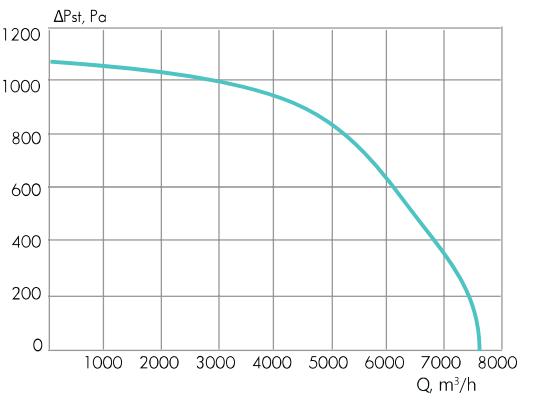
C-VENT-EC	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	75	49	59	61	67	70	69	68	58
Output	dB(A)	80	53	68	66	75	76	74	72	63
Surrounding	dB(A)	55	35	54	52	50	52	47	42	35

C-VENT-EC-355B-2-220



C-VENT-EC	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	80	79	76	72	68	76	75	69	68
Output	dB(A)	86	73	73	76	80	81	80	77	72
Surrounding	dB(A)	72	57	64	66	65	68	63	64	60

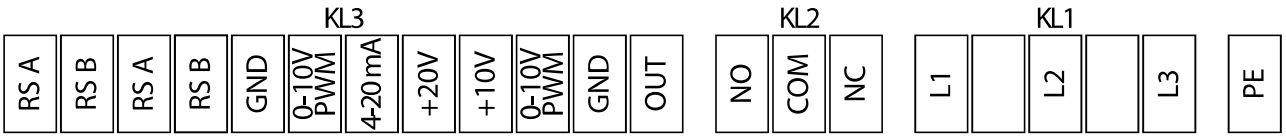
C-VENT-EC-355B-4-380



C-VENT-EC	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	81	54	65	67	73	76	75	74	64
Output	dB(A)	86	65	74	72	81	82	80	78	69
Surrounding	dB(A)	61	58	60	58	56	58	53	48	41

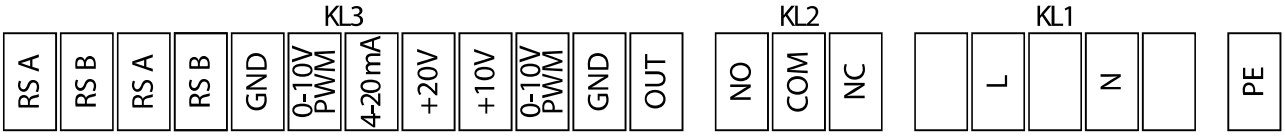
ЕЛЕКТРИЧНІ СХЕМИ ПІДКЛЮЧЕННЯ

EC-2



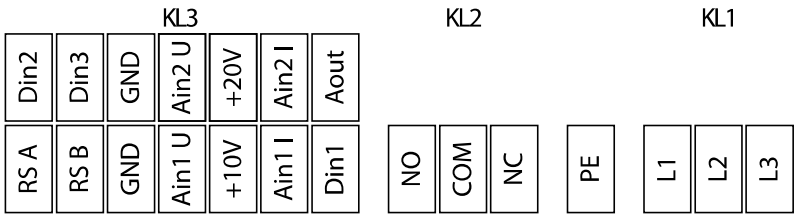
TERMINAL GROUP	CONTACT	INTENDED USE
PE	PE	protective earthing
KL1	L3	mains; L3
	L2	mains; L2
	L1	mains; L1
KL2	NC	fault alarm relay, NC contact
	COM	fault alarm relay, common (2 A, 250 V AC, AC1)
	NO	fault alarm relay, NO contact
KL3	OUT	control output 0-10 V max. 3 mA
	GND	common ("ground", 0V)
	0-10V/PWM	control signal input (100 kOhm impedance)
	+10V	power supply of external potentiometer 10 V DC (+10%) max. 10 mA
	+20V	power supply of external sensor 20 V DC (±20%) max. 50 mA
	4-20 mA	control signal input
	0-10V/PWM	control signal input
	GND	common ("ground", 0V)
	RSB	RS485 interface for ebmBUS; RS B
	RSA	RS485 interface for ebmBUS; RS A
	RSB	RS485 interface for ebmBUS; RS B
	RSA	RS485 interface for ebmBUS; RS A

EC-3



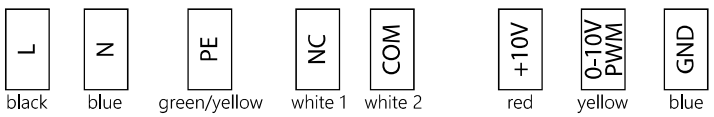
TERMINAL GROUP	CONTACT	INTENDED USE
PE	PE	protective earthing
KL1	N	mains 50/60 Hz, neutral
	L	mains 50/60 Hz, phase
KL2	NC	fault alarm relay, NC contact
	COM	fault alarm relay, common contact (2 A, 250 V AC, AC1)
	NO	fault alarm relay, NO contact
KL3	OUT	control output 0-10 V max. 3 mA
	GND	common ("ground", 0 V)
	0-10V/PWM	control signal input (100 kOhm impedance)
	+10V	power supply of external potentiometer 10V DC (+10%) max. 10 mA
	+20V	power supply of external sensor 20 V DC (±20%) max. 50 mA
	4-20 mA	control signal input
	0-10V/PWM	control signal input
	GND	common ("ground", 0 V)
	RSB	RS485 interface for MODBUS RTU; RS B
	RSA	RS485 interface for MODBUS RTU; RS A
	RSB	RS485 interface for MODBUS RTU; RS B
	RSA	RS485 interface for MODBUS RTU; RS A
	RSA	RS485 interface for ebmBUS; RS A

EC-4



TERMINAL GROUP	CONTACT	INTENDED USE
KL1	L3	mains; L3
	L2	mains; L2
	L1	mains; L1
PE	PE	protective earthing
KL2	NC	fault alarm relay, NC contact
	COM	fault alarm relay, common (2A, 250V AC, AC1)
	NO	fault alarm relay, NO contact
KL3	Din1	digital input 1 ("On"/"Off"), "On" (contact is open or voltage 5 ... 50V DC is applied) "Off" (contact is closed to common ("ground" 0V) or voltage < 1V DC is applied)
	Ain1 I	analog input, 4-20 mA (100 Ohm impedance), use only instead of Ain1 U
	+10V	power supply of external potentiometer 10V DC (± 3%) max. 10 mA
	Ain1 U	analog input, 0-10V (100 Ohm impedance) use only instead of Ain1
	GND	common ("ground", 0V)
	RSB	RS485 interface for MODBUS RTU; RS B
	RSA	RS485 interface for MODBUS RTU; RS A
	Aout	analog output 0-10V max. 5 mA
	Ain2 I	analog input, 4-20 mA (100 Ohm impedance) use only instead of Ain2 U
	+20V	power supply of external sensor 20V DC (+25%/-10%) max. 40 mA
	Ain2 U	analog input, 0-10V (100 kOhm impedance) use only instead of Ain2
	GND	common ("ground", 0V)
	Din3	digital input 3 ("Normal"/"Reverse" switch). Pre-selection of parameters can be done from BUS or via digital input. "Norm" (contact is open or voltage 5...50V DC is applied) "Reverse" (contact is closed to common ("ground", 0V) or voltage < 1V DC is applied)
	Din2	digital input 2 ("Day"/"Night" switch). Pre-selection of parameters can be done from BUS or via digital input. "Day" (contact is open or voltage 5...50V DC is applied) "Night" (contact is closed to common ("ground", 0V) or voltage < 1V DC is applied)

EC-5



CABLE 1	CONTACT	COLOR	INTENDED USE
1	L	black	mains 50/60 Hz, phase
	N	blue	mains 50/60 Hz, neutral
	PE	green/yellow	protective earthing
	NC	white 1	fault alarm relay, NC contact
	COM	white 2	fault alarm relay, common contact
2	+10V	red	power supply + 10V max. 1.1 mA
	0-10V/PWM	yellow	control signal input (100 kOhm impedance)
	GND	blue	common ("ground", 0 V)

C-VENT-PF || DUCT FAN FOR ROUND DUCTS



C-VENT-PF-160-4-220

- duct fan for round ducts
- size (for round connection section)
- number of electric motor poles
- electric motor supply voltage, 220 V or 380 V

- for compact stationary systems of supply and exhaust ventilation, air conditioning of industrial, public and residential buildings;
- provides ease of installation and maintenance in confined spaces;
- universally combined with other elements of ducted ventilation systems;
- for the movement of air with a permissible content of dust and other solid impurities, which should not exceed 0.1 g/m^3;
- presence of sticky, fibrous and abrasive components, as well as explosive impurities is not allowed.
- temperature range of the moved medium varies from -30° C to +40° C.
- ingress protection rating IP54.

The fan CASING made of galvanized steel provides reliable corrosion protection. Upon special request, the outer surface of the casing can be powder coated. The cover is necessary for direct access to the impeller and motor when installing or maintaining the fan. The cover is designed for all C-VENT-PF sizes.

The IMPELLERS of duct fans with forward-curved blades are made of galvanized steel and undergo careful static and dynamic balancing.

Single-or three-phase asynchronous ELECTRIC MOTORS with an external rotor are characterized by low power consumption and a significant service life. The compact size and location of the fan impeller inside in the air flow ensure efficient cooling of the motor with incoming air, which increases the service life by reducing the thermal and mechanical load on the bearings.

Standard equipment of duct fan motors with thermal contact relays provides comprehensive thermal protection.

For single-phase electric motors, a starting capacitor is installed on the fan casing.

Ducted fans of this type can be mounted in any spatial position, provided that the fan service cover is freely accessible.

sound insulation


C-GKK


C-GKN

filtration


C-FKK


C-FKK-L


C-FKK-BAG

adjustment


C-DKK


C-KVK


C-KOL-K

heat exchange


C-KVN-K


C-EVN-K


C-EVN-K-S1 (S2)

energy saving


C-PK1-K

ancillaries


C-MK


C-P


C-RVK


C-RVC

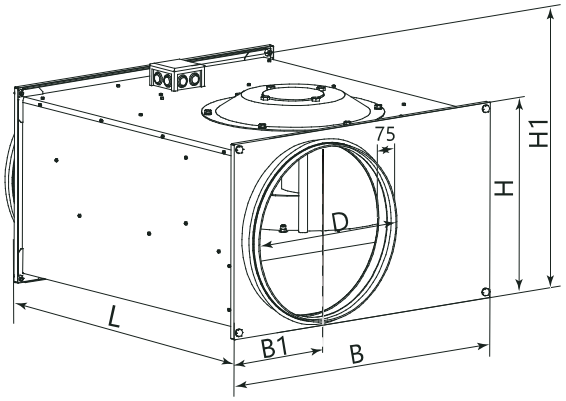

C-RPVC


C-RKA (RKO)

control


C-SAU


UWS

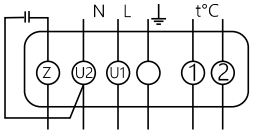


STANDARD SIZE	Dimensions, mm						Power consumption up to..., kW	Max. current consumption, A	Motor speed, min^{-1}	Corrected sound pressure level, dB(A)	Weight, kg, max	Connection diagram
	B	B1	H	H1	L	D						
C-VENT-PF-150-4-220	440	122	240	265	502	150	0,33	1,52	1260	56	12	A2
C-VENT-PF-150-4-380	440	127	240	265	502	150	0,33	1,52	1260	56	12	D1
C-VENT-PF-160-4-220	440	127	240	265	502	160	0,33	1,52	1260	56	12	A2
C-VENT-PF-160-4-380	440	127	240	265	502	160	0,33	1,52	1260	56	12	D1
C-VENT-PF-200-4-220	440	140	240	265	502	200	0,33	1,52	1260	55	12	A2
C-VENT-PF-200-4-380	440	140	240	265	502	200	0,33	0,63	1230	53	12	D1
C-VENT-PF-250-4-220	540	153	290	315	532	250	0,51	2,3	1250	50	18	A2
C-VENT-PF-250-4-380	540	153	290	315	532	250	0,56	0,95	1270	55	18	D1
C-VENT-PF-315A-4-220	540	195	340	365	562	315	0,9	4,1	1230	59	21	A2
C-VENT-PF-315A-4-380	540	195	340	365	562	315	0,93	1,9	1380	57	29	D1
C-VENT-PF-315B-4-220	640	182	340	365	642	315	1,6	7,3	1210	62	28	A2
C-VENT-PF-315B-4-380	640	182	340	365	642	315	1,7	3,2	1310	58	32	D1
C-VENT-PF-315B-6-380	640	182	340	365	642	315	0,45	0,85	780	58	32	D1
C-VENT-PF-355-4-380	640	202	390	420	717	355	2,5	4,1	1300	61	38	D1
C-VENT-PF-355-6-380	640	202	390	420	717	355	0,9	1,8	750	53	34	D1

ELECTRICAL CONNECTION DIAGRAMS

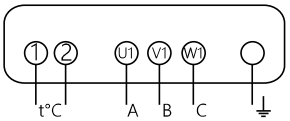
A2

220 V 1~



D1

~3 Ph 380 V 50 Hz



C-VENT-PF-S

DUCT FAN FOR ROUND DUCTS



C-VENT-PF-S-160-4-220

- duct fan for round ducts
- in a soundproof casing
- size (for round connection section)
- number of electric motor poles
- electric motor supply voltage, 220 V or 380 V

sound insulation


C-GKK


C-GKN

filtration


C-FKK


C-FKK-L


C-FKK-BAG

adjustment


C-DKK


C-KVK


C-KOL-K

heat exchange


C-KVN-K


C-EVN-K


C-EVN-K-S1 (S2)

energy saving


C-PK1-K

ancillaries


C-MK


C-P


C-RVK


C-RVC


C-RPVC


C-RKA (RKO)

control


C-SAU


UWS

- it is used in premises with increased noise level requirements and is manufactured in a soundproof casing;
- provides ease of installation and maintenance in confined spaces;
- universally combined with other elements of ducted ventilation systems;
- for the movement of air with a permissible content of dust and other solid impurities, which should not exceed 0.1 g/m^3;
- presence of sticky, fibrous and abrasive components, as well as explosive impurities is not allowed.
- temperature range of the moved medium varies from -30° C to +40° C.
- ingress protection rating IP54.

The fan CASING made of galvanized steel provides reliable corrosion protection. Upon special request, the outer surface of the casing can be powder coated. The cover is designed for all C-VENT-PF-S sizes. The cover is designed for direct access to the impeller and motor when installing or maintaining the fan.

The SOUNDPROOF CASING distinguishes the C-VENT-PF-S from the standard series. The casing is made of galvanized steel and is a box-shaped structure. The space between the walls of the sound-insulated casing is filled with non-flammable mineral wool, which is characterized by high soundproofing properties.

The IMPELLERS of C-VENT-PF-S duct fans with forward-curved blades are made of galvanized steel and undergo careful static and dynamic balancing.

Single-or three-phase asynchronous ELECTRIC MOTORS with an external rotor are characterized by low power consumption and a significant service life. Standard equipment of duct fan motors with thermal contact relays provides comprehensive thermal protection.

Ducted fans of this type can be mounted in any spatial position, provided that the fan service cover is freely accessible.

RECOMMENDATIONS

To reduce losses associated with turbulence in the air flow, a straight section of the duct or silencer should be located at the inlet and outlet of the duct fan. Recommended lengths of straight sections are:

FOR ROUND VENTILATION DUCTS

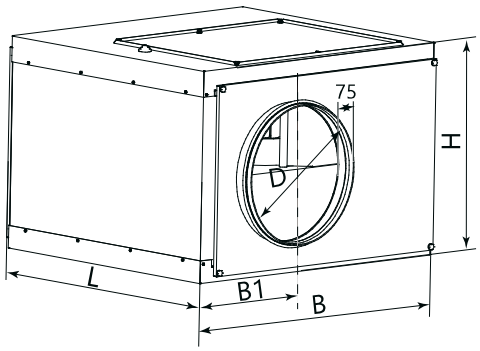
- the minimum length of a straight section is equal to 1 diameter of the air duct ON THE INLET SIDE;
- the minimum length of a straight section is equal to 3 duct diameters ON THE OUTLET SIDE.

FOR RECTANGULAR VENTILATION DUCTS, THE EQUIVALENT DIAMETER OF THE AIR DUCTS IS CALCULATED USING THE FORMULA: :

$$D = \sqrt{\frac{4 \times H \times B}{\pi}}$$

where: D is the diameter of the equivalent round duct;
H is the height of a rectangular duct;
B is the width of a rectangular duct.

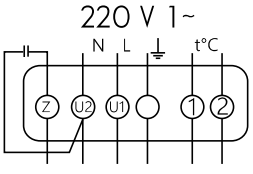
Compliance with this recommendation ensures stable operation of the ventilation equipment, fulfillment of the design technical parameters, stabilization of the electric motor operation, and also significantly affects the noise characteristics of the fan during operation.



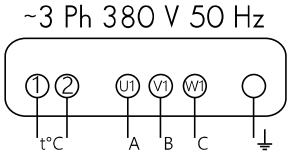
STANDARD SIZE	Dimensions, mm					Power consumption up to..., kW	Max. current consumption, A	Corrected sound pressure level, dB(A) at a distance of 3 meters	Weight, kg, max	Connection diagram
	B	B1	H	L	D					
C-VENT-PF-S-150-4-220	500	152	300	502	150	0,33	1,52	37	13	A2
C-VENT-PF-S-150-4-380	500	152	300	502	150	0,33	1,52	37	13	D1
C-VENT-PF-S-160-4-220	500	157	300	502	160	0,33	1,52	37	13	A2
C-VENT-PF-S-160-4-380	500	157	300	502	160	0,33	1,52	37	13	D1
C-VENT-PF-S-200-4-220	500	190	300	502	200	0,33	1,52	36	13	A2
C-VENT-PF-S-200-4-380	500	190	300	502	200	0,33	0,63	35	13	D1
C-VENT-PF-S-250-4-220	600	183	350	532	250	0,51	2,3	38	20	A2
C-VENT-PF-S-250-4-380	600	183	350	532	250	0,56	0,95	42	20	D1
C-VENT-PF-S-315A-4-220	600	225	400	562	315	0,9	4,1	42	23	A2
C-VENT-PF-S-315A-4-380	600	225	400	562	315	0,93	1,9	46	32	D1
C-VENT-PF-S-315B-4-220	700	212	400	642	315	1,6	7,3	47	31	A2
C-VENT-PF-S-315B-4-380	700	212	400	642	315	1,7	3,2	51	35	D1
C-VENT-PF-S-315B-6-380	700	212	400	642	315	0,45	0,85	52	35	D1
C-VENT-PF-S-355-4-380	700	253	450	717	355	2,5	4,1	53	42	D1
C-VENT-PF-S-355-6-380	700	253	450	717	355	0,9	1,8	44	37	D1

ELECTRICAL CONNECTION DIAGRAMS

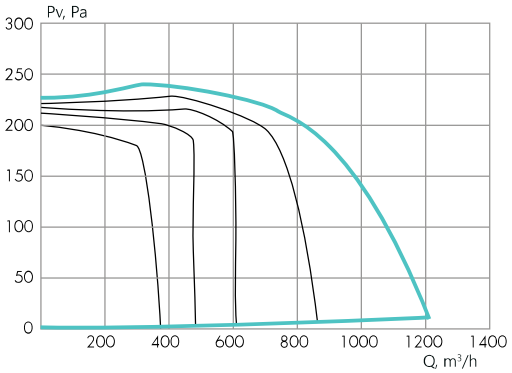
A2



D1



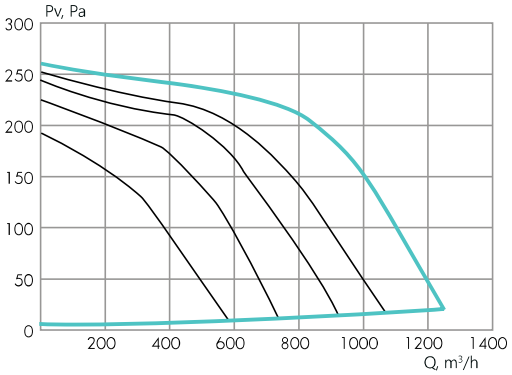
C-VENT-PF-150-4-220, C-VENT-PF-S-150-4-220



C-VENT-PF	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	64	54	66	64	62	56	56	55	49
Output	dB(A)	70	55	63	67	65	65	63	61	54
Surrounding	dB(A)	59	38	45	59	55	56	49	46	41

C-VENT-PF-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	63	41	43	51	57	61	54	51	52
Output	dB(A)	70	55	63	67	65	65	63	61	54
Surrounding	dB(A)	44	20	22	31	37	40	37	35	35

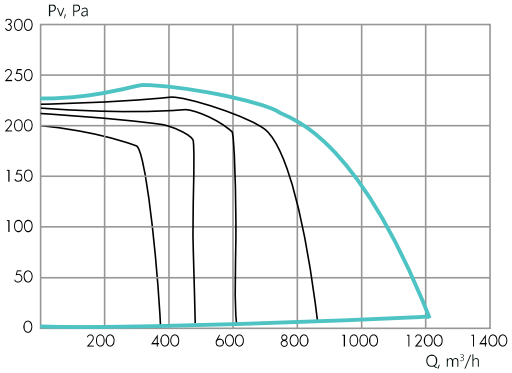
C-VENT-PF-150-4-380, C-VENT-PF-S-150-4-380



C-VENT-PF	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	69	55	68	65	60	56	55	53	46
Output	dB(A)	69	54	64	69	64	65	62	59	52
Surrounding	dB(A)	60	33	41	58	51	59	44	40	33

C-VENT-PF-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	61	29	37	49	55	59	53	49	50
Output	dB(A)	69	54	64	69	64	65	62	59	52
Surrounding	dB(A)	43	11	17	30	35	38	37	32	33

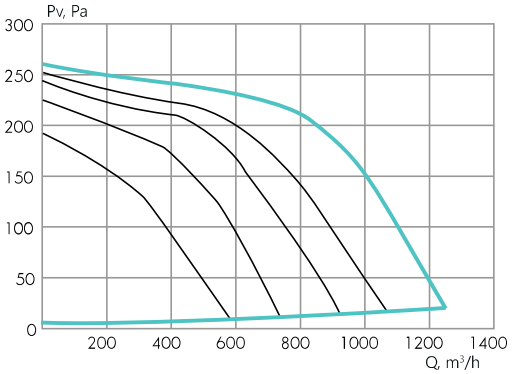
C-VENT-PF-160-4-220, C-VENT-PF-S-160-4-220



C-VENT-PF	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	70	62	70	67	59	63	64	62	59
Output	dB(A)	76	55	64	67	69	72	70	68	64
Surrounding	dB(A)	60	35	47	57	58	55	51	46	50

C-VENT-PF-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	63	50	44	50	58	59	55	53	51
Output	dB(A)	76	55	64	67	69	72	70	68	64
Surrounding	dB(A)	49	29	27	33	43	44	38	42	40

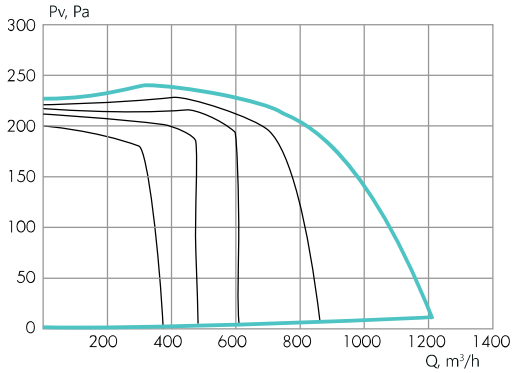
C-VENT-PF-160-4-380, C-VENT-PF-S-160-4-380



C-VENT-PF	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	70	62	70	67	59	63	64	62	59
Output	dB(A)	76	55	64	67	69	72	70	68	64
Surrounding	dB(A)	60	35	47	57	58	55	51	46	50

C-VENT-PF-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	63	50	44	50	58	59	55	53	51
Output	dB(A)	76	55	64	67	69	72	70	68	64
Surrounding	dB(A)	49	29	27	33	43	44	38	42	40

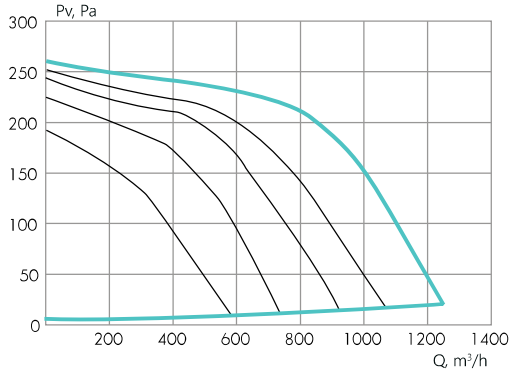
C-VENT-PF-200-4-220, C-VENT-PF-S-200-4-220



C-VENT-PF	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	64	54	66	64	62	56	56	55	49
Output	dB(A)	70	55	63	67	65	65	63	61	54
Surrounding	dB(A)	59	38	45	59	55	56	49	46	41

C-VENT-PF-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	63	41	43	51	57	61	54	51	52
Output	dB(A)	70	55	63	67	65	65	63	61	54
Surrounding	dB(A)	44	20	22	31	37	40	37	35	35

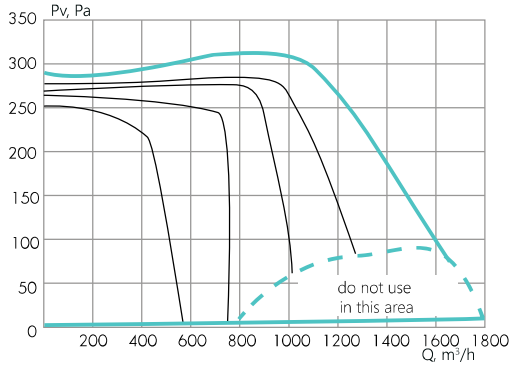
C-VENT-PF-200-4-380, C-VENT-PF-S-200-4-380



C-VENT-PF	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	69	55	68	65	60	56	55	53	46
Output	dB(A)	69	54	64	69	64	65	62	59	52
Surrounding	dB(A)	60	33	41	58	51	59	44	40	33

C-VENT-PF-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	61	29	37	49	55	59	53	49	50
Output	dB(A)	69	54	64	69	64	65	62	59	52
Surrounding	dB(A)	43	11	17	30	35	38	37	32	33

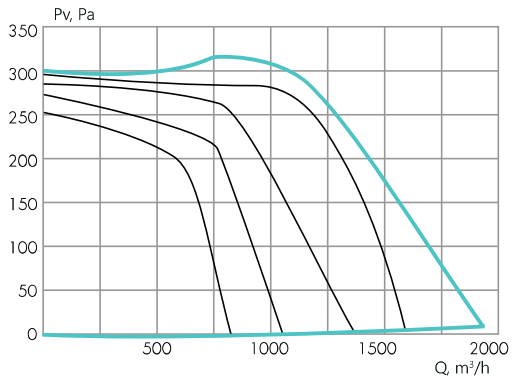
C-VENT-PF-250-4-220, C-VENT-PF-S-250-4-220



C-VENT-PF	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	70	62	70	67	59	63	64	62	59
Output	dB(A)	76	55	64	67	69	72	70	68	64
Surrounding	dB(A)	60	35	47	57	58	55	51	46	50

C-VENT-PF-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	63	50	44	50	58	59	55	53	51
Output	dB(A)	76	55	64	67	69	72	70	68	64
Surrounding	dB(A)	49	29	27	33	43	44	38	42	40

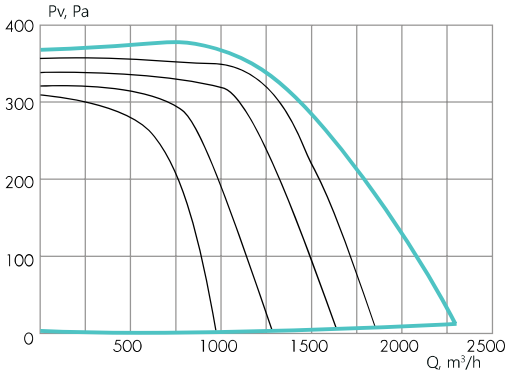
C-VENT-PF-250-4-380, C-VENT-PF-S-250-4-380



C-VENT-PF	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	70	62	70	67	59	63	64	62	59
Output	dB(A)	76	55	64	67	69	72	70	68	64
Surrounding	dB(A)	60	35	47	57	58	55	51	46	50

C-VENT-PF-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	66	40	47	53	59	62	59	56	55
Output	dB(A)	76	55	64	67	69	72	70	68	64
Surrounding	dB(A)	50	20	30	35	44	47	41	40	41

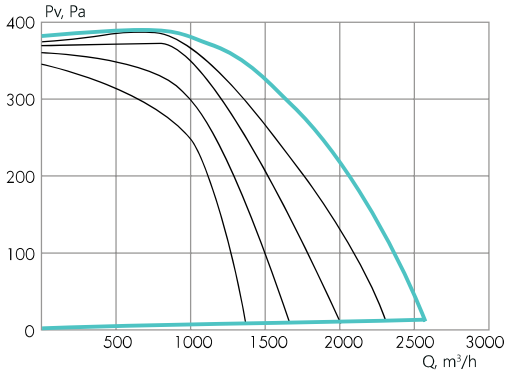
C-VENT-PF-315A-4-220, C-VENT-PF-S-315A-4-220



C-VENT-PF	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	73	65	73	68	64	67	68	66	62
Output	dB(A)	80	60	69	68	71	76	73	72	66
Surrounding	dB(A)	64	38	54	62	58	61	55	51	47

C-VENT-PF-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	65	53	50	52	55	59	58	58	56
Output	dB(A)	80	60	69	68	71	76	73	72	66
Surrounding	dB(A)	48	34	33	37	43	44	39	39	35

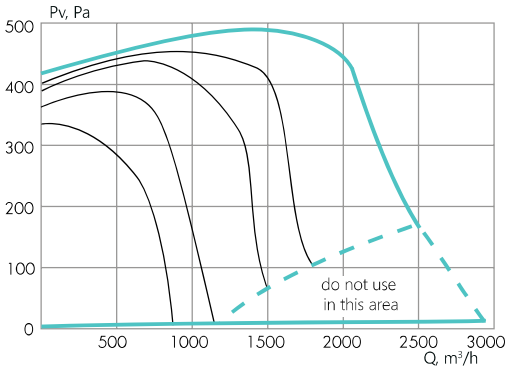
C-VENT-PF-315A-4-380, C-VENT-PF-S-315A-4-380



C-VENT-PF	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	73	65	71	65	63	66	67	66	62
Output	dB(A)	79	63	70	68	70	74	72	71	66
Surrounding	dB(A)	64	38	54	62	58	61	55	51	47

C-VENT-PF-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	70	45	55	54	60	65	63	62	63
Output	dB(A)	79	63	70	68	70	74	72	71	66
Surrounding	dB(A)	51	26	35	40	44	48	43	42	41

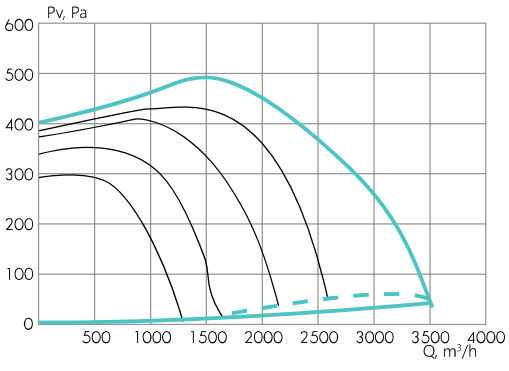
C-VENT-PF-315B-4-220, C-VENT-PF-S-315B-4-220



C-VENT-PF	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	77	68	79	71	66	70	71	68	69
Output	dB(A)	83	63	79	71	73	79	76	74	67
Surrounding	dB(A)	66	40	62	66	60	63	57	51	48

C-VENT-PF-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	70	67	59	54	61	66	64	61	59
Output	dB(A)	83	63	79	71	73	79	76	74	67
Surrounding	dB(A)	52	44	37	41	44	48	44	41	40

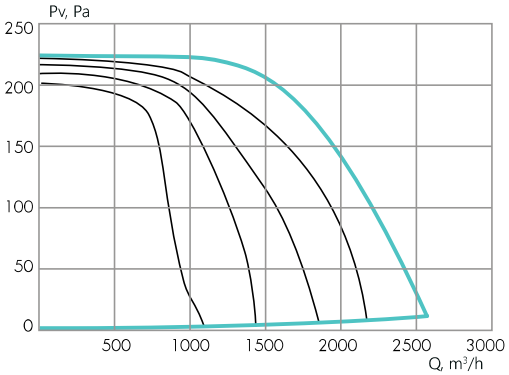
C-VENT-PF-315B-4-380, C-VENT-PF-S-315B-4-380



C-VENT-PF	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	76	70	72	68	66	70	71	67	63
Output	dB(A)	80	59	70	68	73	76	73	73	68
Surrounding	dB(A)	62	40	55	60	60	57	54	52	47

C-VENT-PF-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	75	52	64	58	65	70	69	66	64
Output	dB(A)	80	59	70	68	73	76	73	73	68
Surrounding	dB(A)	56	33	42	42	46	53	48	45	45

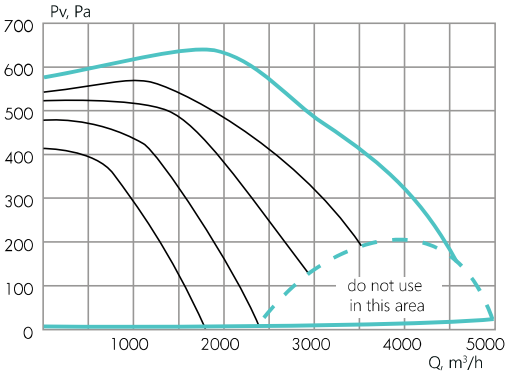
C-VENT-PF-315B-6-380, C-VENT-PF-S-315B-6-380



C-VENT-PF	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	75	52	64	58	65	70	69	66	64
Output	dB(A)	67	55	64	59	62	62	60	59	52
Surrounding	dB(A)	56	33	42	42	46	53	48	45	45

C-VENT-PF-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	63	59	62	57	56	58	56	54	46
Output	dB(A)	67	55	64	59	62	62	60	59	52
Surrounding	dB(A)	51	37	51	52	48	46	42	40	36

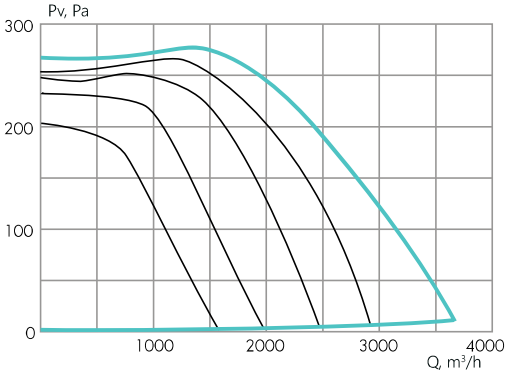
C-VENT-PF-355-4-380, C-VENT-PF-S-355-4-380



C-VENT-PF	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	78	72	77	68	69	73	72	69	65
Output	dB(A)	83	67	74	73	76	79	77	75	70
Surrounding	dB(A)	64	49	62	62	60	60	55	52	48

C-VENT-PF-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	76	56	61	59	64	72	69	67	66
Output	dB(A)	83	67	74	73	76	79	77	75	70
Surrounding	dB(A)	56	36	41	40	47	53	48	48	47

C-VENT-PF-355-6-380, KC-VENT-PF-S-355-6-380



C-VENT-PF	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	76	56	61	59	64	72	69	67	66
Output	dB(A)	72	58	65	63	68	67	65	64	57
Surrounding	dB(A)	56	36	41	40	47	53	48	48	47

C-VENT-PF-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	66	64	67	58	60	61	60	58	54
Output	dB(A)	72	58	65	63	68	67	65	64	57
Surrounding	dB(A)	55	43	52	56	53	50	46	45	40

C-VENT-PF-EX

DUCT FAN FOR ROUND DUCTS



- it is used for premises with high requirements for explosion protection;
- in conditions of limited space, it provides easy installation and maintenance; it is also universally combined with other elements of ducted ventilation systems;
- for the movement of air with a permissible content of dust and other solid impurities, which should not exceed 0.1 g/m3;
- presence of sticky, fibrous and abrasive components is not allowed.
- temperature range of the moved medium varies from -20° C to +40° C. Designed for moving gas- and steam-air explosive mixtures of Category 2 according to GOST 12.1.011.78.
- ingress protection rating IP54.

C-VENT-PF-EX-160-4-380

- duct fan for round ducts
- explosion-proof
- size (for round connection section)
- number of electric motor poles
- electric motor supply voltage, 380 V

sound insulation


C-GKK


C-GKN

filtration


C-FKK


C-FKK-L


C-FKK-BAG

adjustment

by special request

heat exchange

by special request

energy saving

by special request

ancillaries


C-MK

control

by special request

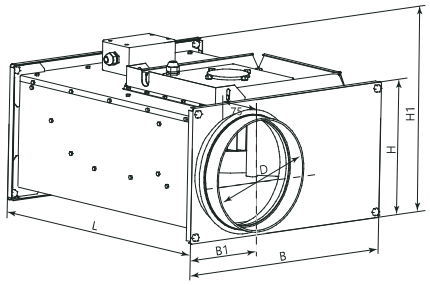
The fan CASING made of galvanized steel provides reliable corrosion protection. Upon special request, the outer surface of the casing can be powder coated. A cover for direct access to the impeller and motor during fan installation or maintenance is provided for all C-VENT-PF-EX sizes.

Upon special request, the C-VENT-PF-EX fan can be manufactured in a sound-insulated box casing (the price and delivery time are calculated individually).

The IMPELLERS of duct fans with forward-curved blades are made of galvanized steel and undergo careful static and dynamic balancing.

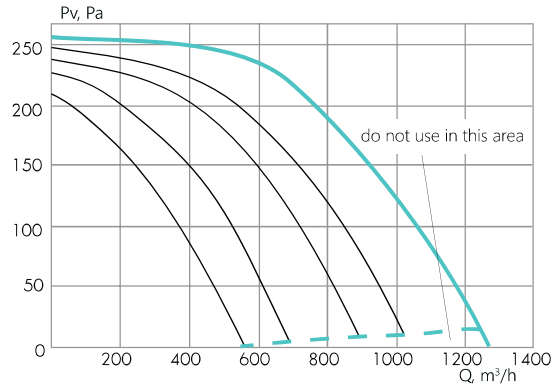
EXPLOSION-PROOF THREE-PHASE ASYNCHRONOUS ELECTRIC MOTOR with an external rotor, characterized by low power consumption and a significant service life. Compact dimensions and special design increase the service life by reducing the thermal and mechanical load on the bearings.

Precise balancing is achieved by combining rotating elements, impeller and electric motor of the fan.



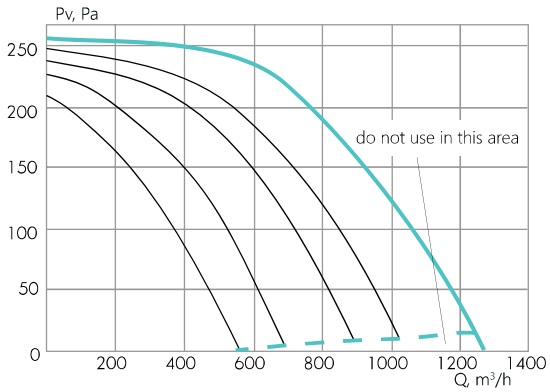
STANDARD SIZE	Dimensions, mm						Power consumption up to..., kW	Max. current consumption, A	Motor speed, min^{-1}	Weight, kg, max
	B	B1	H	H1	L	D				
C-VENT-PF-EX-150-4-380	440	122	240	280	502	150	0,281	0,5	1400	14
C-VENT-PF-EX-160-4-380	440	127	240	280	502	160	0,281	0,5	1400	14
C-VENT-PF-EX-200-4-380	440	140	240	280	502	200	0,281	0,5	1400	14
C-VENT-PF-EX-250-4-380	540	153	290	330	532	250	0,545	0,93	1430	18
C-VENT-PF-EX-315A-4-380	540	195	340	365	562	315	0,9	1,8	1440	22,3
C-VENT-PF-EX-315B-4-380	640	182	340	380	642	315	1,3	2,32	1440	23,5
C-VENT-PF-EX-355-4-380	640	202	390	435	717	355	2,044	3,9	1440	42,5
C-VENT-PF-EX-400-6-380	740	220	440	480	787	400	1,1	2	900	50

C-VENT-PF-EX-150-4-380



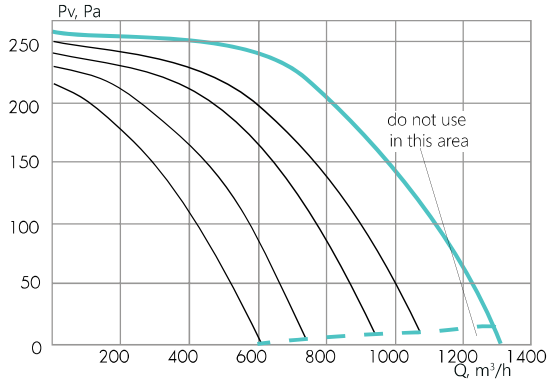
C-VENT-PF-EX	Hz	Total.	125	250	500	1k	2k	4k	8k
Input	dB(A)	67	55	58	56	62	61	59	49
Output	dB(A)	73	51	59	64	69	67	65	56
Surrounding	dB(A)	61	48	52	54	56	54	49	42

C-VENT-PF-EX-160-4-380



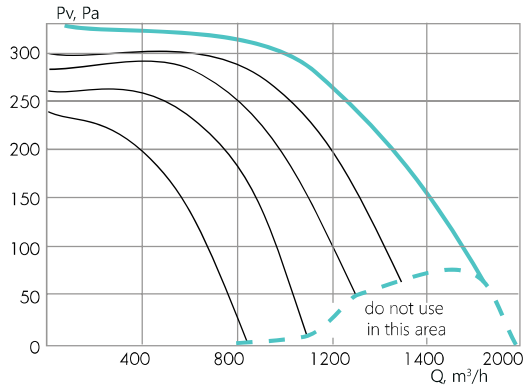
C-VENT-PF-EX	Hz	Total.	125	250	500	1k	2k	4k	8k
Input	dB(A)	71	60	62	60	66	65	63	51
Output	dB(A)	76	55	62	67	72	70	68	57
Surrounding	dB(A)	63	51	54	56	58	56	51	41

C-VENT-PF-EX-200-4-380



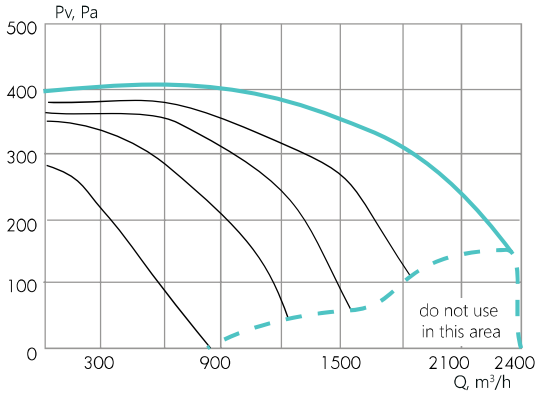
C-VENT-PF-EX	Hz	Total.	125	250	500	1k	2k	4k	8k
Input	dB(A)	67	55	58	56	62	61	59	49
Output	dB(A)	73	51	59	64	69	67	65	56
Surrounding	dB(A)	61	48	52	54	56	54	49	42

C-VENT-PF-EX-250-4-380



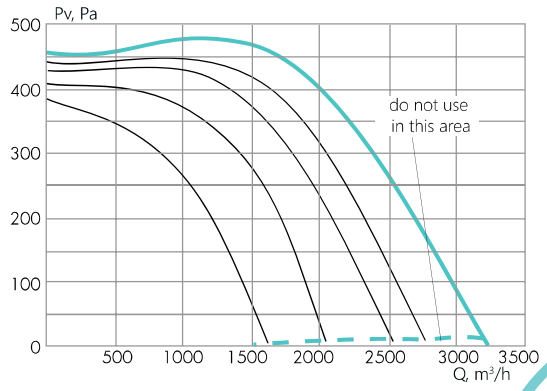
C-VENT-PF-EX	Hz	Total.	125	250	500	1k	2k	4k	8k
Input	dB(A)	71	60	62	60	66	65	63	51
Output	dB(A)	76	55	62	67	72	70	68	57
Surrounding	dB(A)	63	51	54	56	58	56	51	41

C-VENT-PF-EX-315A-4-380



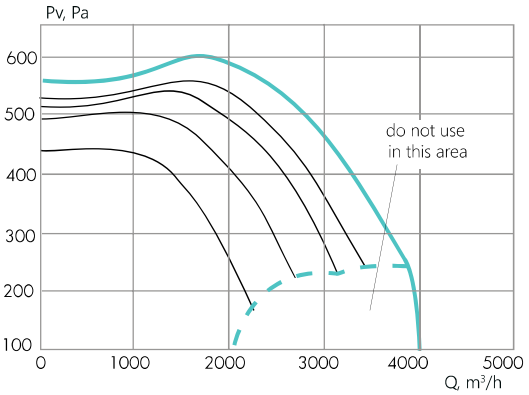
C-VENT-PF-EX	Hz	Total.	125	250	500	1k	2k	4k	8k
Input	dB(A)	73	65	64	63	67	67	65	61
Output	dB(A)	79	62	67	70	74	71	70	65
Surrounding	dB(A)	65	56	61	55	58	53	49	46

C-VENT-PF-EX-315B-4-380



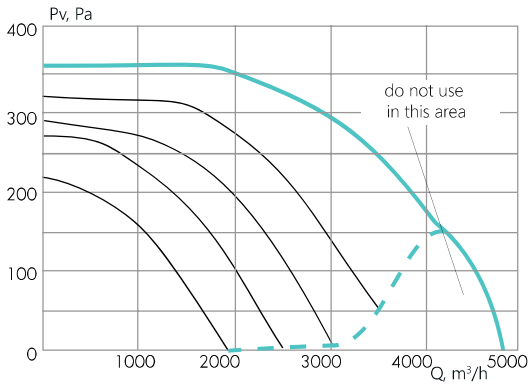
C-VENT-PF-EX	Hz	Total.	125	250	500	1k	2k	4k	8k
Input	dB(A)	77	68	67	65	72	71	69	60
Output	dB(A)	83	66	67	75	79	77	75	66
Surrounding	dB(A)	69	61	59	63	64	61	56	46

C-VENT-PF-EX-355-4-380



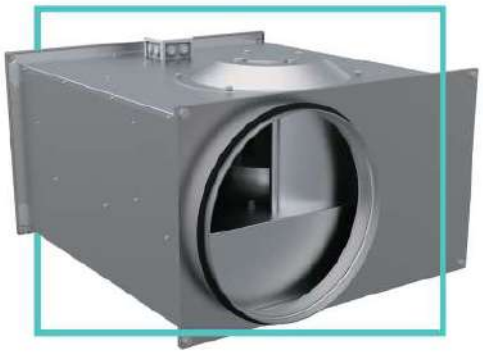
C-VENT-PF-EX	Hz	Total.	125	250	500	1k	2k	4k	8k
Input	dB(A)	80	69	69	69	75	74	72	67
Output	dB(A)	86	67	71	78	82	80	78	69
Surrounding	dB(A)	71	62	61	66	65	63	59	49

C-VENT-PF-EX-400-6-380



C-VENT-PF-EX	Hz	Total.	125	250	500	1k	2k	4k	8k
Input	dB(A)	75	65	63	66	70	68	67	56
Output	dB(A)	81	66	66	75	76	75	73	63
Surrounding	dB(A)	66	56	56	60	62	56	55	40

DUCT FAN FOR ROUND DUCTS C-VENT-PB



- for compact stationary systems of supply and exhaust ventilation, air conditioning of industrial, public and residential buildings;
- provides ease of installation and maintenance in confined spaces;
- universally combined with other elements of ducted ventilation systems;
- for the movement of air with a permissible content of dust and other solid impurities, which should not exceed 0.1 g/m^3;
- presence of sticky, fibrous and abrasive components, as well as explosive impurities is not allowed.
- temperature range of the moved medium varies from -30° C to +40° C.
- ingress protection rating IP54.

The fan CASING made of galvanized steel provides reliable corrosion protection. Upon special request, the outer surface of the casing can be powder coated. The cover is provided for all C-VENT-PB sizes for direct access to the impeller and motor during fan installation or maintenance.

The IMPELLERS of duct fans with backward-curved blades are made of aluminum and undergo careful static and dynamic balancing.

C-VENT-PB fan, unlike the standard C-VENT-PF series fans (with forward-curved blades), has a higher efficiency, providing energy savings. In addition, C-VENT-PB fans create less noise during operation, ensuring a "quieter" operation of the system.

Single-or three-phase asynchronous electric motors with a compact external rotor. The location of the fan impeller inside the air flow ensures efficient cooling of the motor with incoming air. This increases the service life by reducing the thermal and mechanical load on the bearings.

Standard equipment of duct fan motors with thermal contact relays provides comprehensive thermal protection.

C-VENT-PB-160A-4-220

- duct fan for round ducts
- with backward-curved blades
- size (for round connection section)
- number of electric motor poles
- electric motor supply voltage, 220 V

sound insulation


C-GKK


C-GKN

filtration


C-FKK


C-FKK-L


C-FKK-BAG

adjustment


C-DKK


C-KVK


C-KOL-K

heat exchange


C-KVN-K


C-EVN-K


C-EVN-K-S1 (S2)

energy saving


C-PK1-K

ancillaries


C-MK


C-P


C-RVK


C-RVC

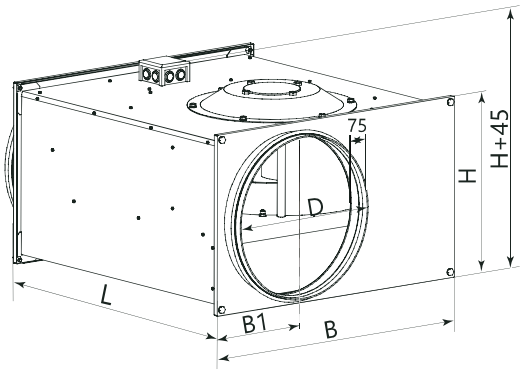

C-RPVC


C-RKA (RKO)

control


C-SAU


UWS

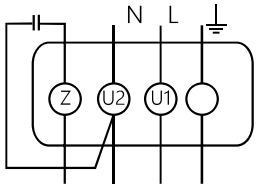


STANDARD SIZE	Dimensions, mm					Motor speed, min^{-1}	Motor power consumption, W	Number of phases	Current consumption, A	Weight, kg, max
	B	B1	H	L	D					
C-VENT-PB-100-4-220	330	102	150	315	100	2500	70		0,3	7
C-VENT-PB-125-4-220	330	102	170	315	125	2500	70		0,3	8
C-VENT-PB-150A-4-220	440	142	240	502	150	2600	115		0,5	15
C-VENT-PB-150B-4-220	440	142	440	502	150	2650	150		0,7	15
C-VENT-PB-160A-4-220	440	142	240	502	160	2600	115		0,5	15
C-VENT-PB-160B-4-220	440	142	240	502	160	2650	150		0,7	15
C-VENT-PB-200A-4-220	440	152	240	502	200	2600	115	1	0,5	15
C-VENT-PB-200B-4-220	440	152	240	502	200	2650	150		0,7	15
C-VENT-PB-250A-4-220	640	327	440	562	250	1370	140		0,68	25
C-VENT-PB-250B-4-220	540	277	290	562	250	2650	200		0,9	25
C-VENT-PB-315A-4-220	640	228	490	717	315	2400	250		1,1	33
C-VENT-PB-315B-4-220	640	228	490	717	315	1370	560		2,46	33

ELECTRICAL CONNECTION DIAGRAM

A1

220 V 1~



DUCT FAN FOR ROUND DUCTS | C-VENT-PB-S

- it is used in premises with increased noise level requirements and is manufactured in a soundproof casing;
- provides ease of installation and maintenance in confined spaces;
- universally combined with other elements of ducted ventilation systems;
- for the movement of air with a permissible content of dust and other solid impurities, which should not exceed 0.1 g/m^3;
- presence of sticky, fibrous and abrasive components, as well as explosive impurities is not allowed.
- temperature range of the moved medium varies from -30° C to +40° C.
- ingress protection rating IP54.



C-VENT-PB-S-160A-4-220

- duct fan for round ducts
- in a soundproof casing
- size (for round connection section)
- number of electric motor poles
- electric motor supply voltage, 220 V

The fan CASING made of galvanized steel provides reliable corrosion protection. All C-VENT-PB-S standard sizes have a cover for servicing the impeller and motor during installation or maintenance of the fan.

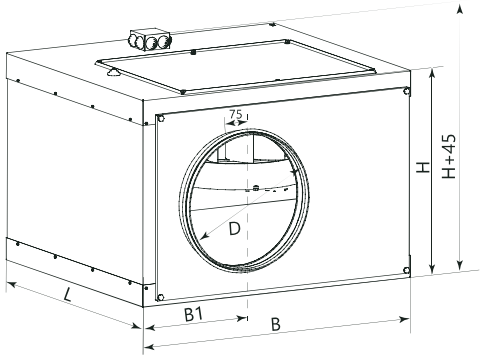
The soundproof casing distinguishes the C-VENT-PB-S from the standard series. The casing is made of galvanized steel and is a box-shaped structure. The space between the walls of the sound-insulated casing is filled with non-flammable mineral wool, which is characterized by high soundproofing properties.

The IMPELLERS of duct fans with backward-curved blades are made of aluminum and undergo careful static and dynamic balancing.

C-VENT-PB-S fans, unlike the standard series fans with forward-curved blades, have higher efficiency, providing energy savings. In addition, C-VENT-PB-S fans create less noise during operation, ensuring a more "quiet" operation of the system.

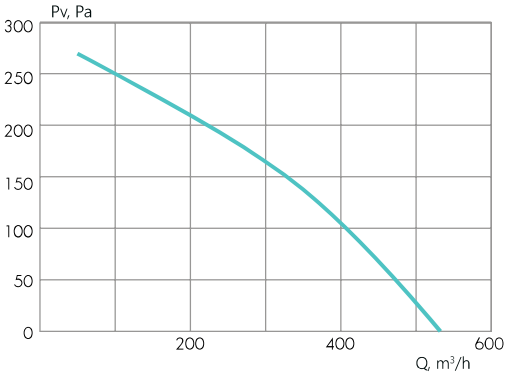
Single-or three-phase asynchronous electric motors with an external rotor are characterized by low power consumption and a significant service life.

Precise balancing is achieved by combining rotating elements, impeller and electric motor of the fan.



STANDARD SIZE	Dimensions, mm					Weight, kg, max
	B	B1	H	L	D	
C-VENT-PB-S-100-4-220	430	132	250	315	100	9
C-VENT-PB-S-125-4-220	430	132	250	315	125	10
C-VENT-PB-S-150A-4-220	500	132	300	502	150	15
C-VENT-PB-S-150B-4-220	500	132	300	502	150	15
C-VENT-PB-S-160A-4-220	500	132	300	502	160	15
C-VENT-PB-S-160B-4-220	500	132	300	502	160	15
C-VENT-PB-S-200A-4-220	500	190	300	502	200	15
C-VENT-PB-S-200B-4-220	500	190	300	502	200	15
C-VENT-PB-S-250A-4-220	600	204	400	562	250	25
C-VENT-PB-S-250B-4-220	600	204	400	562	250	25
C-VENT-PB-S-315A-4-220	700	295	450	717	315	33
C-VENT-PB-S-315B-4-220	700	295	450	717	315	33

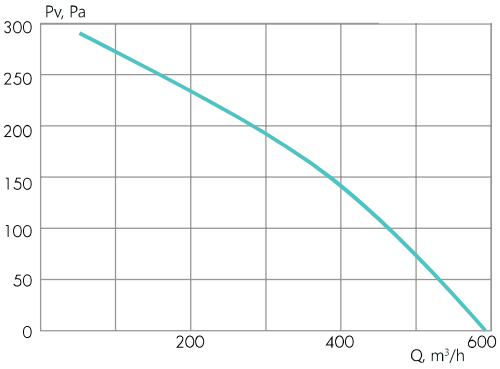
C-VENT-PB-100, C-VENT-PB-S-100



C-VENT-PB	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	64	53	55	59	61	60	57	52	45
Output	dB(A)	66	55	57	61	63	62	59	54	47
Surrounding	dB(A)	52	33	42	55	50	47	41	33	28

C-VENT-PB-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	55	41	32	43	52	52	47	44	39
Output	dB(A)	66	55	57	61	63	62	59	54	47
Surrounding	dB(A)	35	29	21	30	35	30	25	21	16

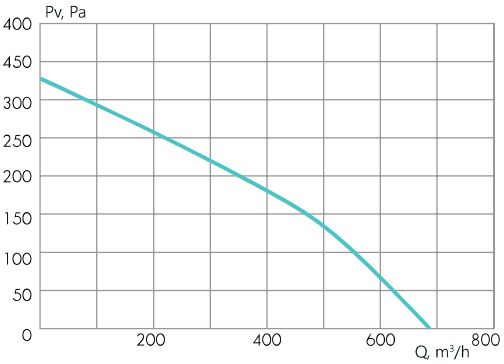
C-VENT-PB-125, C-VENT-PB-S-125



C-VENT-PB	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	66	55	57	61	63	62	59	54	47
Output	dB(A)	68	57	59	63	65	64	61	56	49
Surrounding	dB(A)	54	34	42	58	52	48	42	33	30

C-VENT-PB-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	61	54	37	44	58	58	52	47	37
Output	dB(A)	68	57	59	63	65	64	61	56	49
Surrounding	dB(A)	37	34	24	29	33	29	33	26	23

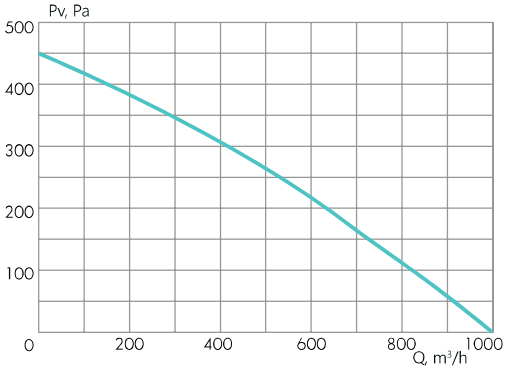
C-VENT-PB-150A, C-VENT-PB-S-150A



C-VENT-PB	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	70	59	61	65	67	66	63	58	51
Output	dB(A)	72	61	63	67	69	68	65	60	53
Surrounding	dB(A)	54	43	51	56	53	49	43	37	31

C-VENT-PB-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	68	43	45	56	62	65	60	56	51
Output	dB(A)	72	61	63	67	69	68	65	60	53
Surrounding	dB(A)	45	30	30	34	40	42	36	33	30

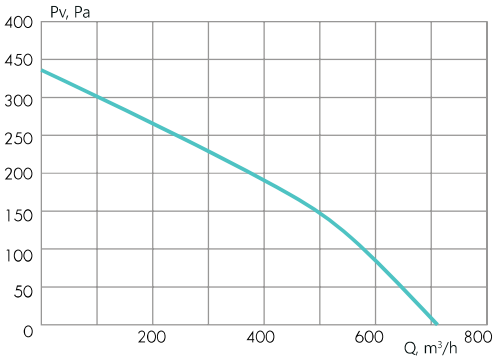
C-VENT-PB-150B, C-VENT-PB-S-150B



C-VENT-PB	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	70	59	61	65	67	66	63	58	51
Output	dB(A)	72	61	63	67	69	68	65	60	53
Surrounding	dB(A)	54	43	51	56	53	49	43	37	31

C-VENT-PB-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	68	43	45	56	62	65	60	56	51
Output	dB(A)	72	61	63	67	69	68	65	60	53
Surrounding	dB(A)	45	30	30	34	40	42	36	33	30

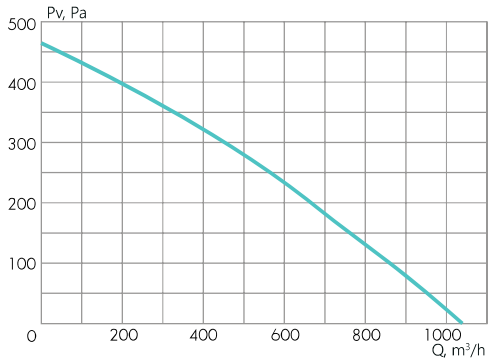
C-VENT-PB-160A, C-VENT-PB-S-160A



C-VENT-PB	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	64	53	55	59	61	60	57	52	45
Output	dB(A)	66	55	57	61	63	62	59	54	47
Surrounding	dB(A)	52	33	42	55	50	47	41	33	28

C-VENT-PB-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	55	41	32	43	52	52	47	44	39
Output	dB(A)	66	55	57	61	63	62	59	54	47
Surrounding	dB(A)	35	29	21	30	35	30	25	21	16

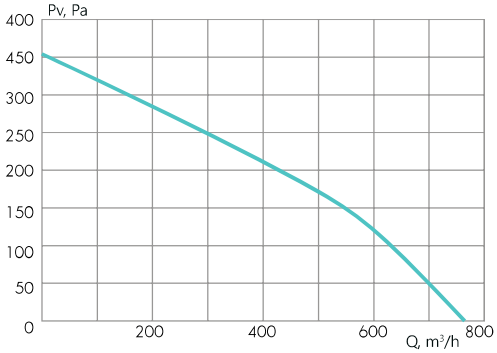
C-VENT-PB-160B, C-VENT-PB-S-160B



C-VENT-PB	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	64	53	55	59	61	60	57	52	45
Output	dB(A)	66	55	57	61	63	62	59	54	47
Surrounding	dB(A)	52	33	42	55	50	47	41	33	28

C-VENT-PB-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	55	41	32	43	52	52	47	44	39
Output	dB(A)	66	55	57	61	63	62	59	54	47
Surrounding	dB(A)	35	29	21	30	35	30	25	21	16

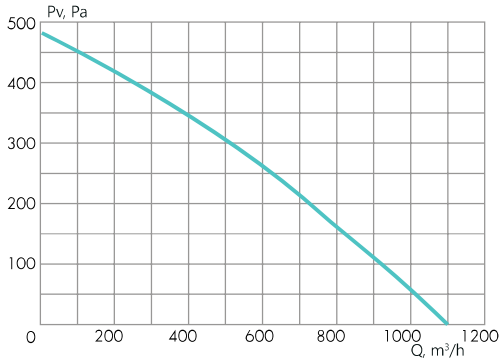
C-VENT-PB-200A, C-VENT-PB-S-200A



C-VENT-PB	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	64	53	55	59	61	60	57	52	45
Output	dB(A)	66	55	57	61	63	62	59	54	47
Surrounding	dB(A)	52	33	42	55	50	47	41	33	28

C-VENT-PB-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	55	41	32	43	52	52	47	44	39
Output	dB(A)	66	55	57	61	63	62	59	54	47
Surrounding	dB(A)	35	29	21	30	35	30	25	21	16

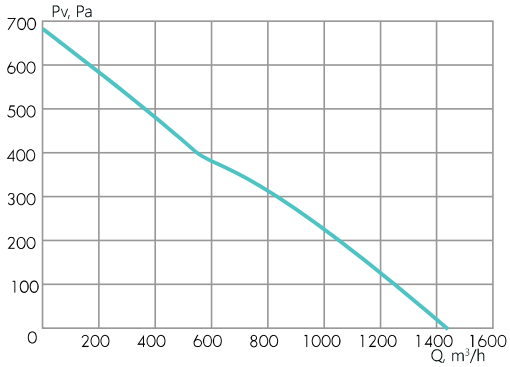
C-VENT-PB-200B, C-VENT-PB-S-200B



C-VENT-PB	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	64	53	55	59	61	60	57	52	45
Output	dB(A)	66	55	57	61	63	62	59	54	47
Surrounding	dB(A)	52	33	42	55	50	47	41	33	28

C-VENT-PB-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	55	41	32	43	52	52	47	44	39
Output	dB(A)	66	55	57	61	63	62	59	54	47
Surrounding	dB(A)	35	29	21	30	35	30	25	21	16

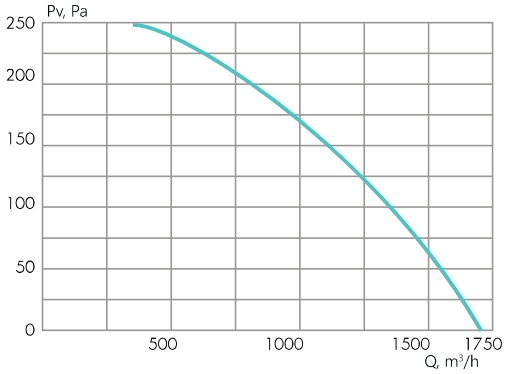
C-VENT-PB-250A, C-VENT-PB-S-250A



C-VENT-PB	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	66	55	57	61	63	62	59	54	47
Output	dB(A)	68	57	59	63	65	64	61	56	49
Surrounding	dB(A)	54	34	42	58	52	48	42	33	30

C-VENT-PB-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	61	54	37	44	58	58	52	47	37
Output	dB(A)	68	57	59	63	65	64	61	56	49
Surrounding	dB(A)	37	34	24	29	33	29	33	26	23

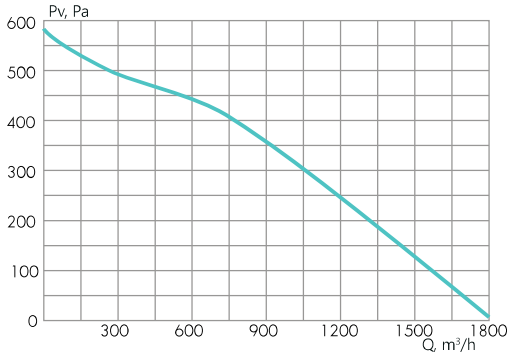
C-VENT-PB-250B, C-VENT-PB-S-250B



C-VENT-PB	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	64	53	55	59	61	60	57	52	45
Output	dB(A)	66	55	57	61	63	62	59	54	47
Surrounding	dB(A)	52	33	42	55	50	47	41	33	28

C-VENT-PB-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	55	41	32	43	52	52	47	44	39
Output	dB(A)	66	55	57	61	63	62	59	54	47
Surrounding	dB(A)	35	29	21	30	35	30	25	21	16

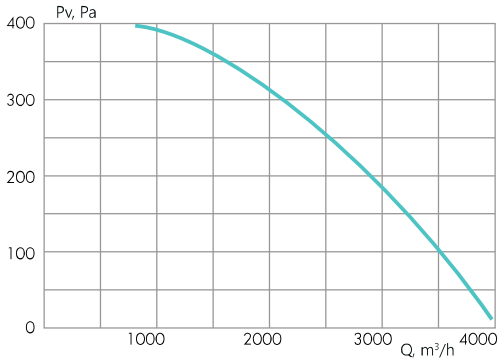
C-VENT-PB-315A, C-VENT-PB-S-315A



C-VENT-PB	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	70	59	61	65	67	66	63	58	51
Output	dB(A)	72	61	63	67	69	68	65	60	53
Surrounding	dB(A)	54	43	51	56	53	49	43	37	31

C-VENT-PB-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	68	43	45	56	62	65	60	56	51
Output	dB(A)	72	61	63	67	69	68	65	60	53
Surrounding	dB(A)	45	30	30	34	40	42	36	33	30

C-VENT-PB-315B, C-VENT-PB-S-315B



C-VENT-PB	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	70	59	61	65	67	66	63	58	51
Output	dB(A)	72	61	63	67	69	68	65	60	53
Surrounding	dB(A)	54	43	51	56	53	49	43	37	31

C-VENT-PB-S	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	68	43	45	56	62	65	60	56	51
Output	dB(A)	72	61	63	67	69	68	65	60	53
Surrounding	dB(A)	45	30	30	34	40	42	36	33	30

DUCT UNITS

WALL-MOUNTED FAN FOR ROUND DUCTS

C-VENT-V



- for exhaust ventilation of industrial, public and residential buildings;
- provides ease of installation and maintenance in confined spaces;
- for the movement of air with a permissible content of dust and other solid impurities, which should not exceed 0.1 g/m^3;
- presence of sticky, fibrous and abrasive components, as well as explosive impurities is not allowed;
- temperature range of the moved medium varies from -30° C to +40° C;
- ingress protection rating IP54.

The fan CASING is made of powder-coated galvanized steel, which provides reliable corrosion protection. The cover is provided for all C-VENT-V sizes for direct access to the impeller and motor during fan installation or maintenance.

The IMPELLERS of duct fans with backward-curved blades are made of aluminum and undergo careful static and dynamic balancing.

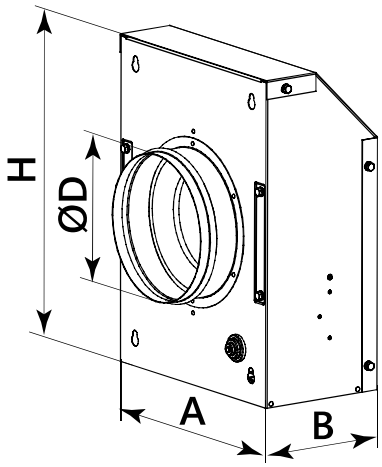
Three-phase asynchronous electric motors with a compact external rotor. The location of the fan impeller inside the air flow ensures efficient cooling of the motor with incoming air. This increases the service life by reducing the thermal and mechanical load on the bearings.

Standard equipment of duct fan motors with thermal contact relays provides comprehensive thermal protection.

In the lower part, the fan is equipped with a protective mesh against the ingress of foreign objects. The exhaust is directed downwards.

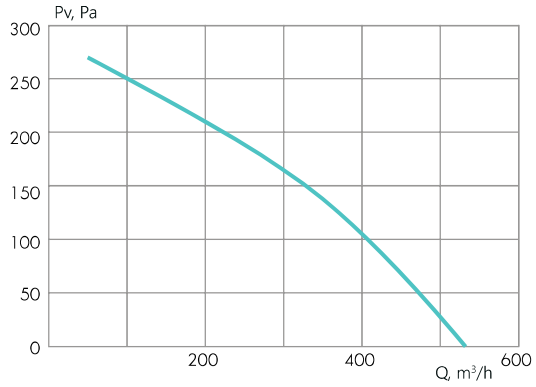
C-VENT-V-160A-4-220

- duct fan for round ducts
- for wall mounting
- size (for round connection section)
- number of electric motor poles
- electric motor supply voltage, 220 V



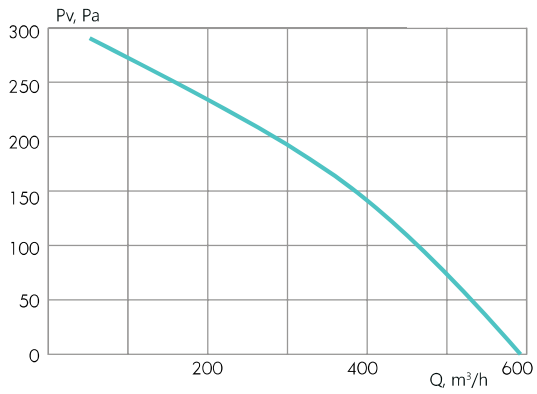
STANDARD SIZE	Dimensions, mm				Motor speed, min^{-1}	Motor power consumption, W	Number of phases	Current consumption, A	Weight, kg, max
	A	H	B	D					
C-VENT-V-100-4-220	265	362	145	100	2500	70	1	0,3	6
C-VENT-V-125-4-220	265	362	150	125	2500	70		0,3	7
C-VENT-V-150A-4-220	300	410	155	150	2600	115		0,5	11
C-VENT-V-150B-4-220	300	410	155	150	2650	150		0,7	11
C-VENT-V-160A-4-220	320	410	160	160	2600	115		0,5	13
C-VENT-V-160B-4-220	320	410	160	160	2650	150		0,7	13
C-VENT-V-200A-4-220	330	440	180	200	2600	115		0,5	15
C-VENT-V-200B-4-220	330	440	180	200	2650	150		0,7	15

C-VENT-V-100



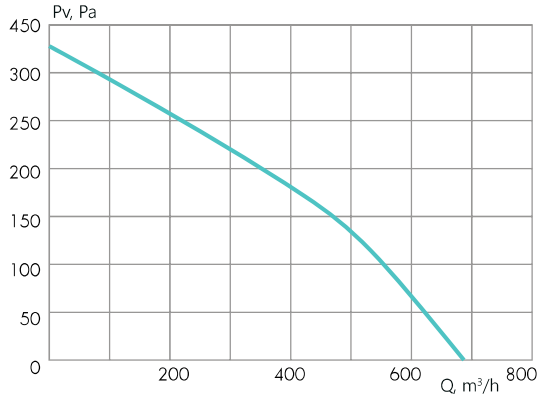
C-VENT-EC	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	64	53	55	59	61	60	57	52	45
Output	dB(A)	66	55	57	61	63	62	59	54	47
Surrounding	dB(A)	52	33	42	55	50	47	41	33	28

C-VENT-V-125



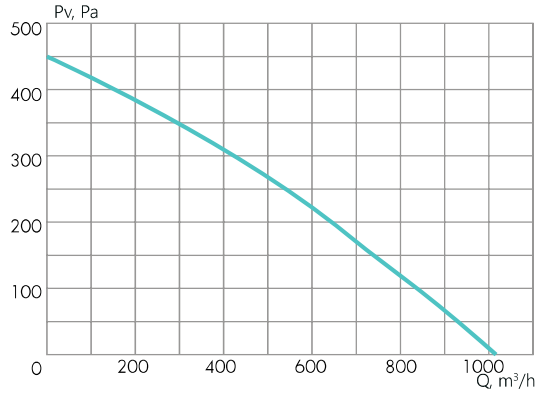
C-VENT-EC	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	66	55	57	61	63	62	59	54	47
Output	dB(A)	68	57	59	63	65	64	61	56	49
Surrounding	dB(A)	54	34	42	58	52	48	42	33	30

C-VENT-V-150A



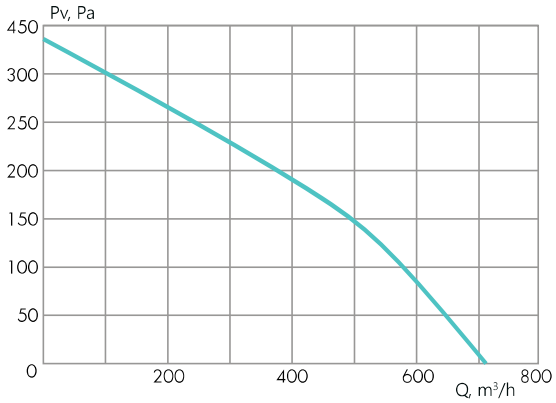
C-VENT-EC	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	70	59	61	65	67	66	63	58	51
Output	dB(A)	72	61	63	67	69	68	65	60	53
Surrounding	dB(A)	54	43	51	56	53	49	43	37	31

C-VENT-V-150B



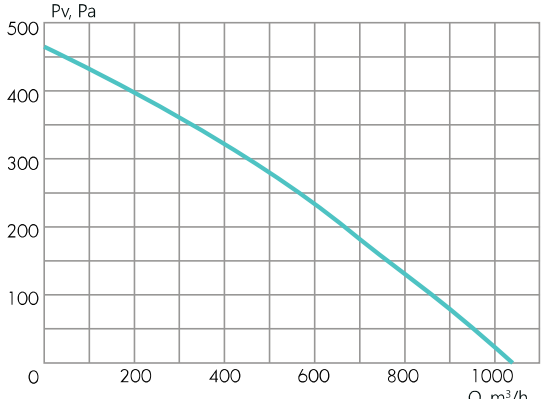
C-VENT-EC	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	70	59	61	65	67	66	63	58	51
Output	dB(A)	72	61	63	67	69	68	65	60	53
Surrounding	dB(A)	54	43	51	56	53	49	43	37	31

C-VENT-V-160A



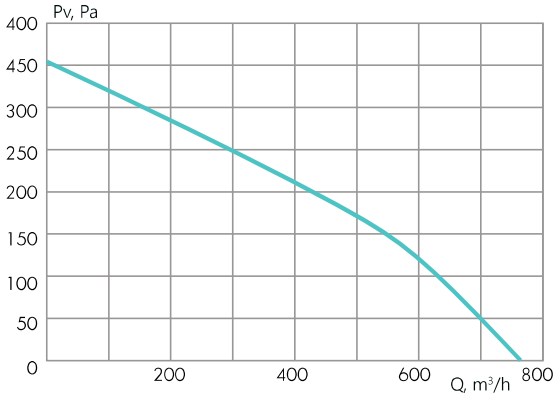
C-VENT-EC	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	64	53	55	59	61	60	57	52	45
Output	dB(A)	66	55	57	61	63	62	59	54	47
Surrounding	dB(A)	52	33	42	55	50	47	41	33	28

C-VENT-V-160B



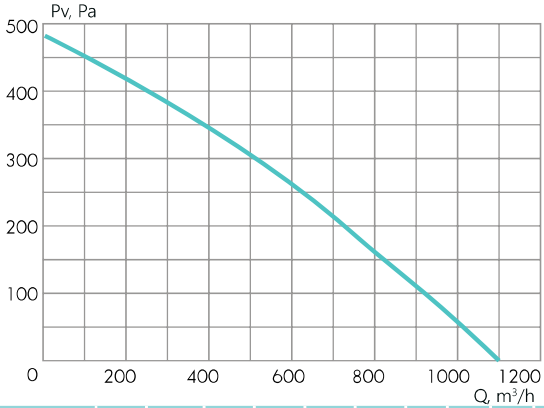
C-VENT-EC	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	64	53	55	59	61	60	57	52	45
Output	dB(A)	66	55	57	61	63	62	59	54	47
Surrounding	dB(A)	52	33	42	55	50	47	41	33	28

C-VENT-V-200A



C-VENT-EC	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	64	53	55	59	61	60	57	52	45
Output	dB(A)	66	55	57	61	63	62	59	54	47
Surrounding	dB(A)	52	33	42	55	50	47	41	33	28

C-VENT-V-200B



C-VENT-EC	Hz	Total.	63	125	250	500	1k	2k	4k	8k
Input	dB(A)	64	53	55	59	61	60	57	52	45
Output	dB(A)	66	55	57	61	63	62	59	54	47
Surrounding	dB(A)	52	33	42	55	50	47	41	33	28

C-KVN-K | DUCT WATER/AIR-HEATER



- it is used for heating the supply, recirculating air or their mixture in compact stationary ventilation and air conditioning systems of industrial, public or residential buildings;
- designed to heat air using hot water as a heat carrier;
- processed air must be treated and free of solid, fibrous, sticky or aggressive impurities that can cause corrosion of copper, aluminum and zinc.
- Requirements for the heat carrier (water):
  - maximum permissible temperature is not more than 150° C;
  - maximum allowable pressure is not more than 1.6 MPa.

C-KVN-K-160

- duct water/air-heater for round ducts
- size (for round connection section)

The duct air heater CASING is made of galvanized steel.

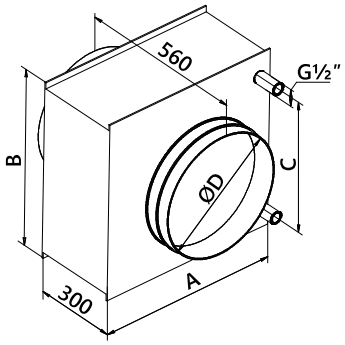
The heat-insulating surface is formed by rows of copper tubes finned with corrugated plates of aluminum foil. The heater manifolds are made of steel pipes.

The materials used ensure high efficiency, reliability and durability of duct heaters.

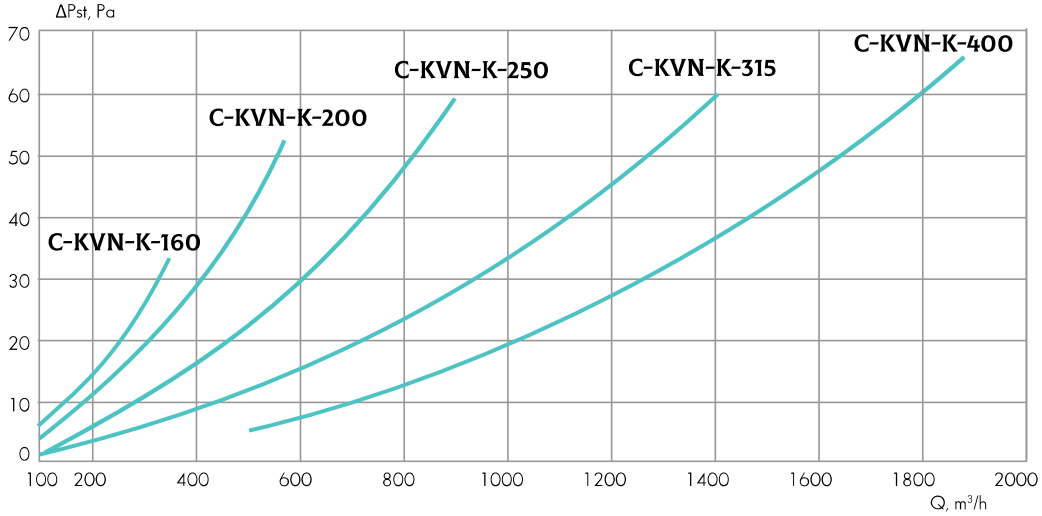
The duct heater casing is equipped with a round pipe for connection to round air ducts.

The UNIFIED DIMENSIONS of duct heaters allow them to be universally combined with other elements of duct ventilation, ensuring ease of installation and maintenance in confined spaces.

The range of sizes allows selecting a heater for any air flow rate moved by the C-VENT round duct fan.



STANDARD SIZE	Dimensions, mm				Weight, kg, max
	D	A	B	C	
C-KVN-K-160	160	300	253	225	3,6
C-KVN-K-200	200	300	253	225	4,0
C-KVN-K-250	250	385	403	275	4,49
C-KVN-K-315	315	460	479	350	5,1
C-KVN-K-400	400	535	479	400	13



THERMOTECHNICAL CHARACTERISTICS

C-KVN-K-160

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, C	130/70					90/70					80/60					60/40				
		tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa	tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa	tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa	tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa
100	-30	—	—	—	—	—	41	2	102	0.4	6	40	2	201	1.4	6	23	2	115	0.5	6
	-25	—	—	—	—	—	42	2	97	0.4	6	42	2	190	1.4	6	25	2	105	0	6
	-20	—	—	—	—	—	44	2	90	0.3	6	43	2	180	1.1	6	26	2	94	0.4	6
	-15	—	—	—	—	—	46	2	86	0.3	6	45	2	173	1	6	27	1	88	0.3	6
	-10	—	—	—	—	—	—	—	—	—	—	46	2	163	0.9	6	28	1	78	0.3	6
300	-30	26	6	80	0.3	27	25	5	235	1.9	27	19	5	210	1.6	27	11	4	250	2.1	27
	-25	28	5	76	0.3	27	27	5	212	1.6	27	21	5	198	1.5	27	13	4	240	2.1	27
	-20	30	5	72	0.2	27	29	5	201	1.4	27	23	4	186	1.4	27	15	4	210	1.6	27
	-15	33	5	68	0.2	27	31	5	195	1.4	27	26	4	174	1	27	17	3	195	1.5	27
	-10	35	5	64	0.2	27	33	4	172	1	27	28	4	160	0.9	27	19	3	175	1	27
500	-30	18	8	113	0.5	55	17	8	335	3.5	55	12	7	300	2.9	55	—	—	—	—	—
	-25	20	8	107	0.4	55	19	7	315	3.1	55	14	7	286	2.9	55	—	—	—	—	—
	-20	23	7	101	0.4	55	22	7	295	2.9	55	17	6	267	2.4	55	10	5	315	3.1	55
	-15	25	7	96	0.4	55	24	7	270	2.4	55	20	6	248	2.1	55	12	5	265	2.4	55
	-10	28	6	90	0.3	55	27	6	250	2.1	55	22	5	230	1.9	55	15	4	250	2.1	55

C-KVN-K-200

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, C	130/70					90/70					80/60					60/40				
		tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa	tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa	tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa	tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa
200	-30	—	—	—	—	—	31	4	175	1,1	11	25	4	157	0.9	11	11	3	120	0.5	11
	-25	—	—	—	—	—	33	4	166	1	11	26	3	148	0.8	11	13	3	115	0.5	11
	-20	—	—	—	—	—	35	4	158	1	11	28	3	138	0.7	11	15	2	103	0.4	11
	-15	—	—	—	—	—	37	3	149	0,8	11	30	3	129	0.6	11	17	2	95	0.6	11
	-10	—	—	—	—	—	39	3	140	0,7	11	32	3	120	0.5	11	18	2	81	0.3	11
400	-30	21	7	97	0,6	29	20	7	287	2,9	29	15	6	258	2.4	29	—	—	—	—	—
	-25	24	6	92	0,3	29	23	6	274	2,4	29	17	6	243	2.1	29	—	—	—	—	—
	-20	26	6	85	0,3	29	25	6	260	2,4	29	20	5	230	1.9	29	10	4	200	1.4	29
	-15	28	6	80	0,3	29	27	6	245	2,1	29	22	5	215	1.6	29	13	4	190	1.3	29
	-10	30	5	75	0,3	29	30	5	230	1,9	29	25	5	200	1.4	29	15	3	170	1	29
600	-30	14	9	127	0,6	58	14	9	378	4,3	58	—	—	—	—	—	—	—	—	—	—
	-25	17	8	120	0,5	58	17	8	360	4	58	12	7	320	3.2	58	—	—	—	—	—
	-20	20	8	113	0,5	58	20	8	341	3,6	58	15	7	300	2.9	58	—	—	—	—	—
	-15	23	8	108	0,4	58	22	7	320	3,2	58	18	7	280	2.5	58	10	5	280	2.5	58
	-10	25	7	102	0,4	58	25	7	300	2,9	58	20	6	261	2.3	58	13	5	275	2.4	58

C-KVN-K-250

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, C	130/70					90/70					80/60					60/40				
		tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa	tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa	tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa	tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa
400	-30	35	9	124	0,9	16	31	8	348	5,6	16	25	7	315	3,7	16	12	6	245	3	16
	-25	37	8	119	0,8	16	33	8	330	5	16	26	7	295	4,3	16	14	5	225	2,6	16
	-20	39	8	113	0,8	16	35	7	315	4,7	16	29	7	280	3,7	16	16	5	210	2,3	16
	-15	41	8	107	0,7	16	37	7	300	4,3	16	31	6	265	3,5	16	18	4	190	2	16
	-10	43	7	100	0,6	16	39	7	280	3,7	16	33	6	245	3	16	20	4	175	1,6	16
600	-30	28	12	166	1,5	29	24	11	465	9,4	29	19	10	420	8	29	—	—	—	—	—
	-25	30	11	158	1,4	29	27	10	445	8,9	29	21	9	395	7,2	29	10	7	310	4,7	29
	-20	33	11	150	1,2	29	29	10	425	8	29	23	9	375	6,4	29	12	6	280	3,7	29
	-15	35	10	143	1,1	29	31	9	400	7,2	29	26	8	355	5,7	29	15	6	255	3,2	29
	-10	37	10	135	1	29	34	9	375	6,4	29	28	8	330	5,2	29	17	5	235	2,8	29
800	-30	23	14	201	2,1	49	19	13	530	11,9	49	14	12	510	11,3	49	—	—	—	—	—
	-25	25	13	190	2	49	22	13	525	11,9	49	17	11	485	10,2	49	—	—	—	—	—
	-20	28	13	180	1,8	49	25	12	515	11,5	49	20	11	455	9	49	12	9	500	10,8	49
	-15	30	12	170	1,6	49	27	11	485	10,2	49	22	10	430	8	49	15	8	480	10	49
	-10	33	12	165	1,5	49	30	11	465	9,4	49	25	9	400	7,2	49	17	7	450	8,9	49

C-KVN-K-315

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, C	130/70					90/70					80/60					60/40				
		tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa	tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa	tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa	tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa
500	-30	37	11	159	0,3	12	33	11	450	2	12	27	9	405	1,6	12	13	7	310	1	12
	-25	39	11	151	0,3	12	35	10	431	1,8	12	28	9	385	1,5	12	15	7	288	0,9	12
	-20	40	10	144	0,3	12	37	10	405	1,6	12	30	8	360	1,4	12	17	6	265	0,7	12
	-15	42	10	139	0,2	12	39	9	385	1,5	12	32	8	340	1,2	12	19	6	243	0,7	12
	-10	44	9	129	0,1	12	41	8	365	1,4	12	34	7	315	1	12	21	5	220	0,6	12
1000	-30	25	18	260	0,7	33	22	17	750	4,9	33	17	16	670	4	33	—	—	—	—	—
	-25	27	17	248	0,7	33	25	17	710	4,4	33	19	15	635	3,7	33	—	—	—	—	—
	-20	30	17	236	0,6	33	27	16	675	4,1	33	22	14	600	3,3	33	10	10	440	1,9	33
	-15	32	16	223	0,6	33	30	15	640	3,7	33	24	13	560	2,9	33	13	9	400	1,6	33
	-10	34	15	211	0,5	33	32	14	600	3,3	33	26	12	525	2,6	33	15	8	365	1,4	33
1500	-30	17	24	340	1,2	70	16	23	990	8,3	70	12	21	1050	9,2	70	—	—	—	—	—
	-25	20	23	325	1,1	70	19	22	940	7,5	70	15	20	1045	9,2	70	—	—	—	—	—
	-20	23	22	308	0,9	70	21	21	890	6,8	70	18	19	1030	8,9	70	—	—	—	—	—
	-15	26	21	292	0,9	70	24	20	840	6,1	70	21	18	1025	8,9	70	10	13	600	3,3	70
	-10	29	19	275	0,8	70	27	18	790	5,4	70	24	17	1020	8,7	70	12	11	500	2,3	70

C-KVN-K-400

The table shows data on individual operating modes of duct water/air-heaters.

L, m³/h	tвн, C	130/70					90/70					80/60					60/40				
		tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa	tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa	tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa	tвк, C	Q, kW	Gж, kg/h	dPж, kPa	dPв, Pa
800	-30	27	15	215	0,1	10	27	15	650	0,8	10	21	14	590	0,7	10	—	—	—	—	—
	-25	29	14	205	0,1	10	29	15	610	0,7	10	23	13	550	0,6	10	10	9	410	0,4	10
	-20	30	13	190	0,1	10	31	14	570	0,6	10	25	12	510	0,5	10	12	9	370	0,3	10
	-15	32	13	180	0,1	10	33	13	540	0,6	10	27	11	485	0,5	10	14	8	330	0,3	10
	-10	35	12	170	0,1	10	36	12	510	0,5	10	29	11	450	0,4	10	15	7	290	0,2	10
1600	-30	16	25	350	0,3	32	17	25	1080	2	32	12	22	965	1,7	32	—	—	—	—	—
	-25	18	23	330	0,2	32	20	24	1020	1,8	32	14	21	905	1,5	32	—	—	—	—	—
	-20	21	22	315	0,2	32	22	23	970	1,7	32	17	20	850	1,3	32	—	—	—	—	—
	-15	24	21	295	0,2	32	25	21	915	1,5	32	20	18	795	1,2	32	—	—	—	—	—
	-10	26	19	275	0,2	32	27	20	855	1,3	32	22	17	740	1	32	11	11	480	0,5	32
2400	-30	10	32	455	0,4	63	11	33	1400	3,3	63	—	—	—	—	—	—	—	—	—	—
	-25	13	30	430	0,4	63	14	31	1330	3	63	—	—	—	—	—	—	—	—	—	—
	-20	15	28	400	0,3	63	17	29	1260	2,7	63	12	26	1100	2,1	63	—	—	—	—	—
	-15	18	27	380	0,3	63	20	28	1190	2,4	63	15	24	1025	1,9	63	—	—	—	—	—
	-10	21	25	355	0,3	63	22	26	1110	2,2	63	18	22	955	1,7	63	—	—	—	—	—

DUCT UNITS

ELECTRIC DUCT HEATER C-EVN-K

- for heating air in stationary ventilation and air conditioning systems of industrial, public and residential buildings;
- for installation in round ventilation ducts;
- air must be free of sticky and fibrous materials, explosive gas mixtures and aggressive substances;
- content of dust and other solid impurities is not more than 0.1 g/m^3;
- maximum air temperature at the outlet of the air heater is +40° C;
- minimum air flow rate corresponds to the flow rate at a minimum air velocity of 1.5 m/s;
- heater supply voltage is 220 V or 380 V, depending on the heater model.
- ingress protection rating IP40.



C-EVN-K-200-4,5

- electric duct heater for round ducts
- size (for round connection section)
- power, kW

The CASING and SWITCHBOARD of the electric duct heater are made of galvanized steel.

The heating elements are made of stainless steel.

The air heater is equipped with two-stage protection against overheating.

The first stage sensor (with automatic return to its original position) is triggered when the air temperature on the heater casing reaches 60° C.

The second stage sensor (with manual return to its original position) is triggered when the air temperature on the heater casing reaches 90° C.

If the ventilation system, which includes an electric air heater, is adjusted manually, when the system is turned off, the air heater must first be turned off, and after the tubular heating element is completely cooled, the fan must be turned off.

WARNING! It is forbidden to mount in the position when the terminal board is directed downwards!

WARNING! It is not allowed to apply voltage to C-EVN-K when the fan is turned off!

The heating power can be adjusted smoothly using an electric power regulator.

RECOMMENDATIONS

The required heating capacity of an electric heater can be calculated by the formula:

$$Q = \frac{L \cdot p \cdot Cp \cdot (t_{вих} - t_{вх})}{3600}, \text{ kW}$$

where L - flow rate of heated air, m^3/h

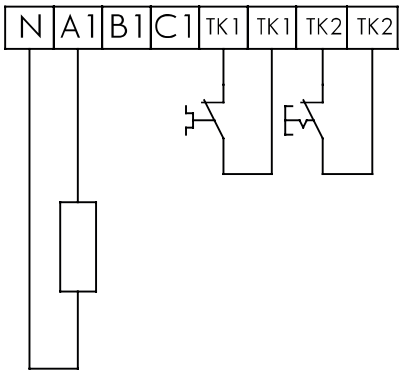
p - air density, kg/m^3

Cp - air heat capacity, kJ/kg x °C

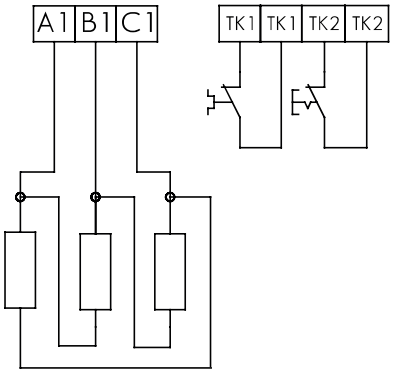
tвх, твих - initial and final temperatures of the heated air, °C

ELECTRICAL CONNECTION DIAGRAMS

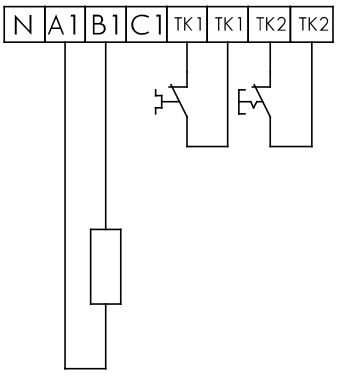
A1



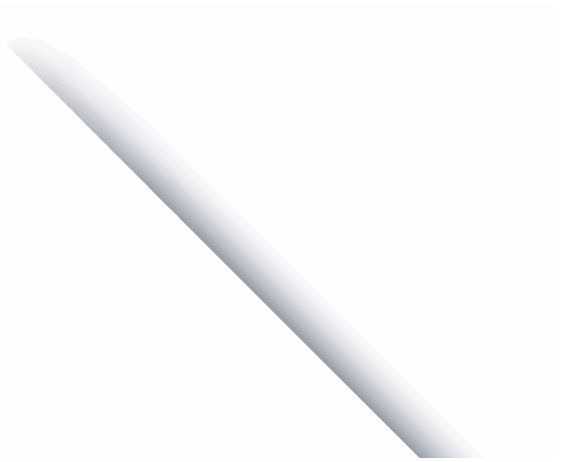
A2

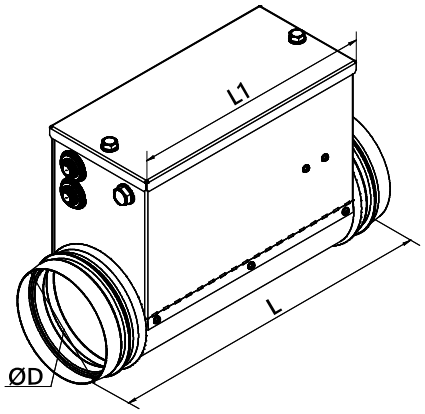


A3



L1; L2; L3 - mains; N - neutral; F1 - overheat protection 60° C; F2 - overheat protection 90° C.





STANDARD SIZE	Dimensions, mm			Power, kW	Supply voltage, ~V	Current consumption, A	Minimum air flow, m³/h	Weight, kg, max	Connection diagram
	L	L1	D						
C-EVN-K-100-0,6	300	220	100	0,6	220	2,73	45	1,4	A-1
C-EVN-K-100-1,2	300	220	100	1,2	220	5,45	45	1,4	A-1
C-EVN-K-125-0,8	300	220	125	0,8	220	3,64	70	1,4	A-1
C-EVN-K-125-1,6	300	220	125	1,6	220	7,27	70	2,6	A-1
C-EVN-K-125-2,4	300	220	125	2,4	220	10,91	70	2,6	A-1
C-EVN-K-150-1,5	380	300	150	1,5	220	7	110	2,7	A-1
C-EVN-K-150-3,0	380	300	150	3,0	220	14	110	3,1	A-1
C-EVN-K-150-4,5	380	300	150	4,5	380	11,84	110	3,2	A-3
C-EVN-K-150-6,0	380	300	150	6,0	380	9,12	110	3,6	A-2
C-EVN-K-160-1,5	380	300	160	1,5	220	7	110	2,9	A-1
C-EVN-K-160-3,0	380	300	160	3,0	220	14	110	3,1	A-1
C-EVN-K-160-4,5	380	300	160	4,5	380	11,84	110	3,2	A-3
C-EVN-K-160-6,0	380	300	160	6,0	380	9,12	110	3,5	A-2
C-EVN-K-200-3,0	380	300	200	3,0	220	14	170	3,3	A-1
C-EVN-K-200-4,5	380	300	200	4,5	380	11,84	170	3,7	A-3
C-EVN-K-200-6,0	380	300	200	6,0	380	9,12	170	4,8	A-2
C-EVN-K-250-3,0	400	250	250	3,0	220	14	270	5,0	A-1
C-EVN-K-250-4,5	400	250	250	4,5	380	11,84	270	5,4	A-3
C-EVN-K-250-6,0	400	250	250	6,0	380	9,12	270	5,8	A-2
C-EVN-K-250-9,0	400	250	250	9,0	380	13,67	270	6,3	A-2
C-EVN-K-315-3,0	380	300	315	3,0	380	9	415	6,5	A-3
C-EVN-K-315-6,0	380	300	315	6,0	380	18	415	6,8	A-3
C-EVN-K-315-9,0	380	300	315	9,0	380	13,67	415	7,1	A-2
C-EVN-K-315-12,0	380	300	315	12,0	380	18,23	415	7,4	A-2
C-EVN-K-315-15,0	380	300	315	15,0	380	22,8	415	7,9	A-2

ELECTRIC DUCT HEATER C-EVN-K-S1 (S2)

- air heating in ventilation systems;
- additional supply air heating in ventilation and air conditioning units;
- local adjustment of the air heater operation parameters.
- Ingress protection rating IP40.

The heater casing is made of galvanized sheet steel.

The heating element is made of stainless steel.

The heater is equipped with two overheat protection thermostats:

- protection with automatic restart (response temperature +70° C). After cooling, the thermostat automatically closes the heater control circuit.
- protection by manual restart (response temperature +90° C). When power is triggered, the heater can only be supplied after manual reset of the alarm.

The connecting pipes of the air heater are equipped with a special rubber seal.

Electronic control is carried out in one of two ways: S1 – using the built-in electronic controller and S2n - using the remote-control unit.

CONTROL

Control is carried out by an electronic controller installed on the C-EVN-K-S1 heater casing or in the VBU remote control unit – designed to work together with C-EVN-K-S2.

The temperature is set using the control buttons on the electronic controller. The electronic controller allows setting the maximum temperature limit at the outlet of the electric heater. External blocking of the heater operation is provided in the form of an external normally open contact. The tubular heating elements are controlled using a triac unit. Triac control ensures silent switching on/off of the heater, long service life and precise temperature control.

The minimum air velocity must be at least 1 m/s.



C-EVN-K-S1-200-4,5

- electric duct heater

for round ducts

- type of air heater control:

S1 - with a built-in temperature controller;

S21 - without a built-in control regulator using VBU1;

S22 - without a built-in control regulator using VBU2

- size (for round connection section)
- power, kW

RECOMMENDATIONS

The C-EVN-K-S1 electric heater must be used with a built-in control system. This will reduce energy consumption, which will ensure more accurate maintenance of air temperature, as well as reduce the cost of installation and purchase of additional controls.

The VBU remote control unit is a reliable, simplified control module that saves energy and reduces installation costs. It will ensure accurate maintenance of air temperature and at the same time increase the safety of electrical equipment use.

It is recommended to use for completing equipment from the official manufacturer. This guarantees further well-coordinated and high-quality operation of the ventilation system, as well as reduced maintenance costs.

For proper and safe operation of electric air heaters as part of the ventilation system, it is recommended to use a complete set of automation, which provides full control and protection:

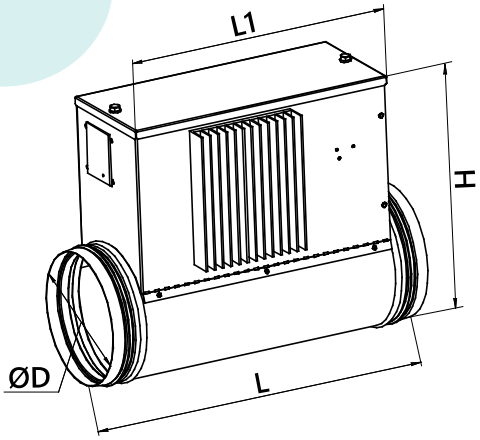
- automatic control of air heating power and temperature;
- filter condition status monitoring using a pressure sensor;
- blocking the power supply to the air heater when the supply fan stops or the air flow rate decreases, as well as when the built-in overheat protection thermostats are triggered;
- it is mandatory to purge the tubular heating elements of the air heater when the system is switched off.

C-EVN-K-S1

In the electronically controlled electric duct heater C-EVN-K-S1, control is carried out by means of a special electronic controller built into the casing. Additionally, a temperature sensor is included in the delivery package.

C-EVN-K-S2N

In the electronically controlled electric duct heater C-EVN-K-S2n, control is carried out using the remote-control unit VBU2, VBU1.

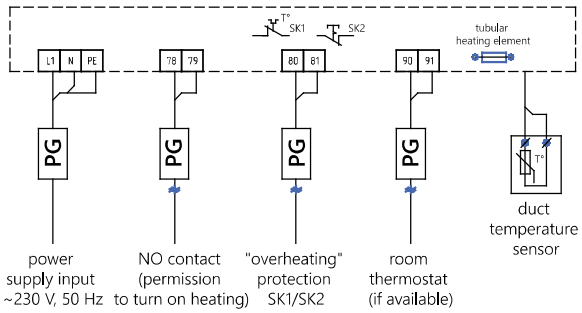


STANDARD SIZE	Dimensions, mm				Power, kW	Supply voltage, ~V	Current consumption, A	Minimum air flow, m³/h	Weight, kg, max	Connection diagram	
	L	L1	D	H						S1	S2n
C-EVN-K-S1(S2)-100-0,6	300	220	100	276	0,6	220	2,73	45	2,32	A-1	A-3
C-EVN-K-S1(S2)-100-1,2	300	220	100	276	1,2	220	5,45	45	2,32	A-1	A-3
C-EVN-K-S1(S2))-125-0,8	300	220	125	301	0,8	220	3,64	70	2,32	A-1	A-3
C-EVN-K-S1(S2)-125-1,6	300	220	125	301	1,6	220	7,27	70	3,52	A-1	A-3
C-EVN-K-S1(S2)-125-2,4	300	220	125	301	2,4	220	10,91	70	3,52	A-1	A-3
C-EVN-K-S1(S2)-150-1,5	380	300	150	305	1,5	220	7	110	3,62	A-1	A-3
C-EVN-K-S1(S2)-150-3,0	380	300	150	305	3,0	220	14	110	4,02	A-1	A-3
C-EVN-K-S1(S2)-150-4,5	380	300	150	305	4,5	380	11,84	110	4,12	A-2	A-4
C-EVN-K-S1(S2)-150-6,0	380	300	150	305	6,0	380	9,12	110	4,52	A-2	A-4
C-EVN-K-S1(S2)-160-1,5	380	300	160	315	1,5	220	7	110	3,82	A-1	A-3
C-EVN-K-S1(S2)-160-3,0	380	300	160	315	3,0	220	14	110	4,02	A-1	A-3
C-EVN-K-S1(S2)-160-4,5	380	300	160	315	4,5	380	11,84	110	4,12	A-2	A-4
C-EVN-K-S1(S2)-160-6,0	380	300	160	315	6,0	380	9,12	110	4,42	A-2	A-4
C-EVN-K-S1(S2)-200-3,0	380	300	200	355	3,0	220	14	170	4,22	A-1	A-3
C-EVN-K-S1(S2)-200-4,5	380	300	200	355	4,5	380	11,84	170	4,62	A-2	A-4
C-EVN-K-S1(S2)-200-6,0	380	300	200	355	6,0	380	9,12	170	5,72	A-2	A-4
C-EVN-K-S1(S2)-250-3,0	400	250	250	405	3,0	220	14	270	5,92	A-1	A-3
C-EVN-K-S1(S2)-250-4,5	400	250	250	405	4,5	380	11,84	270	6,32	A-2	A-4
C-EVN-K-S1(S2)-250-6,0	400	250	250	405	6,0	380	9,12	270	6,72	A-2	A-4
C-EVN-K-S1(S2)-250-9,0	400	250	250	405	9,0	380	13,67	270	7,22	A-2	A-4
C-EVN-K-S1(S2)-315-3,0	380	300	315	470	3,0	380	9	415	7,42	A-2	A-4
C-EVN-K-S1(S2)-315-6,0	380	300	315	470	6,0	380	18	415	7,72	A-2	A-4
C-EVN-K-S1(S2)-315-9,0	380	300	315	470	9,0	380	13,67	415	8,02	A-2	A-4
C-EVN-K-S1(S2)-315-12,0	380	300	315	470	12,0	380	18,23	415	8,32	A-2	A-4
C-EVN-K-S1(S2)-315-15,0	380	300	315	470	15,0	380	22,8	415	8,82	A-2	A-4

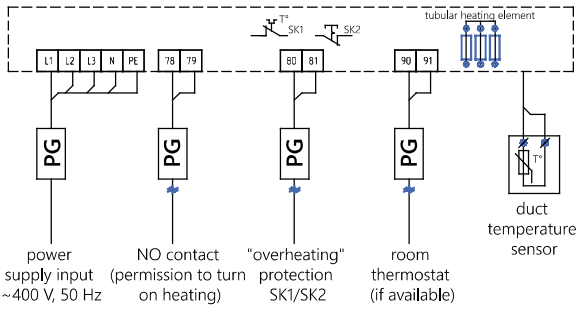
ELECTRICAL CONNECTION DIAGRAMS

C-EVN-K-S1

A-1

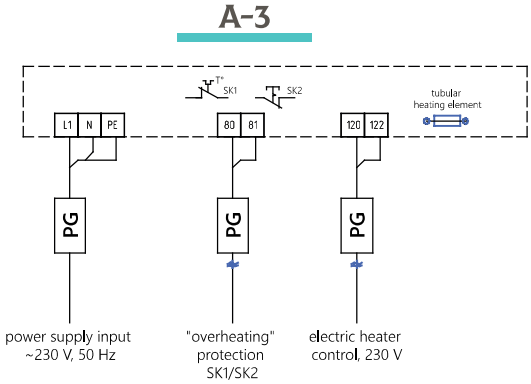


A-2

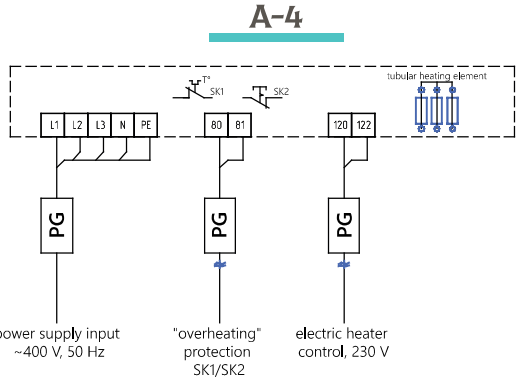


C-EVN-K-S2N

A-3



A-4



VBU | REMOTE CONTROL UNIT

VBU 1

remote control unit

VBU1 - with the ability to connect a fan speed controller and a room thermostat;

VBU2n - with a built-in fan speed controller and the ability to connect a room thermostat.

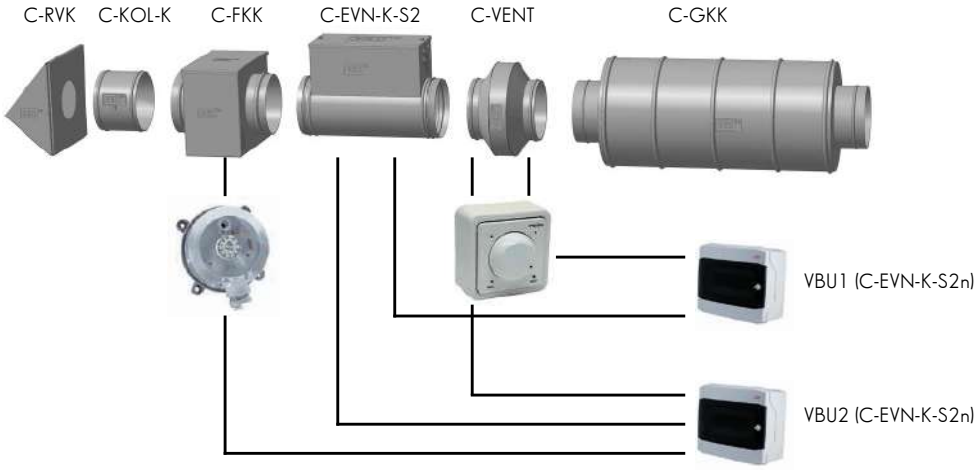
Remote control unit VBU - a special electronic unit for controlling the electric air heater C-EVN-K-S2n. Designed for use in premises with a dry environment at ambient temperatures from +5°C to +50°C and relative humidity up to 80%, ingress protection rating is IP 40 (IP 65 is possible on request).

The temperature is set using the control buttons on the electronic controller. The electronic controller allows setting the maximum temperature limit at the outlet of the electric heater. External blocking of the heater operation is provided in the form of an external normally open contact.

Two modifications of the remote-control unit are provided:

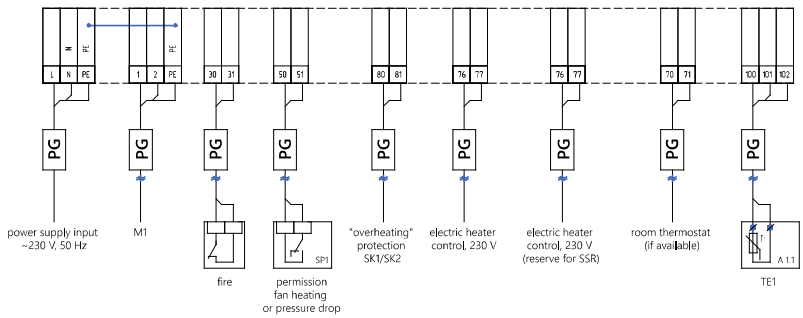
VBU1 - with the ability to connect a fan speed controller and a room thermostat; The maximum current of the speed controller is up to 2.5A;

VBU2 - with integrated fan speed controller. The maximum current of the speed controller is up to 2.5A. Additionally, the VBU2 control unit provides the ability to connect a filter contamination sensor and reduce the temperature of the electric heater before turning it off.

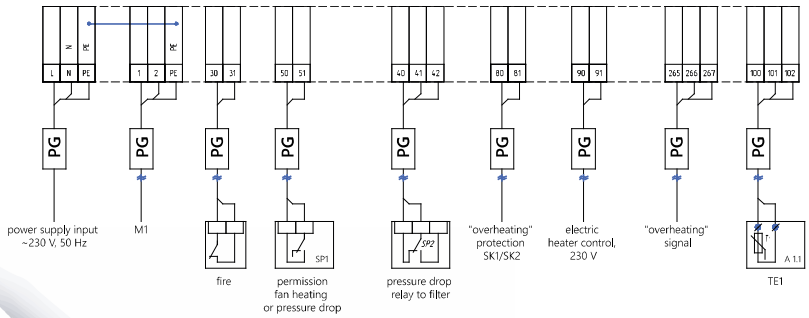


ELECTRICAL CONNECTION DIAGRAMS

VBU1



VBU2



DUCT-TYPE PLATE HEAT RECOVERY UNIT C-PKT-K



- it is installed in ducted ventilation and air conditioning systems of industrial and residential buildings;
- utilizes the thermal energy of the exhaust air;
- allows using the saved energy for heating (cooling) the supply air;
- use of a heat recovery unit with a cross-flow heat exchanger is advisable in cases where there is no air recirculation or as an additional energy saving method;
- efficiency of heat recovery depends on the ratio of the flow rate of supply and exhaust air and the temperature difference at the inlets to the heat exchanger, and can reach 70%;
- processed air must be free of sticky and fibrous materials, explosive gas mixtures and aggressive substances;
- content of dust and solid impurities should not exceed 0.1 g/m^3.

The heat recovery unit consists of a regenerative cross-flow heat exchanger inside a special casing. The heat recovery units are equipped with filters of Class G3, a condensate pan.

The heat recovery unit CASING is made of galvanized steel.

The heat-insulating surface of the heat recovery unit is formed by corrugated plates made of aluminum foil.

OPERATING PRINCIPLE. Exhaust air removed from the serviced premise flows through every second channel between the plates of the recuperative heat exchanger, heating them (in winter) or cooling them (in summer). The processed supply air flows through other channels of the heat exchanger, absorbing the heat of the heated plates or, conversely, cooling down.

INSTALLATION RECOMMENDATIONS. The heat recovery unit provides for horizontal installation.

At the same time, condensate must be removed from the exhaust ventilation duct. For this purpose, it is necessary to ensure the slope of the corresponding section of the ventilation duct with a length of 1-3 m, which must be reliably sealed. At the lowest point of the duct, it is necessary to provide a branch pipe for draining condensate.

The direction of air supply – through the heat recovery unit or bypassing it to the next section of the supply ventilation system – is regulated by a specific bypass valve, which must be provided separately in the system.

When installing the heat recovery unit, it is necessary to provide service access for servicing the heat recovery unit: periodically, it is necessary to clean the heat exchange surface of the heat recovery unit.

C-PKT-K-200

- plate heat recovery unit for round ducts
- size (for round connection section)

NOTE:

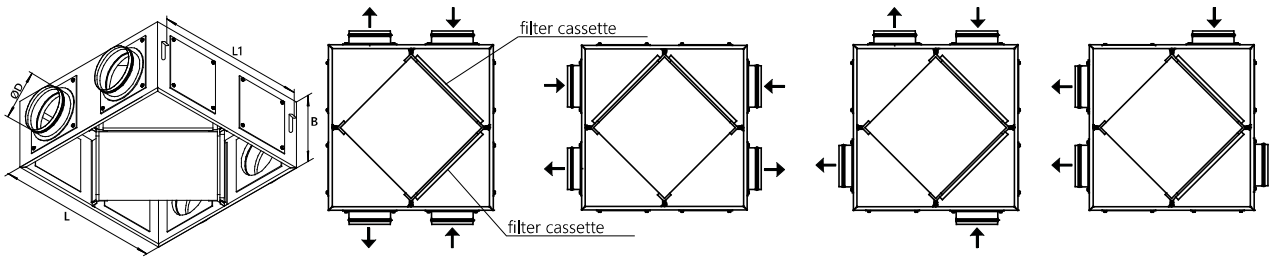
To select a duct-type heat recovery unit, the following data must be provided:

- air capacity of supply and exhaust air (m^3/h);
- exhaust air temperature;
- supply air temperature;
- relative humidity of the exhaust air.

RECOMMENDATIONS

For easy installation of round duct-mounted heat recovery units in compact stationary ventilation and air conditioning systems, the heat recovery units are equipped with connecting pipes that can be easily rearranged. This allows varying the direction of directional air ducts routing and those that divert air flows from the heat recovery unit.

STANDARD SIZE	Dimensions, mm				Weight, kg, max
	D	L	L1	B	
C-PKT-K-100	100	685	650	225	32
C-PKT-K-125	125	685	650	225	32
C-PKT-K-150	150	685	650	225	32
C-PKT-K-160	160	685	650	225	32
C-PKT-K-200	200	875	840	275	32
C-PKT-K-250	250	875	840	325	36
C-PKT-K-315	315	1020	985	390	41



C-FKK | DUCT FILTER



- designed for filtering air from solid and fibrous particles from supply, recirculating or exhaust air;
- protects premises and components of the ducted ventilation system against the ingress of various mechanical impurities contained in the air;
- RECOMMENDED: use the filter in front of the electric heater and fan;
- permissible temperature of the moved air is from -30° C to +50° C;
- cassettes can be supplied as part of C-FKK or separately;
- air filtration class G4.

C-FKK-100

- duct filter for round ducts
- standard size (for round connection section)

The duct filter CASING is a box-shaped structure made of galvanized steel. The casing is equipped with round pipes with a rubber seal for connecting round air ducts or other elements of the ducted ventilation system.

For easy maintenance and replacement of the filter cassette, the casing is equipped with a removable cover.

The filter cassette is installed as standard in the casing or can be ordered separately for replacement during operation. The cassette casing is made of galvanized steel or plastic profile.

The filter insert has a flat panel cassette (G4) made of synthetic material.

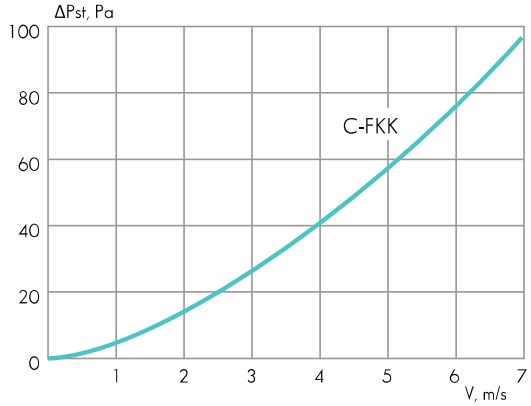
The duct filter is mounted regardless of the spatial orientation.

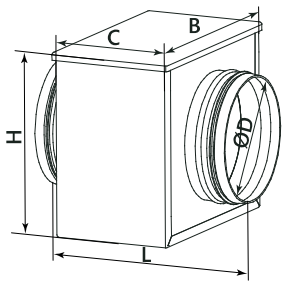
When installed in a vertical position, the air flow passing through the filter cross-section should move from top to bottom.

NOTE: operation of the ducted ventilation system without a filter, or with a maximally clogged filter, is not recommended, as this reduces the quality of the processed air and leads to failure of the duct fan bearings and the tubular heating element.

filter cassette C-FKK-100

- filter cassette
- standard size (for round connection section)





STANDARD SIZE	Dimensions, mm					Weight, kg, max
	D*	B	H	C	L	
C-FKK-100	102	205	170	120	225	1,7
C-FKK-125	127	215	205	140	250	2,12
C-FKK-150	152	265	235	155	265	2,8
C-FKK-160	162	265	235	155	265	2,87
C-FKK-200	202	315	275	155	265	4,2
C-FKK-250	252	365	325	155	265	5,4
C-FKK-315	317	425	390	155	265	7,12

NOTE: * upon additional request, it is possible to manufacture filters with dimensions different from those presented in the catalog.

C-FKK-BAG | BAG DUCT FILTER



- designed for filtering air from dust and fibrous particles in forced ventilation systems;
- protects premises and components of the ducted ventilation system against the ingress of various mechanical impurities contained in the air;
- permissible temperature of the moved air is from -30° C to +50° C.
- replacement cassettes can be supplied separately;
- air filtration class G4-F9.

The duct filter casing has a box-shaped structure made of galvanized steel. For easy maintenance and replacement of the filter cassette, the casing is equipped with a removable cover.

The filter cassette is installed as standard in the casing or can be ordered separately for replacement during operation. The cassette casing is made of galvanized steel or plastic profile. The filter insert has a bag-type cassette (G4, F5-F9) made of synthetic material. As standard, filters are equipped with cassettes of filtration classes from G4 to F9. Upon additional request, filters can be equipped with cassettes of other purification classes.

Duct filters are mounted regardless of spatial orientation. However, it is recommended to place them so that the filter element bags are oriented vertically and are in the open position. When installed in a vertical position, the air flow passing through the filter cross-section must be directed from top to bottom.

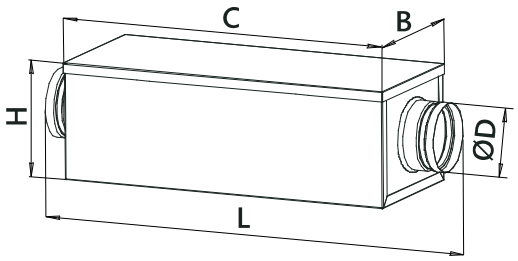
NOTE: operation of the ducted ventilation system without a filter, or with a maximally clogged filter, is not recommended, as this reduces the quality of the processed air and leads to failure of the duct fan bearings and the tubular heating element.

C-FKK-100-F9-BAG

- duct filter for round ducts
- standard size (for round connection section)
- air filtration class
- filter type (bag filter)

filter cassette **C-FKK-100-F9-BAG**

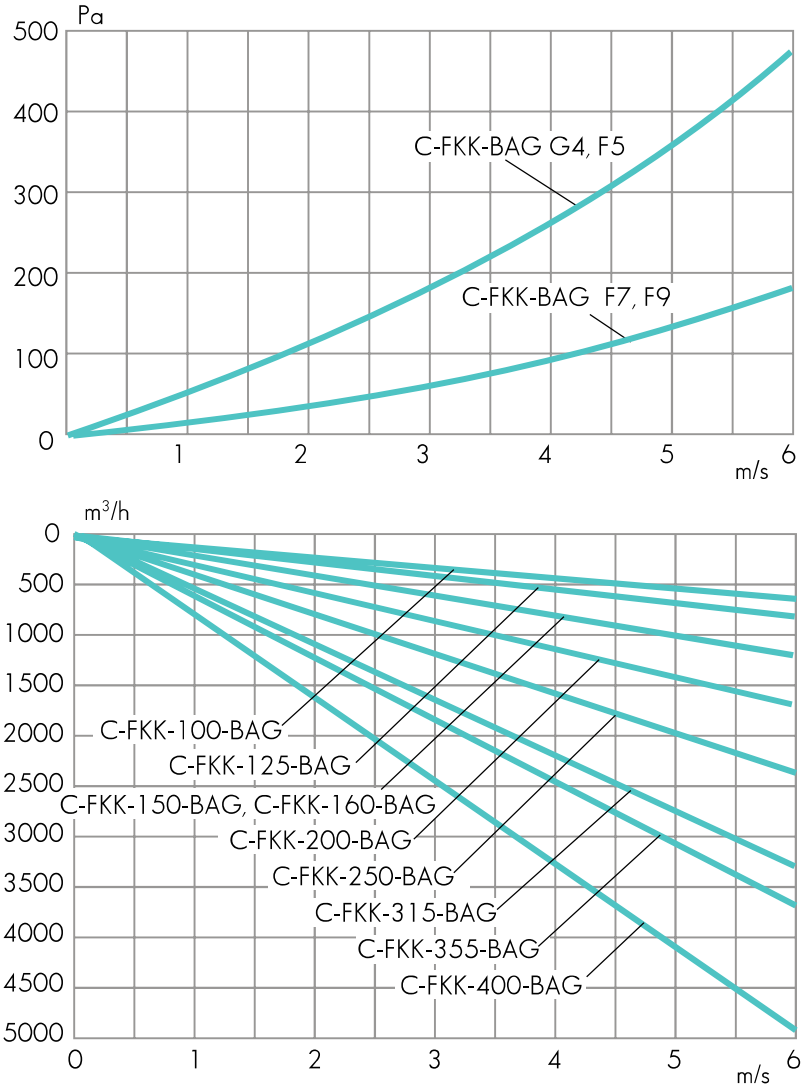
- filter cassette
- standard size (for round connection section)
- air filtration class
- filter type (bag filter)



STANDARD SIZE	Dimensions, mm					Air filtration class	Weight, kg, max
	D*	B	H	C	L		
C-FKK-100-BAG	98	205	170	500	610	G4, F5	2,5
C-FKK-125-BAG	123	215	205				2,8
C-FKK-150-BAG	148	265	235				3,38
C-FKK-160-BAG	158	265	235				3,39
C-FKK-200-BAG	198	315	275		620		4,73
C-FKK-250-BAG	248	365	325				5,62
C-FKK-315-BAG	313	425	390				6,75
C-FKK-355-BAG	353	465	430				7,48
C-FKK-400-BAG	398	510	475				8,32
C-FKK-100-BAG	98	205	170	740	850	F7, F8, F9	3,28
C-FKK-125-BAG	123	215	205				3,72
C-FKK-150-BAG	148	265	235				4,46
C-FKK-160-BAG	158	265	235				4,47
C-FKK-200-BAG	198	315	275		860		6,24
C-FKK-250-BAG	248	365	325				7,38
C-FKK-315-BAG	313	425	390				8,83
C-FKK-355-BAG	353	465	430				9,75
C-FKK-400-BAG	398	510	475				10,8

NOTE: * upon additional request, it is possible to manufacture filters with dimensions different from those presented in the catalog.

AERODYNAMIC CHARACTERISTICS



COMPACT DUCT FILTER FOR ROUND DUCTS | C-FKK-L

- it is installed in ducted ventilation and air conditioning systems of industrial and residential buildings;
- designed for air purification from harmful impurities, dirt and dust in general ventilation duct systems that require a minimum size of the filter casing;
- galvanized steel casing;
- nipple mounting flanges make it easy to insert the filter anywhere in the round duct system;
- convenient snap-on access door makes replacing the filter cassette quick and easy;
- permissible temperature of the moved air is from -30° C to +50° C;
- cassettes can be supplied as part of C-FKK-L or separately;
- air filtration class G4.

The filter cassette is installed as standard in the casing or can be ordered separately for replacement during operation. The cassette casing is made of galvanized steel. The filter insert has a flat panel cassette (G4) made of synthetic material.
Duct filters are mounted regardless of spatial orientation.
When installed in a vertical position, the air flow passing through the filter cross-section should move from top to bottom.
NOTE: Operation of the ducted ventilation system without a filter, or with a maximally clogged filter, is not recommended, as this reduces the quality of the processed air and leads to failure of the duct fan bearings and the tubular heating element.

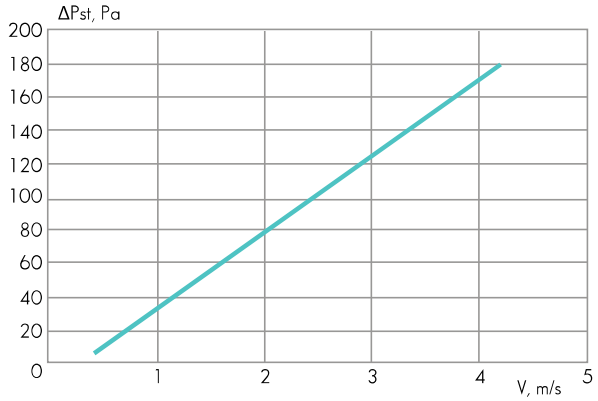


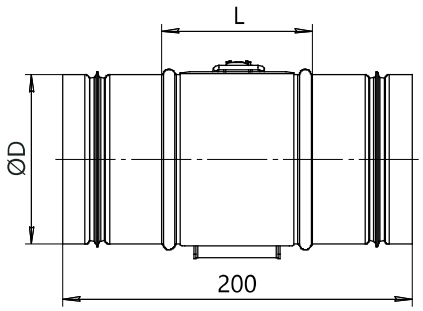
C-FKK-L-100

- compact duct filter for round ducts
- size (for round connection section)

FILTER CASSETTE C-FKK-L-100

- filter cassette
- duct filter for round ducts
- size (for round connection section)





STANDARD SIZE	Dimensions, mm		Weight, kg, max
	D	L	
C-FKK-L-100	100	85	0,45
C-FKK-L-125	125		0,55
C-FKK-L-150	150		0,65
C-FKK-L-160	160		0,7
C-FKK-L-200	200		0,85
C-FKK-L-225	225		0,95
C-FKK-L-250	250		1,1
C-FKK-L-315	315		1,35

TUBULAR DUCT SILENCER C-GKK

- to reduce aerodynamic noise that occurs during the operation of equipment in ducted ventilation and air conditioning systems;
- to protect against noise in serviced premises and to reduce noise coming from fans outside (in exhaust systems);
- it is used indoor in round air ducts;
- it is used as an element of supply and exhaust systems;
- air must not contain solid, sticky or aggressive impurities;
- permissible temperature of the moved air is from -30° C to +50° C.



The silencer CASING is made of galvanized steel. As a noise-absorbing material, mineral wool with a protective coating is used, which prevents the fibers from being blown out. The standard length of the silencer casing is 600 mm or 900 mm.

Upon additional request, silencers can be made in a different length casing.

Preferably, C-GKK is installed between fans and main air ducts. In mechanical ventilation exhaust systems, silencers are used both to protect against noise in serviced premises and to reduce noise coming from fans to the outside.

INSTALLATION of the silencer is carried out regardless of the spatial orientation, while maintaining its operability.

It is recommended to install a straight section of the duct with a length of at least 1-1.5 m in front of the silencer. This measure is necessary to equalize the air velocity along the cross-section of the duct.

To further reduce the noise level, several silencers can be used, installed one after the other.

Pressure losses are calculated similarly to those calculated for a section of air duct of the same size.

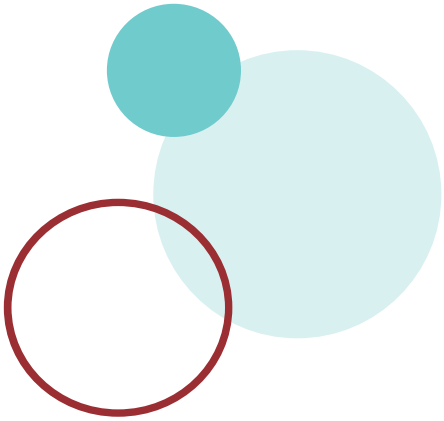
The design of the silencer allows it to be connected to round air ducts or other elements of ducted ventilation systems using C-MK clamps.

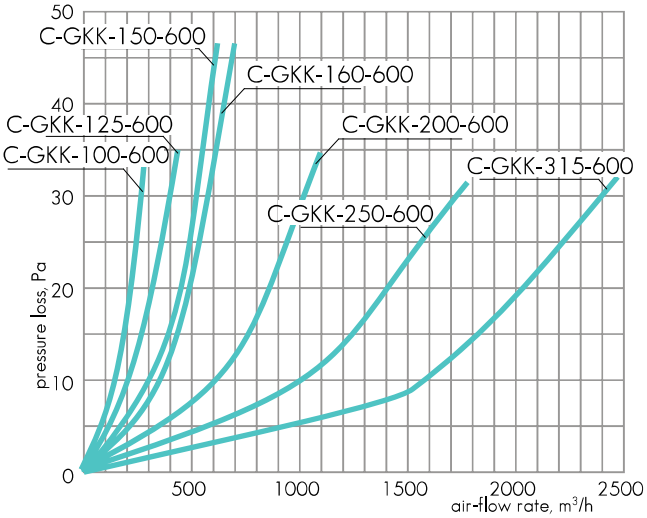
C-GKK-100-600

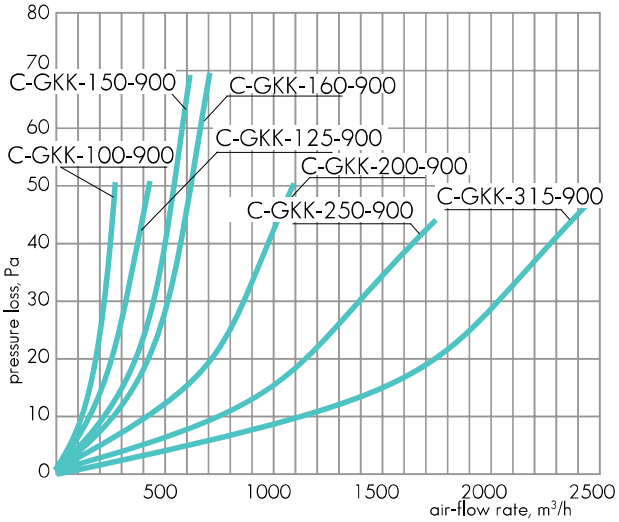
- tubular silencer

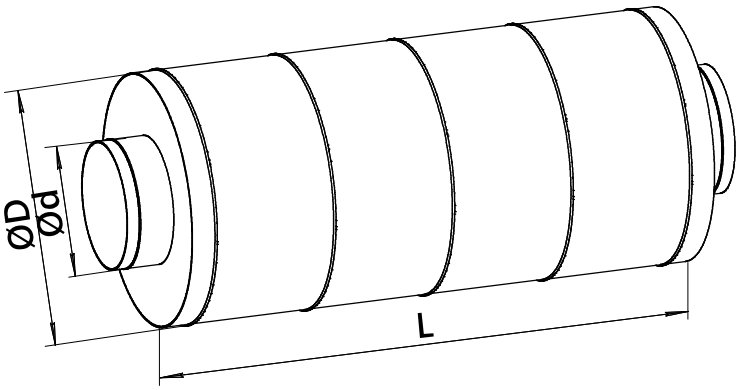
for round ducts

- size (for round connection section)
- silencer length









STANDARD SIZE	Dimensions, mm			Weight, kg, max	Noise reduction (dB) at medium frequencies (Hz)					
	d	D	L		125	250	500	1000	2000	4000
C-GKK-100-600	100	200	600	4,6	7	15	25	33	29	24
C-GKK-100-900	100	200	900	6,3	9	22	32	36	33	31
C-GKK-125-600	125	224	600	5,34	5	13	21	37	37	31
C-GKK-125-900	125	224	900	7,23	7	16	28	38	38	35
C-GKK-150-600	150	250	600	7,13	5	10	19	24	34	32
C-GKK-150-900	150	250	900	9,6	7	13	26	25	35	36
C-GKK-160-600	160	280	600	7,13	3	11	22	33	42	29
C-GKK-160-900	160	280	900	9,6	8	14	23	39	37	25
C-GKK-200-600	200	315	600	8,35	4	8	15	31	28	20
C-GKK-200-900	200	315	900	11,12	8	9	20	32	35	23
C-GKK-250-600	250	355	600	10,03	6	9	13	24	15	15
C-GKK-250-900	250	355	900	13,14	8	11	20	33	24	18
C-GKK-315-600	315	500	600	16,34	2	6	11	14	9	4
C-GKK-315-900	315	500	900	21,19	7	9	16	30	18	14

DUCT UNITS

RECTANGULAR DUCT SILENCER FOR ROUND DUCTS | C-GKN

- advantage over similar round duct silencers: reduced casing size and more convenient shape for installation in ventilation systems without reducing noise-absorbing characteristics;
- to reduce aerodynamic noise that occurs during the operation of equipment in ducted ventilation and air conditioning systems;
- to protect serviced premises from noise and to reduce noise coming from fans outside (in exhaust systems);
- they are used in round air ducts indoors;
- easy installation and the lowest silencer profile on the market;
- they are used as elements of supply and exhaust systems;
- air must not contain solid, sticky or aggressive impurities;
- permissible temperature of the moved air is from -30° C to +50° C.



The silencer CASING is made of galvanized steel.

As a noise-absorbing material, mineral wool with a protective coating is used, which prevents the fibers from being blown out.

The standard length of the silencer casing is 600 mm or 900 mm.

Upon additional request, silencers can be made in a different length casing.

Preferably, C-GKN is installed between the fans and the main air ducts. In mechanical ventilation exhaust systems, silencers are used both to protect against the noise of serviced premises and to reduce the noise coming from fans outside.

INSTALLATION of the silencers is carried out regardless of the spatial orientation, while maintaining its operability.

It is recommended to install a straight section of the duct with a length of at least 1-1.5 m in front of the silencer. This measure is necessary to equalize the air velocity behind the cross-section of the duct.

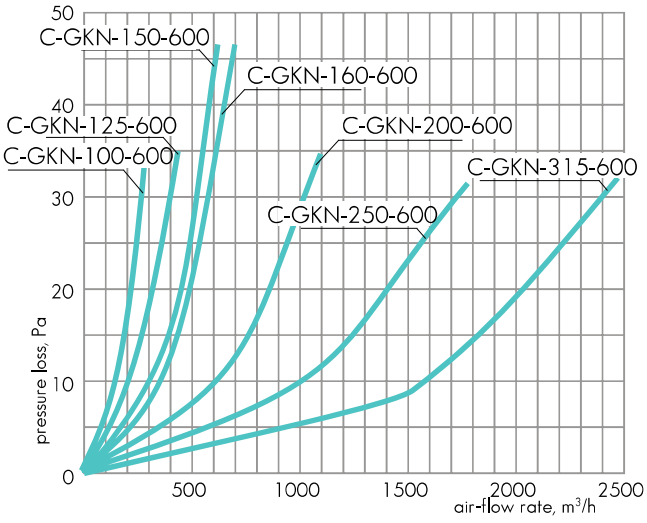
To further reduce the noise level, several silencers can be used, installed one after the other.

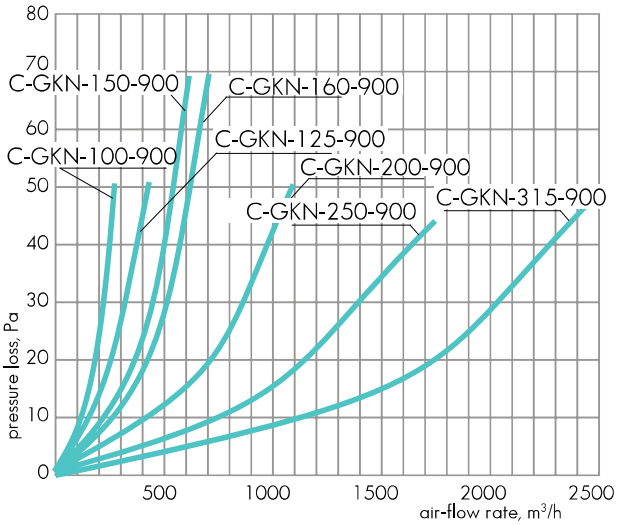
Pressure losses are calculated similarly to those calculated for a section of air duct of the same size.

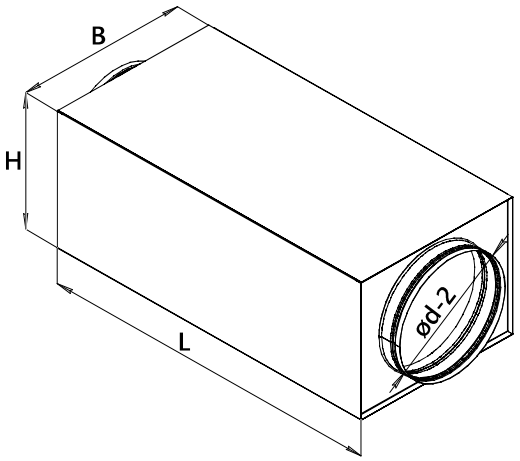
The design of the silencer allows it to be connected to round air ducts or other elements of ducted ventilation systems using C-MK clamps.

C-GKN-100-600

- rectangular duct silencer for round ducts
- size (for round connection section)
- silencer length







STANDARD SIZE	Dimensions, mm				Weight, kg, max	Noise reduction (dB) at medium frequencies (Hz)						
	Ød	B	H	L		125	250	500	1000	2000	4000	8000
C-GKN-100-600	100	205	150	600	3,6	7	15	25	33	29	24	21
C-GKN-100-900	100	205	150	900	5,2	9	22	32	36	33	31	30
C-GKN-125-600	125	235	170	600	4,0	5	13	21	37	37	31	30
C-GKN-125-900	125	235	170	900	5,7	7	16	28	38	38	35	32
C-GKN-150-600	150	250	190	600	4,2	5	10	19	24	34	32	30
C-GKN-150-900	150	250	190	900	6,0	7	13	26	25	35	36	33
C-GKN-160-600	160	260	200	600	4,4	3	11	22	33	42	29	24
C-GKN-160-900	160	260	200	900	6,2	8	14	23	39	37	25	20
C-GKN-200-600	200	330	250	600	5,2	4	8	15	31	28	20	17
C-GKN-200-900	200	330	250	900	7,3	8	9	20	32	35	23	18
C-GKN-250-600	250	380	290	600	5,9	6	9	13	24	15	15	13
C-GKN-250-900	250	380	290	900	8,2	8	11	20	33	24	18	15
C-GKN-315-600	315	450	360	600	6,9	2	6	11	14	9	4	2
C-GKN-315-900	315	450	360	900	9,5	7	9	16	30	18	14	12

DUCT UNITS

UNIVERSAL DUCT AIR VALVE C-DKK

- designed to regulate the flow rate of supply and exhaust air in ducted ventilation and air conditioning systems;
- can be used for recirculating air;
- processed air must be treated and free of solid, fibrous, sticky or aggressive impurities;
- permissible content of dust and solid impurities not more than 0.1 g/m³;
- permissible temperature of the moved air is from -30° C to +50° C.

The valve has a round cross-section and a round casing with a simple leaf blade installed inside, truncated on the sides. This design ensures a proportional dependence of the air flow through the valve on the blade pitch angle.

The structural elements of the valve are made of galvanized steel. The blade axis is mounted on polyamide bushings.

A manual drive is used as the actuator.

To adjust the position of the blade, the manual drive provides the possibility of fixing the position.

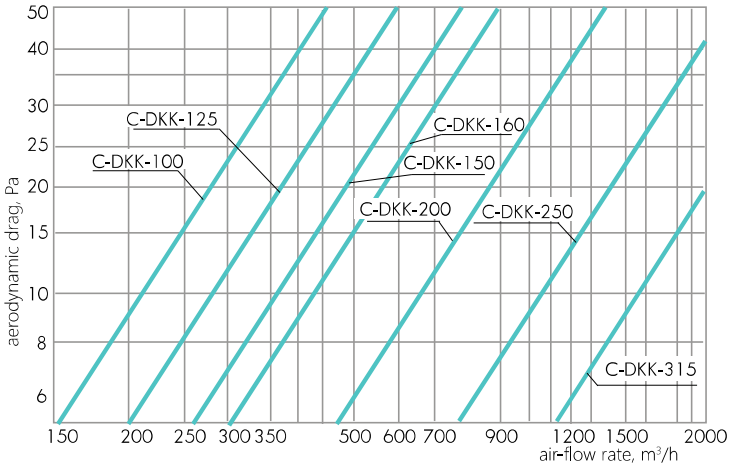
The valve remains operational regardless of its spatial orientation.

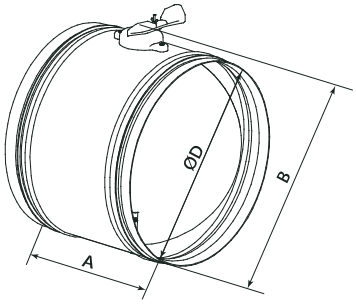


C-DKK-100

- universal air valve for round ducts
- size (for round connection section)

NOTE: comes standard with a handle.





STANDARD SIZE	Dimensions, mm			Weight, kg, max
	A	B	D	
C-DKK-100	200	160	100	0,96
C-DKK-125	200	185	125	1,07
C-DKK-150	200	200	150	1,19
C-DKK-160	200	220	160	1,24
C-DKK-200	200	260	200	1,45
C-DKK-250	200	310	250	2,06
C-DKK-315	200	375	315	2,6

C-KVK | UNIVERSAL DUCT AIR VALVE

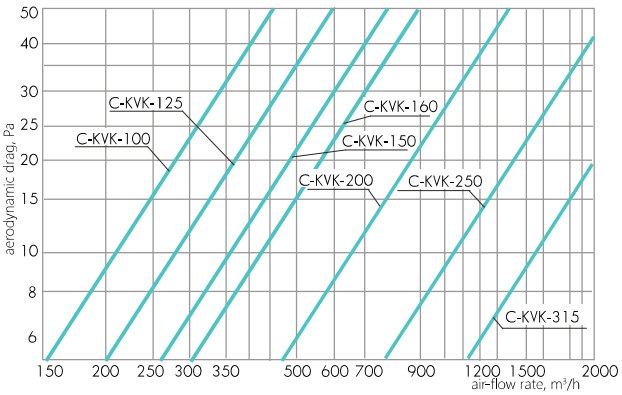


C-KVK-100-0

- universal air valve for round ducts
- size (for round connection section)
- drive type (electric drive type,

0 - to use with electric drive, HD - manual drive)

NOTE: for universal model designation of electric drive, see Reference information.



- designed to regulate the flow rate of supply and exhaust air in ducted ventilation and air conditioning systems;
- can be used for recirculating air;
- it is used for sealing the internal volume of ventilation networks;
- processed air must be treated and free of solid, fibrous, sticky or aggressive impurities;
- permissible content of dust and solid impurities not more than 0.1 g/m³;
- permissible temperature of the moved air is from -30° C to +50° C.

The valves have a round cross-section and a round casing with a blade installed inside. This design ensures a proportional dependence of the air flow through the valve on the blade pitch angle.

The structural elements of the valve are made of galvanized steel. The blade is equipped with a rubber seal around the perimeter.

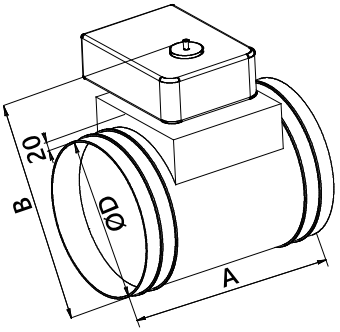
The following are used as actuators:

- manual drive for local manual operation;
- electric drive for remote control of the valve.

For air valves, open-closed drives are used either with a smoothly adjusted spring return, or two-position 220 V or 24 V. Universal model designation of the drive is given for all air valves.

The valve remains operational regardless of its spatial orientation.

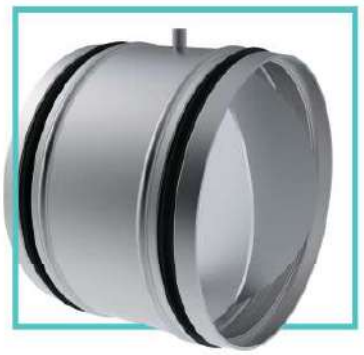
STANDARD SIZE	Dimensions, mm					Weight without drive, kg, max
	A	B	D	"open-closed"	spring return	
C-KVK-100	200	215	100	M 220 (24)	F 220 (24)	0,65
C-KVK-125	200	240	125			0,78
C-KVK-150	200	253	150			0,86
C-KVK-160	200	273	160			0,98
C-KVK-200	200	313	200			1,21
C-KVK-250	200	363	250			1,85
C-KVK-315	200	428	315			2,45



DUCT UNITS

DUCT-TYPE CHECK VALVE C-KOL-K

- prevents the flow of air and non-explosive air mixtures from different rooms of the same ventilation system;
- prevents outside air from entering the serviced area after the fan is turned off;
- content of sticky substances and fibrous materials is not allowed;
- permissible content of dust and solid impurities not more than 0.1 g/m³;
- minimum air velocity through the valve cross-section must be:
  - on a horizontal section of at least 1.5 m/s;
  - on a vertical section of at least 2.5 m/s;
- maximum permissible air velocity is not more than 9 m/s;
- permissible temperature of the moved air is from -30° C to +50° C.



C-KOL-K-100

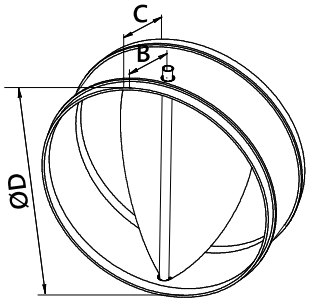
- check valve for round ducts
- size (for round connection section)

The valve consists of a round casing made of galvanized steel and spring-loaded blades made of galvanized steel installed in it.

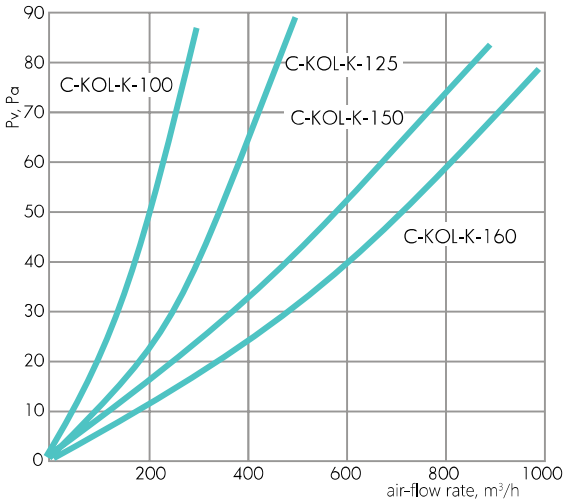
Under the influence of the air flow when the fan is on, the blades are kept in the open position.

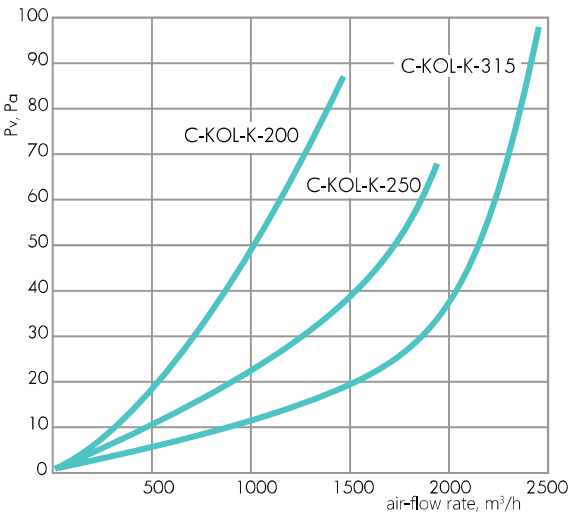
After the fan is turned off, the valve blades automatically return to their original position and close the valve cross-section. The C-KOL-K valve remains operational when the blade rotation axis is installed vertically or horizontally, but only when the air flow is directed from the bottom up, and also when an acceptable velocity level is ensured in the valve cross-section.

The design of the valve casing allows it to be connected to round air ducts or other elements of ducted ventilation systems using clamps.









STANDARD SIZE	Dimensions, mm			Weight, kg, max
	D	B	C	
C-KOL-K-100	100	50	80	0,23
C-KOL-K-125	125	50	100	0,3
C-KOL-K-150	150	60	120	0,43
C-KOL-K-160	160	60	120	0,47
C-KOL-K-200	200	80	140	0,7
C-KOL-K-250	250	80	140	0,93
C-KOL-K-315	315	80	140	1,43

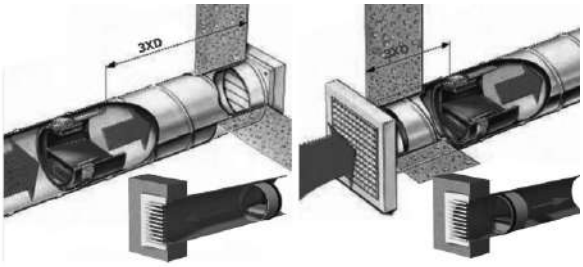
C-DUCT | AIR FLOW REGULATOR



- for automatic control of air flows in the ventilation system;
- provides optimal climate control in any premise of the building;
- use of the C-DUCT regulator eliminates the need to perform measurements of the ventilation system before putting it into operation.
- OPERATING RANGE:
  50-200 Pa for C-DUCT;
  150-600 Pa for C-DUCT-HP.
- CAPACITY:
  from 15 to 500 m³/h (possibly up to 700) for C-DUCT;
  from 50 to 1200 m³/h for C-DUCT-HP.
- maximum operating temperature is +60° C.

C-DUCT-200

- duct air flow regulator
- size (for round connection section)



Installation of regulators involves installing the device according to the specified flow direction in a ventilation duct, the diameter of which matches the diameter of the regulator. To ensure proper functioning of the regulators, it is recommended to observe the following rules during their installation:

- length of the straight segment in front of the regulator: 3D - air intake,
- length of the straight segment behind the regulator: 1D - air extraction.

The casing of the ventilation duct is made of galvanized steel.

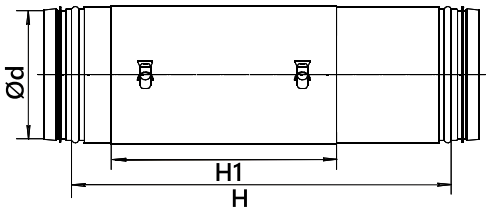
The ventilation duct has an access door. Thanks to the universal lock, the door can be closed and open multiple times. This lock provides full access to the duct.

Special dampers made of polyvinyl chloride corresponding to Class A1 (DIN 4102) are installed inside the duct.

The C-DUCT regulator is an automatic constant flow volume regulator. Full opening of the damper occurs at the lower value of the nominal pressure. A further increase in pressure leads to partial closing of the damper and maintaining a constant flow of air passing through the regulator.

The C-DUCT regulator ensures that a CONSTANT volume of air flow passes through the ventilation system. C-DUCT-HP regulators are used in high-pressure ventilation systems.

A rubber seal ensures tightness of the access door and nipple connections.





STANDARD SIZE	Dimensions, mm			Weight without drive, kg, max
	d	H1	H	
C-DUCT-100	100	200	400	1,08
C-DUCT-125	125	200	400	1,2
C-DUCT-160	160	250	500	1,96
C-DUCT-200	200	300	600	2,6
C-DUCT-250	250	400	800	2,9

AIR FLOW THROUGH THE C-DUCT REGULATOR

Q, m³/m	D, mm					
	80	100	125	160	200	250
15						
30						
45						
50						
60						
75						
90						
100						
120						
150						
180						
210						
240						
270						
300						
350						
400						
450						
500						

AIR FLOW THROUGH THE C-DUCT-HP REGULATOR

Q, m³/m	D, mm					
	80	100	125	160	200	250
50						
75						
100						
125						
150						
200						
250						
300						
350						
400						
450						
500						
600						
700						
800						
900						
1000						
1100						

C-RVK AIR INTAKE DUCT GRILLE



The C-RVK air intake duct grille is intended for decorative function – the standardized design of the grille allows it to be easily integrated into the overall appearance of a building or structure. The grille is used for supply ventilation in round duct systems and is installed on the facade of the building. The duct grille protects the air ducts from precipitation and foreign objects.

The C-RVK air intake duct grille is made of galvanized sheet steel. The grille is intended for wall mounting and is equipped with a protective mesh. The grille is characterized by high strength, easy installation and reliable operation. The grille is equipped with a connecting pipe with a special rubber seal. Easily installed on the wall, while not damaging the facade surface.

This grille is painted with powder paints according to the RAL catalog.

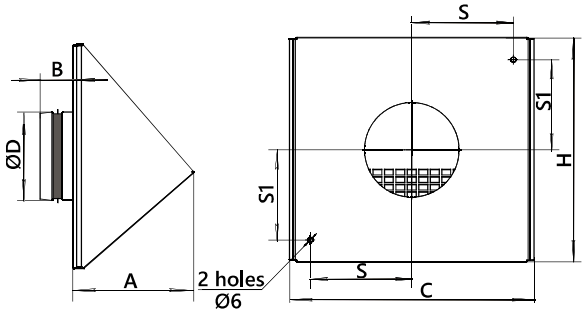
It is delivered unpainted as standard. The required color is specified when ordering.

C-RVK-160-0

- air intake grille for round ducts
- size (for round connection section)
- color according to the RAL catalog

(0 - without painting)





STANDARD SIZE	Dimensions, mm							Weight, kg, max
	D	B	C	H	A	S	S1	
C-RVK-100	100	37	217	194	107	80	72	1,7
C-RVK-125	125	37	217	194	107	80	72	1,8
C-RVK-150	150	37	277	254	137	115	102	1,95
C-RVK-160	160	37	277	254	137	115	102	1,9
C-RVK-200	200	41	277	254	137	115	102	1,8
C-RVK-250	250	41	416	404	210	170	177	2,2
C-RVK-315	315	41	416	404	210	170	177	2,1

DUCT EXHAUST GRILLE WITH MESH C-RVC

The C-RVC duct-type exhaust grille with mesh is used for exhaust ventilation in round duct systems and is installed on the facade of the building. The exhaust grille is intended for decorative function: the standardized design of the grille allows it to be easily integrated into the overall appearance of a building or structure. This grille protects the air duct from precipitation and foreign objects.

The exhaust duct grille with C-RV mesh is made of galvanized steel. The grille is equipped with a protective mesh and a connecting pipe with a special rubber seal. The grille features a built-in divider that directs the air flow from the building wall. The mesh can be easily removed for cleaning. The grille is easy to install on the wall without damaging the surface of the facade.

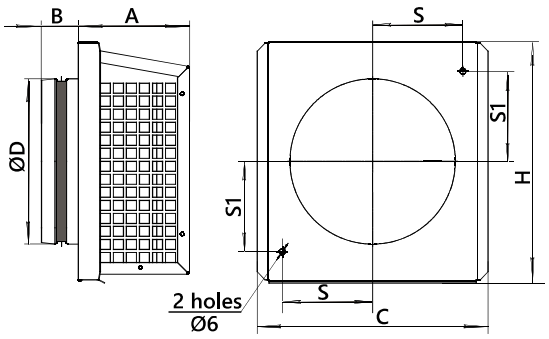
This grille is painted with powder paints according to the RAL catalog.

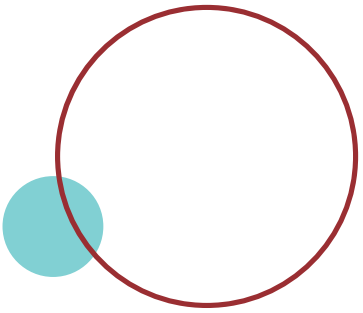
It is delivered unpainted as standard. The required color is specified when ordering.



C-RVC-160-0

- exhaust grille with mesh for round ducts
- size (for round connection section)
- color according to the RAL catalog (0 - without painting)





STANDARD SIZE	Dimensions, mm							Weight, kg, max
	D	B	C	H	A	S	S1	
C-RVC-100	100	37	192	205	110	75	72	1,1
C-RVC-125	125	37	192	205	110	75	72	0,9
C-RVC-150	150	37	230	243	145	90	90	1,15
C-RVC-160	160	37	230	243	145	90	90	1,1
C-RVC-200	200	41	230	260	145	90	90	1,2
C-RVC-250	250	41	282	395	200	170	170	1,4
C-RVC-315	315	41	395	395	200	170	170	1,3

C-RPVC | SUPPLY AND EXHAUST GRILLE WITH MESH



The C-RPVC supply and exhaust grille with mesh is intended for decorative function – the standardized design of the grille allows it to be easily integrated into the overall appearance of a building or structure. The grille is used for supply and exhaust ventilation in round duct systems. This grille distributes the external and exhaust air flows, eliminating the possibility of mixing them. The supply and exhaust grille with a mesh protects the air ducts from precipitation and foreign objects.

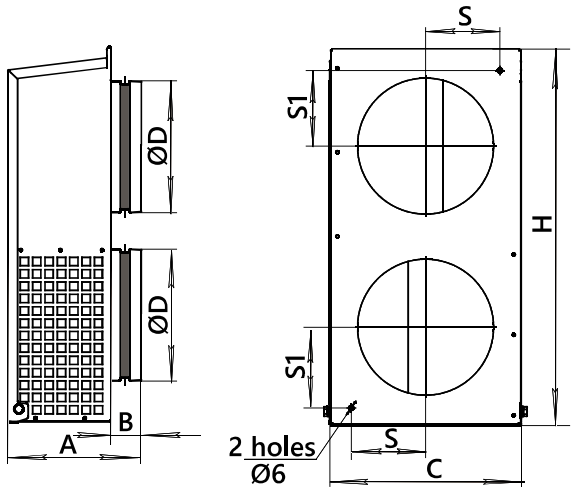
The C-RPVC supply and exhaust grille with mesh is made of galvanized sheet steel. The grille is equipped with a protective mesh and a connecting pipe with a special rubber seal.

The grille has built-in dividers that direct the flow of supply and exhaust air in different directions from the wall. The mesh can be easily removed for cleaning. The grille is easy to install on the wall without damaging the surface of the facade. The grille is easy to install.

This grille is painted with powder paints according to the RAL catalog. It is delivered unpainted as standard. The required color is specified when ordering.

C-RPVC-160-0

- supply and exhaust grille with mesh for round ducts
- size (for round connection section)
- color according to the RAL catalog (0 - without painting)



STANDARD SIZE	Dimensions, mm							Weight, kg, max
	D	B	C	H	A	S	S1	
C-RPVC-100	100	37	165	385	100	65	72	2,2
C-RPVC-125	125	37	165	385	100	65	72	2,1
C-RPVC-150	150	37	235	460	125	90	98	2,5
C-RPVC-160	160	43	240	460	163	90	98	2,9
C-RPVC-200	200	43	240	486	166	90	98	2,9
C-RPVC-250	250	41	355	765	180	145	170	2,9
C-RPVC-315	315	43	360	767	184	145	170	5,7

QUICK-RELEASE MOUNTING CLAMP C-MK



- provides convenient and quick installation of equipment for ducted ventilation system with round ducts and dismantling its elements for maintenance.

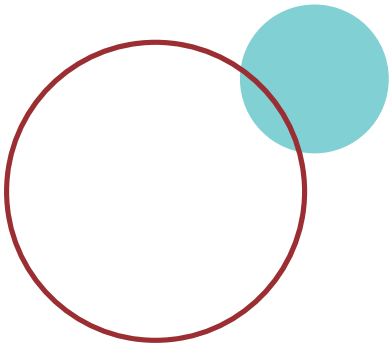
The quick-release mounting clamp is made of galvanized sheet steel. On the inside, it is made with an insulating layer of seal, which makes the connections airtight and reduces vibration.

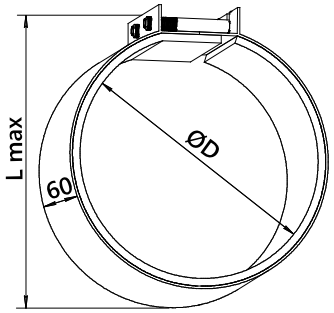
Provides for the presence of special bendable "eyelets", providing the possibility of hanging.

The clamp is tightened with two screws. This ensures a secure fit.

C-MK-100

- quick-release mounting clamp
- size (for round connection section)





STANDARD SIZE	Dimensions, mm		Weight, kg, max
	D	L_{max}	
C-MK-100	100	160	0,26
C-MK-125	125	185	0,31
C-MK-150	150	210	0,35
C-MK-160	160	220	0,37
C-MK-180	180	240	0,41
C-MK-200	200	260	0,44
C-MK-250	250	310	0,53
C-MK-315	315	375	0,65

SET OF MOUNTING BRACKETS FOR ROUND FANS C-KMV

- mounting bracket set is designed for C-VENT, C-VENT-K-EC type fans;
- provides easy and fast installation of fans;
- set includes two brackets and screws for attaching the bracket to the fan; supplied as a separate item (optional).

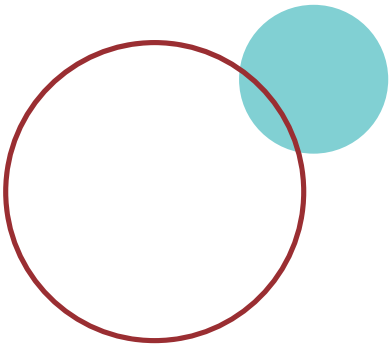


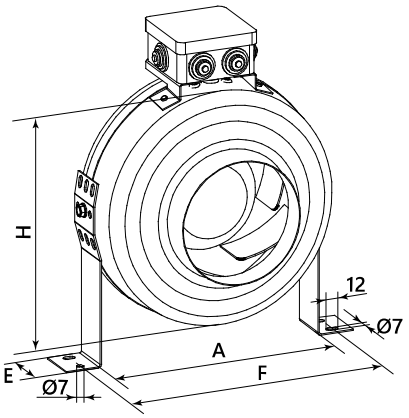


C-KMV-1

- mounting bracket set
- standard size of the set

(see the table for applicability)





STANDARD SIZE	Dimensions, mm				Weight, kg, max	Application (fan types)
	H	A	F	E		
C-KMV-1	243	227	265	31	0,25	C-VENT-100; C-VENT-K-EC-100 C-VENT-125; C-VENT-K-EC-125
C-KMV-2	332	315	353	46	0,3	C-VENT-160; C-VENT-K-EC-160 C-VENT-200; C-VENT-K-EC-200 C-VENT-250; C-VENT-K-EC-250
C-KMV-3	400	374	421	18	0,65	C-VENT-315; C-VENT-K-EC-315

VENTILATION SYSTEMS FOR SQUARE DUCTS





SQUARE DUCT RADIAL FAN C-KVARK

- for compact stationary supply and exhaust ventilation systems, as well as for air conditioning systems of industrial, public and residential buildings;
- allows to significantly reduce the dimensions of the system while maintaining the operating parameters of the air;
- design provides easy maintenance and installation in confined spaces;
- for air with a permissible content of dust and solid impurities not exceeding 0.1 g/m³;
- presence of sticky, fibrous and abrasive components, explosive impurities is not allowed;
- temperature range of the moved air from -30° C to +40° C;
- ingress protection rating IP54.



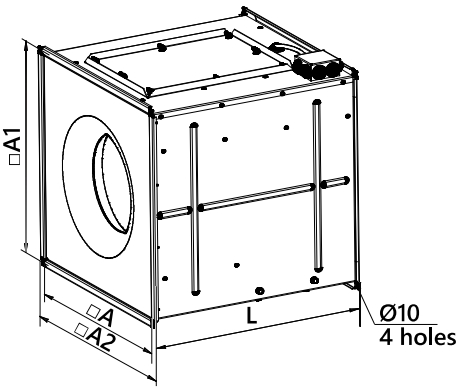
The square casing of the C-KVARK fan is made of galvanized steel, which provides reliable corrosion protection.

The impeller is installed inside the casing with backward-curved blades and undergoes careful static and dynamic balancing.

Electric motor. The fan is equipped with a single- or three-phase asynchronous electric motor, which allows adjusting the rotation speed of the impeller using frequency converters. Upon additional request, the fan can be equipped with single-phase electric motors with a power of more than 1.5 kW. Installation of the fan can be carried out in any spatial position while maintaining its operability.

C-KVARK-45-45-2-380

- square duct radial fan
- size (for square connection section)
- number of electric motor poles
- electric motor supply voltage, 220 V or 380 V



C-KVARK-V-45-45-2-380

- design version
(V - explosion-proof)

NOTE: the design version "V" is only for the specified group of fans with an electric motor voltage of 380V. There is no "V" design version for 220V motors.

STANDARD SIZE	Dimensions, mm				Weight, kg, max
	A	A1	A2	L	
C-KVARK-35-35-4	350	370	390	430	17,0
C-KVARK-35-35-2	350	370	390	430	19,0
C-KVARK-40-40-4	400	420	440	450	18,7
C-KVARK-40-40-2	400	420	440	450	22,8
C-KVARK-45-45-4	450	470	490	530	30,8
C-KVARK-45-45-2	450	470	490	530	38,8
C-KVARK-50-50-4	500	520	540	570	36,4
C-KVARK-50-50-2	500	520	540	570	49,5
C-KVARK-56-56-4	560	580	600	600	41,2
C-KVARK-56-56-2	560	580	600	600	64,2
C-KVARK-63-63-4	630	650	670	650	46,8
C-KVARK-63-63-2	630	650	670	650	74,4
C-KVARK-71-71-4	710	730	750	720	51,2
C-KVARK-71-71-6	710	730	750	720	54,5
C-KVARK-80-80-4	800	830	860	830	71,7
C-KVARK-80-80-6	800	830	860	830	78,7

WITH SINGLE-PHASE ELECTRIC MOTOR

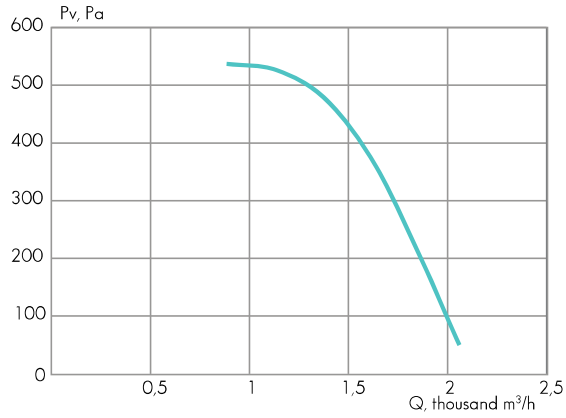
STANDARD SIZE	Duct cross-section □A, mm	Motor speed, min^{-1}	Motor installed power, kW	Rated current, A	Corrected sound pressure level LpA, dB(A)		
					Input	Output	Surrounding
C-KVARK-35-35-4-220	350	1500	0,25	2,1	55	57	46
C-KVARK-35-35-2-220	350	3000	0,37	3	60	62	52
C-KVARK-40-40-4-220	400	1500	0,25	2,1	58	60	47
C-KVARK-40-40-2-220	400	3000	0,75	5,7	63	65	54
C-KVARK-45-45-4-220	450	1500	0,25	2,1	66	69	46
C-KVARK-45-45-2-220	450	3000	1,5	9,44	74	76	55
C-KVARK-50-50-4-220	500	1500	0,37	3	69	71	52
C-KVARK-56-56-4-220	560	1500	0,55	4	73	75	57
C-KVARK-63-63-4-220	630	1500	1,1	6,3	76	79	66
C-KVARK-71-71-4-220	710	1500	1,5	10,1	79	82	67

WITH THREE-PHASE ELECTRIC MOTOR

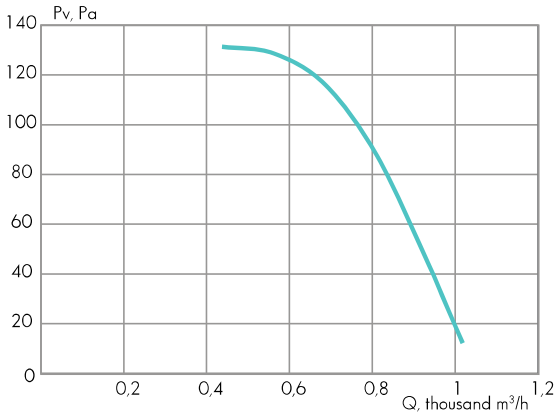
ТИПОРОЗМІР	Duct cross-section □A, mm	Motor speed, min^{-1}	Motor installed power, kW	Rated current, A	Коректований рівень звукового тиску LpA, дБ(А)		
					на вході	на виході	до оточення
C-KVARK-(V)-35-35-4-380	350	1350	0,25	0,82	55	57	46
C-KVARK-(V)-35-35-2-380	350	2730	0,37	1	60	62	52
C-KVARK-(V)-40-40-4-380	400	1350	0,25	0,82	58	60	47
C-KVARK-(V)-40-40-2-380	400	2800	0,75	1,9	63	65	54
C-KVARK-(V)-45-45-4-380	450	1350	0,25	0,82	66	69	46
C-KVARK-(V)-45-45-2-380	450	2835	1,5	3,2	74	76	55
C-KVARK-(V)-50-50-4-380	500	1320	0,37	1,2	69	71	52
C-KVARK-(V)-50-50-2-380	500	2835	3	6,5	77	79	60
C-KVARK-(V)-56-56-4-380	560	1400	0,55	1,4	73	75	57
C-KVARK-(V)-56-56-2-380	560	2860	5,5	11	81	83	70
C-KVARK-(V)-63-63-4-380	630	1420	1,1	2,7	76	79	66
C-KVARK-(V)-63-63-2-380	630	2865	7,5	15	84	87	71
C-KVARK-(V)-71-71-4-380	710	1390	1,5	3,6	79	82	67
C-KVARK-(V)-71-71-6-380	710	915	0,55	1,8	67	70	55
C-KVARK-(V)-80-80-4-380	800	1410	3	7,03	83	86	70
C-KVARK-(V)-80-80-6-380	800	930	0,75	2,3	70	73	57

NOTE: This fan can be ordered in "V" design version – explosion-proof only for 380V motors.

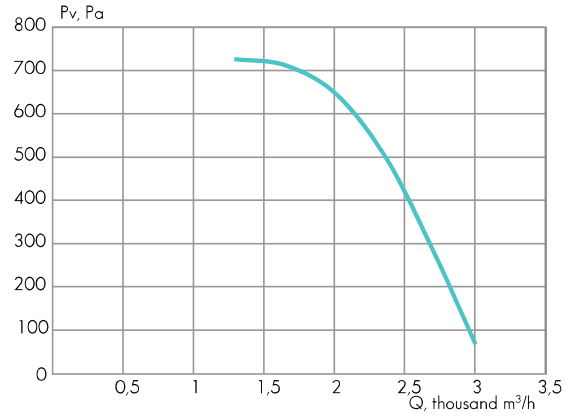
C-KVARK-35-35-2



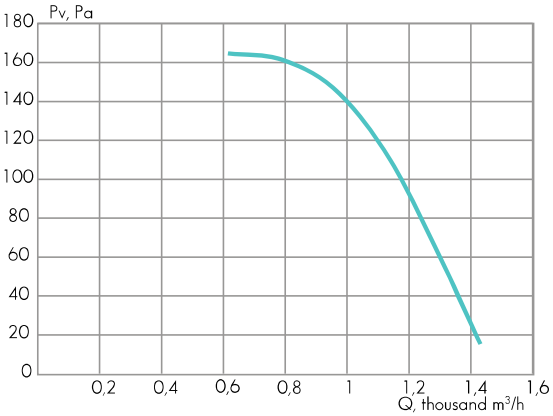
C-KVARK-35-35-4



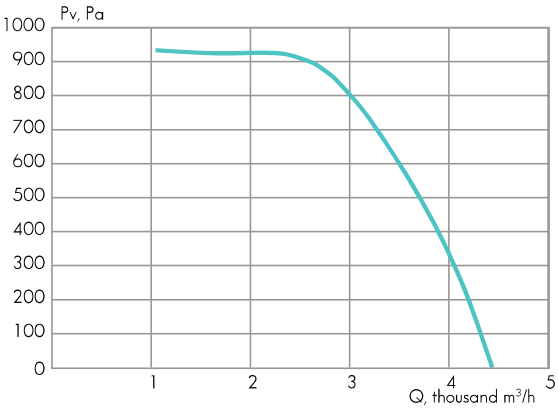
C-KVARK-40-40-2



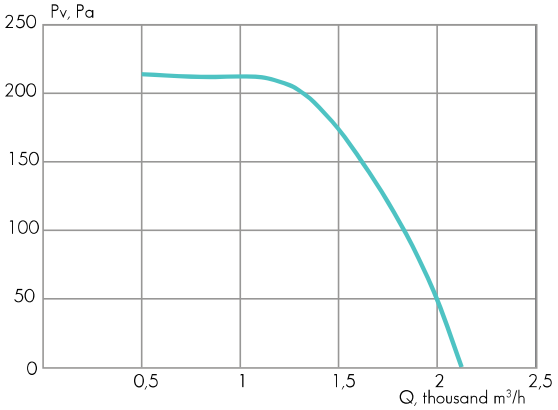
C-KVARK-40-40-4



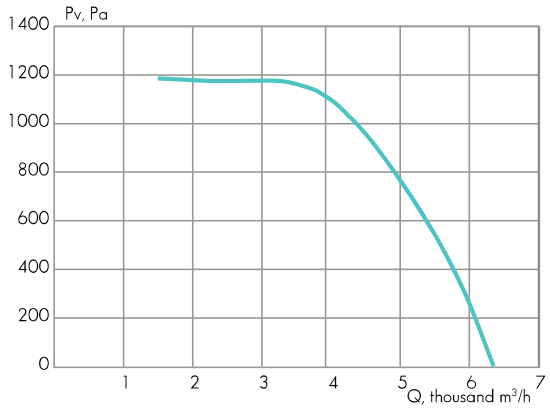
C-KVARK-45-45-2



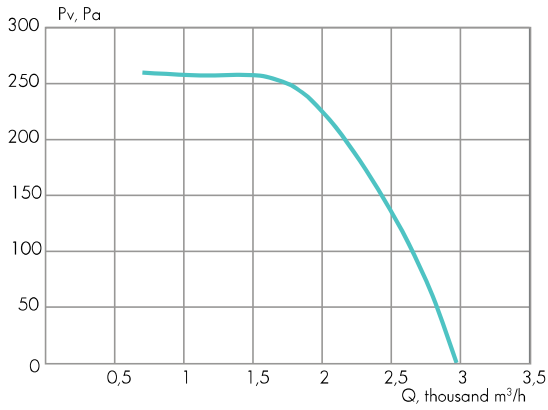
C-KVARK-45-45-4



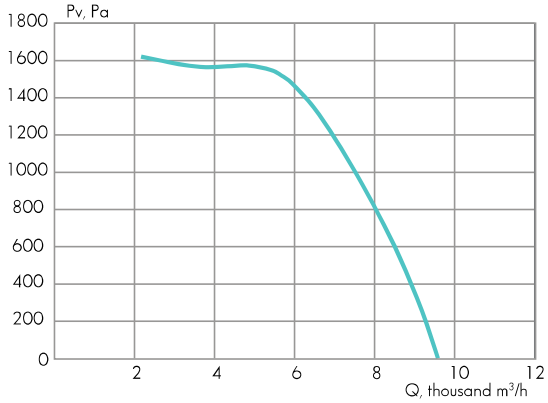
C-KVARK-50-50-2



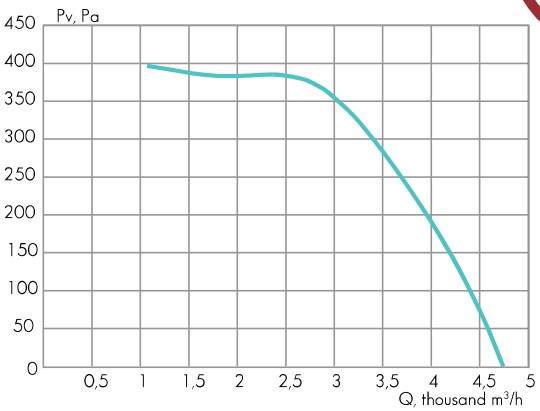
C-KVARK-50-50-4



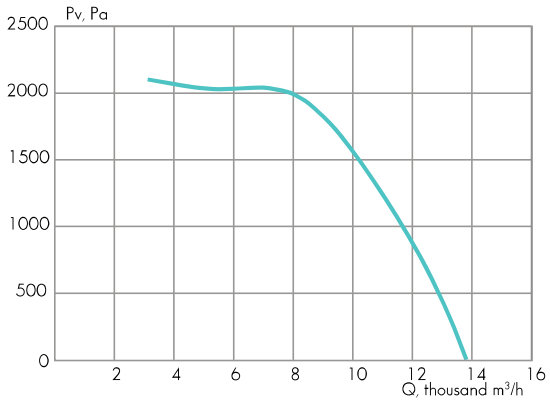
C-KVARK-56-56-2



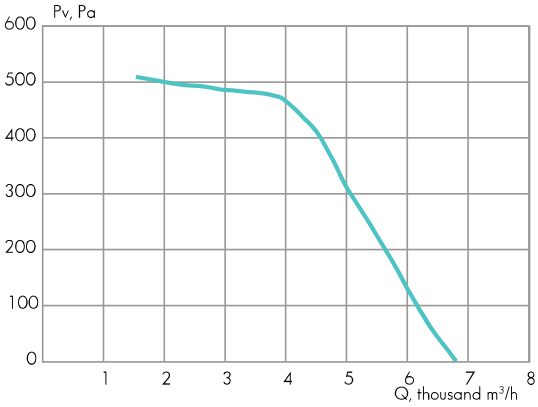
C-KVARK-56-56-4



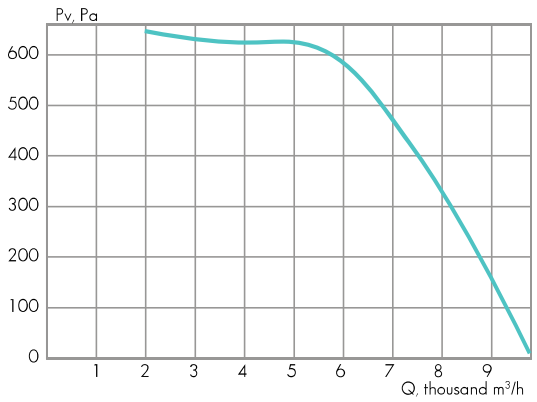
C-KVARK-63-63-2



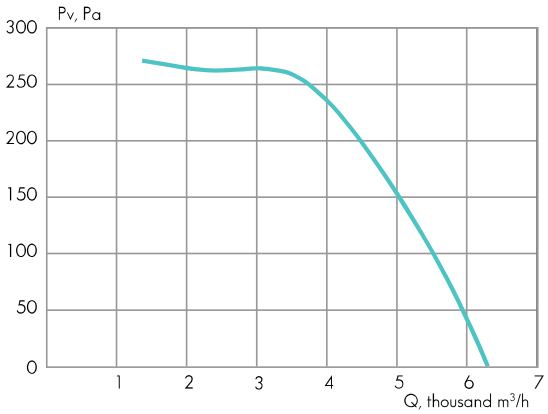
C-KVARK-63-63-4



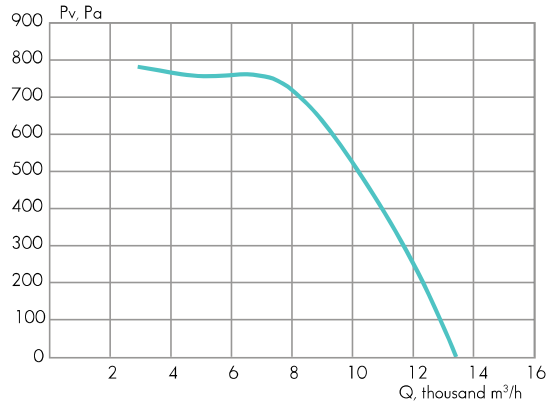
C-KVARK-71-71-4



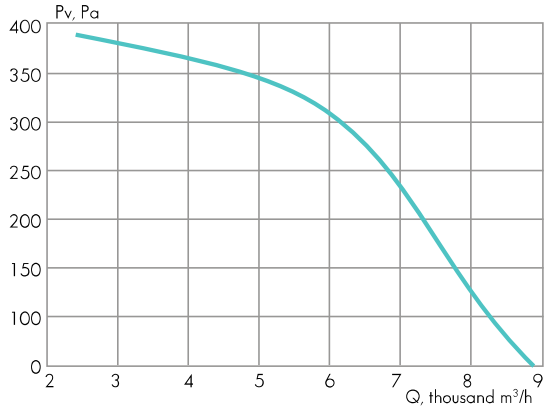
C-KVARK-71-71-6



C-KVARK-80-80-4



C-KVARK-80-80-6



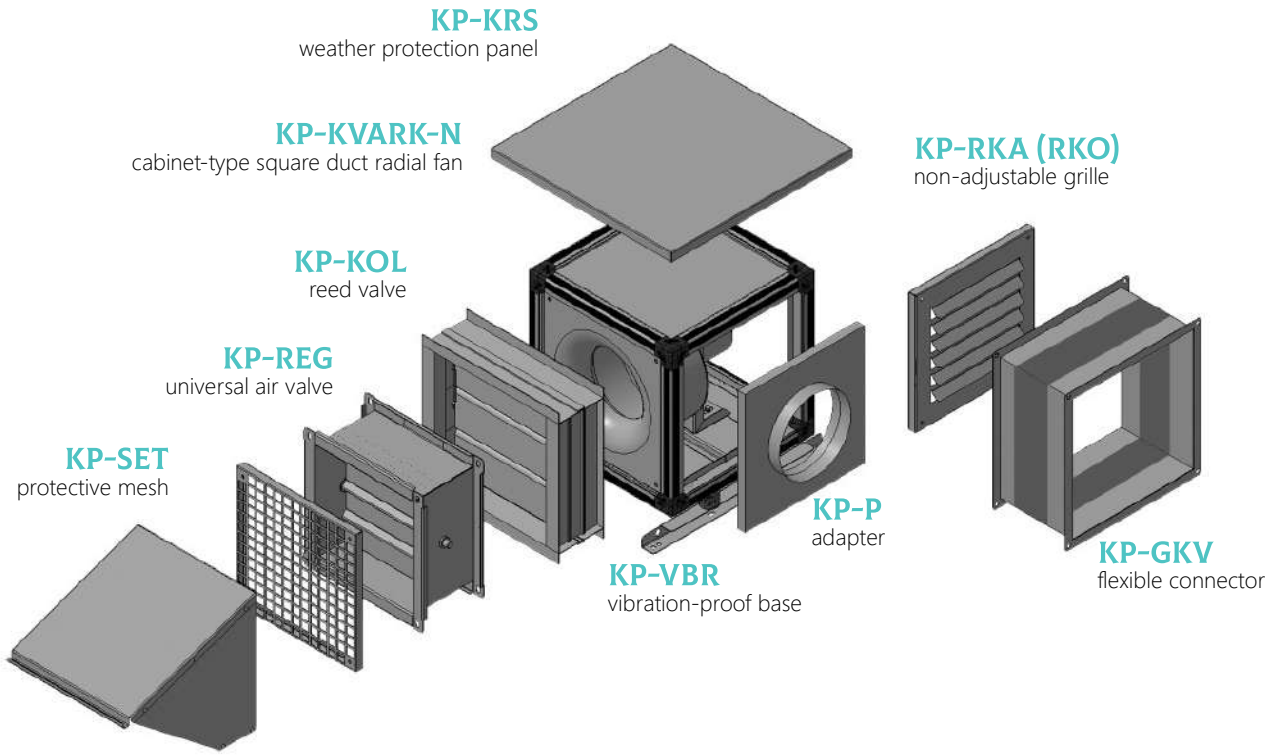
C-P ADAPTER

C-P-35-35/40-20

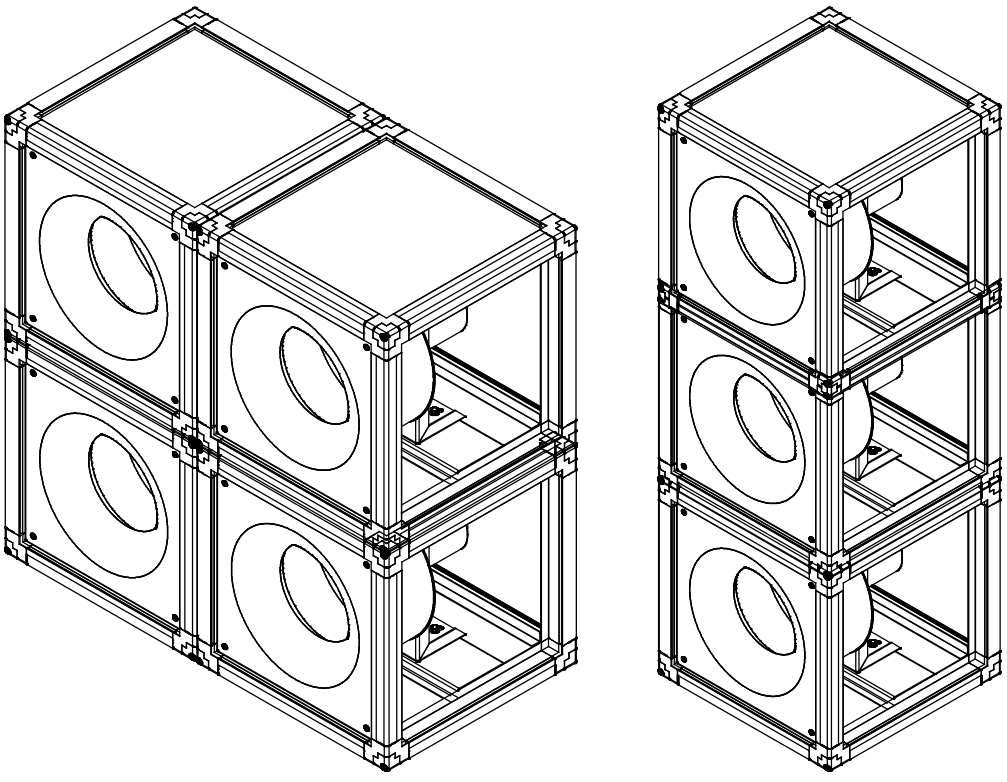
- adapter
- size of a square duct (for connection section)
- size of a rectangular duct (for connection section)

C-P – P-type adapter - square/rectangle allows installation of C-KVARK fans in a rectangular air ductwork.

RECTANGULAR DUCT SIZE	Duct cross-section □A, mm	Duct adapter, bxh, mm								
		40x20	50x25	50x30	60x30	60x35	70x40	80x50	90x50	100x50
C-KVARK-35-35	350	+	+	+						
C-KVARK-40-40	400			+	+	+				
C-KVARK-45-45	450					+	+			
C-KVARK-50-50	500							+	+	
C-KVARK-56-56	560							+	+	
C-KVARK-63-63	630								+	+
C-KVARK-71-71	710									+
C-KVARK-80-80	800									+



POSSIBLE APPLICATIONS



SQUARE DUCT RADIAL FAN KP-KVARK-N

- in compact stationary supply and exhaust ventilation systems, as well as in air conditioning systems of industrial, public and residential buildings;
- features compact dimensions, allowing the equipment to be used in confined spaces;
- special elements allow the fan to be installed outside the building;
- provides easy installation and maintenance;
- additional sets of accessories allow for adaptation of the fan to the specific features of the installation location;
- presence of sticky, fibrous and abrasive components, explosive impurities in the air is not allowed.
- for air with a permissible content of dust and solid impurities not exceeding 0.1 g/m^3;
- temperature range of the moved medium from -30° C to +40° C;
- ingress protection rating IP54.



KP-KVARK-N-40-40-9-2,5-4-380

- cabinet-type square duct radial fan
- general purpose
- industrial version size (for square connection section)
- number of blades
- fan number
- number of electric motor poles
- electric motor supply voltage

The fan CASING has a frame made of aluminum profile. As external enclosing elements, panels are used, the skin of which is made of galvanized sheet steel. The panels are filled with non-flammable mineral wool, which is characterized by high sound insulation and low heat loss coefficient.

An IMPELLER is installed inside the casing, which is a "free wheel" with backward-curved blades, which undergoes careful static and dynamic balancing.

The fan is equipped with a three-phase asynchronous electric motor, which allows adjusting the rotation speed of the impeller using frequency converters.

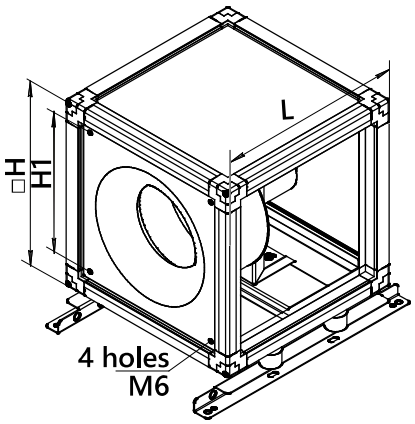
Fans can be equipped with single-phase electric motors upon additional request.

KP-KVARK-N features compact dimensions, allowing its use in limited space conditions; ensures ease of installation and maintenance, and is universally compatible with other elements of ducted ventilation systems.

KP-KVARK-N remains operational regardless of spatial orientation.

If necessary, the KP-KVARK-N fan can be installed outside the building: on special sites or on the roof of the building, a hood with a grille or mesh is installed at the fan inlet to protect against foreign objects and precipitation.

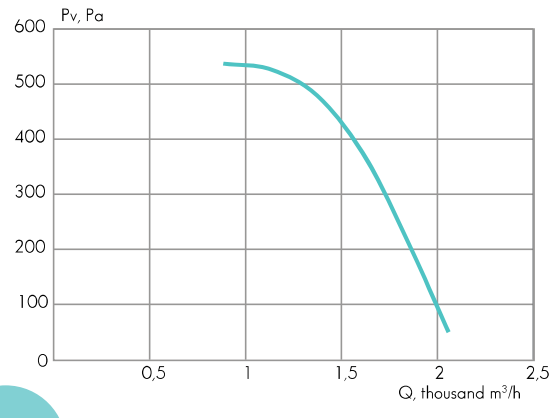
The KP-KVARK-N fan allows the use of additional air-handling units from the series of standard size round and rectangular duct systems.



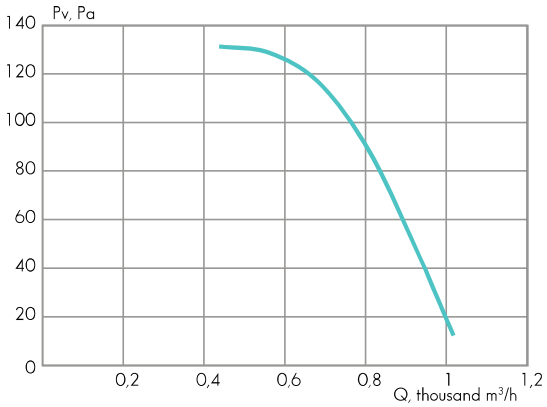
DUCT UNITS

STANDARD SIZE	Dimensions, mm			Motor speed, min^{-1}	Motor installed power, kW	Rated current, A	Corrected sound pressure level LpA, dB(A)			Weight, kg, max
	□H	H1	L				Input	Output	Surrounding	
KP-KVARK-N-40-40-9-2,5-4-380	400	297	425	1350	0,25	0,82	55	46	40	18,5
KP-KVARK-N-40-40-9-2,5-2-380			445	2750	0,55	1,4	70	61	55	
KP-KVARK-N-42-42-9-2,8-4-380	420	317	445	1350	0,25	0,82	56	48	42	21,9
KP-KVARK-N-42-42-9-2,8-2-380			495	2820	0,75	1,9	73	64	58	
KP-KVARK-N-46-46-9-3,15-4-380	460	357	460	1350	0,25	0,82	61	52	48	28,6
KP-KVARK-N-46-46-9-3,15-2-380			535	2830	1,5	3,6	77	68	64	
KP-KVARK-N-50-50-6-3,55-4-380	500	397	500	1320	0,25	0,82	63	55	50	44,1
KP-KVARK-N-50-50-6-3,55-2-380			565	2840	2,2	5	80	72	67	
KP-KVARK-N-50-50-9-3,55-4-380			500	1320	0,25	0,82	64	56	51	
KP-KVARK-N-50-50-9-3,55-2-380			595	2845	3	6,5	80	72	68	
KP-KVARK-N-67-67-6-4-4-380	670	567	670	1320	0,37	1,12	67	59	54	108,6
KP-KVARK-N-67-67-6-4-2-380			670	2845	3	6,5	83	75	71	
KP-KVARK-N-67-67-9-4-4-380			670	1410	0,55	1,75	69	61	56	
KP-KVARK-N-67-67-9-4-2-380			670	2870	5,5	11	84	77	70	
KP-KVARK-N-67-67-6-4,5-4-380			670	1415	0,75	2,2	73	65	58	
KP-KVARK-N-67-67-6-4,5-2-380			670	2870	5,5	11	87	80	73	
KP-KVARK-N-67-67-9-4,5-4-380			670	1420	1,1	3,04	72	65	58	
KP-KVARK-N-67-67-9-4,5-2-380			875	2900	11	21,8	87	80	73	
KP-KVARK-N-67-67-6-5-6-380			670	920	0,37	1,33	66	59	52	
KP-KVARK-N-67-67-6-5-4-380			670	1420	1,5	3,95	75	68	61	
KP-KVARK-N-67-67-9-5-6-380			670	920	0,55	1,9	66	59	52	
KP-KVARK-N-67-67-9-5-4-380			670	1390	2,2	5,3	77	69	62	
KP-KVARK-N-80-80-6-5,6-6-380	800	697	800	930	0,75	2,29	70	63	55	100,6
KP-KVARK-N-80-80-6-5,6-4-380			800	1390	2,2	5,3	81	74	66	
KP-KVARK-N-80-80-9-5,6-6-380			800	930	1,1	3,18	70	63	56	
KP-KVARK-N-80-80-9-5,6-4-380			800	1395	3	7,2	79	72	65	
KP-KVARK-N-80-80-6-6,3-6-380			800	930	1,1	3,18	73	67	59	
KP-KVARK-N-80-80-6-6,3-4-380			800	1425	4	9,3	84	77	69	
KP-KVARK-N-80-80-9-6,3-6-380			800	920	1,5	4,2	74	68	60	
KP-KVARK-N-80-80-9-6,3-4-380			800	1435	5,5	12,3	85	78	71	
KP-KVARK-N-100-100-6-7,1-6-380	1000	897	1000	940	2,2	5,9	77	71	63	155,7
KP-KVARK-N-100-100-6-7,1-4-380			1000	1455	7,5	16,1	88	82	74	
KP-KVARK-N-100-100-9-7,1-6-380			1000	955	3	7,9	84	77	69	
KP-KVARK-N-100-100-9-7,1-4-380			1000	1440	11	23,1	89	83	75	

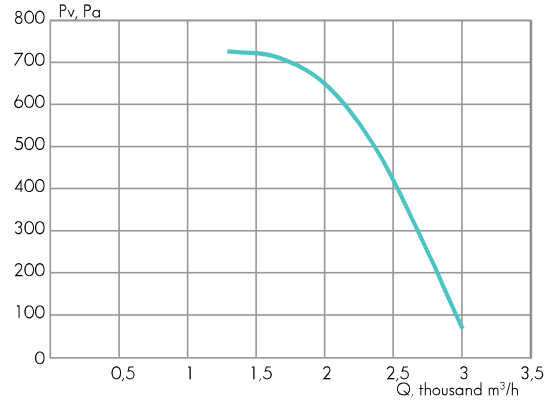
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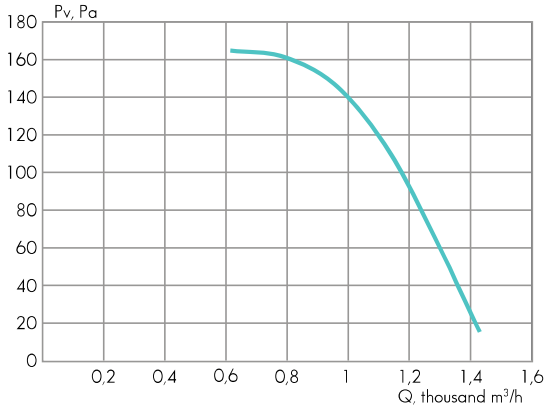
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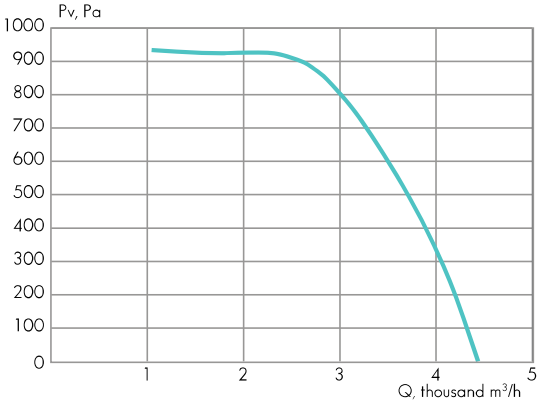
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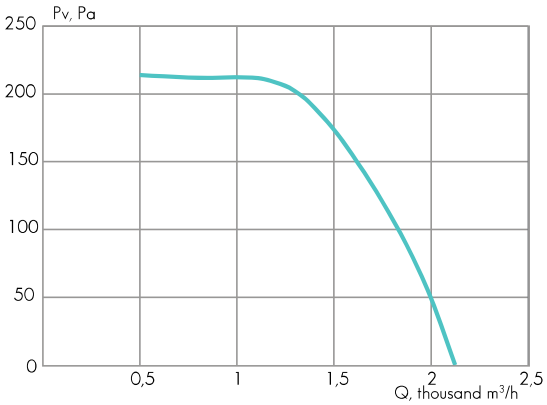
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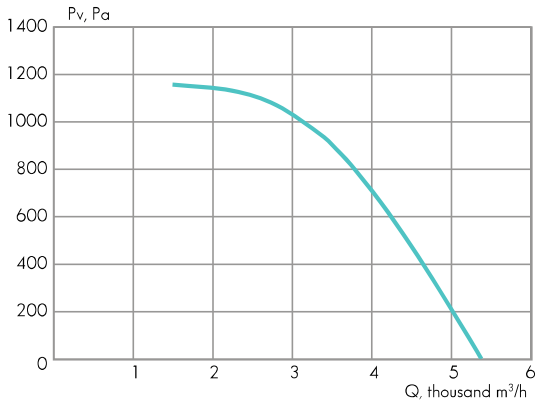
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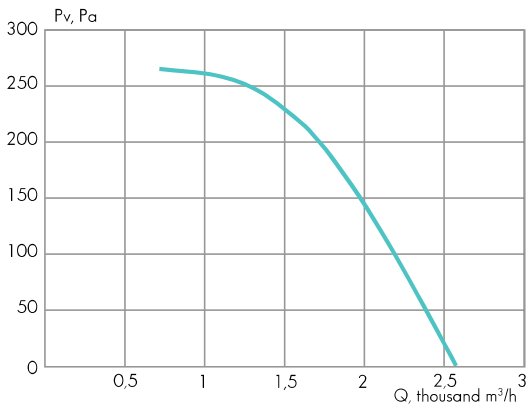
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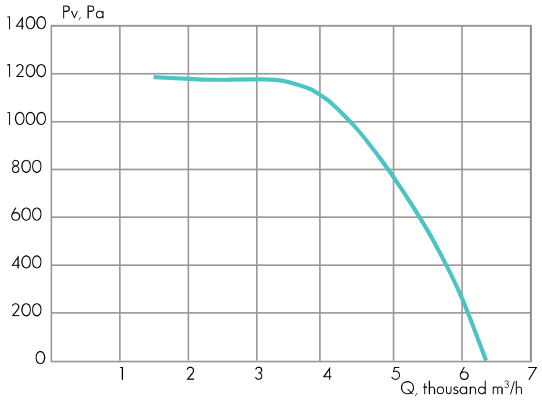
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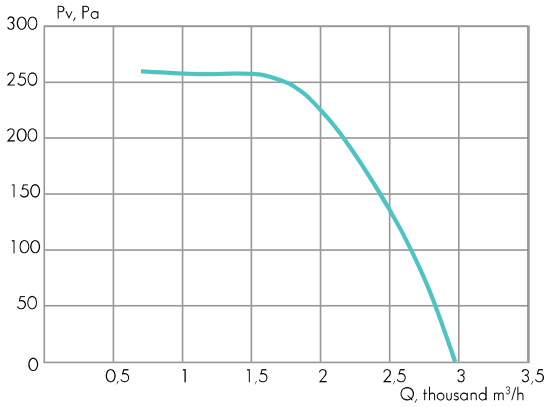
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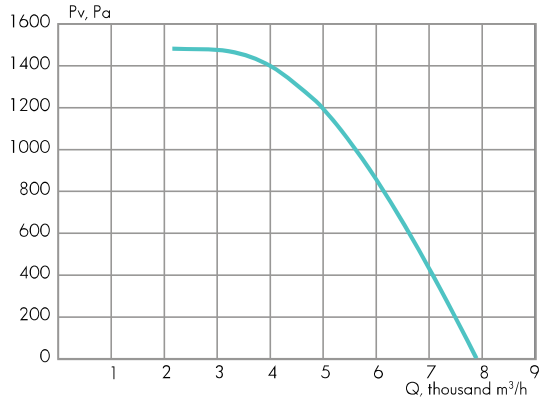
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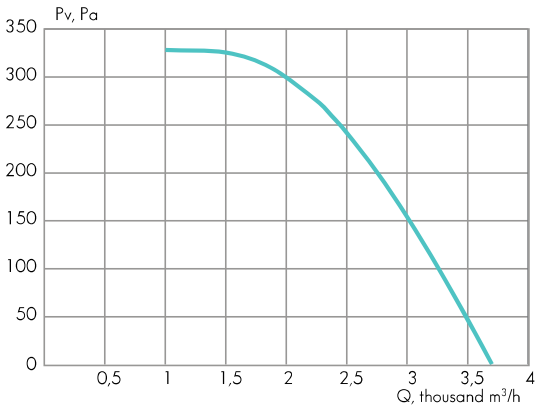
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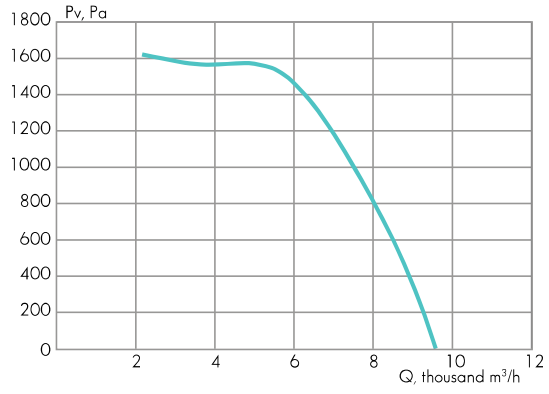
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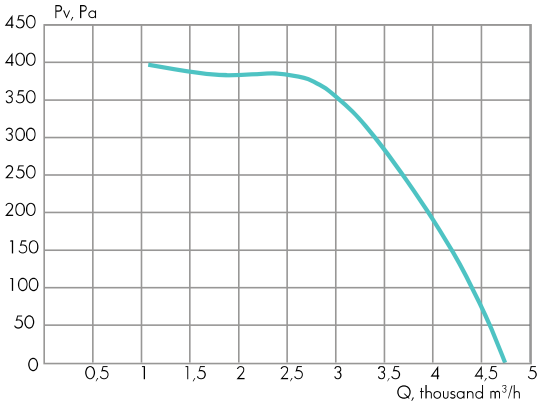
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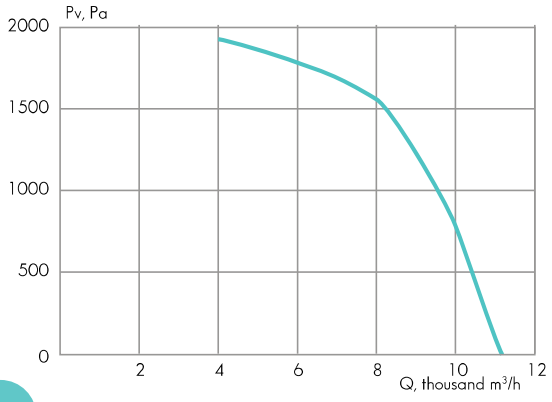
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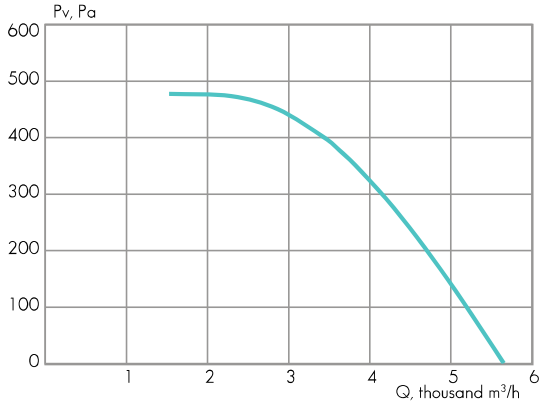
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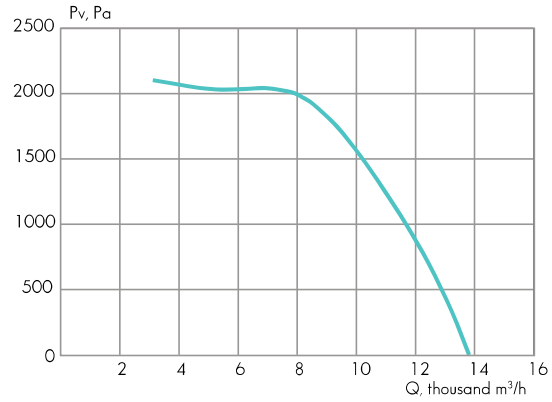
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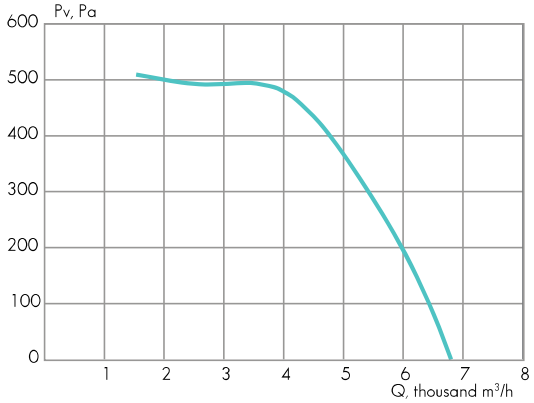
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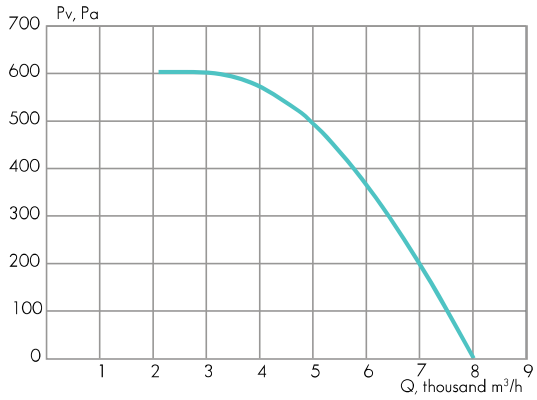


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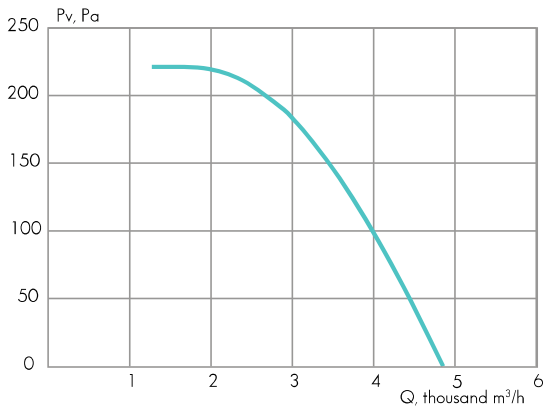


DUCT UNITS

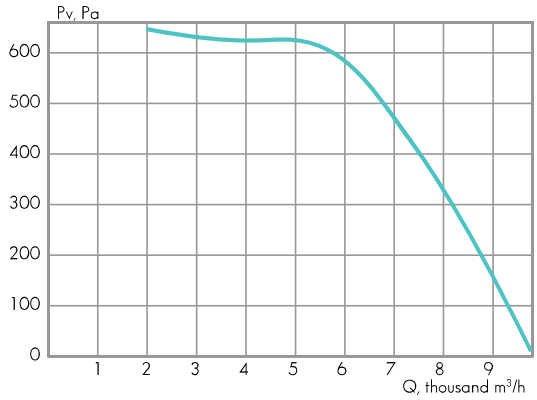
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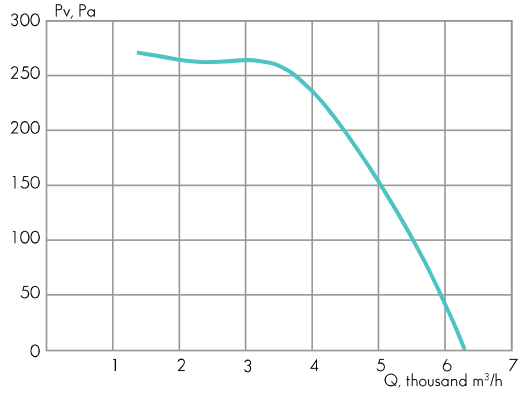
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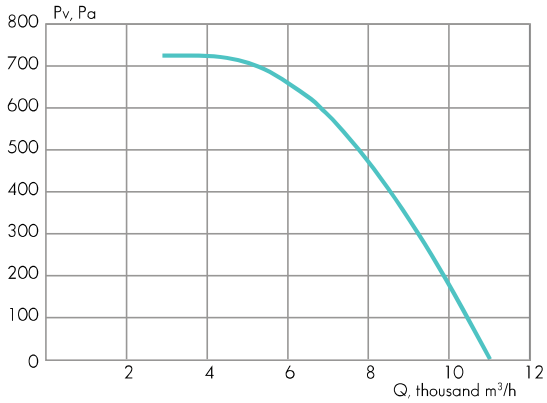
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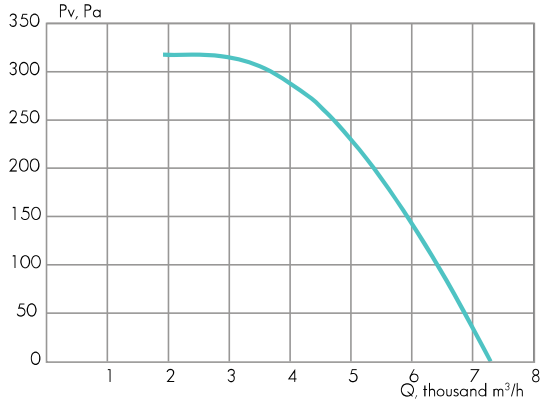
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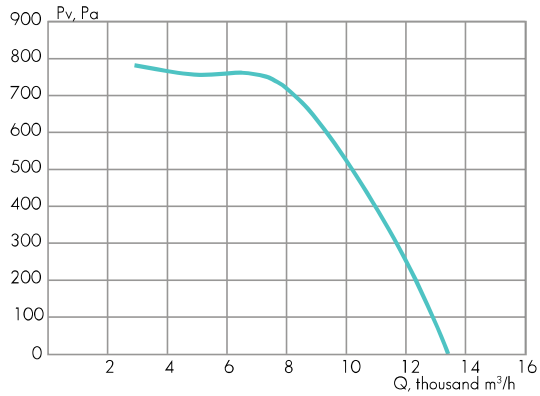
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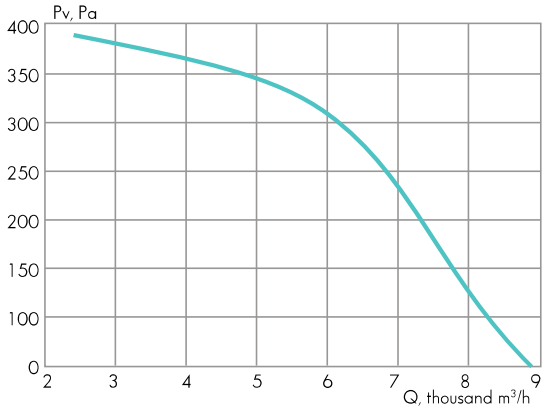
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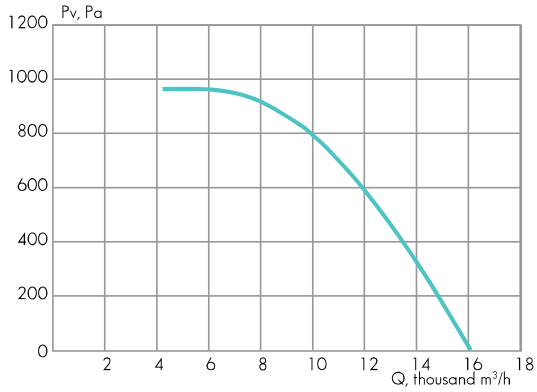
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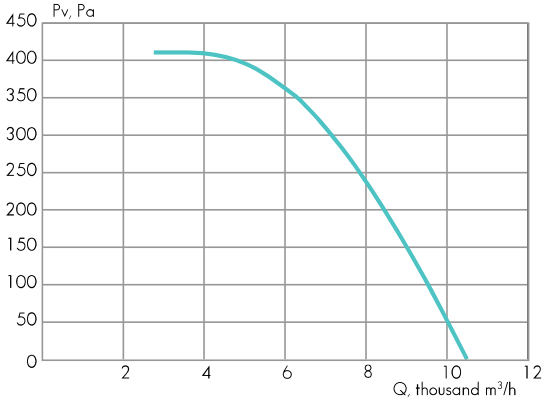
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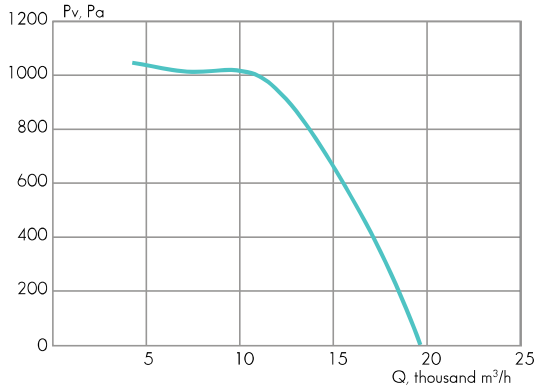
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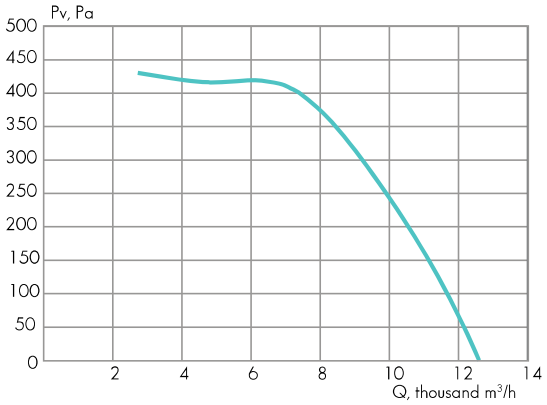
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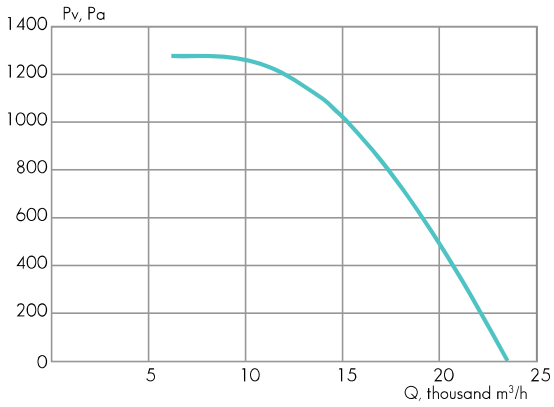
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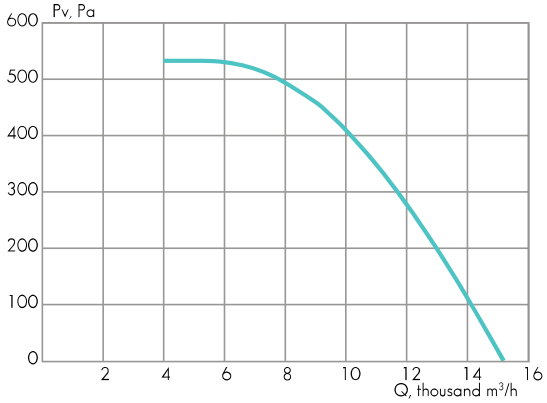
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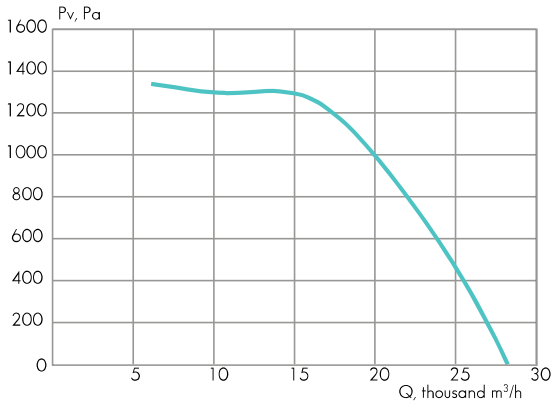
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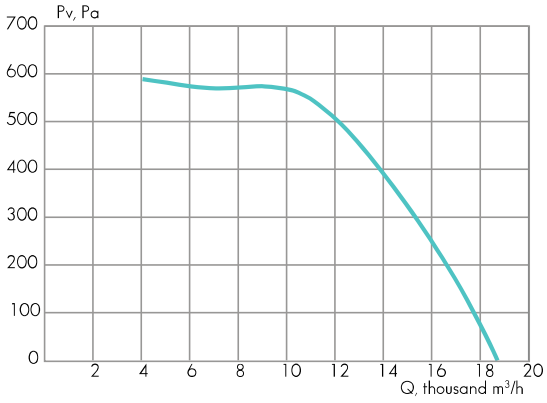
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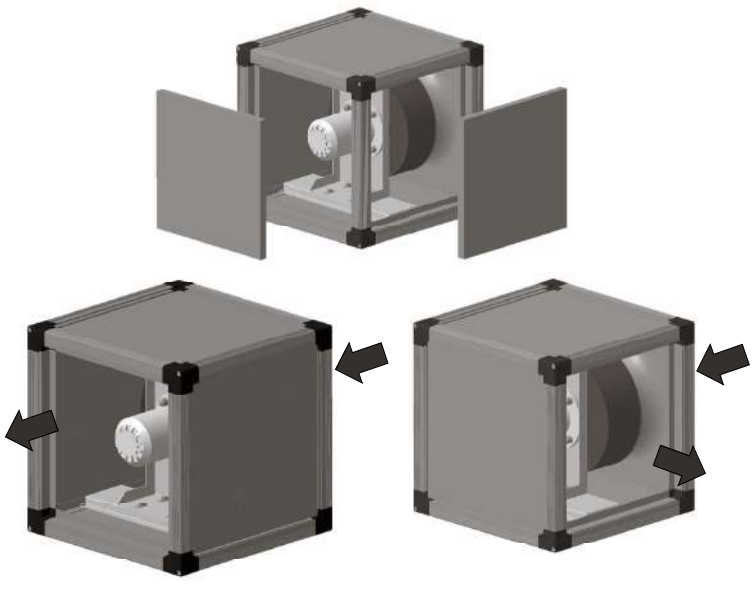


KP-KVARK-N-100-100-9-7,1-4



KP-KVARK-N-100-100-9-7,1-6





DUCT UNITS

CABINET-TYPE DUCT FAN KP-KVARK-EC

- for compact stationary supply and exhaust ventilation systems;
- for air conditioning systems of industrial, public and residential buildings;
- significantly reduces system power consumption;
- provides increased system performance while maintaining a compact size;
- it features additional options for adjusting parameters and automation;
- design ensures ease of maintenance and installation in confined spaces;
- additional sets of components allow the fan to be adapted to the specific features of its installation location;
- for air with a permissible content of dust and solid impurities not exceeding 0.1 g/m^3;
- presence of sticky, fibrous and abrasive components, explosive impurities is not allowed;
- temperature range of the moved medium from -30° C to +40° C;
- ingress protection rating IP54.



KP-KVARK-EC-42-42-2-220

- cabinet-type square duct radial fan
- fan with EC motor
- size (for square connection section)
- number of electric motor poles
- electric motor supply voltage

The fan CASING has a frame made of aluminum profile.

The fan impellers with backward-curved blades undergo careful static and dynamic balancing.

EC motors (electronically commutated motors) are external rotor DC motors with permanent magnets, with a built-in control function.

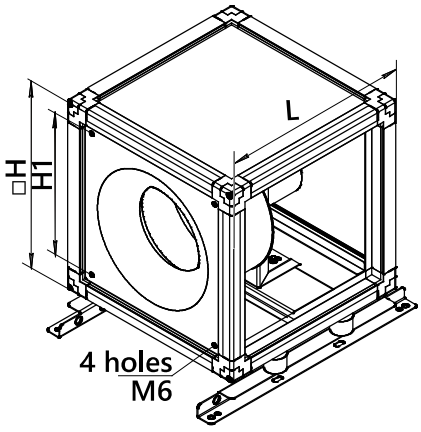
The principle of operation of the EC MOTOR is described in the C-PKV-EC section of this catalog.

The EC controller allows controlling the operation of the fan using a signal from external devices in the room (temperature, pressure, humidity level and CO2 sensors).

KP-KVARK-EC remains operational regardless of spatial orientation.

KP-KVARK-EC features compact dimensions, allowing its use in limited space conditions; ensures ease of installation and maintenance, and is universally compatible with other elements of ducted ventilation systems.

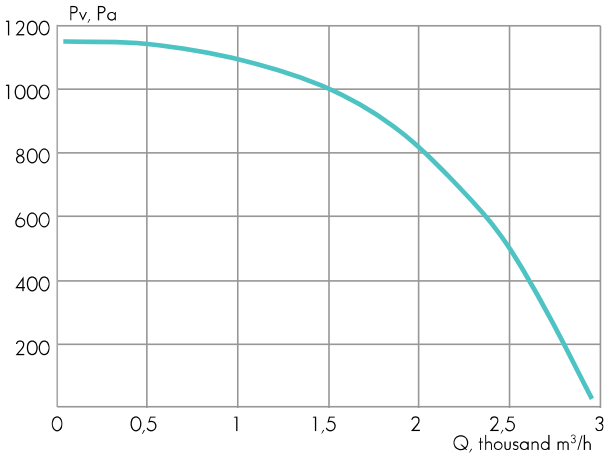
The KP-KVARK-EC fan allows the use of additional air-handling units from the series of standard size round and rectangular duct systems.



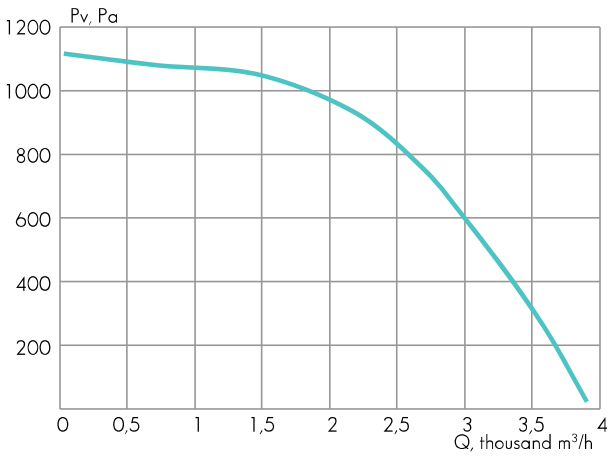
STANDARD SIZE	Dimensions, mm			Weight, kg, max
	□H	H1	L	
KP-KVARK-EC-42-42	420	317	420	21,9
KP-KVARK-EC-46-46	460	357	460	28,6
KP-KVARK-EC-50-50	500	397	500	44,1
KP-KVARK-EC-67-67	670	567	670	108,6
KP-KVARK-EC-80-80	800	697	800	100,6
KP-KVARK-EC-100-100	1000	897	1000	155,7

STANDARD SIZE	Motor speed, min^{-1}	Motor installed power, kW	Rated current, A	Corrected sound pressure level LpA, dB(A)		
				Input	Output	Surrounding
KP-KVARK-EC-42-42-2-220	3450	0,75	3,3	76	82	61
KP-KVARK-EC-46-46-2-380	3100	1	1,6	77	83	63
KP-KVARK-EC-50-50-2-380	3140	1,65	2,5	79	86	68
KP-KVARK-EC-67-67-2-380	2550	3	4,6	81	88	68
KP-KVARK-EC-80-80-4-380	1450	5	7,7	80	90	71
KP-KVARK-EC-100-100-4-380	1200	4,68	7,2	82	88	70

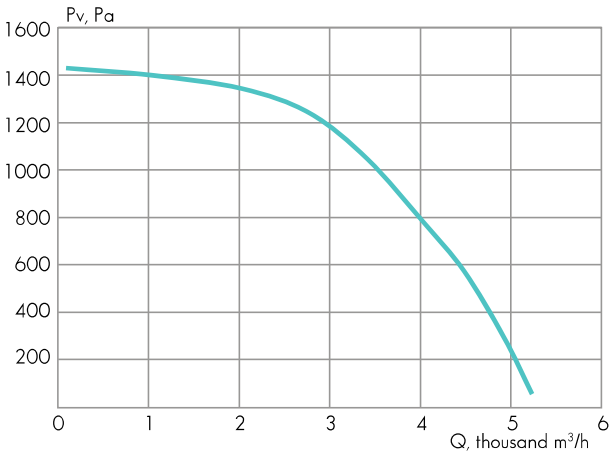
KP-KVARK-EC-42-42



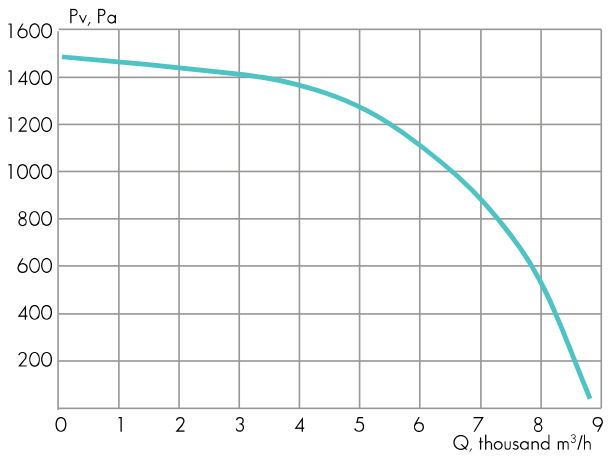
KP-KVARK-EC-46-46



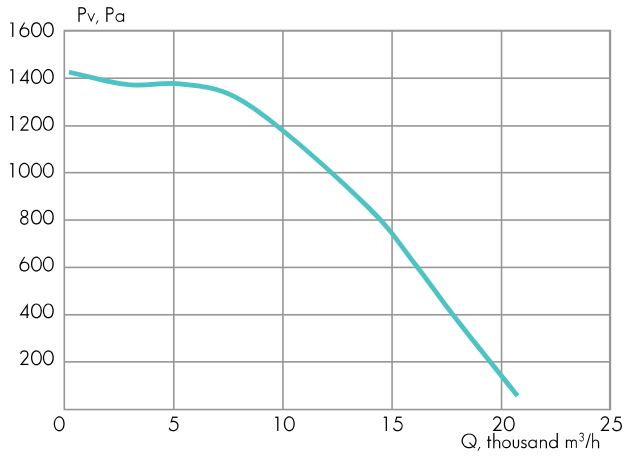
KP-KVARK-EC-50-50



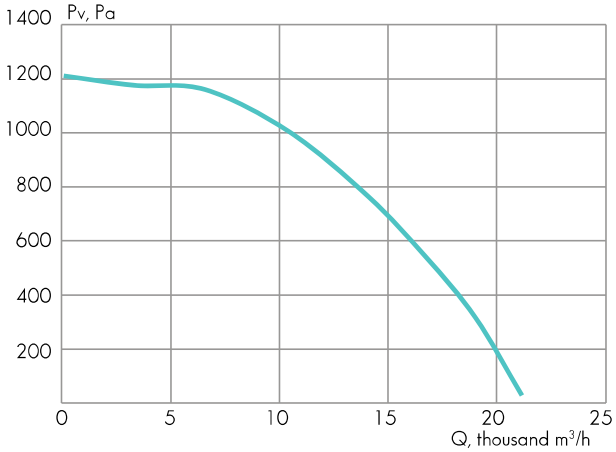
KP-KVARK-EC-67-67



KP-KVARK-EC-80-80



KP-KVARK-EC-100-100



Additional accessories allow for easy re-equipment the fan to suit the specific installation location.

- check valve, KP-KOL;
- air valve, KP-REG;
- flexible connector, KP-GKV;
- adapter for round air duct, which is installed on the discharge side, KP-P;
- non-adjustable grille, KP-RKO (RKA);
- protective mesh, KP-SET;
- weather protection hood, KP-KZR;
- vibration-proof base, KP-VBR;
- weather protection panel, KP-KRS.

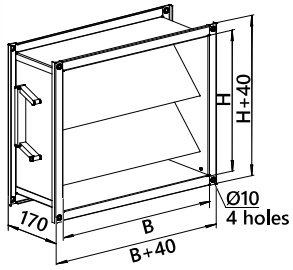
ALL ADDITIONAL ELEMENTS HAVE AN INDEPENDENT NOMENCLATURE POSITION AND MUST BE ORDERED SEPARATELY.

C-SAU - to ensure efficient and cost-effective operation of fans according to specified parameters and modes, it is recommended to use them together with elements of the automatic control system.

ADDITIONAL EQUIPMENT FOR KP-KVARK-N AND KP-KVARK-EC FANS

KP-REG | UNIVERSAL AIR VALVE





- special standard series for complete set with KP-KVARK-N, KP-KVARK-EC fans;
- designed to regulate the flow rate of supply and exhaust air in ducted ventilation and air conditioning systems;
- can be used for recirculating air;
- processed air must be treated and free of solid, fibrous, sticky or aggressive impurities;
- permissible temperature of the moved air is from -30° C to +50° C.

STANDARD SIZE	Dimensions, mm		Weight, kg, max	
	B	H	with manual drive	with electric drive
KP-REG-40-40	290	290	7,6	8,8
KP-REG-42-42	310	310	8,1	9,3
KP-REG-46-46	350	350	8,5	9,7
KP-REG-50-50	390	390	9,8	11
KP-REG-67-67	560	560	14,5	15,7
KP-REG-80-80	690	690	19,4	20,6
KP-REG-100-100	890	890	27,6	28,8

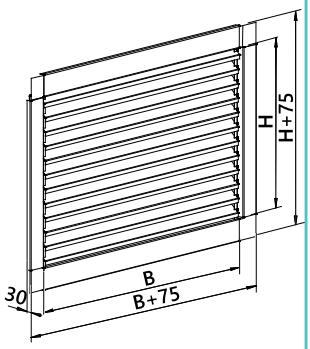
KP-REG-40-40-0

- air valve
- standard size
- drive type (handle – manual or electric drive type, 0 – to use with electric drive)

NOTE: for universal model designation of electric drive, see Reference information.

KP-RKO (RKA) | NON-ADJUSTABLE GRILLE





- special standard series for complete set with KP-KVARK-N, KP-KVARK-EC fans;
- it is installed on the exhaust outlet or suction inlet of the fan.

STANDARD SIZE	Dimensions, mm		Weight, kg, max	
	B	H	KP-RKO	KP-RKA
KP-RKO (RKA)-40-40	330	330	1,1	1,43
KP-RKO (RKA)-42-42	350	350	1,2	1,56
KP-RKO (RKA)-46-46	390	390	1,4	1,82
KP-RKO (RKA)-50-50	430	430	1,7	2,21
KP-RKO (RKA)-67-67	600	600	3,1	4,03
KP-RKO (RKA)-80-80	730	730	4,3	5,59
KP-RKO (RKA)-100-100	930	930	6,8	8,84

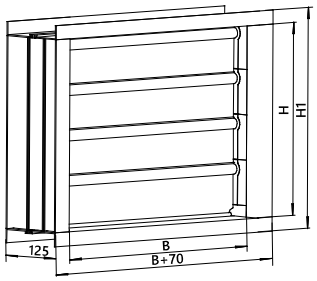
KP-RKO (RKA)-40-40

- non-adjustable grille
- standard size

REED VALVE KP-KOL

- special standard series for complete set with KP-KVARK-N, KP-KVARK-EC fans;
- prevents the flow of air and non-explosive air mixtures from different premises of the same ventilation system;
- prevents outside air and precipitation from entering the serviced area after the fan is turned off;
- moved air must not contain substances that are aggressive to aluminum and aluminum alloys;
- permissible temperature of the moved air is from -30° C to +50° C.
- content of sticky substances and fibrous materials is not allowed;
- permissible content of dust and solid impurities not more than 0.1 g/m^3;
- minimum air velocity through the valve cross-section must be:
  - on a horizontal section of at least 1.5-2 m/s;
  - on a vertical section of at least 4 m/s;
- maximum air velocity through the valve cross-section is not more than 9 m/s.

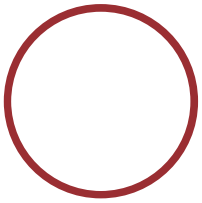




STANDARD SIZE	Dimensions, mm			Weight, kg, max
	B	H	H1	
KP-KOL-40-40	260	280	330	2,4
KP-KOL-42-42	280	300	350	2,5
KP-KOL-46-46	320	340	390	2,9
KP-KOL-50-50	360	380	430	3,1
KP-KOL-67-67	530	550	600	5,3
KP-KOL-80-80	660	680	730	7,4
KP-KOL-100-100	860	880	930	11,2

KP-KOL-40-40

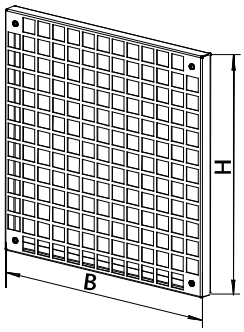
- reed valve
- standard size



PROTECTIVE MESH KP-SET

- special standard series for complete set with KP-KVARK-N, KP-KVARK-EC fans;
- it is installed on the exhaust outlet or suction inlet of the fan.





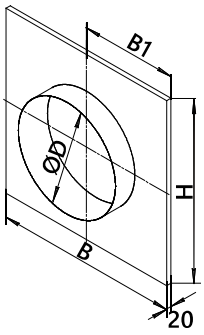
STANDARD SIZE	Dimensions, mm		Weight, kg, max
	B	H	
KP-SET-40-40	330	330	0,61
KP-SET-42-42	350	350	0,74
KP-SET-46-46	390	390	0,83
KP-SET-50-50	430	430	0,93
KP-SET-67-67	600	600	1,7
KP-SET-80-80	730	730	2,5
KP-SET-100-100	930	930	3,73

KP-SET-40-40

- protective mesh
- standard size

KP-P ADAPTER





- designed specifically for fans of the KP-KVARK-N and KP-KVARK-EC type;
- for connecting fans to ventilation with round air ducts;
- it can be ordered either as a set with a fan or as a separate element of the system (optional).

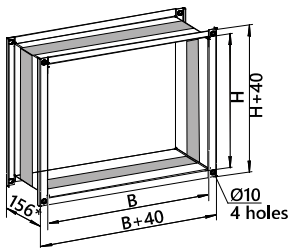
STANDARD SIZE	Dimensions, mm				Weight, kg, max
	B	B1	H	D	
KP-P–40-40/250	330	165	330	250	1,2
KP-P–42-42/250	350	175	350	250	1,3
KP-P–46-46/250	390	195	390	250	1,6
KP-P–50-50/355	430	215	430	355	1,7
KP-P–67-67/500	600	335	600	500	2,7
KP-P–80-80/630	730	365	730	630	3,5
KP-P–100-100/710	930	465	930	710	5,7

KP-P-40-40/250

- adapter
- adapter size, cm
- duct diameter, mm

KP-GKV FLEXIBLE CONNECTOR





- special standard series for complete set with KP-KVARK-N, KP-KVARK-EC fans;
- to absorb mechanical vibrations generated by the fan in the ducted ventilation system when moving the air;
- to ensure quick and easy installation of the fan;
- to reduce vibration that occurs in the air duct system;
- permissible temperature of the moved air is from -30° C to +50° C.

WARNING! The flexible duct connector is not designed to withstand the mechanical loads.

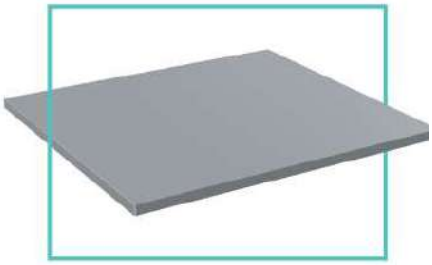
STANDARD SIZE	Dimensions, mm		Weight, kg, max
	B	H	
KP-GKV–40-40	290	290	1,6
KP-GKV–42-42	310	310	1,7
KP-GKV–46-46	350	350	1,9
KP-GKV–50-50	390	390	2,1
KP-GKV–67-67	560	560	3,1
KP-GKV–80-80	690	690	3,8
KP-GKV–100-100	890	890	4,8

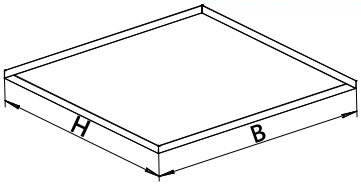
KP-GKV-40-40

- flexible connector
- standard size

WEATHER PROTECTION PANEL KP-KRS

- specially developed design for KP-KVARK-N and KP-KVARK-EC fans;
- to protect the fan from moisture and precipitation during outdoor installation of the fan;
- it is installed on top of the fan casing.





STANDARD SIZE	Dimensions, mm		Weight, kg, max
	B	H	
KP-KRS-40-40	560	500	3,5
KP-KRS-42-42	580	520	3,7
KP-KRS-46-46	620	560	4,2
KP-KRS-50-50	660	600	4,7
KP-KRS-67-67	830	770	7,1
KP-KRS-80-80	960	900	9,1
KP-KRS-100-100	1160	1100	12,7

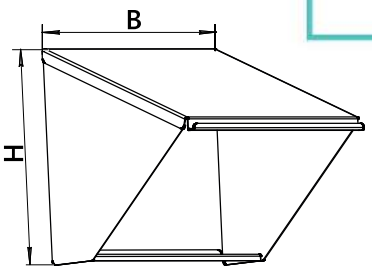
KP-KRS-40-40

- weather protection panel
- standard size

WEATHER PROTECTION HOOD KP-KZR

- special standard series for complete set with KP-KVARK-N, KP-KVARK-EC fans;
- to protect the fan from moisture and precipitation during outdoor installation of the fan;
- it is installed on the side of the fan casing.



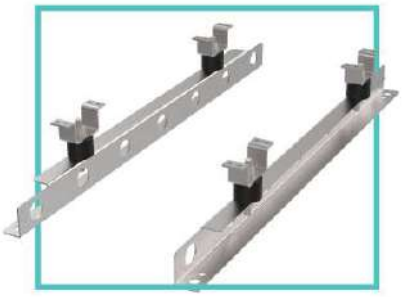


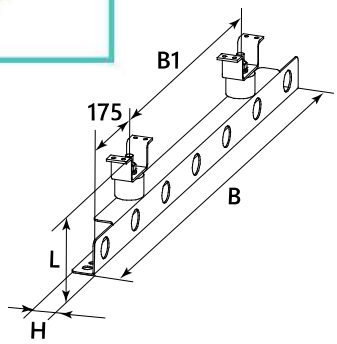
STANDARD SIZE	Dimensions, mm		Weight, kg, max
	B	H	
KP-KZR-40-40	330	330	1,9
KP-KZR-42-42	350	350	2,0
KP-KZR-46-46	390	390	2,2
KP-KZR-50-50	430	430	2,4
KP-KZR-67-67	600	600	3,6
KP-KZR-80-80	730	730	4,0
KP-KZR-100-100	930	930	5,0

KP-KZR-40-40

- weather protection hood
- standard size

KP-VBR | VIBRATION-PROOF BASE SET





- specially developed design for KP-KVARK-N and KP-KVARK-EC fans;
- to absorb mechanical vibrations that occur during operation of the KP-KVARK-N and KP-KVARK-EC fans;
- to ensure quick and easy installation of the fan;
- for additional protection of equipment during operation.

STANDARD SIZE	Dimensions, mm				Weight, kg, max
	B1	B	H	L	
KP-VBR-40-40	180	530	35	116	0,7
KP-VBR-42-42	220	570	35	116	0,7
KP-VBR-46-46	270	620	35	116	0,8
KP-VBR-50-50	330	680	35	116	0,8
KP-VBR-67-67	420	770	35	122	1,1
KP-VBR-80-80	550	900	35	122	1,2
KP-VBR-100-100	750	1100	35	122	1,5

KP-VBR-40-40

- vibration-proof base set
- standard size

NOTE: the set includes two vibration-proof bases.

DUCT UNITS

DUCT-TYPE KITCHEN EXHAUST FAN KP-FDS

- for kitchens and industrial ventilation systems;
- features compact dimensions, allowing the equipment to be used in confined spaces;
- special elements allow the fan to be installed outside the building;
- suitable for removing polluted and hot air;
- provides easy installation and maintenance;
- additional sets of accessories allow for adaptation of the fan to the specific features of the installation location;
- for air with a permissible content of dust and solid impurities not exceeding 0.1 g/m³;
- temperature range of the moved medium from -40° C to +100° C;
- ingress protection rating IP54.



The fan CASING has a frame made of aluminum profile. As external enclosing elements, panels are used, the skin of which is made of galvanized sheet steel. The panels are filled with non-flammable mineral wool, which is characterized by high sound insulation and low heat loss coefficient.

An impeller is installed inside the casing, which is a "free wheel" with backward-curved blades, which undergoes careful static and dynamic balancing.

The fan is equipped with a three-phase asynchronous electric motor that allow adjusting the rotation speed of the impeller using frequency converter.

Fans can be equipped with single-phase electric motors upon additional request.

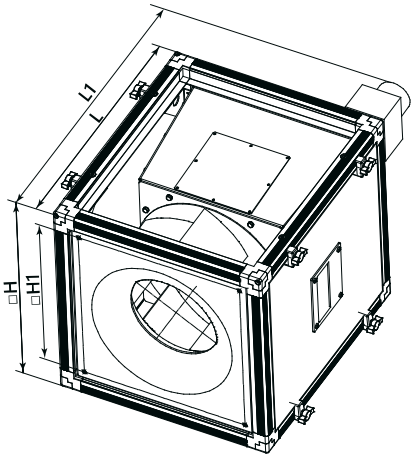
KP-FDS features compact dimensions, allowing its use in limited space conditions; ensures ease of installation and maintenance, and is universally compatible with other elements of ducted ventilation systems.

It is supplied as standard with a service switch and a pan with a drain pipe. The diameter of the drain pipe is 25 mm.

L1 - overall size with service switch (* - the service switch is located inside the fan casing)

KP-FDS-40-40-9-2,5-4-380

- KP – cabinet-type duct radial fan
- FDS – for kitchens
- 40-40 – size (for square connection section)
- 9 – number of blades
- 2,5 – fan number
- 4 – number of electric motor poles
- 380 – electric motor supply voltage



STANDARD SIZE	Dimensions, mm				Weight, kg, max
	□H	□H1	L	L1	
KP-FDS-40-40	400	310	430	550	18,5
KP-FDS-42-42	420	330	470	590	21,9
KP-FDS-46-46	460	370	520	640	28,6
KP-FDS-50-50	500	410	580	700	44,1
KP-FDS-67-67	670	580	670	—	108,6
KP-FDS-80-80	800	710	800	—	115,6
KP-FDS-100-100	1000	910	1000	—	155,7

STANDARD SIZE	Motor speed, min^{-1}	Motor installed power, kW	Rated current, A	Corrected sound pressure level LpA, dB(A)		
				Input	Output	Surrounding
KP-FDS-40-40-9-2,5-2-380	2750	0,55	1,4	70	61	55
KP-FDS-42-42-9-2,8-2-380	2820	0,75	1,9	73	64	58
KP-FDS-46-46-9-3,15-2-380	2830	1,5	3,6	77	68	64
KP-FDS-50-50-9-3,55-2-380	2845	3	6,5	80	72	68
KP-FDS-67-67-9-4-4-380	1410	0,55	1,75	69	61	56
KP-FDS-67-67-9-4,5-4-380	1420	1,1	3,04	72	65	58
KP-FDS-67-67-9-5-6-380	920	0,55	1,9	66	59	52
KP-FDS-67-67-9-5-4-380	1390	2,2	5,3	77	69	62
KP-FDS-80-80-9-5,6-6-380	930	1,1	3,18	70	63	56
KP-FDS-80-80-9-5,6-4-380	1395	3	7,2	79	72	65
KP-FDS-80-80-9-6,3-6-380	920	1,5	4,2	74	68	60
KP-FDS-80-80-9-6,3-4-380	1435	5,5	12,3	85	78	71
KP-FDS-100-100-9-7,1-6-380	955	3	7,9	84	77	69
KP-FDS-100-100-9-7,1-4-380	1440	11	23,1	89	83	75

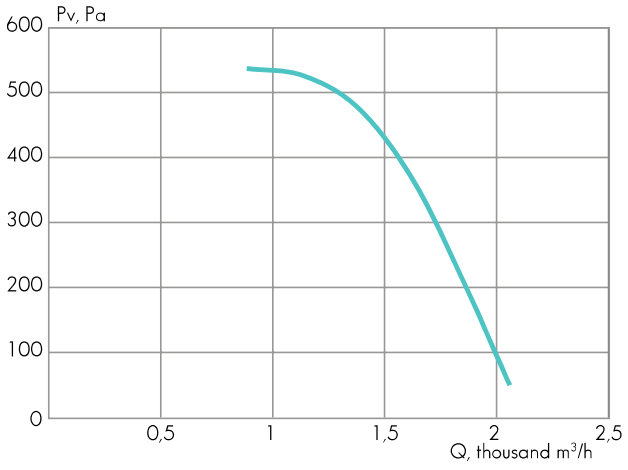
Additional accessories allow for easy re-equipment the fan to suit the specific installation location.

- check valve, KP-FDS-TUL;
- air valve, KP-FDS-REG;
- flexible connector, KP-FDS-GKV;
- adapter for round air duct, which is installed on the discharge side, KP-FDS-P;
- non-adjustable grille, KP-FDS-RKO (RKA);
- protective mesh, KP-FDS-SET;
- weather protection hood, KP-FDS-KZR;
- vibration-proof base, KP-FDS-VBR.

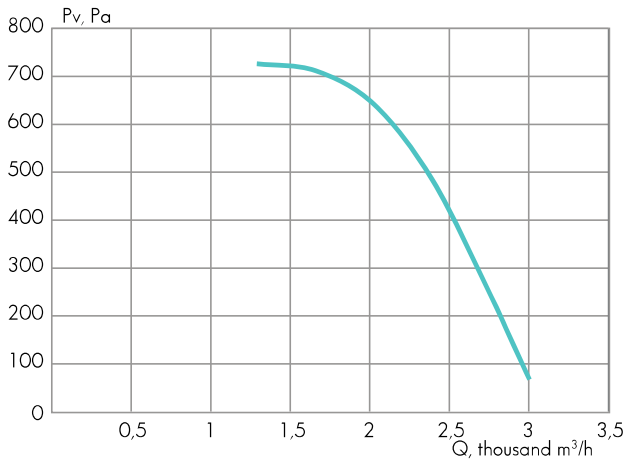
ALL ADDITIONAL ELEMENTS HAVE AN INDEPENDENT NOMENCLATURE POSITION AND MUST BE ORDERED SEPARATELY.

C-SAU – to ensure efficient and cost-effective operation of fans according to specified parameters and modes, it is recommended to use them together with elements of the automatic control system.

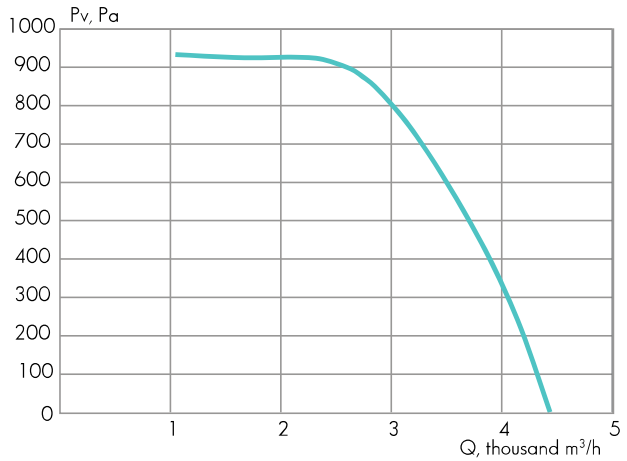
KP-FDS-40-40-9-2,5-2



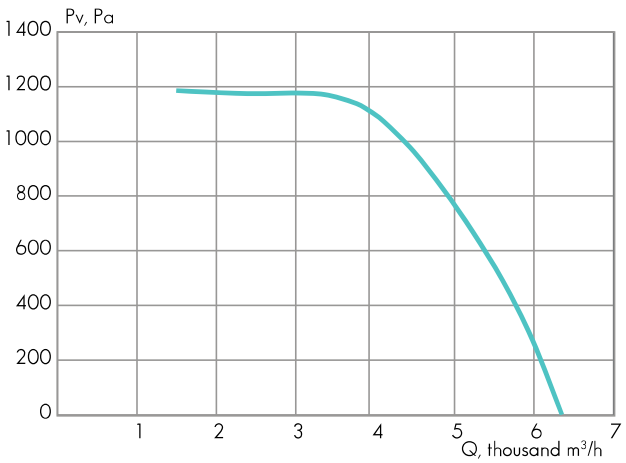
KP-FDS-42-42-9-2,8-2



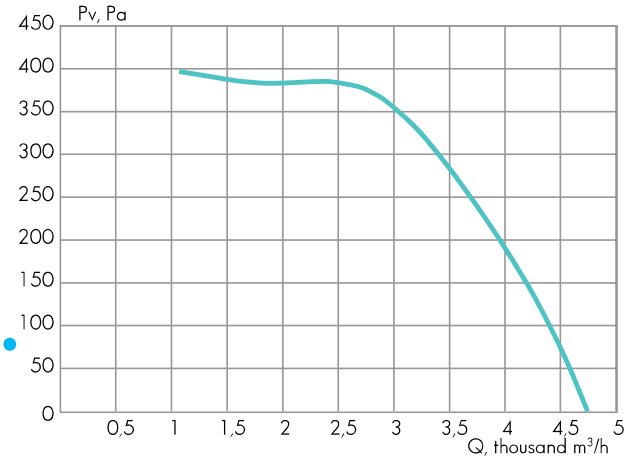
KP-FDS-46-46-9-3,15-2



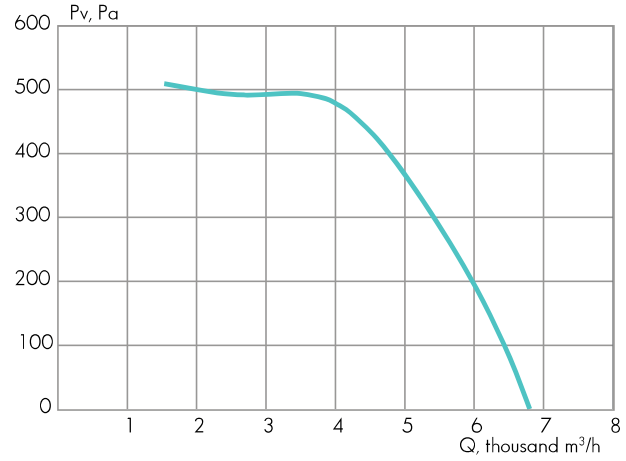
KP-FDS-50-50-9-3,55-2



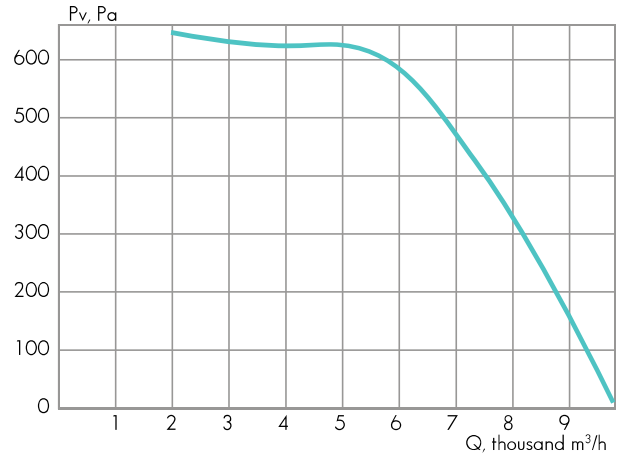
KP-FDS-67-67-9-4-4



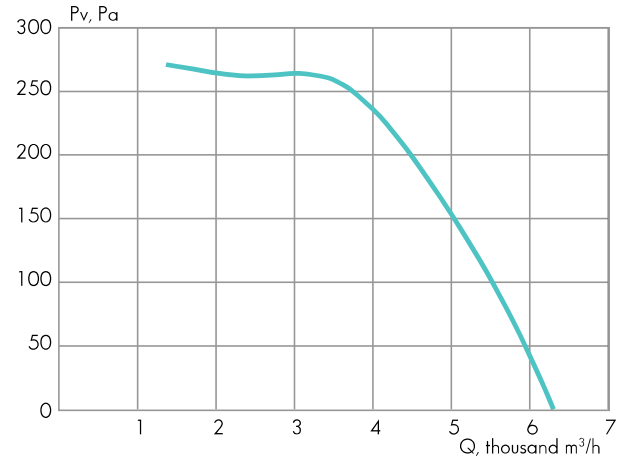
KP-FDS-67-67-9-4,5-4



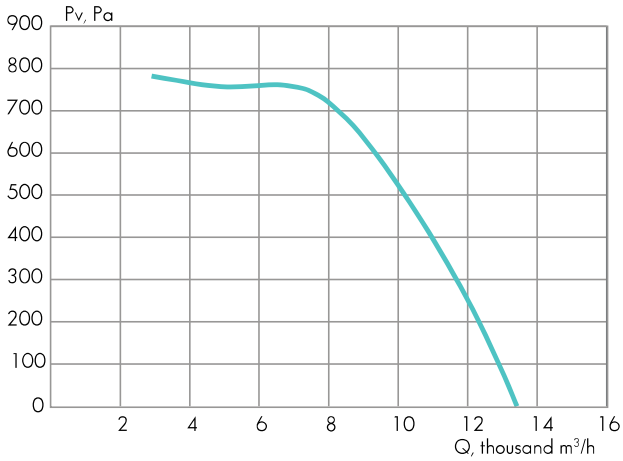
KP-FDS-67-67-9-5-4



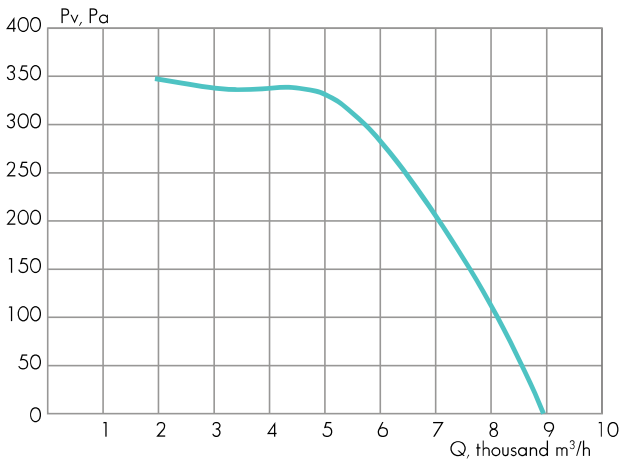
KP-FDS-67-67-9-5-6



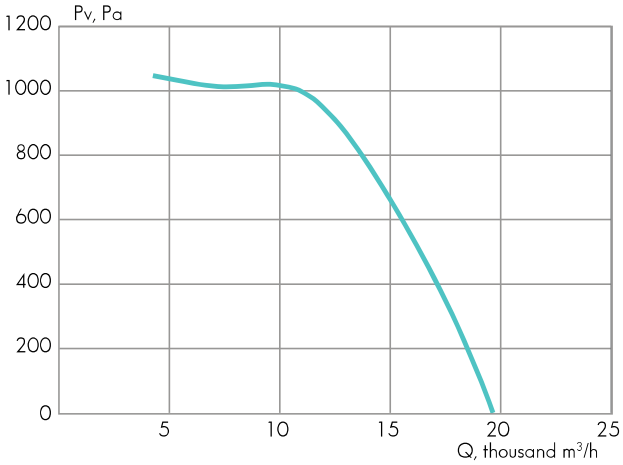
KP-FDS-80-80-9-5,6-4



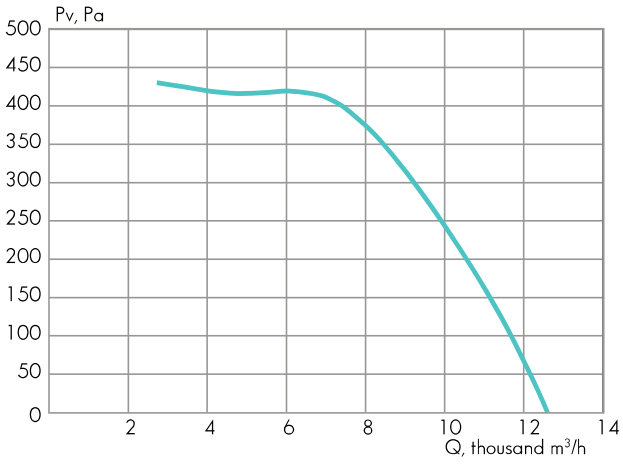
KP-FDS-80-80-9-5,6-6



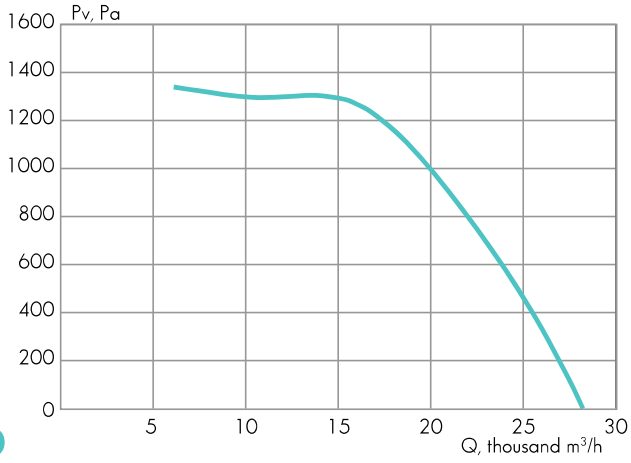
KP-FDS-80-80-9-6,3-4



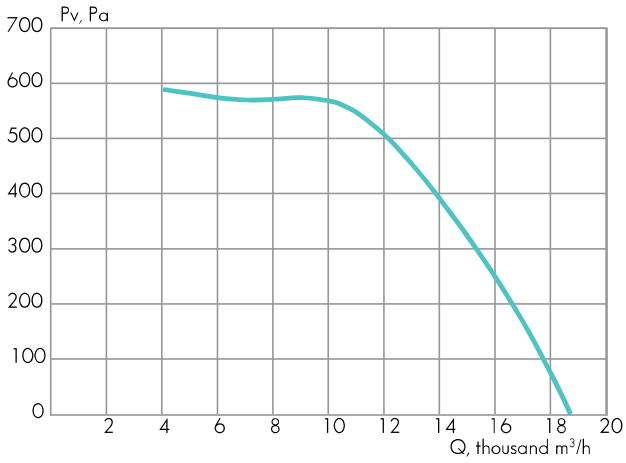
KP-FDS-80-80-9-6,3-6



KP-FDS-100-100-9-7,1-4



KP-FDS-100-100-9-7,1-6



ADDITIONAL EQUIPMENT FOR KP-FDS FANS

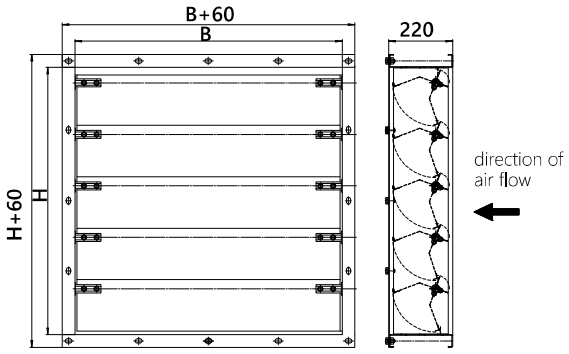
REED VALVE KP-FDS-TUL

- special standardized equipment for KP-FDS fans;
- prevents the flow of air and non-explosive air mixtures from different premises of the same ventilation system;
- prevents outside air and precipitation from entering the serviced area after the fan is turned off;
- moved air must not contain substances that are aggressive to galvanized steel;
- permissible temperature of the moved air from -30° C to +100° C;
- content of sticky substances and fibrous materials is not allowed;
- minimum air velocity through the valve cross-section must be:

  on a horizontal section of at least 1.5-2 m/s;

  on a vertical section of at least 4 m/s;
- maximum air velocity through the valve cross-section is not more than 9 m/s.





KP-FDS-TUL-H-40-40

- reed valve
- side (B - suction, H - discharge)
- standard size

STANDARD SIZE	KP-FDS-TUL-B			KP-FDS-TUL-H		
	Dimensions, mm		Weight, kg, max	Dimensions, mm		Weight, kg, max
	B	H		B	H	
KP-FDS-TUL-40-40	330	330	2,4	360	330	2,7
KP-FDS-TUL-42-42	350	350	2,5	400	350	2,8
KP-FDS-TUL-46-46	390	390	2,9	450	390	3,2
KP-FDS-TUL-50-50	430	430	3,1	510	430	3,3
KP-FDS-TUL-67-67	600	600	5,3	600	600	5,3
KP-FDS-TUL-80-80	730	730	7,4	730	730	7,4
KP-FDS-TUL-100-100	930	930	11,2	930	930	11,2

KP-FDS-REG | UNIVERSAL AIR VALVE

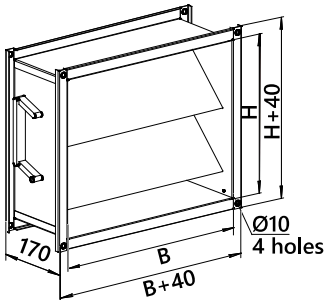


- special standardized equipment for KP-FDS fans;
- designed to regulate the flow rate of supply and exhaust air in ducted ventilation and air conditioning systems;
- can be used for recirculating air;
- processed air must be treated and free of solid, fibrous, sticky or aggressive impurities;
- permissible temperature of the moved air from -30° C to +100° C.

KP-FDS-REG-H-40-40-0

- air valve
- side (B - suction, H - discharge)
- standard size
- drive type
  (handle – manual or electric drive type,
  0 – to use with electric drive)

NOTE: for universal model designation of electric drive, see Reference information.



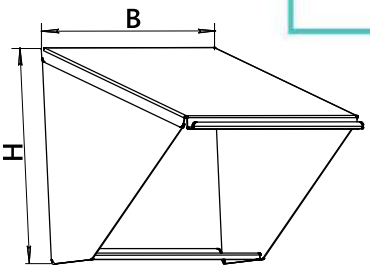
STANDARD SIZE	KP-FDS-REG-B				KP-FDS-REG-H			
	Dimensions, mm		Weight, kg, max		Dimensions, mm		Weight, kg, max	
	B	H	with manual drive	with electric drive	B	H	with manual drive	with electric drive
KP-FDS-REG-40-40	350	350	8,5	9,7	380	350	8,7	10,1
KP-FDS-REG-42-42	370	370	9	10,2	420	370	9,2	10,4
KP-FDS-REG-46-46	410	410	9,6	10,8	470	410	9,8	11
KP-FDS-REG-50-50	450	450	11	12,2	530	450	11,2	12,4
KP-FDS-REG-67-67	620	620	17,6	18,8	620	620	17,8	19
KP-FDS-REG-80-80	750	750	21,3	22,5	750	750	21,5	22,7
KP-FDS-REG-100-100	950	950	34,5	35,7	950	950	34,7	35,9

WEATHER PROTECTION HOOD KP-FDS-KZR

- special standardized equipment for KP-FDS fans;
- to protect the fan from moisture and precipitation during outdoor installation of the fan;
- it is installed on the side of the fan exhaust.

STANDARD SIZE	Dimensions, mm		Weight, kg, max
	B	H	
KP-FDS-KZR-40-40	360	330	2,2
KP-FDS-KZR-42-42	400	350	2,3
KP-FDS-KZR-46-46	450	390	2,5
KP-FDS-KZR-50-50	510	430	2,8
KP-FDS-KZR-67-67	600	600	6,1
KP-FDS-KZR-80-80	730	730	7,4
KP-FDS-KZR-100-100	930	930	14,3





KP-FDS-KZR-40-40

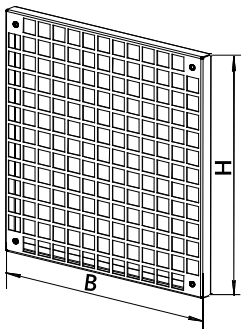
- weather protection hood
- standard size

PROTECTIVE MESH KP-FDS-SET

- special standardized equipment for KP-FDS fans;
- it is installed on the side of the fan exhaust.
- KP-SET is installed on the suction side (see page 159).

STANDARD SIZE	Dimensions, mm		Weight, kg, max
	B	H	
KP-FDS-SET-40-40	360	330	0,6
KP-FDS-SET-42-42	400	350	0,7
KP-FDS-SET-46-46	450	390	1
KP-FDS-SET-50-50	510	430	1,1
KP-FDS-SET-67-67	600	600	1,7
KP-FDS-SET-80-80	730	730	2,2
KP-FDS-SET-100-100	930	930	3,3





KP-FDS-SET-40-40

- protective mesh
- standard size

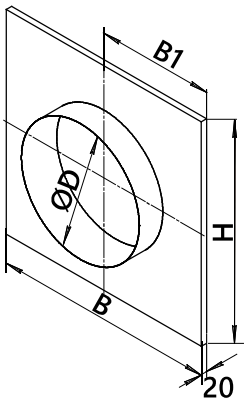
KP-FDS-P ADAPTER



- designed specifically for KP-FDS fans;
- for connecting fans to ventilation with round air ducts;
- it is installed on the side of the fan exhaust.
- KP-P is installed on the suction side (see page 160).

KP-FDS-P-40-40/250

- adapter
- adapter size, cm
- duct diameter, mm



STANDARD SIZE	Dimensions, mm				Weight, kg, max
	B	B1	H	D	
KP-FDS-P-40-40/250	360	180	330	250	1,5
KP-FDS-P-42-42/250	400	200	350	250	1,7
KP-FDS-P-46-46/250	450	225	390	250	1,8
KP-FDS-P-50-50/355	510	255	430	355	2
KP-FDS-P-67-67/500	600	300	600	500	2,9
KP-FDS-P-80-80/630	730	365	730	630	3,5
KP-FDS-P-100-100/710	930	465	930	710	5,9

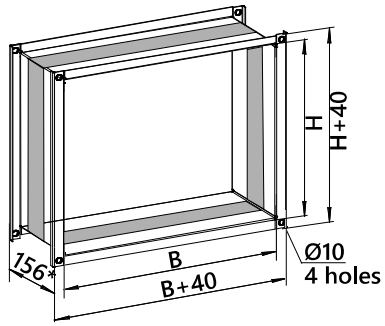
DUCT UNITS

FLEXIBLE CONNECTOR KP-FDS-GKV

- special standardized equipment for KP-FDS fans;
- to absorb mechanical vibrations generated by the fan in the ducted ventilation system when moving the air;
- to ensure quick and easy installation of the fan;
- to reduce vibration that occurs in the air duct system;
- permissible temperature of the moved air from -30° C to +100° C;

WARNING! The flexible duct connector is not designed to withstand the mechanical loads.





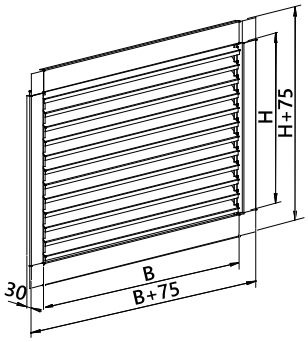
KP-FDS-GKV-H-40-40

- flexible connector
- side (B - suction, H - discharge)
- standard size

STANDARD SIZE	KP-FDS-GKV-B			KP-FDS-GKV-H		
	Dimensions, mm		Weight, kg, max	Dimensions, mm		Weight, kg, max
	B	H		B	H	
KP-FDS-GKV-40-40	350	350	1,7	380	350	1,9
KP-FDS-GKV-42-42	370	370	1,8	420	370	2,1
KP-FDS-GKV-46-46	410	410	2	470	410	2,4
KP-FDS-GKV-50-50	450	450	2,2	530	450	2,6
KP-FDS-GKV-67-67	620	620	3,2	620	620	3,2
KP-FDS-GKV-80-80	750	750	3,9	750	750	3,9
KP-FDS-GKV-100-100	950	950	4,9	950	950	4,9

KP-FDS-RKO (RKA) || NON-ADJUSTABLE GRILLE





- special standardized equipment for KP-FDS fans;
- it is installed only on the fan outlet.

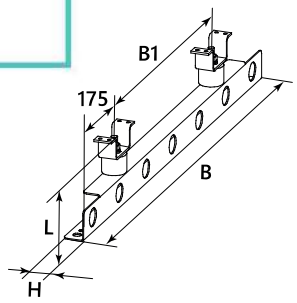
STANDARD SIZE	Dimensions, mm		Weight, kg	
	B	H	KP-FDS-RKO	KP-FDS-RKA
KP-FDS-RKO (RKA)-40-40	355	325	1,1	1,8
KP-FDS-RKO (RKA)-42-42	395	350	1,2	2,0
KP-FDS-RKO (RKA)-46-46	445	375	1,4	2,5
KP-FDS-RKO (RKA)-50-50	500	425	1,7	3,2
KP-FDS-RKO (RKA)-67-67	575	575	3,1	5,1
KP-FDS-RKO (RKA)-80-80	725	725	4,3	7,3
KP-FDS-RKO (RKA)-100-100	925	925	6,8	11,6

KP-FDS-RKO (RKA)-40-40

- non-adjustable grille
- standard size

KP-FDS-VBR || VIBRATION-PROOF BASE SET





- specially developed design for KP-FDS fans;
- to absorb mechanical vibration that occurs during fan operation;
- to ensure quick and easy installation of the fan;
- for additional protection of equipment during operation.

STANDARD SIZE	Dimensions, mm				Weight, kg
	B1	B	H	L	
KP-FDS-VBR-40-40	180	530	35	116	0,7
KP-FDS-VBR-42-42	220	570	35	116	0,7
KP-FDS-VBR-46-46	270	620	35	116	0,8
KP-FDS-VBR-50-50	330	680	35	166	0,8
KP-FDS-VBR-67-67	420	770	35	122	1,1
KP-FDS-VBR-80-80	550	900	35	122	1,2
KP-FDS-VBR-100-100	750	1100	35	122	1,5

KP-FDS-VBR-40-40

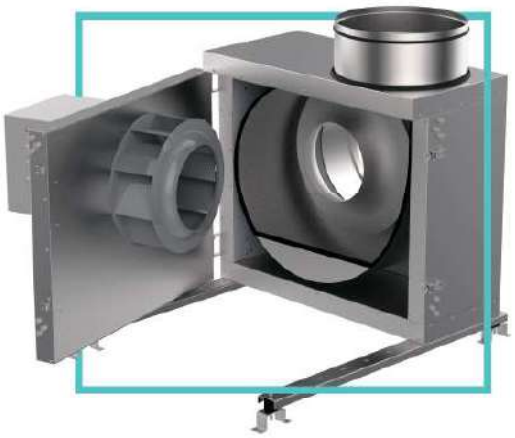
- vibration-proof base set
- standard size

NOTE: the set includes two vibration-proof bases.

DUCT UNITS

DUCT RADIAL FAN FOR KITCHENS KP-FDR

- for kitchens and industrial ventilation systems;
- features compact dimensions, allowing the equipment to be used in confined spaces;
- additional special elements allow the fan to be installed outside the building;
- additional sets of accessories allow for adaptation of the fan to the specific features of the installation location;
- for air with a permissible content of dust and solid impurities not exceeding 0.1 g/m³;
- temperature range of the moved medium is from -40° C to +100° C.
- ingress protection rating IP54.



The fan CASING made of galvanized steel provides reliable corrosion protection. The panels are filled with non-flammable mineral wool, which is characterized by high sound insulation and low heat loss coefficient.

An IMPELLER with backward-curved blades is installed inside the casing, which undergoes careful static and dynamic balancing.

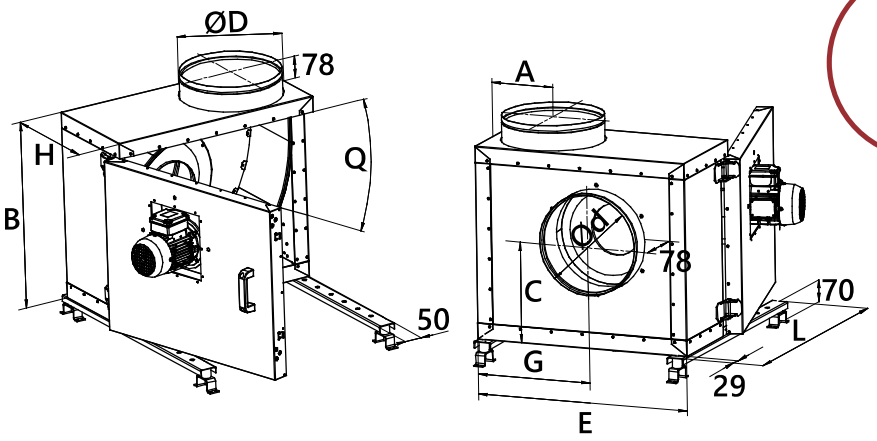
The fan is equipped with a three-phase asynchronous electric motor, which allows adjusting the rotation speed of the impeller using frequency converters.

The fan can be equipped with a single-phase electric motor upon additional request.

KP-FDR have compact dimensions, allowing them to be used in limited space conditions; ensures ease of installation and maintenance.

KP-FDR-2,5-4-380

- duct radial fan for kitchens
- fan number
- number of electric motor poles
- electric motor supply voltage



STANDARD SIZE	Dimensions, mm										Weight, kg, max
	H	B	E	L	C	G	A	D	d	Q	
KP-FDR-2,5	335	537	625	600	330	370	188	250	250	75	51
KP-FDR-2,8	335	537	625	600	308	355	188	280	280	75	53
KP-FDR-3,15	335	600	690	800	350	370	188	315	315	75	78
KP-FDR-3,55	380	655	770	770	382	418	207	355	355	75	100
KP-FDR-4	380	655	770	770	382	418	207	355	355	75	105

STANDARD SIZE	Motor speed, min^{-1}	Motor installed power, kW	Rated current, A	Corrected sound pressure level LpA, dB(A)		
				Input	Output	Surrounding
KP-FDR-2,5-2-380	2750	0,55	1,4	70	61	55
KP-FDR-2,5-4-380	1350	0,25	0,82	55	46	40
KP-FDR-2,8-2-380	2820	0,75	1,9	73	64	58
KP-FDR-2,8-4-380	1350	0,25	0,82	56	48	42
KP-FDR-3,15-2-380	2830	1,5	3,6	77	68	64
KP-FDR-3,15-4-380	1350	0,25	0,82	61	52	48
KP-FDR-3,55-2-380	2845	3	6,5	80	72	68
KP-FDR-3,55-4-380	1320	0,25	0,82	64	56	51
KP-FDR-4-2-380	2870	5,5	11	84	77	70
KP-FDR-4-4-380	1410	0,55	1,75	69	61	56

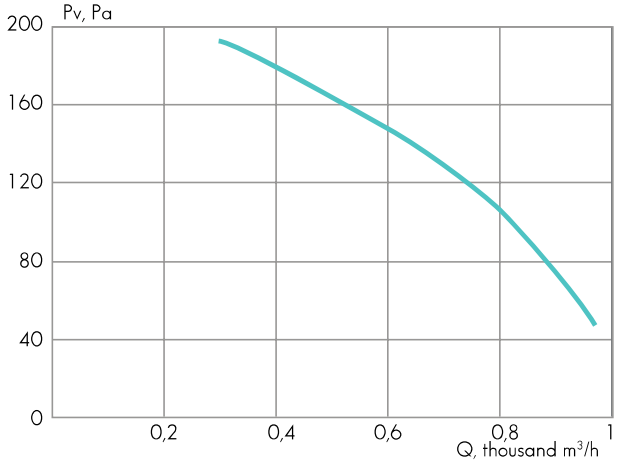
Additional components allow for easy re-equipment the fan to suit the specific installation location:

- flexible connector, KP-FDR-GKV;
- motor weather protection enclosure, KP-FDR-CAS;
- wall mounting bracket, KP-FDR-MK.

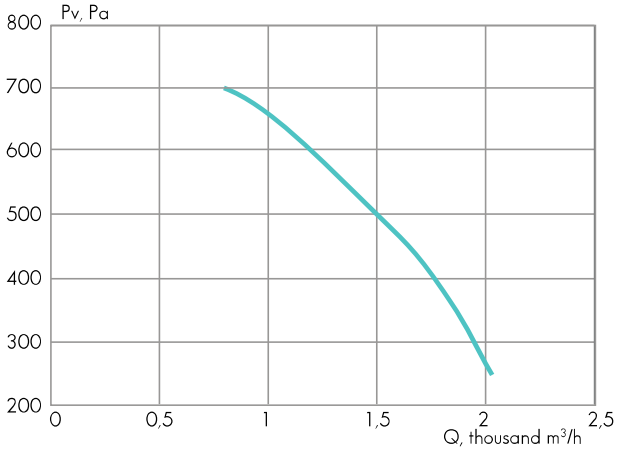
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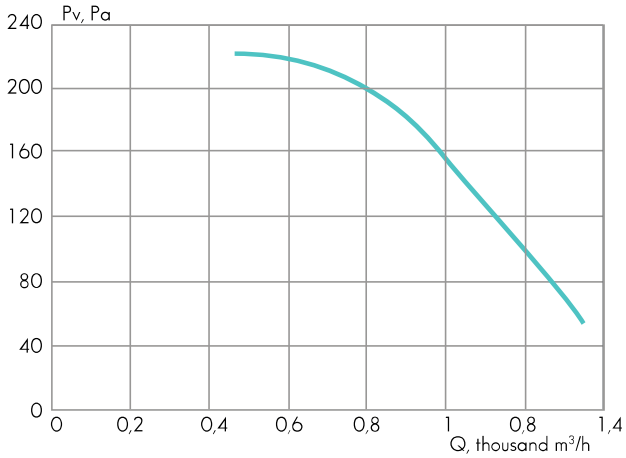
KP-FDR-2,5-4-380



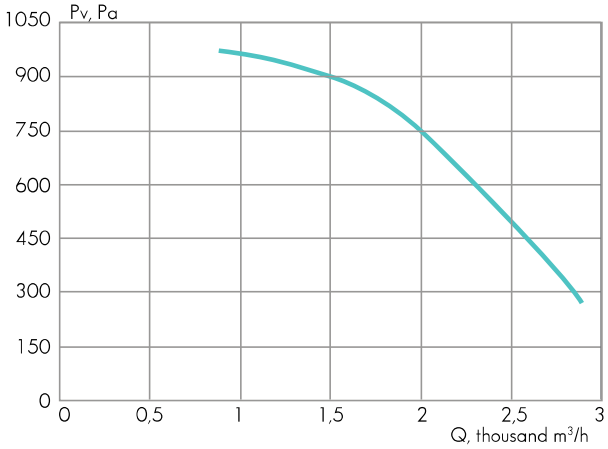
KP-FDR-2,5-2-380



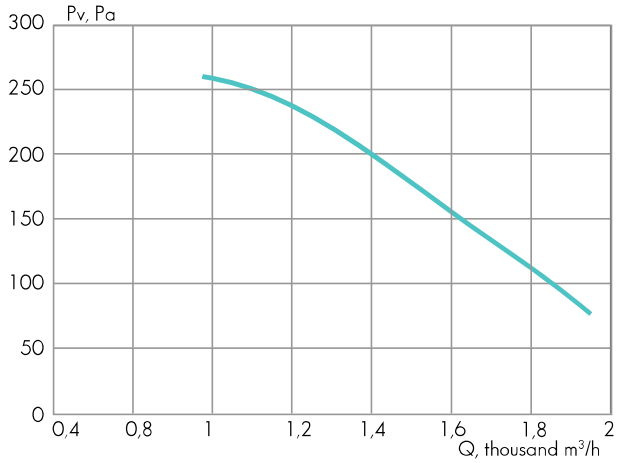
KP-FDR-2,8-4-380



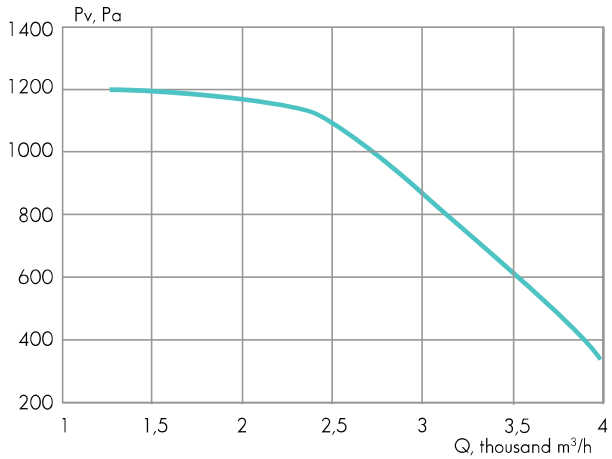
KP-FDR-2,8-2-380



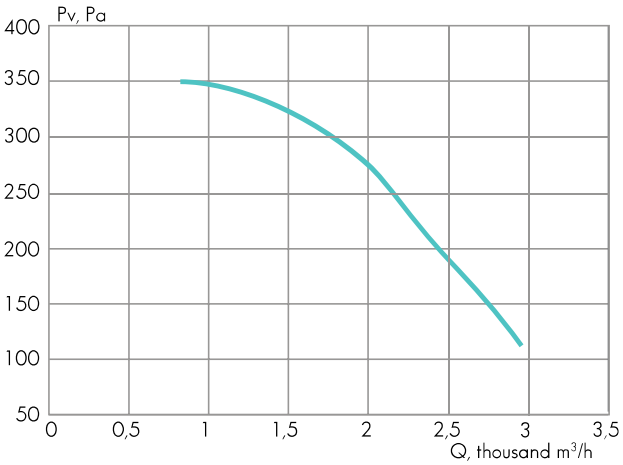
KP-FDR-3,15-4-380



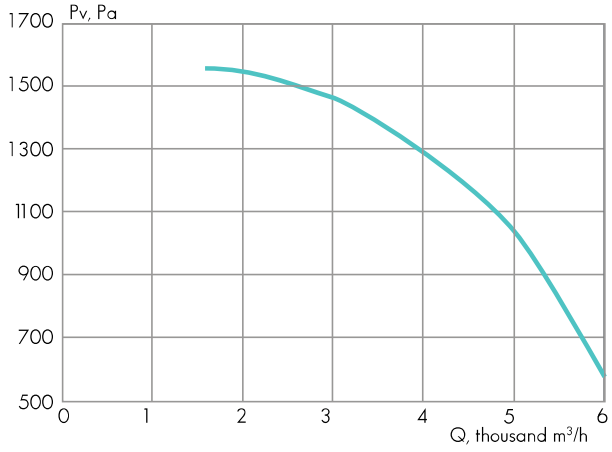
KP-FDR-3,15-2-380



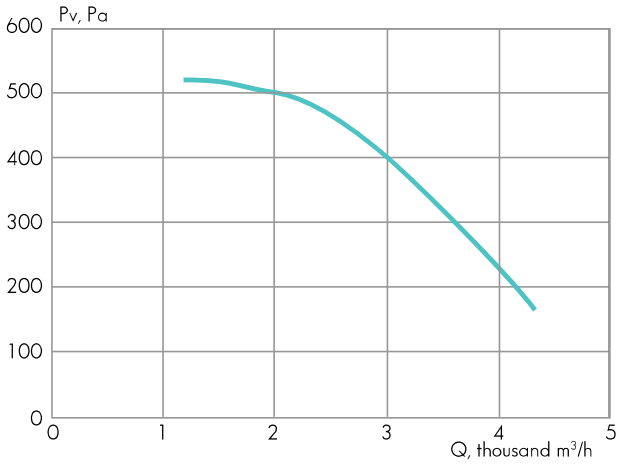
KP-FDR-3,55-4-380



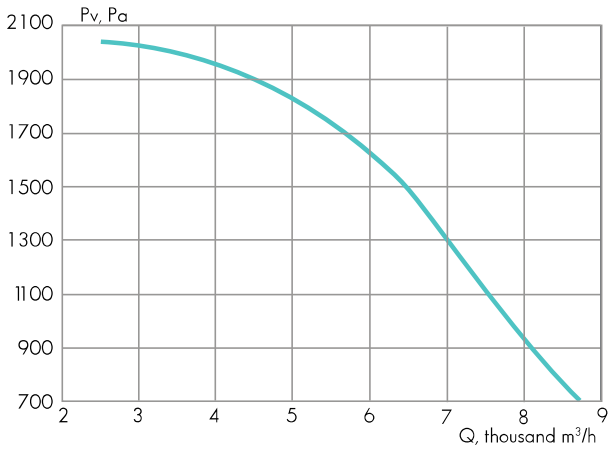
KP-FDR-3,55-2-380



KP-FDR-4-4-380



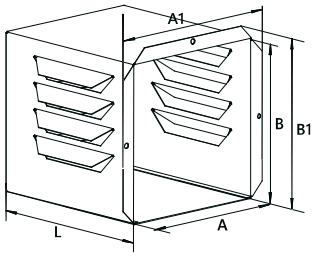
KP-FDR-4-2-380



ADDITIONAL EQUIPMENT FOR KP-FDR FANS

KP-FDR-CAS | WEATHER PROTECTION ENCLOSURE





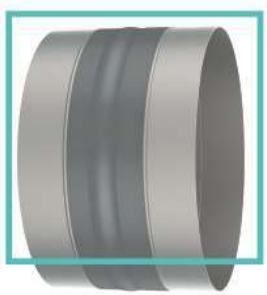
- special standardized equipment for KP-FDR fans;
- designed to protect the fan motor installed outdoor;
- made of galvanized steel;
- used for the following fans:
  CAS-1 for KP-FDR-2,5 and KP-FDR-2,8
  CAS-2 for KP-FDR-3,15 and KP-FDR-3,55
  CAS-3 for KP-FDR-4

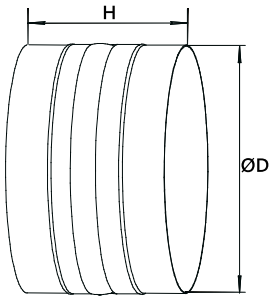
KP-FDR-CAS-1

- protection enclosure
- standard size

STANDARD SIZE	Dimensions, mm					Weight, kg, max
	L	B	B1	A	A1	
KP-FDR-CAS-1	280	210	240	300	365	2,8
KP-FDR-CAS-2	310	260	300	370	425	3,2
KP-FDR-CAS-3	350	270	300	385	450	4

KP-FDR-GKV | FLEXIBLE CONNECTOR





- special standardized equipment for KP-FDR fans;
- to absorb mechanical vibrations generated by the fan in the ducted ventilation system when moving the air;
- to ensure quick and easy installation of the fan;
- to reduce vibration that occurs in the air duct system;
- permissible temperature of the moved air from -30° C to +100° C;

WARNING! The flexible duct connector is not designed to withstand the mechanical loads.

KP-FDR-GKV-250

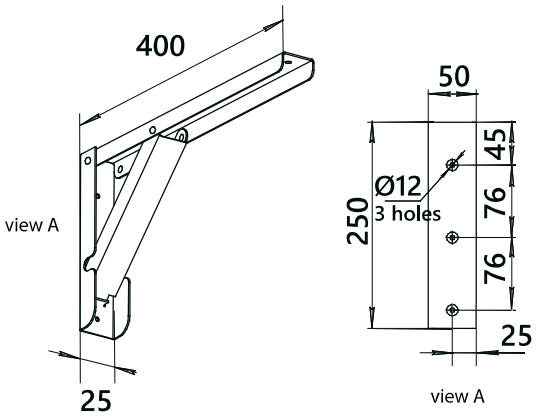
- flexible connector
- duct diameter

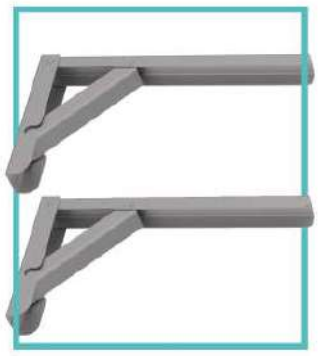
STANDARD SIZE	Dimensions, mm		Weight, kg, max
	D	H	
KP-FDR-GKV-250	250	140	0,3
KP-FDR-GKV-280	280	140	0,4
KP-FDR-GKV-315	315	140	0,5
KP-FDR-GKV-355	355	140	0,7

DUCT UNITS

MOUNTING BRACKET | KP-FDR-MK

- special standardized equipment for KP-FDR fans;
- wall-mounted;
- made of galvanized steel.



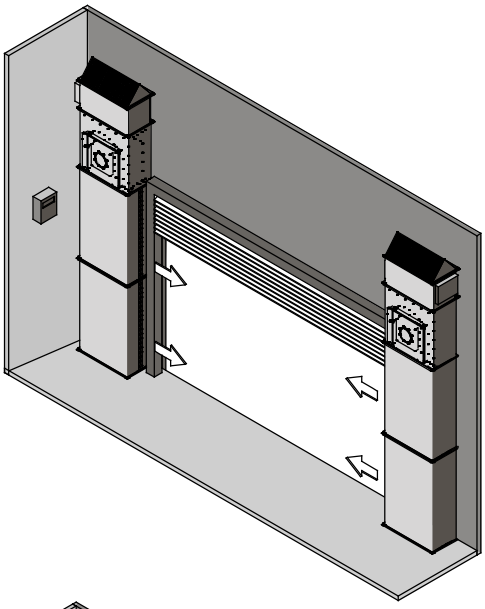


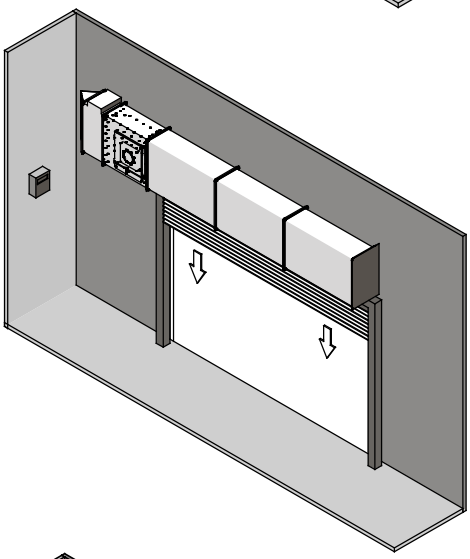
KP-FDR-MK

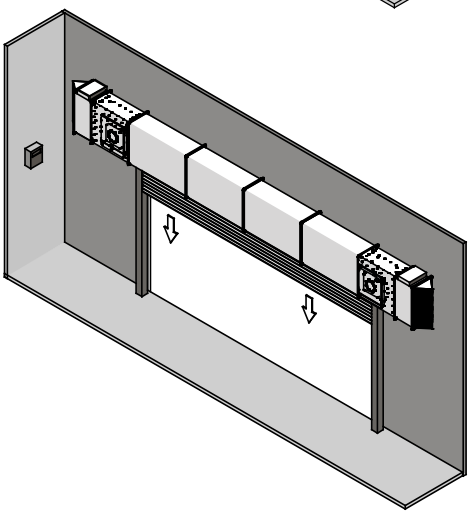
- mounting bracket

NOTE: the kit includes two brackets.

DUCT AIR CURTAINS









DUCT UNITS

DUCT AIR CURTAIN C-AEROBLAST-K

- to create a curtain in the form of a flat air flow covering door or gate openings of premises;
- to maintain constant temperature parameters of the air environment;
- selection of operating mode depending on the season and requirements;
- multiple placement options depending on the purpose of the air curtain;
- BENEFITS: compact size, easy installation, low noise, wide range of SAU functions;
- application for facilities where frequent opening and closing of doorways and gates is required: sales areas and exhibition pavilions, warehouses and garage complexes, hangars, workshops and industrial cold storage rooms, stationary storage of fruits and vegetables, production workshops;
- presence of sticky, fibrous and abrasive components, explosive impurities is not allowed;
- for air with a permissible content of dust and solid impurities not exceeding 0.1 g/m^3;
- temperature range of the moved medium is from -30° C to +50° C.



C-AEROBLAST-K is a rectangular column made of galvanized sheet steel, which includes:

Rectangular duct FAN of the C-PKV series with forward-curved impeller blades, which provides air flow inside the air curtain casing.

C-FKP duct FILTER with filter cassette (G4 filtration class), which cleans the air from dust and impurities.

The electric C-EVN or water C-KVN duct AIR HEATER allows maintaining a constant set air temperature at the outlet of the curtain, creates a thermal air barrier and additional heating of the premise.

The VANDAL-PROOF MESH protects the air intake from foreign objects and mechanical impact.

The curtain nozzles provide the shaped directed air flow to the work area, creating a flat air barrier that separates the interior volume of the premise and cuts off the external air flow. Depending on the location of the air curtain relative to the serviced opening (gate), air curtains with an external or internal nozzle are used.

By default, the nozzle length is determined using the nomograms given in the section "Selection recommendations". Upon additional request, curtains can be made with a nozzle of a different length.

The ability to choose the installation option – horizontal or vertical, determines the choice of air curtain type. Spatial orientation is ordered according to the sketch.

C-AEROBLAST-K-60-35-EN-L-2000

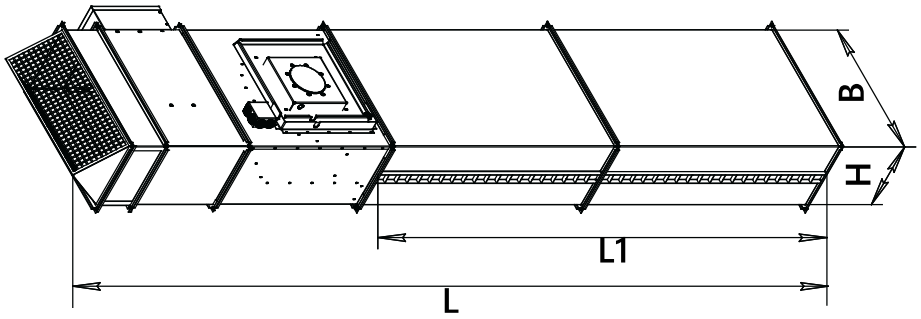
- duct air curtain
- standard size (for rectangular connection section BxH)
- complete set with air heater (0 - without heater,

EN - with electric heater (power according to technical characteristics)

* VN - with a water/air-heater (three-row KVN of the appropriate size are used)

- design (R - right-hand version, L - left-hand version)
- air curtain nozzle length, mm

Note: information on the orientation of the air curtain in space is indicated in the sketch attached to the order.
*Non-standard equipment with an electric heater is possible according to the C-EVN power characteristics. When placing an order, specify the power separated by "/".



NOTE: the diagram shows the location of the air curtain conditionally. Possible layouts are shown further in the catalog.

STANDARD SIZE	Dimensions, mm						Weight, kg, max		
	B	H	L (without heating)	L (with water/ air-heater)	L (with electric heater)	L1	without heating	with water/ air-heater	with electric heater
C-AEROBLAST-K-60-35-2000	600	350	3300	3455	3645	according to nomogram 3	115	125	130
C-AEROBLAST-K-70-40-3000	700	400	4400	4520	4710		195	207	211
C-AEROBLAST-K-80-50-3750	800	500	5200	5320	5510		290	305	308
C-AEROBLAST-K-90-50-4000	900	500	5600	5755	5945		322	330	342

STANDARD SIZE	FAN				C-EVN		C-KVN
	Max. air-flow rate, m³/h	Power supply, V	Max. fan current, A	Max. fan motor power, kW	Max. heater current, A	Electric heater power, kW	Technical specifi-cations
C-AEROBLAST-K-60-35-2000	4100	3/380	4,1	2,5	68,4	22,5	see C-KVN-60-35-3
C-AEROBLAST-K-70-40-3000	5500		6,0	3,7	41,1	27,0	see C-KVN-70-40-3
C-AEROBLAST-K-80-50-3750	7900		4,9	2,4	48,7	32,0	see C-KVN-80-50-3
C-AEROBLAST-K-90-50-4000	8800		6,8	3,75	68,4	45,0	see C-KVN-90-50-3

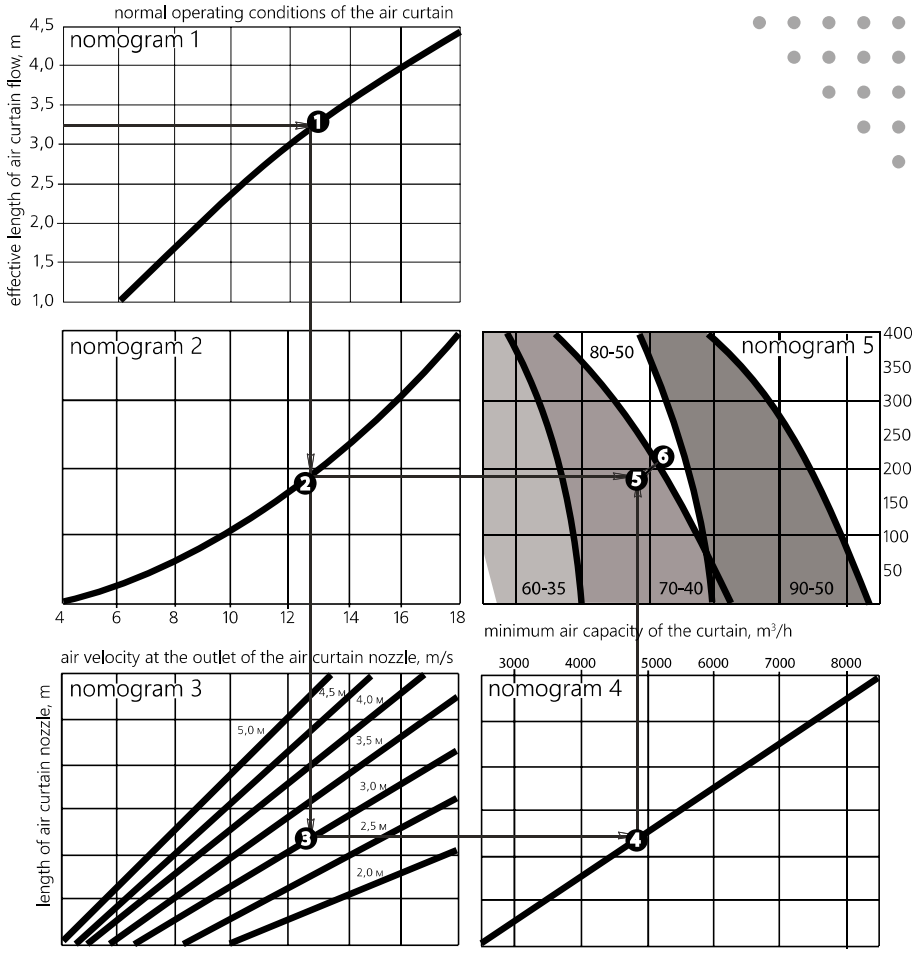
EXAMPLE OF AIR CURTAIN SELECTION

SELECTION PARAMETER	SELECTION PROCEDURE	CALCULATION EXAMPLE
air curtain installation option	horizontal or vertical	vertical installation
air curtain design	left-hand or right-hand version	right-hand version
need for heating	without heating, EVN, KVN	air curtain with electric heating
point 1 - air curtain range	draw a perpendicular from the value axis to the intersection with the curve on the nomogram 1	3.25 m, corresponds to the width of the serviced opening (vertical installation option)
point 2 - air velocity at the outlet of the air curtain nozzle	draw a perpendicular down from point 1 to the intersection with the curve on the nomogram 2	13 m/s
point 3 - required length of the air curtain nozzle	draw a perpendicular down from point 2 to the intersection with the curve on the nomogram 3	3 m, corresponds to the height of the serviced opening (vertical installation option)
point 4 - minimum air capacity	it is necessary to draw a horizontal segment from point 3 to the intersection with the curve, nomogram 4	for this example, the minimum air capacity is 5000 m³/h
point 5 – the standard size of the curtain that provides the specified parameters	the intersection point of two segments lying in one of the areas of nomogram 5 indicates the standard size of the air curtain: 1st segment - horizontal - from point 2 to nomogram 5 area 2nd segment – vertical – from point 4 to nomogram 5 area	**C-AEROBLAST-K-70-40-EN-R-3000**
point 6 - actual air capacity	when moving along a parabola from point 5 to a point formed by the intersection of the parabola and the curve bounding the correspond-ing field from above	in fact, the air capacity is 5200 m³/h

When selecting a duct air curtain, the following list of parameters must be taken into account:

AIR CURTAIN PLACEMENT OPTION AND QUANTITY

When installed horizontally, the air curtain is attached above the service opening and creates an air flow directed vertically from top to bottom along the entire width of the opening. In the vertical position, the curtain is installed on the side of the opening, and the air flow is directed horizontally.



SELECTION FACTOR	PREFERRED INSTALLATION OPTION
TYPE OF SERVICED OPENING	
air curtain design	left-hand or right-hand design version
for sectional doors that open from the bottom up	vertical installation of the curtain on the side of the serviced opening
for hinged gates	horizontal installation of the curtain on top of the service opening
AREA OF THE SERVICED OPENING	
up to 10 m^2	one curtain on the side of the opening is enough
more than 12 m^2	requires a double-sided installation option
OPERATING MODE	
if large objects (cars, loaders, etc.) stay in the opening area for a long time	it is necessary to choose a double-sided air curtain installation option
when dividing the projection of a one-sided air curtain into two smaller ones (if the area of the opening is divided into two sections), the sections open alternately	it is necessary to choose a double-sided air curtain installation option

NEED FOR HEATING

The efficiency of using air curtains without heating is limited. C-AEROBLAST-K air curtains are equipped with water/air- and electric heaters.

Technical data and characteristics of heaters are presented in the relevant sections of the catalog (C-EVN, C-KVN).

AIR CURTAIN RANGE – the distance between the curtain nozzle and the limit point of the minimum allowable air flow velocity. The required range of the air curtain and nozzle length are determined based on the air curtain installation option.

The AIR VELOCITY at the outlet of the curtain nozzle depends on the required air curtain range of the selected installation option. When selecting an air curtain, this value is for reference purposes only.

The AIR CAPACITY of the curtain is determined using a nomogram. At the first stage, the minimum air capacity corresponding to the minimum permissible air velocity at the nozzle outlet and minimum nozzle length is determined. The actual air capacity of the air curtain is always higher than the min value and corresponds to the standard size and performance of the fan in the specific curtain configuration.

The HEATING POWER is determined according to the characteristics of the duct heater (electric or water).

AUTOMATION OF AIR CURTAIN CONTROL

C-SAU-AVK is an air curtain control cabinet that ensures efficient and economical operation of the curtain according to the specified parameters and modes. SAU elements allow adjusting the operating parameters, reduce noise level, and optimize power consumption. In addition to regulatory functions, C-SAU-AVK elements perform protective functions.

THE FOLLOWING MUST BE TAKEN INTO ACCOUNT WHEN CALCULATING:

- availability of one serviced opening;
- short-term opening of the serviced opening;
- uniform pressure inside the serviced premise;
- no pressure drop inside and outside the serviced premise;
- no wind pressure.

Nomograms are given for normal operating conditions of air curtains.

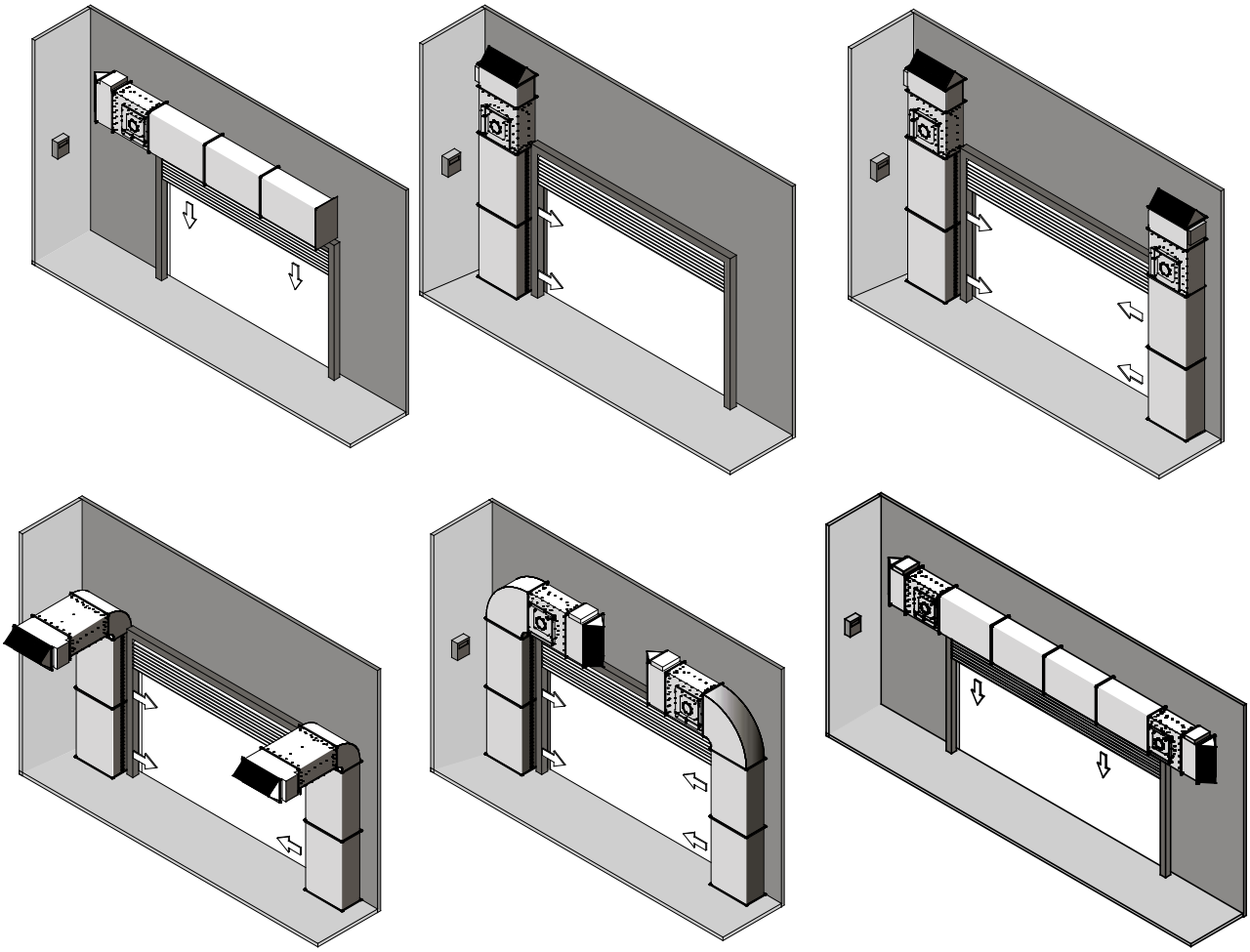
Factors that reduce the efficiency of air curtains:

- high or low pressure in the serviced premise;
- presence of several openings, primarily located opposite each other;
- frequent and prolonged opening of the serviced opening.

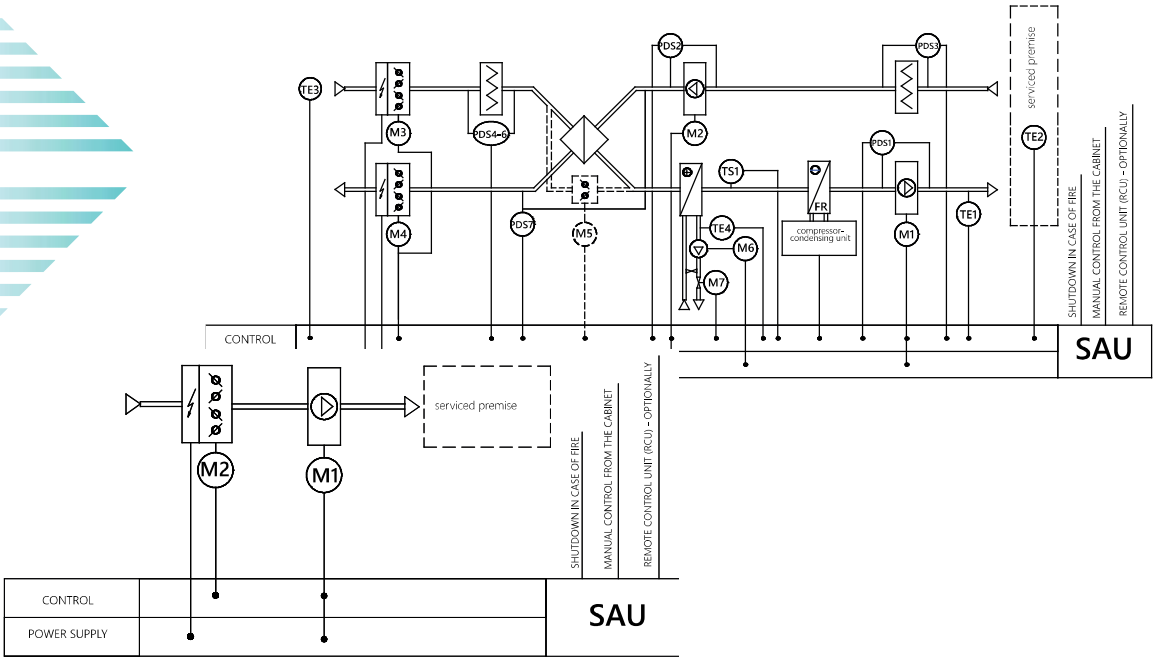
WARNING! These factors move the selection curve to the right on the nomogram 1 (point 1).

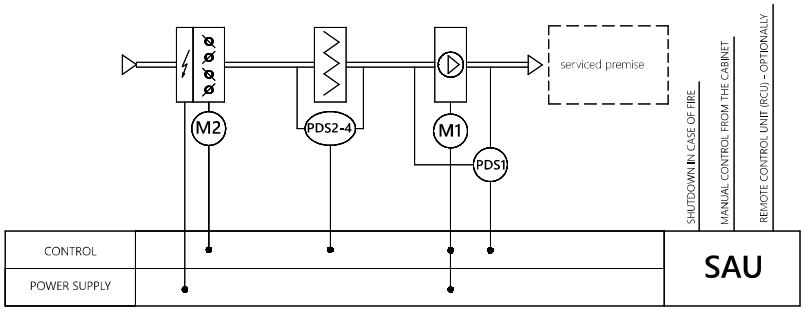
Below are examples of possible installation of C-AEROBLAST-K air curtains

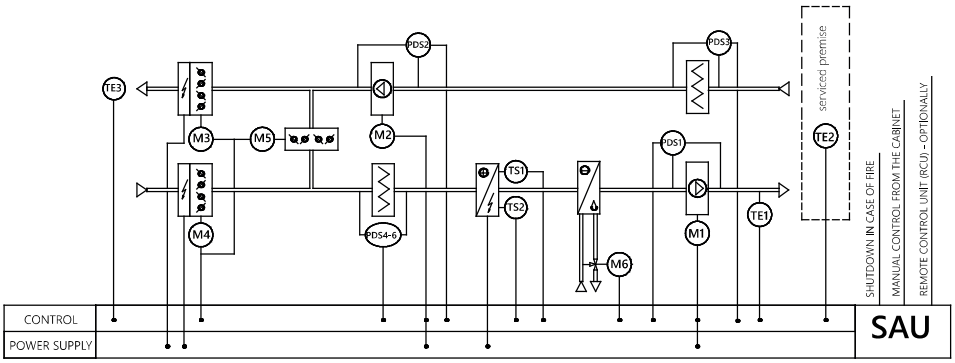
The choice of model and location of the curtain is determined by the requirements for the area of application and purpose, characteristics, structural features and design.



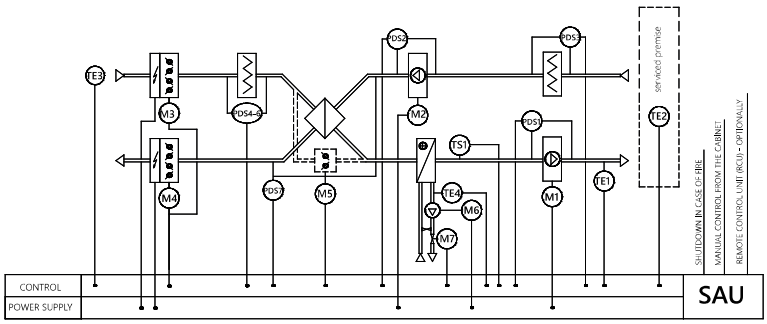
AUTOMATIC CONTROL SYSTEMS AND ELEMENTS







- to control duct fans;
- to protect duct mounted heat exchangers;
- to control filter clogging;
- to control air parameters;
- for integrated control of ducted ventilation system equipment.



Ducted ventilation system equipment complete with C-SAU elements features additional advantages during selection and operation:

- prevention of emergency situations and equipment protection;
- stabilization (maintaining constant controlled values with a given accuracy);
- software control of a physical parameter according to a predetermined law;
- reduction of costs associated with the operation of utility systems;
- ability to change the microclimate parameters depending on the operating mode;
- energy efficiency improving.

The SYSTEM MONITORING PARAMETERS are determined depending on the tasks set:

- emergency mode allows turning off the ventilation system in case of fire;
- backup replacement of a fan or system in case of failure;
- pressure difference on the filter determines the level of clogging and the need for replacement;
- pressure difference on the fan determines the operability and normal operating mode of the fan;
- daily-weekly schedule - during non-working hours, the system is automatically switched to economic or night mode.

The C-SAU automatic control system includes:
AUTOMATION CABINET - the type and components composition depend on the intended set of functional elements.
SET OF SENSORS – provides the minimum set of functions required for the system to operate. The composition of the set depends on the processes that are supposed to be regulated, and, accordingly, on the type of C-SAU diagram.
ADDITIONAL ELEMENTS of the automation system are sensors and equipment that extend the functionality of C-SAU, for example, speed controllers, indoor duct or outdoor air temperature sensors, remote control units (RCUs), as well as elements of the water heat exchanger piping: a pump, an electrically operated control valve, a water mixing unit (UWS).
All additional elements can be included in the system or ordered separately.

Automatic control systems assume division by control object:
C-SAU-F – control of the duct fan system;
C-SAU-EN – control of the duct system with electric heater;
C-SAU-VN – control of the duct system with water/air-heater;
C-SAU-AVK – control of the C-AEROBLAST-K duct air curtain.
The composition of the automation set for delivery depends on the selected automation diagram.
The automation set includes an automation cabinet and the minimum required set of additional elements (sensors, etc.).
All C-SAU diagrams feature the following functions as standard:
- perimeter heating of the drive and air damper valve;
- remote control unit (RCU)
- switching on by an external NO contact;
- NO contact of the "Operation" signal circuit;
- NO contact of the "Failure" signal circuit.

They have three basic versions that coincide with the main (basic) control diagrams:

- **C-SAU-F** – duct fan control;
- **C-SAU-EN** – control of the duct system with electric heater;
- **C-SAU-VN** – control of the duct system with water/air-heater.

The C-SAU cabinet has a compact power supply and control device. Depending on the configuration of the ducted ventilation system and the functions of the automation diagram, the cabinet receives and processes signals coming from control sensors, and issues appropriate commands to the actuators.

WINTER/SUMMER operating modes are provided.
Switching on/off is controlled remotely, locally (from the cabinet), or automatically by timer.
The cabinet panel also displays the following indicators: OPERATION, FAILURE, FILTER.

IN A METAL CASING (MET) SAU

- AC power supply: 3~, 380V, 50Hz + N + PE or 1~, 220V, 50Hz + N + PE;
- it is allowed to operate in temperate and cold climates (YHL) of the fourth placement category according to GOST 15150;
- ingress protection rating IP54.

Structurally, the C-SAU is made in the form of a wall cabinet, which combines automation and power circuits. The power feeder, power outputs to controlled devices and external connections are introduced into the cabinet through gland entries, which are standardly located on the bottom wall.

The cabinet is equipped with a closing door, on which controls and indicators are installed.



IN A PLASTIC CASING (PLAST) SAU

- AC power supply: 3~, 380V, 50Hz + N + PE or 1~, 220V, 50Hz + N + PE;
- standard color RAL 7035;
- operating temperature from +5° C to + 45° C;
- ingress protection rating IP65.

The cabinet casing is made of a special self-extinguishing engineering polymer. It is possible to install the equipment for a total current of up to 80A.

The cabinet is equipped with a transparent plastic closing door. As standard, the door is closed with a sliding bolt; upon request, it can be equipped with an additional lock for tamper-evident sealing of the cabinet. The controls and displays are installed in a separate window on a DIN rail.

A set of brackets for attaching the cabinet casing to the wall is included as standard.



C-SAU DIAGRAM TYPE: TYPE "F"
WITH FANS

This type of diagram is designed to control simple ducted ventilation diagrams and takes into account the minimum composition of ventilation diagram elements.

All C-SAU cabinets of type "F" feature the following functions as standard:

- perimeter heating of the drive and air damper valve;
- remote control unit (RCU);
- switching on by an external NO contact;
- NO contact of the "Operation" signal circuit;
- NO contact of the "Failure" signal circuit;

To connect the backup fan control cabinet, it is necessary to use an external contact and a NO contact "Failure".

SELECTION OF DIAGRAMS DEPENDING ON THE COMPOSITION OF THE VENTILATION SYSTEM

C-SAU	FUNCTIONAL ELEMENTS							
diagram	valve	filter	fan	heat exchanger	C-VKO	C-FKO	C-PKT	recycling
F-00	valve	—	supply fan	–	–	–	–	–
F-10	valve	filter	supply fan	–	–	–	–	–
F-20	valve* up to 6	—	supply/exhaust fan* up to 6	–	–	–	–	–

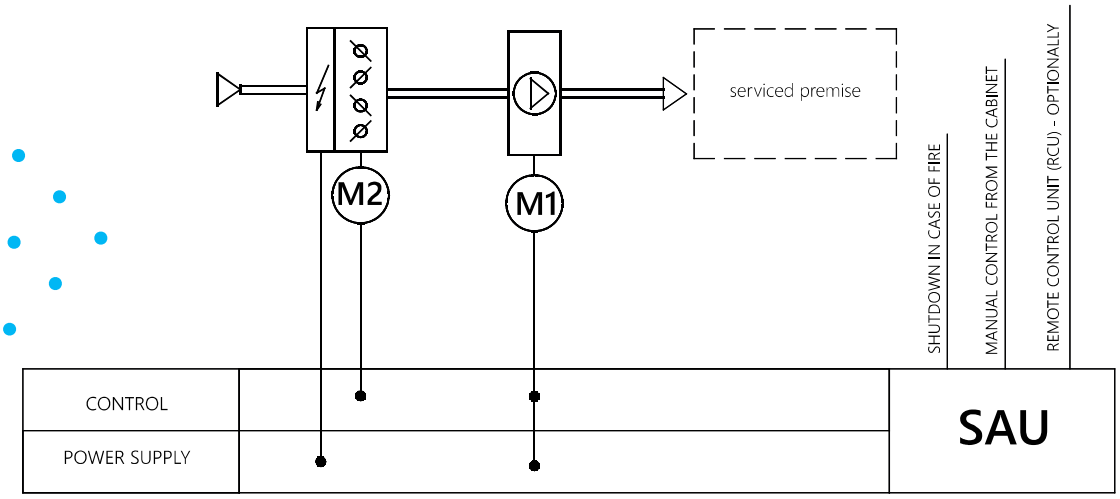
NOTE:
In the C-SAU-F-20 diagrams, fan control can be separate either from the front panel of the control cabinet using the "Operation/0/RCU" switches (each has its own) or from remote control units (RCUs) (each has its own). Fans are controlled by an external NO contact if their switches are in the "RCU" position.
It can be controlled by a frequency converter or speed controller. The speed controller is supplied separately.

C-SAU diagram	Metal cabinet size, mm		Plastic cabinet size, mm	
	min	max	min	max
F-00	395x310x220	395x310x220	460x340x162	460x340x162
F-10	395x310x220	400x400x200	460x340x162	460x340x162
F-20	395x310x220	1000x600x300	please specify details when ordering	

CHARACTERISTICS	DESIGNATION	ORDER EXAMPLE
designation of automation diagram of the "Duct" type	C-SAU	C-SAU
type (no.) of the SAU diagram	For diagrams with a fan (without heat exchanger): F-00, F-10, F-20 For diagrams with an electric heater: EN-10(SR), EN-20(SR), EN-30(SR), EN-11(SR), EN-12(SR), EN-21(SR), EN-22(SR), EN-31(SR), EN-32(SR) For diagrams with a water/air-heater: VN-10, VN-20, VN-30, VN-11, VN-12, VN-21, VN-22, VN-31, VN-32	F-10
automatic standby start-up (when the backup power is turned on)	"0" - backup start-up is not provided "AFR" - when using backup power	0
FAN SPECIFICATIONS (FAN 1)		
electric motor	number of fan motor phases "1p" - single-phase or "3p" - three-phase motor	1p
	max. motor current, (A)	(0,16)
number of fans - for the F-20 diagram possibility of fan backup for F-00, F-10 diagrams and for EN and VN types	for F-20 diagrams: (fan1 + fan2) < 6 pcs. for F-00 and F-10 diagrams, and for all EN and VN: "0" - no fan backup is provided; "AF" - fan backup is provided	0
fan operation regulation	"0" - without regulation "1" - regulation is provided "EC" - C-PKV-EC type fan	1
FAN SPECIFICATIONS (FAN 2)		
electric motor	number of fan motor phases "1p" - single-phase or "3p" - three-phase motor	0
	max. motor current, (A)	0
number of fans - for the F-20 diagram possibility of fan backup for F-00, F-10 diagrams and for EN and VN types	for F-20 diagrams: (fan1 + fan2) < 6 pcs. for F-00 and F-10 diagrams, and for all EN and VN: "0" - no fan backup is provided; "AF" - fan backup is provided	0
fan operation regulation	"0" - without regulation "1" - regulation is provided "EC" - C-PKV-EC type fan	0
characteristics of the electric heater	for F and VN type diagrams: "0" - not used for EN type diagrams "width, cm/power, kW" - with rectangular C-EVN "K_diameter, mm/power, kW" - with round C-EVN-K	0
number of filtration stages	from 0 to 4 (can be more if necessary)	1
cabinet casing type	Met - metal casing Plast - plastic casing	Plast

EXAMPLE:
C-SAU-F-10-0-1p(0,16)-0-1-0-0-0-0-0-1-Plast automation set provides a package of automatic control systems of the "Duct" type according to the F - 10 diagram with one single-phase fan, rated motor current of 0.16A, motor speed control is provided, with one filter, in a plastic cabinet.

C-SAU-F-00



DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
M1	electric motor	fan operation	it is a part of the ventilation unit
M2	electric drive	air valve operation (220V)	it is a part of the ventilation unit
RCU	remote control unit	remote control	supplied optionally

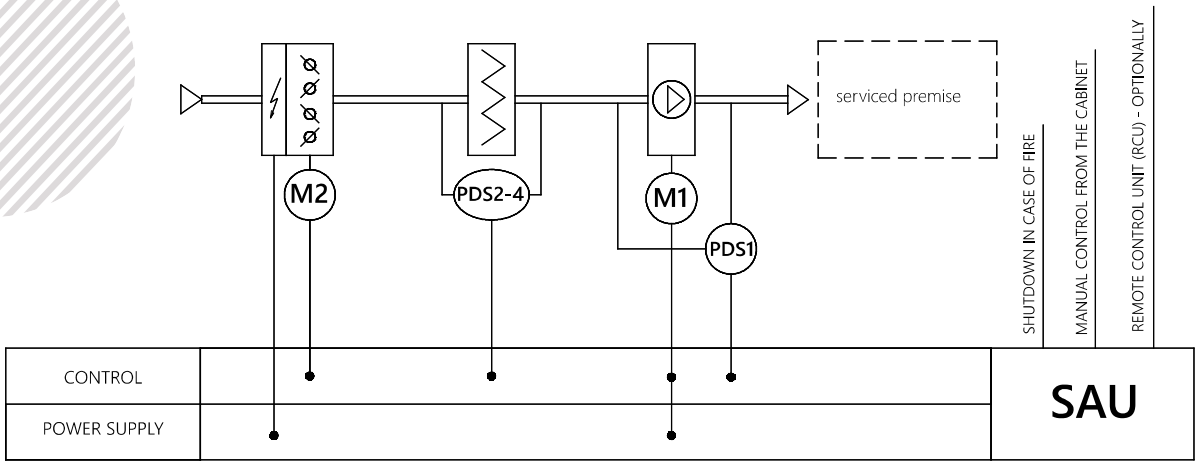
FEATURES OF THE DIAGRAM OPERATION

Functions of the control diagram
Fan control provides:

- turn on/off the fan;
- short circuit and overload protection with motor protection circuit breaker and/or integrated bimetallic thermal contacts;
- switching off by the "Fire" signal from the fire alarm circuit.

If the switch is set to the "RCU" position, control is carried out using the remote control. The remote control is supposed to be connected, but the remote control itself is supplied upon request.
The "FAILURE" indicators on the cabinet door and the RCU light up when the fan motor protection circuit breaker is turned off. If a fire alarm is triggered (when the Fire Protection contacts are open), the fan motor is switched off.

C-SAU-F-10

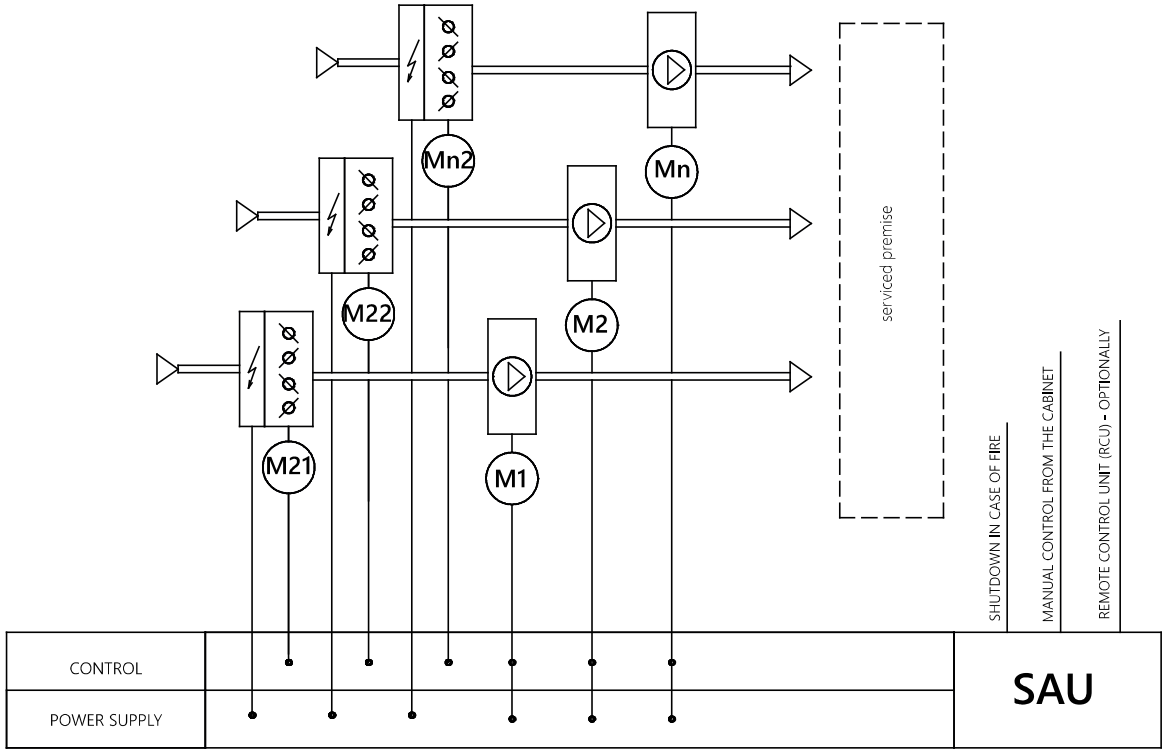


DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
PDS1	differential pressure switch	fan operation monitoring	included as standard in the SAU set
PDS2	differential pressure switch	stage 1 filter clogging monitoring	included as standard in the SAU set
PDS3	differential pressure switch	stage 2 filter clogging monitoring	supplied optionally
PDS4	differential pressure switch	stage 3 filter clogging monitoring	supplied optionally
M1	electric motor	fan operation	it is a part of the ventilation unit
M2	electric drive	air valve operation (220V)	it is a part of the ventilation unit
RCU	remote control unit	remote control	supplied optionally

FEATURES OF THE DIAGRAM OPERATION

This diagram involves controlling the fan and the air intake valve interlocked with it from the front panel of the cabinet or using the remote-control unit (RCU). This diagram is also supplemented by the presence of a function for monitoring the pressure drop on the fan and the condition of the air filter using a differential pressure relay sensor, which allows monitoring the pressure drop on the air filter and determining its degree of clogging.
Thus, when the filter becomes clogged, the pressure drop increases, the pressure drop relay sensor is triggered and the "FILTER" indicator lights up on the cabinet door. The system continues to work.

C-SAU-F-20



DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
M1...MN (ПРИ N ≤6)	electric motor	fan operation	it is a part of the ventilation unit
M2...MN (ПРИ N ≤6)	electric drive	air valve operation (220V)	it is a part of the ventilation unit
RCU	remote control unit	remote control	supplied optionally

FEATURES OF THE DIAGRAM OPERATION

Provides independent control of several fans and air intake valves interlocked with them from the front panel of the cabinet or using the RCU.
Functions of the control scheme.
This control diagram is used when it is necessary to independently control several duct fans that are interlocked with air intake valves from the same cabinet. In this case, the operation of the control diagram for each fan is identical to the C-SAU-F-00 diagram.

NOTE:
in the C-SAU-F-20 diagrams, fan control is implemented by the following:

- separately from the front panel of the control cabinet using the “Operation/0/RCU” switches (each has its own);
- from remote control units (RCUs) (each has its own);
- by an external NO contact if fan switches are in the “RCU” position.

C-SAU ТИП “VN”

C-SAU-VN type diagrams are intended for control of supply or supply and exhaust units with water heating and water or Freon cooling. The functionality of the C-SAU-VN automatic control cabinet depends on the diagram number and configuration of the ventilation unit to be controlled.

General functions of “VN” type diagrams:
ON/OFF CONTROL – local from the cabinet, remote or automatic by timer.
MAINTAINING THE SUPPLY AIR TEMPERATURE (using a duct air temperature sensor) or the air temperature in the serviced premise (using a room air temperature sensor) by controlling the circulation pump and the electric control valve of the water/air-heater.
COOLING of the serviced premise in the “SUMMER” mode by controlling Freon (CCU) or water coolers (according to the selected diagram).
OPERATION of air valves – the valves are open by controlling electric drives.
MONITORING THE OPERATION of the fan(s) using differential pressure switches.
AIR FILTER CONTAMINATION CONTROL - protection against clogging of the air filter(s) by means of differential pressure switches allows for timely maintenance and prevents malfunctions in the ventilation system.
There are TWO MODES OF OPERATION of the system: “WINTER” and “SUMMER”, for each of which separate temperature settings (limits) are set. Switching between modes can be done either manually from the controller menu, or automatically via an external temperature sensor. In the “WINTER” mode, when the fan is turned off, the temperature of the return heat carrier in the air heater is automatically maintained at the minimum allowable level by means of a control valve. When receiving a command to turn on the fan (if the outdoor temperature sensor is not installed), the system automatically warms up the air heater by turning on the circulation pump and opening the control valve to 100% flow through the air heater. In this case, the warm-up time, as well as the pump operating mode, are set during setup.
The OPERATING SCHEDULE allows for fully automated air handling processes (automatic switching on/off and shifting of temperature settings) provided for by the layout of the duct ventilation system, as well as for optimizing energy consumption. For example, this function allows, without operator intervention, to maintain the temperature of the supply air or the air in the room at 22°C during working hours, to reduce it to 17°C during non-working hours, and to completely turn off the system on weekends or holidays.

Protection functions of “VN” type diagrams:
Fan shutdown when “FAILURE” or “FIRE” signal is detected.
PROTECTION of the fan motor against short circuit and overload.
PROTECTION of the water/air-heater. For this purpose, the temperature of the return heat carrier is monitored using a surface-mounted analog sensor. If there is a threat of freezing of the air heater, the fan turns off if it was turned on; the air intake valve closes; the circulation pump turns on if it was turned off, regardless of the selected operating mode; the control valve opens to 100% flow through the air heater. The system remains in this state until the “FAILURE” signal is reset in the controller menu.
MONITORING the temperature of air passing through the air heater using a capillary thermostat – protection against freezing by air. Automatic restart of the system when the power supply is restored after a failure, as well as when there is a threat of freezing. At the same time, the controller provides the function of storing in memory the events that occur during the operation of the ventilation system, which are recorded in a special event log of the controller.
Connection to the ducted ventilation dispatching system.

For C-SAU-VN diagrams, the following functions are provided as standard in control cabinets:

- perimeter heating of the drive and air damper valve;
- remote control unit (RCU);
- switching on by an external NO contact;
- NO contact of the “Operation” signal circuit;
- NO contact of the “FAILURE” signal circuit.

SELECTION OF DIAGRAMS DEPENDING ON THE COMPOSITION OF THE VENTILATION SYSTEM

C-SAU	FUNCTIONAL ELEMENTS							
diagram	valve	filter	fan	heat exchanger	C-VKO	C-FKO	C-PKT	recycling
VN-10	valve	filter	supply fan	KVN	—	—	—	—
VN-20	valve	filter	supply/exhaust fan	KVN	—	—	C-PKT	—
VN-30	valve	filter	supply/exhaust fan	KVN	—	—	—	recycling
VN-11	valve	filter	supply fan	KVN	C-VKO	—	—	—
VN-12	valve	filter	supply fan	KVN	—	C-FKO	—	—
VN-21	valve	filter	supply/exhaust fan	KVN	C-VKO	—	C-PKT	—
VN-22	valve	filter	supply/exhaust fan	KVN	—	C-FKO	C-PKT	—
VN-31	valve	filter	supply/exhaust fan	KVN	C-VKO	—	—	recycling
VN-32	valve	filter	supply/exhaust fan	KVN	—	C-FKO	—	recycling

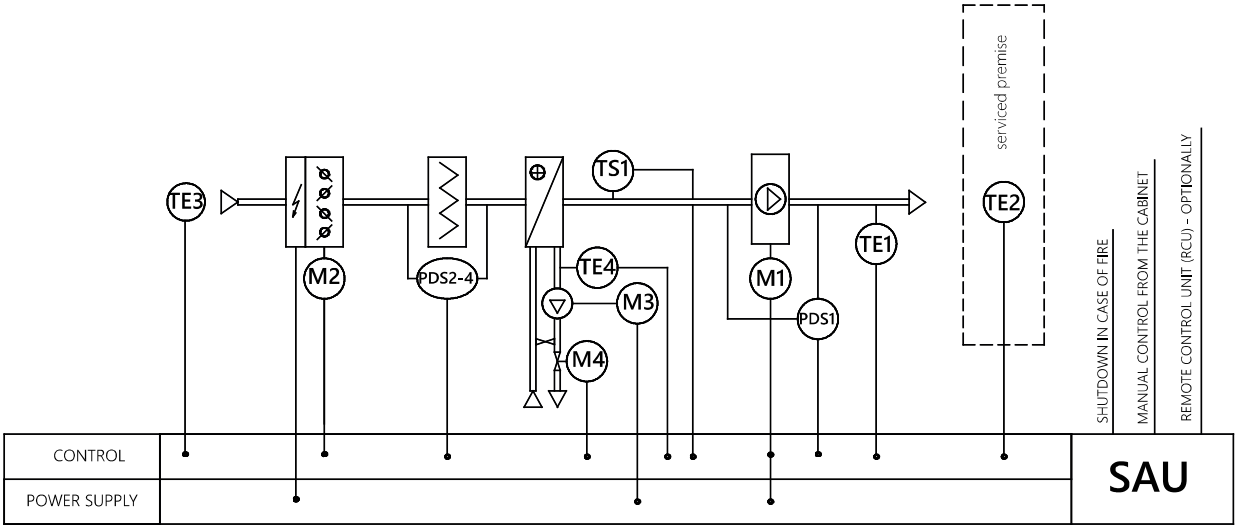
NOTE:
It can be controlled by a frequency converter or speed controller. The speed controllers are supplied separately.

C-SAU diagram	Metal cabinet size, mm		Plastic cabinet size, mm	
	min	max	min	max
VN-10	400x400x200	400x400x200	460x340x160	460x340x160
VN-20	500x500x250	500x500x250	460x340x160	460x340x160
VN-30	500x500x250	500x500x250	610x448x160	610x448x160
VN-11	400x400x200	400x400x200	460x340x160	460x340x160
VN-12	400x400x200	400x400x200	460x340x160	460x340x160
VN-21	500x500x250	500x500x250	460x340x160	460x340x160
VN-22	500x500x250	500x500x250	460x340x160	460x340x160
VN-31	500x500x250	500x500x250	610x448x160	610x448x160
VN-32	500x500x250	500x500x250	610x448x160	610x448x160

CHARACTERISTICS	DESIGNATION	ORDER EXAMPLE
designation of automation diagram of the "Duct" type	C-SAU	C-SAU
type (no.) of the SAU diagram	For diagrams with a fan (without heat exchanger): F-00, F-10, F-20 For diagrams with an electric heater: EN-10(SR), EN-20(SR), EN-30(SR), EN-11(SR), EN-12(SR), EN-21(SR), EN-22(SR), EN-31(SR), EN-32(SR) For diagrams with a water/air-heater: VN-10, VN-20, VN-30, VN-11, VN-12, VN-21, VN-22, VN-31, VN-32	VN-10
automatic standby start-up (when the backup power is turned on)	"0" - switching on the backup power is not provided "AFR" - when using backup power	0
FAN SPECIFICATIONS (FAN 1)		
electric motor	number of phases of the fan motor "1p" - single-phase or "3p" - three-phase motor	3p
	max. motor current, (A)	(0,16)
number of fans - for the F-20 diagram possibility of fan backup for F-00, F-10 diagrams and for EN and VN types	for F-20 diagrams: (fan1 + fan2) < 6 pcs. for F-00 and F-10 diagrams, as well as for all EN and VN: "0" - no redundancy; "AF" - fan backup is provided	AF
fan operation regulation	"0" - without regulation "1" - regulation is provided "EC" - C-PKV-EC type fan	1
FAN SPECIFICATIONS (FAN 2)		
electric motor	number of phases of the fan motor "1p" - single-phase or "3p" - three-phase motor	0
	max. motor current, (A)	0
number of fans - for the F-20 diagram possibility of fan backup for F-00, F-10 diagrams and for EN and VN types	for F-20 diagrams: (fan1 + fan2) < 6 pcs. for F-00 and F-10 diagrams, as well as for all EN and VN: "0" - no redundancy; "AF" - fan backup is provided	0
fan operation regulation	"0" - without regulation "1" - regulation is provided "EC" - C-PKV-EC type fan	0
characteristics of an electric heater	for F and VN type diagrams: "0" - not used for EN type diagrams "width, cm/power, kW" - with rectangular C-EVN "K_diameter, mm/power, kW" - with round C-EVN	0
number of filtration stages	from 0 to 4 (can be more if necessary)	1
cabinet casing type	Met - metal casing Plast - plastic casing	Plast

EXAMPLE:
The C-SAU-VN-10-0-3p(0,16)-AF-1-0-0-0-0-0-1-Plast automation set includes a package of automatic control systems of the "Duct" type, according to the VN-10 diagram with one three-phase fan, the rated motor current is 0.16 A, control of a backup fan and motor speed is provided (for example, a frequency converter), with one filter. SAU version in a plastic cabinet casing.

C-SAU-VN-10



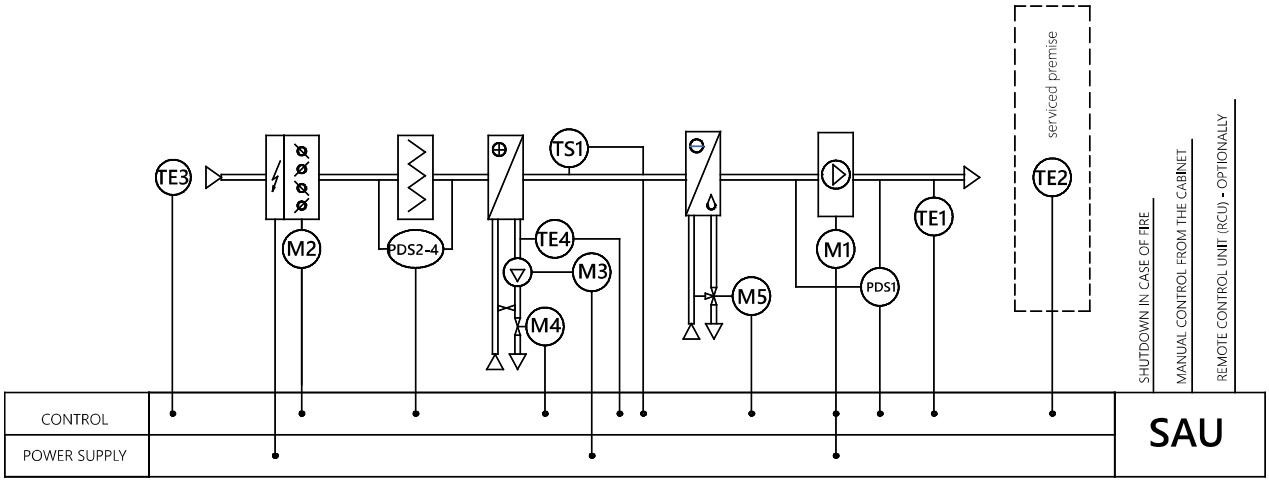
DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
TE1	temperature sensor	supply air temperature control (Pt1000)	standard, included in the SAU set
TE2	temperature sensor	indoor temperature control (Pt1000)	supplied optionally
TE3	temperature sensor	outdoor temperature control (Pt1000)	supplied optionally
TE4	temperature sensor	return heat carrier temperature control (Pt1000)	standard, included in the SAU set
PDS1	differential pressure switch	fan operation monitoring	standard, included in the SAU set
PDS2	differential pressure switch	stage 1 filter clogging monitoring	standard, included in the SAU set
PDS3, PDS4	differential pressure switch	stage 2 and 3 filter clogging monitoring	supplied optionally
TS1	thermostat	icing protection of the heater (caused by air flow)	standard, included in the SAU set
M1	electric motor	fan operation	it is a part of the ventilation unit
M2	electric drive	air valve operation (220V)	it is a part of the ventilation unit
M3	circulation pump	heat carrier supply (220V)	supplied optionally or as a part of the UWS set
M4	electric drive	operation of the water/air-heater valve (24V, 0 ... 10V)	supplied optionally or as a part of the UWS set
RCU	remote control unit	remote control	supplied optionally

FEATURES OF THE DIAGRAM OPERATION

Provides control from the front panel of the cabinet or using the remote control of the supply duct system with a water/air-heater equipped with a circulation pump and a control valve
Functions of the control diagram
Duct system management includes the following functions:

- opening/closing of the air intake valve interlocked with the fan operation;
- maintaining the supply air temperature (using a duct air temperature sensor) or the air temperature in the serviced premise (using a room air temperature sensor) by controlling the circulation pump and the electric control valve of the water/air-heater;
- monitoring the operation of the fan and the condition status of the air filter using sensors - differential pressure switch.

C-SAU-VN-11

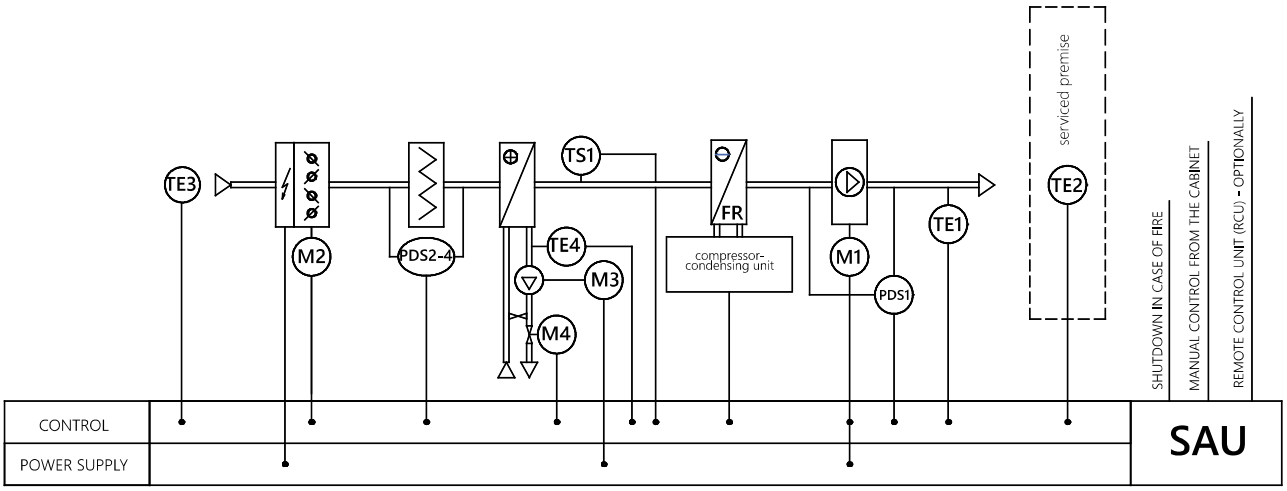


DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
TE1	temperature sensor	supply air temperature control (Pt1000)	standard, included in the SAU set
TE2	temperature sensor	indoor temperature control (Pt1000)	standard, included in the SAU set
TE3	temperature sensor	outdoor temperature control (Pt1000)	supplied optionally
TE4	temperature sensor	return heat carrier temperature control (Pt1000)	standard, included in the SAU set
PDS1	differential pressure switch	fan operation monitoring	standard, included in the SAU set
PDS2	differential pressure switch	stage 1 filter clogging monitoring	standard, included in the SAU set
PDS3, PDS4	differential pressure switch	stage 2 and 3 filter clogging monitoring	supplied optionally
TS1	thermostat	icing protection of the heater (caused by air flow)	standard, included in the SAU set
M1	electric motor	fan operation	it is a part of the ventilation unit
M2	electric drive	air valve operation (220V)	it is a part of the ventilation unit
M3	circulation pump	heat carrier transfer (220V)	supplied optionally or as a part of the UWS set
M4	electric drive	operation of the water/air-heater valve (24V, 0 ... 10V)	supplied optionally or as a part of the UWS set
M5	electric drive	operation of the water/air-heater valve (24V, 0 ... 10V)	connection is provided
RCU	remote control unit	remote control	supplied optionally

FEATURES OF THE DIAGRAM OPERATION

Provides control from the front panel of the cabinet or using the remote control of the supply duct system with a water heater equipped with a circulation pump and a control valve, as well as with a water/air-cooler equipped with a three-way control valve.
Functions of the control scheme.
In addition to the functions of the C-SAU-VN-10 diagram, this diagram allows maintaining the supply air temperature (using a duct air temperature sensor) or the air temperature in the serviced premise (using a room air temperature sensor) by controlling the circulation pump and the electric drive of the control valve of the water/air-heater and the electric drive of the control valve of the water/air-cooler.
Maintaining the air temperature when using C-VKO is carried out by regulating the cooling capacity of the heat exchanger using a three-way control valve. The requirement to install a three-way valve is due to the need for a constant flow of coolant through the cooler, since a two-way valve operates by throttling the flow, which is unacceptable in this diagram. The SAU automation equipment includes a three-way water valve with a drive as standard and must be ordered separately.
In this case, the drive of the water cooler control valve features analog control (0 ... 10V).

C-SAU-VN-12



DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
TE1	temperature sensor	supply air temperature control (Pt1000)	standard, included in the SAU set
TE2	temperature sensor	indoor temperature control (Pt1000)	supplied optionally
TE3	temperature sensor	outdoor temperature control (Pt1000)	supplied optionally
TE4	temperature sensor	return heat carrier temperature control (Pt1000)	standard, included in the SAU set
PDS1	differential pressure switch	fan operation monitoring	standard, included in the SAU set
PDS2	differential pressure switch	stage 1 filter clogging monitoring	standard, included in the SAU set
PDS3, PDS4	differential pressure switch	stage 2 and 3 filter clogging monitoring	supplied optionally
TS1	thermostat	icing protection of the heater (caused by air flow)	standard, included in the SAU set
M1	electric motor	fan operation	it is a part of the ventilation unit
FR	CCU	CCU discrete control, "dry contact"	standard, included in the SAU set
M2	electric drive	air valve operation (220V)	it is a part of the ventilation unit
M3	circulation pump	heat carrier transfer (220V)	supplied optionally or as a part of the UWS set
M4	electric drive	operation of the water/air-heater valve (24V, 0 ... 10V)	supplied optionally or as a part of the UWS set
RCU	remote control unit	remote control	supplied optionally

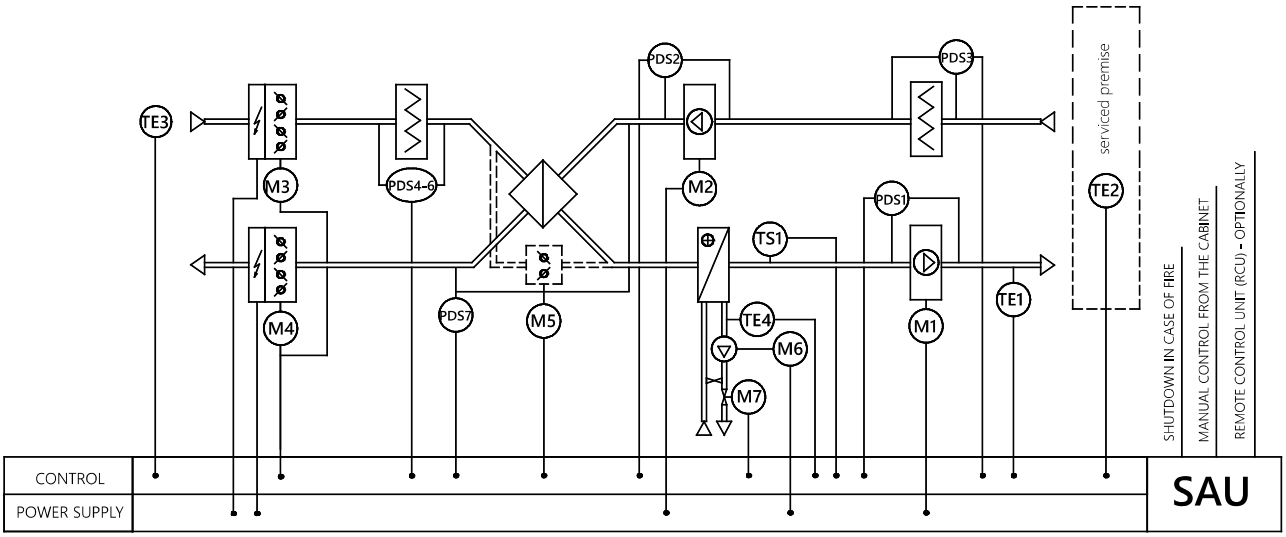
FEATURES OF THE DIAGRAM OPERATION

This diagram is a complete analog of C-SAU-VN-11, except that instead of a water/air-cooler, the latter diagram provides for completing the system with a Freon air cooler and controlling the compressor-condensing unit (CCU) by closing/opening the dry contact. In this case, the controller implements two options of the CCU control logic: "on/off" and "operation permission".

Switching on/off provides for closing the contact when it is necessary to cool the air, and opening the contact if the temperature does not exceed the setpoint value.

The operation permission provides for closing the contact if nothing prevents the CCU from switching on. The mode is selected by the operator from the controller menu.

C-SAU-VN-20

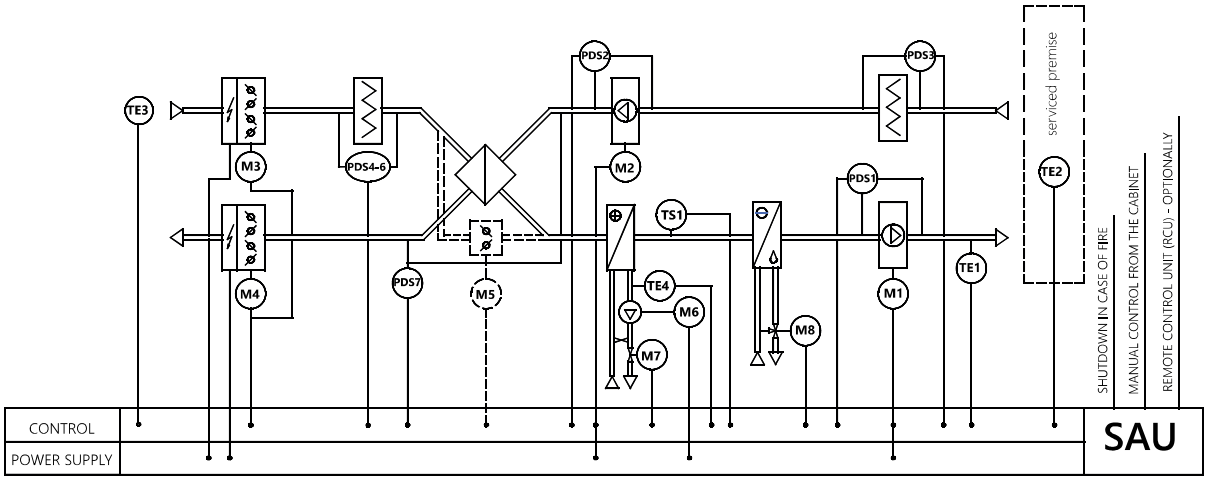


DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
TE1	temperature sensor	supply air temperature control (Pt1000)	standard, included in the SAU set
TE2	temperature sensor	indoor temperature control (Pt1000)	supplied optionally
TE3	temperature sensor	outdoor temperature control (Pt1000)	supplied optionally
TE4	temperature sensor	return heat carrier temperature control (Pt1000)	standard, included in the SAU set
PDS1, PDS2	differential pressure switch	fan operation monitoring	standard, included in the SAU set
PDS3	differential pressure switch	exhaust filter clogging monitoring	standard, included in the SAU set
PDS4	differential pressure switch	stage 1 filter clogging monitoring	standard, included in the SAU set
PDS5, PDS6	differential pressure switch	stage 2 and 3 filter clogging monitoring	supplied optionally
PDS7	differential pressure switch	recuperative heat exchanger operation monitoring (Pt1000)	standard, included in the SAU set
TS1	thermostat	icing protection of the heater (caused by air flow)	standard, included in the SAU set
M6	circulation pump	heat carrier transfer (220V)	supplied optionally or as a part of the UWS set
M7	electric drive	operation of the water/air-heater valve (24V, 0 ... 10V)	supplied optionally or as a part of the UWS set
M1, M2	electric motor	fan operation	it is a part of the ventilation unit
M3, M4	electric drive	air valve operation (220V)	it is a part of the ventilation unit
M5	electric drive	bypass air damper operation (220V, open/close)	it is a part of the bypass channel
RCU	remote control unit	remote control	supplied optionally

FEATURES OF THE DIAGRAM OPERATION

Provides control from the front panel of the cabinet or with the help of the RCU of supply and exhaust duct system with a plate heat recovery unit and a water/air-heater equipped with a circulation pump and a control valve.
In addition to the standard functions, this circuit monitors the operation of the exhaust fan and the condition status of the filter in the exhaust air duct, and also generates a control signal to monitor the operation of the heat recovery unit on the differential pressure switch.
The bypass channel and bypass channel valve are not included in the delivery package of the heat recovery unit.

C-SAU-VN-21

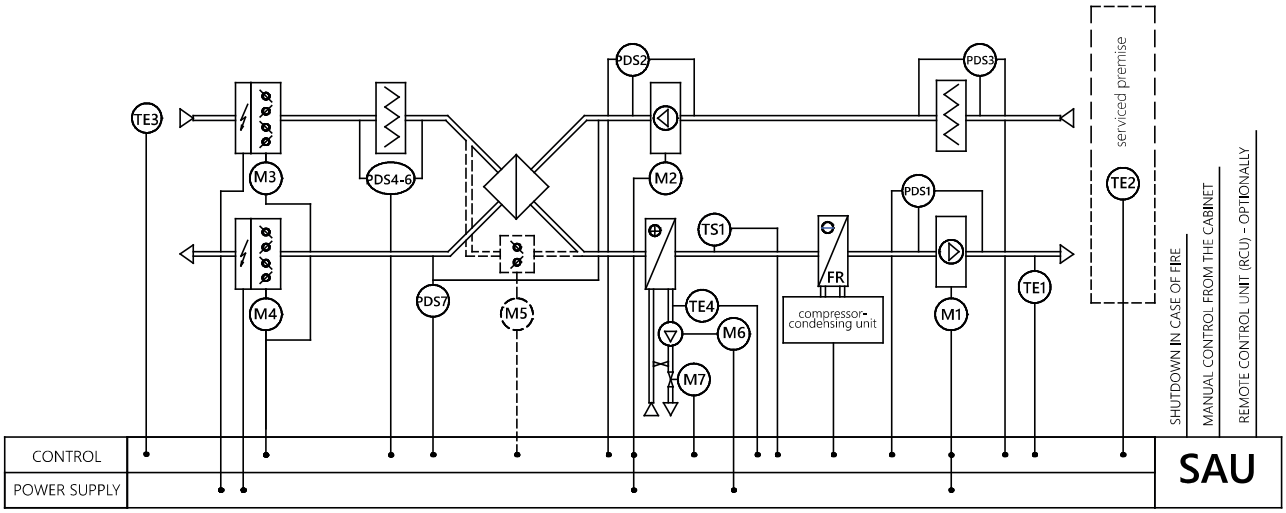


DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
TE1	temperature sensor	supply air temperature control (Pt1000)	standard, included in the SAU set
TE2	temperature sensor	indoor temperature control (Pt1000)	standard, included in the SAU set
TE3	temperature sensor	outdoor temperature control (Pt1000)	supplied optionally
TE4	temperature sensor	return heat carrier temperature control (Pt1000)	standard, included in the SAU set
PDS1, PDS2	differential pressure switch	fan operation monitoring	standard, included in the SAU set
PDS3	differential pressure switch	exhaust filter clogging monitoring	standard, included in the SAU set
PDS4	differential pressure switch	stage 1 filter clogging monitoring	standard, included in the SAU set
PDS5, PDS6	differential pressure switch	stage 2 and 3 filter clogging monitoring	supplied optionally
PDS7	differential pressure switch	recuperative heat exchanger operation monitoring (Pt1000)	standard, included in the SAU set
TS1	thermostat	icing protection of the heater (caused by air flow)	standard, included in the SAU set
M6	circulation pump	heat carrier transfer (220V)	supplied optionally or as a part of the UWS set
M7	electric drive	operation of the water/air-heater valve (24V, 0 ... 10V)	supplied optionally or as a part of the UWS set
M8	electric drive	operation of the water cooler valve (24V, 0...10V)	connection is provided
M1, M2	electric motor	fan operation	it is a part of the ventilation unit
M3, M4	electric drive	air valve operation (220V)	it is a part of the ventilation unit
M5	electric drive	bypass air damper operation (220V, open/close)	it is a part of the bypass channel
RCU	remote control unit	remote control	supplied optionally

FEATURES OF THE DIAGRAM OPERATION

Provides control from the front panel of the cabinet or using the remote control of supply and exhaust duct system with a plate heat recovery unit and a water/air-heater equipped with a circulation pump and a control valve.
In addition to the standard functions, this circuit monitors the operation of the exhaust fan and the condition status of the filter in the exhaust air duct, and also generates a control signal to monitor the operation of the heat recovery unit on the differential pressure switch.
The bypass channel and bypass channel valve are not included in the delivery package of the heat recovery unit.

C-SAU-VN-22

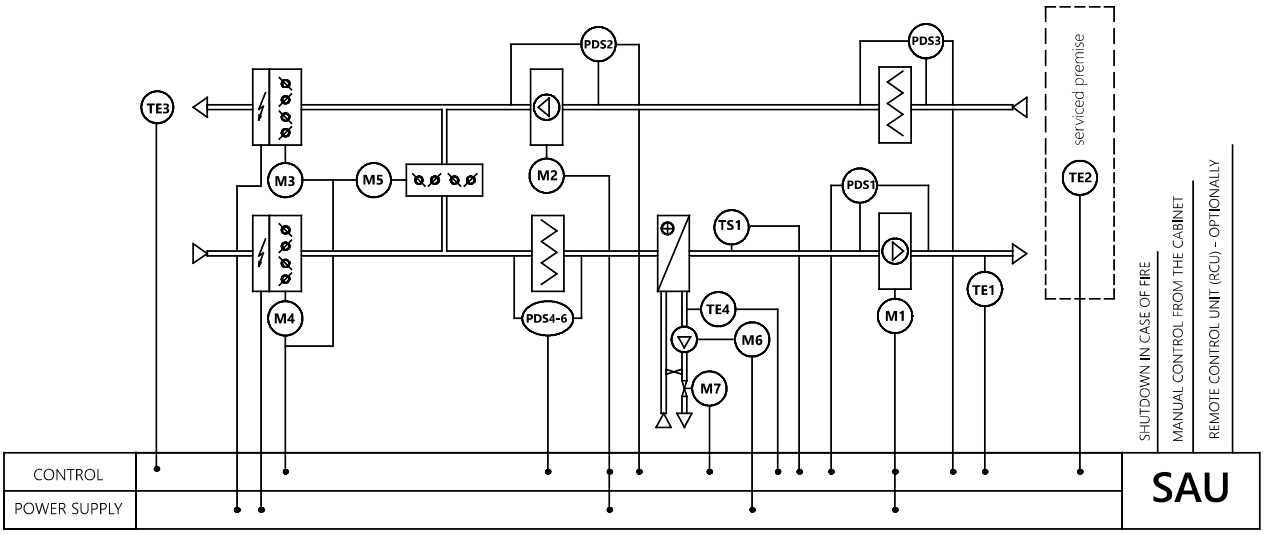


DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
TE1	temperature sensor	supply air temperature control (Pt1000)	standard, included in the SAU set
TE2	temperature sensor	indoor temperature control (Pt1000)	standard, included in the SAU set
TE3	temperature sensor	outdoor temperature control (Pt1000)	supplied optionally
TE4	temperature sensor	return heat carrier temperature control (Pt1000)	standard, included in the SAU set
PDS1, PDS2	differential pressure switch	fan operation monitoring	standard, included in the SAU set
PDS3	differential pressure switch	exhaust filter clogging monitoring	standard, included in the SAU set
PDS4	differential pressure switch	stage 1 filter clogging monitoring	standard, included in the SAU set
PDS5, PDS6	differential pressure switch	stage 2 and 3 filter clogging monitoring	supplied optionally
PDS7	differential pressure switch	recuperative heat exchanger operation monitoring (Pt1000)	standard, included in the SAU set
TS1	thermostat	icing protection of the heater (caused by air flow)	standard, included in the SAU set
M6	circulation pump	heat carrier transfer (220V)	supplied optionally or as a part of the UWS set
M7	electric drive	operation of the water/air-heater valve (24V, 0 ... 10V)	supplied optionally or as a part of the UWS set
FR	CCU	CCU discrete control, "dry contact"	standard, included in the SAU set
M1, M2	electric motor	fan operation	it is a part of the ventilation unit
M3, M4	electric drive	air valve operation (220V)	it is a part of the ventilation unit
M5	electric drive	bypass air damper operation (220V, open/close)	it is a part of the bypass channel
RCU	remote control unit	remote control	supplied optionally

FEATURES OF THE DIAGRAM OPERATION

This diagram is a complete analog of C-SAU-VN-21, except that instead of a water/air-cooler, the latter diagram provides for completing the system with a Freon air cooler and controlling the compressor-condensing unit (CCU) by closing/opening the dry contact.
The control logic of the CCU is similar to C-SAU-VN-12.
The bypass channel and bypass channel valve are not included in the delivery package of the heat recovery unit.

C-SAU-VN-30

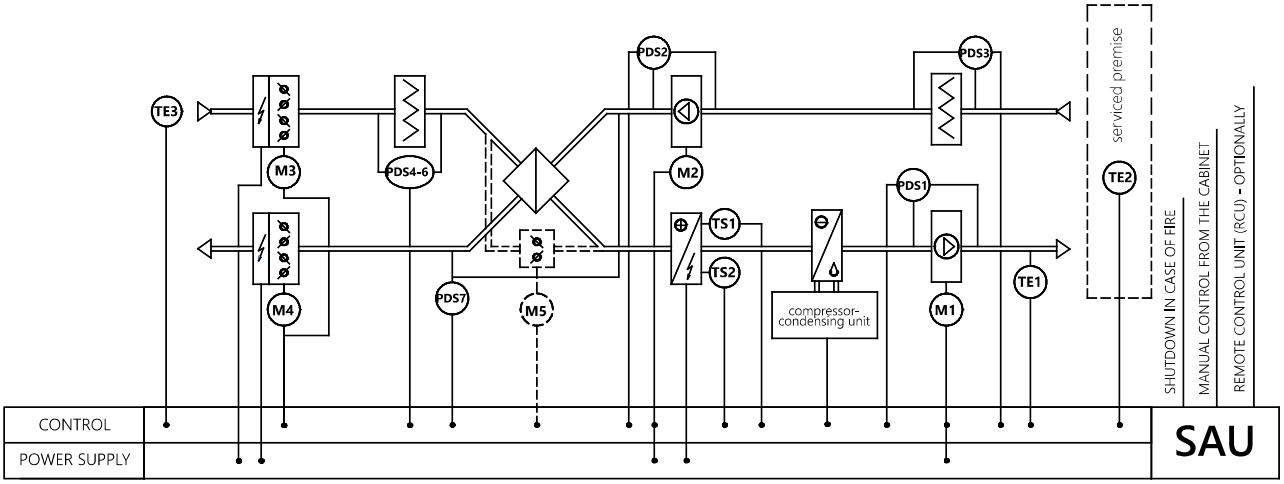


DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
TE1	temperature sensor	supply air temperature control (Pt1000)	standard, included in the SAU set
TE2	temperature sensor	indoor temperature control (Pt1000)	supplied optionally
TE3	temperature sensor	outdoor temperature control (Pt1000)	supplied optionally
TE4	temperature sensor	exhaust air control behind the recuperative heat exchanger (Pt1000)	standard, included in the SAU set
PDS1, PDS2	differential pressure switch	fan operation monitoring	standard, included in the SAU set
PDS3	differential pressure switch	exhaust filter clogging monitoring	standard, included in the SAU set
PDS4	differential pressure switch	stage 1 filter clogging monitoring	standard, included in the SAU set
PDS5, PDS6	differential pressure switch	stage 2 and 3 filter clogging monitoring	supplied optionally
TS1	thermostat	icing protection of the heater (caused by air flow)	standard, included in the SAU set
M6	circulation pump	heat carrier transfer (220V)	supplied optionally or as a part of the UWS set
M7	electric drive	operation of the water/air-heater valve (24V, 0 ... 10V)	supplied optionally or as a part of the UWS set
M8	electric drive	operation of the water cooler valve (24V, 0...10V)	it is a part of the ventilation unit
M1, M2	electric motor	fan operation	it is a part of the ventilation unit
M3, M4, M5	electric drive	air valve operation (220V)	it is a part of the ventilation unit
RCU	remote control unit	remote control	supplied optionally

FEATURES OF THE DIAGRAM OPERATION

Provides control from the front panel of the cabinet or using the remote control of the supply and exhaust duct system with interlocked valves of the supply, recirculating and exhaust air, as well as a water/air-heater equipped with a circulation pump and a control valve.
In addition to the functions provided for in the C-SAU-VN-20 diagram, this diagram monitors the operation of the exhaust fan and the condition status of the filter in the exhaust duct, and also outputs a control signal (0...10V) to regulate the operation of recirculation valves.

C-SAU-VN-31

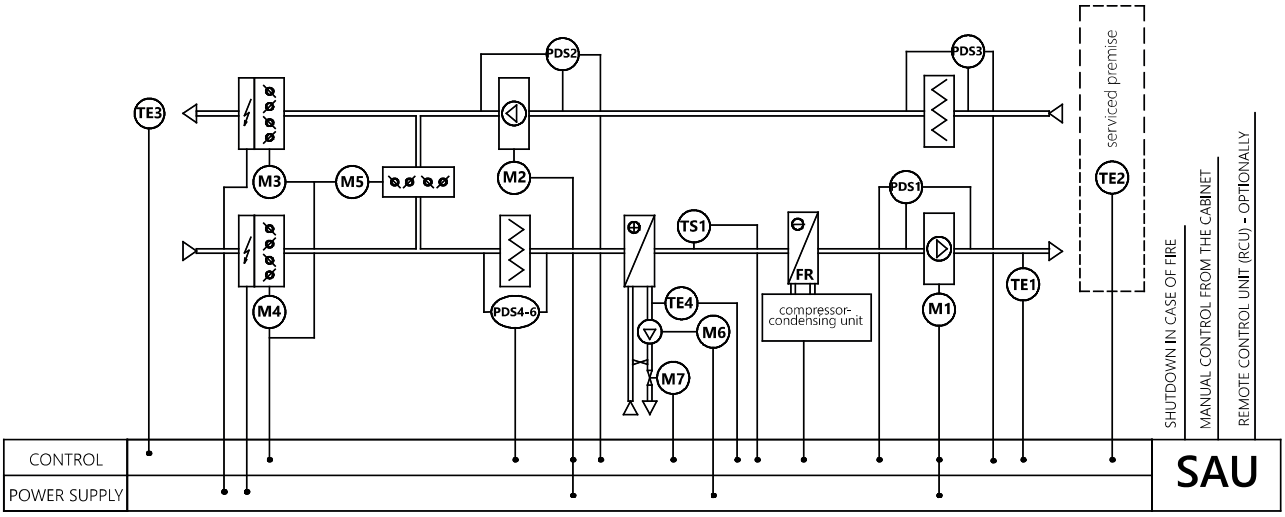


DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
TE1	temperature sensor	supply air temperature control (Pt1000)	standard, included in the SAU set
TE2	temperature sensor	indoor temperature control (Pt1000)	standard, included in the SAU set
TE3	temperature sensor	outdoor temperature control (Pt1000)	supplied optionally
TE4	temperature sensor	exhaust air control behind the recuperative heat exchanger (Pt1000)	standard, included in the SAU set
PDS1, PDS2	differential pressure switch	fan operation monitoring	standard, included in the SAU set
PDS3	differential pressure switch	exhaust filter clogging monitoring	standard, included in the SAU set
PDS4	differential pressure switch	stage 1 filter clogging monitoring	standard, included in the SAU set
PDS5, PDS6	differential pressure switch	stage 2 and 3 filter clogging monitoring	supplied optionally
TS1	thermostat	icing protection of the heater (caused by air flow)	standard, included in the SAU set
M6	circulation pump	heat carrier transfer (220V)	supplied optionally or as a part of the UWS set
M7	electric drive	operation of the water/air-heater valve (24V, 0 ... 10V)	supplied optionally or as a part of the UWS set
M8	electric drive	operation of the water cooler valve (24V, 0...10V)	it is a part of the ventilation unit
M1, M2	electric motor	fan operation	it is a part of the ventilation unit
M3, M4, M5	electric drive	air valve operation (220V)	it is a part of the ventilation unit
RCU	remote control unit	remote control	supplied optionally

FEATURES OF THE DIAGRAM OPERATION

Provides control from the front panel of the cabinet or using the remote control of the supply and exhaust duct system with interlocked valves of the supply, recirculating and exhaust air, with a water/air-heater equipped with a circulation pump and a control valve, as well as with a water/air-cooler equipped with a three-way control valve.
In addition to the functions provided for in the C-SAU-VN-21 diagram, this diagram monitors the operation of the exhaust fan and the condition status of the filter in the exhaust duct, and also outputs a control signal (0...10V) to regulate the operation of recirculation valves.

C-SAU-VN-32



DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
TE1	temperature sensor	supply air temperature control (Pt1000)	standard, included in the SAU set
TE2	temperature sensor	indoor temperature control (Pt1000)	standard, included in the SAU set
TE3	temperature sensor	outdoor temperature control (Pt1000)	supplied optionally
TE4	temperature sensor	exhaust air control behind the recuperative heat exchanger (Pt1000)	standard, included in the SAU set
PDS1, PDS2	differential pressure switch	fan operation monitoring	standard, included in the SAU set
PDS3	differential pressure switch	exhaust filter clogging monitoring	standard, included in the SAU set
PDS4	differential pressure switch	stage 1 filter clogging monitoring	standard, included in the SAU set
PDS5, PDS6	differential pressure switch	stage 2 and 3 filter clogging monitoring	supplied optionally
TS1	thermostat	icing protection of the heater (caused by air flow)	standard, included in the SAU set
M6	circulation pump	heat carrier transfer (220V)	supplied optionally or as a part of the UWS set
M7	electric drive	operation of the water/air-heater valve (24V, 0 ... 10V)	supplied optionally or as a part of the UWS set
FR	CCU	CCU discrete control, "dry contact"	standard, included in the SAU set
M1, M2	electric motor	fan operation	it is a part of the ventilation unit
M3, M4, M5	electric drive	air valve operation (220V)	it is a part of the ventilation unit
RCU	remote control unit	remote control	supplied optionally

FEATURES OF THE DIAGRAM OPERATION

This diagram is a complete analog of C-SAU-VN-31, except that instead of a water/air-cooler, the latter diagram provides for completing the system with a Freon air cooler and controlling the compressor-condensing unit (CCU) by closing/opening the dry contact.
The control logic of the CCU is similar to C-SAU-VN-12.

C-SAU ТИП “EN”

C-SAU-EN type diagrams are designed to control supply and exhaust systems with electric heating and water or Freon cooling. The functionality of the C-SAU-EN automatic control cabinet depends on the configuration of the ventilation unit that will be controlled, which is reflected in the diagram number.
General functions of “EN” type diagrams:
ON/OFF CONTROL – local from the cabinet, remote or by using an automatic timer.
The supply air TEMPERATURE is maintained by means of a duct air temperature sensor or by using a room air temperature sensor (the air temperature monitoring in the serviced premise) by discrete control of the electric heater sections (up to 6 sections).
COOLING of the serviced premise in the “SUMMER” mode by controlling Freon (CCU) or water cooler (according to the selected scheme).
CONTROL of the operation of air valves – the valves are open using electric drives.
MONITORING the operation of the fan(s) using differential pressure switches.
AIR FILTER CONTAMINATION CONTROL - protection against clogging of the air filter(s) by means of differential pressure switches allows for timely maintenance and prevents malfunctions in the ventilation system.
There are TWO MODES OF OPERATION of the system: “WINTER” and “SUMMER”, for each of which separate temperature settings (limits) are set. Switching between modes can be done either manually from the controller menu, or automatically from the outdoor temperature sensor.
The OPERATING SCHEDULE allows for fully automated air handling processes (automatic switching on/off and shifting of temperature settings) provided for by the layout of the duct ventilation system, as well as for optimizing energy consumption.
Protective functions of “EN” type diagrams:
Fan shutdown when “FAILURE” or “FIRE” signal is detected.
PROTECTION of the fan motor against short circuit and overload.
PROTECTION of electric heaters from overheating is carried out in two stages by means of two bimetallic thermostats with automatic and manual reset.
Thermostat of the first degree of protection with automatic reset – gives a signal to turn off the heater when the temperature on the casing reaches 60°C. After cooling, the thermostat automatically returns to the operating position, and the system can be restarted.
The thermostat of the second degree of protection with manual return to its original position turns off the C-EVN when the temperature reaches 90°C. In this case, restarting the system requires direct operator involvement.
The fan SHUTDOWN DELAY TIME is set in the controller menu, allows heat to be removed from the tubular heating elements after it has been switched off, and thus ensures its safe cooling.
Automatic restart of the system when the power supply is restored after a failure. At the same time, the controller provides the function of storing in memory the events that occur during the operation of the ventilation system, which are recorded in a special event log of the controller.
For C-SAU-EN diagrams, the following functions are provided as standard in control cabinets:

- perimeter heating of the drive and air damper valve;
- remote control unit (RCU);
- switching on by an external NO contact;
- NO contact of the “Operation” signal circuit;
- NO contact of the “Failure” signal circuit.

Connection to the ducted ventilation dispatching system.
NOTE. When ordering C-SAU-EN with an electric heater of 23 kW or more, in the marking of which the Plast cabinet type is selected, the automation set is made in two different cabinets: the control cabinet is plastic; the power cabinet is metal.
Power is supplied to each of these cabinets separately.
WARNING! When setting setpoints (limit values) in installations with an electric heater, please refer to the technical operational characteristics of the electric heater and the supply air unit.
It is FORBIDDEN to set the temperature higher than specified in the assignment for the installation fabrication. In case of deviation from the characteristics provided by the manufacturer, without written approval (for example, setting the setpoint temperature above the recommended one), all responsibility for the operation of the supply air unit and the consequences of its operation is borne by the MAINTENANCE PERSONNEL of the enterprise where the equipment is installed.

SELECTION OF DIAGRAMS DEPENDING ON THE COMPOSITION OF THE VENTILATION SYSTEM

C-SAU	FUNCTIONAL ELEMENTS							
diagram	valve	filter	fan	heat exchanger	C-VKO	C-FKO	C-PKT	recycling
EN-10 (SR)	valve	filter	supply fan	EVN	—	—	—	—
EN-20 (SR)	valve	filter	supply/exhaust fan	EVN	—	—	C-PKT	—
EN-30 (SR)	valve	filter	supply/exhaust fan	EVN	—	—	—	recycling
EN-11 (SR)	valve	filter	supply fan	EVN	C-VKO	—	—	—
EN-12 (SR)	valve	filter	supply fan	EVN	—	C-FKO	—	—
EN-21 (SR)	valve	filter	supply/exhaust fan	EVN	C-VKO	—	C-PKT	—
EN-22 (SR)	valve	filter	supply/exhaust fan	EVN	—	C-FKO	C-PKT	—
EN-31 (SR)	valve	filter	supply/exhaust fan	EVN	C-VKO	—	—	recycling
EN-32 (SR)	valve	filter	supply/exhaust fan	EVN	—	C-FKO	—	recycling

In addition to the functions of these diagrams, the C-SAU-EN... (SR) type diagrams allow expanding the control capabilities of the electric duct heater.
A distinctive feature of this scheme is the possibility of Pulse Width Modulation (PWM regulation) of the first stage of heating of the electric heater, the second and third stages are controlled discretely.
PWM regulation allows for "smooth" adjustment of the temperature of the first stage, while providing more accurate maintenance of the set temperature.
If the first stage of heating does not maintain the set temperature, the second and third stages are switched on.
This control mode extends the service life of the electric heater and also improves its operating efficiency.

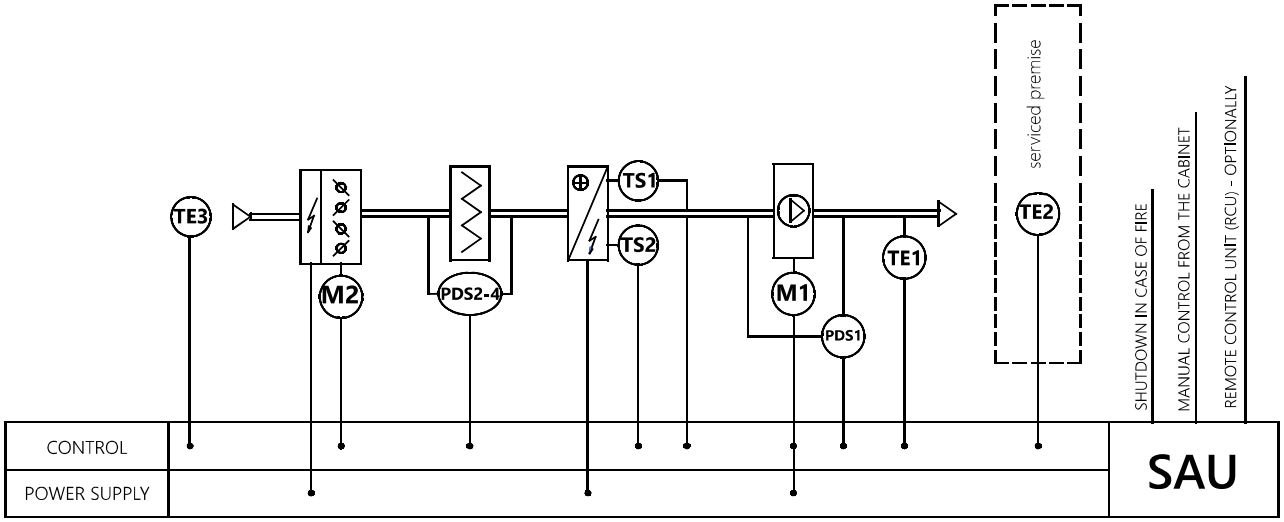
C-SAU diagram	Metal cabinet size, mm		Plastic cabinet size, mm	
	min	max	min	max
EN-10	500x400x220	500x400x220	842x448x160	842x448x160
EN-20	600x600x300	600x600x300	842x448x160	842x448x160
EN-30	600x600x300	600x600x300	842x448x160	842x448x160
EN-11	500x400x220	500x400x220	842x448x160	842x448x160
EN-12	500x400x220	500x400x220	842x448x160	842x448x160
EN-21	600x600x300	600x600x300	842x448x160	842x448x160
EN-22	600x600x300	600x600x300	842x448x160	842x448x160
EN-31	600x600x300	600x600x300	842x448x160	842x448x160
EN-32	600x600x300	600x600x300	842x448x160	842x448x160
EN-50	500x400x220	500x400x220	842x448x160	842x448x160

CHARACTERISTICS	DESIGNATION	ORDER EXAMPLE
designation of automation diagram of the "Duct" type	C-SAU	C-SAU
type (no.) of the SAU diagram	For diagrams with a fan (without heat exchanger): F-00, F-10, F-20 For diagrams with an electric heater: EN-10(SR), EN-20(SR), EN-30(SR), EN-11(SR), EN-12(SR), EN-21(SR), EN-22(SR), EN-31(SR), EN-32(SR) For diagrams with a water/air-heater: VN-10, VN-20, VN-30, VN-11, VN-12, VN-21, VN-22, VN-31, VN-32	EN-10(SR)
automatic standby start-up (when the backup power is turned on)	"0" - backup start-up is not provided "AFR" - when using backup power	0
FAN SPECIFICATIONS (FAN 1)		
electric motor	number of phases of the fan motor "1p" - single-phase or "3p" - three-phase motor	1p
	max. motor current, (A)	(0,16)
number of fans - for the F-20 diagram possibility of fan backup for F-00, F-10 diagrams and for EN and VN types	for F-20 diagrams: (fan1 + fan2) < 6 pcs. for F-00 and F-10 diagrams, and for all EN and VN: "0" - no fan backup is provided; "AF" - fan backup is provided	0
fan operation regulation	"0" - without regulation "1" - regulation is provided "EC" - C-PKV-EC type fan	1
FAN SPECIFICATIONS (FAN 2)		
electric motor	number of phases of the fan motor "1p" - single-phase or "3p" - three-phase motor	0
	max. motor current, (A)	0
number of fans - for the F-20 diagram possibility of fan backup for F-00, F-10 diagrams and for EN and VN types	for F-20 diagrams: (fan1 + fan2) < 6 pcs. for F-00 and F-10 diagrams, and for all EN and VN: "0" - no fan backup is provided; "AF" - fan backup is provided	0
fan operation regulation	"0" - without regulation "1" - regulation is provided "EC" - C-PKV-EC type fan	0
characteristics of the electric heater	for F and VN type diagrams: "0" - not used for EN type diagrams "width, cm/power, kW" - with rectangular C-EVN "K_diameter, mm / power, kW" - with round C-EVN	K100/1,2
number of filtration stages	from 0 to 4 (can be more if necessary)	1
cabinet casing type	Met - metal casing Plast - plastic casing	Plast

EXAMPLE 1: The C-SAU-EN-10(SR)-0-1p(0,16)-0-1-0-0-0-0-0-K100/1,2-1-Plast automation set provides a package of automatic control system of the "Duct" type according to the EN-10SR scheme (with PWM), with one single-phase fan, rated motor current 0.16 A, motor speed control is provided, with a round electric heater d = 100 mm with a power of 1.2 kW, with one filter, in a plastic cabinet.

EXAMPLE 2: The C-SAU-EN-10-0-1p(0,16)-0-1-0-0-0-0-0-40/9-1-Plast automation set provides a package of automatic control system of the "Duct" type according to the EN-10SR scheme (without PWM), with one single-phase fan, rated motor current 0.16 A, motor speed control is provided, with a rectangular electric heater 400 mm wide with a power of 9 kW, with one filter, in a plastic cabinet.

C-SAU-EN-10 (SR)



DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
TE1	temperature sensor	supply air temperature control (Pt1000)	standard, included in the SAU set
TE2	temperature sensor	indoor temperature control (Pt1000)	supplied optionally
TE3	temperature sensor	outdoor temperature control (Pt1000)	supplied optionally
PDS1	differential pressure switch	fan operation monitoring	standard, included in the SAU set
PDS2	differential pressure switch	stage 1 filter clogging monitoring	standard, included in the SAU set
PDS3, PDS4	differential pressure switch	stage 2 and 3 filter clogging monitoring	supplied optionally
TS1, TS2	thermostat	protection against overheating of the electric heater unit	standard, included in the SAU set
M1	electric motor	fan operation	it is a part of the ventilation unit
M2	electric drive	air valve operation (220V)	it is a part of the ventilation unit
RCU	remote control unit	remote control	supplied optionally

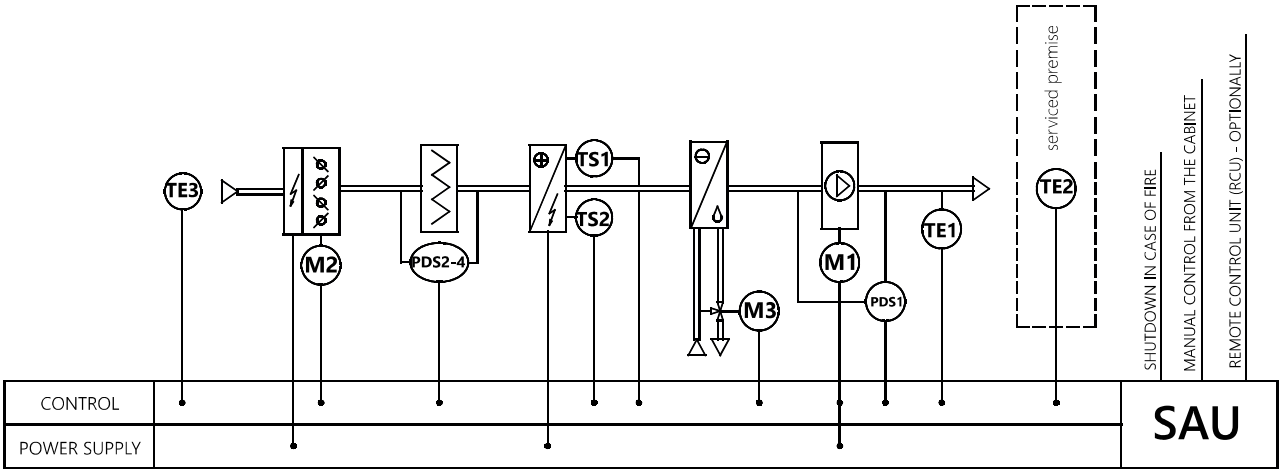
FEATURES OF THE DIAGRAM OPERATION

C-SAU-EN-10 provides control from the front panel of the cabinet or using the remote control of the supply duct ventilation system with an electric air heater.
Duct system management includes the following functions:

- opening/closing of the air intake valve interlocked with the fan operation;
- maintaining the supply air temperature (using a duct air temperature sensor) or the air temperature in the serviced premise (using a room air temperature sensor) by discrete control of the electric heater sections;
- monitoring the operation of the fan and the condition status of the air filter using sensors - differential pressure switch.

C-SAU-EN-10 (SR) - provides for the use of PWM regulation.

C-SAU-EN-11 (SR)

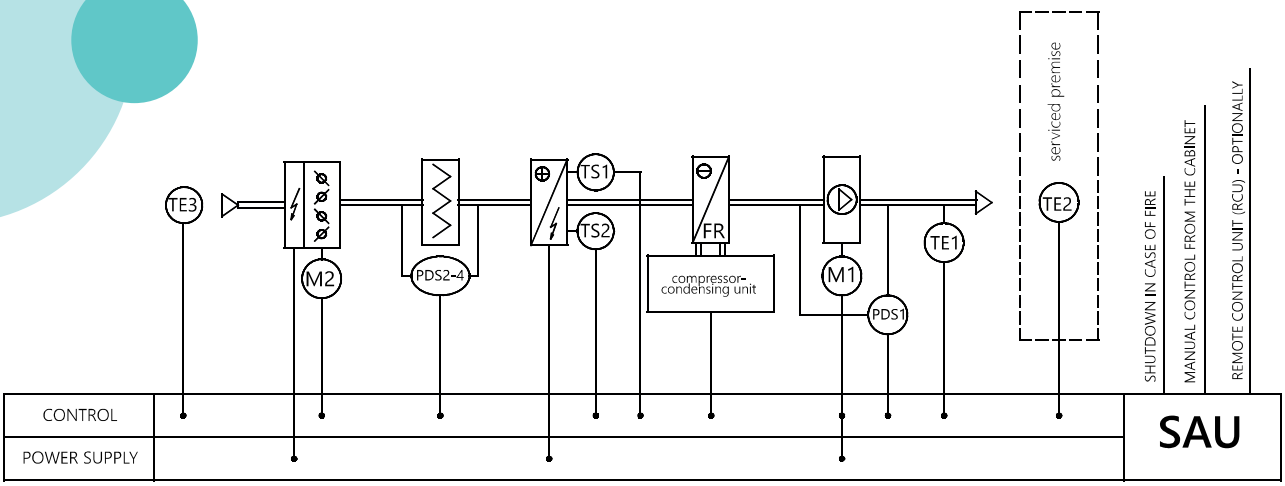


DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
TE1	temperature sensor	supply air temperature control (Pt1000)	standard, included in the SAU set
TE2	temperature sensor	indoor temperature control (Pt1000)	standard, included in the SAU set
TE3	temperature sensor	outdoor temperature control (Pt1000)	supplied optionally
PDS1	differential pressure switch	fan operation monitoring	standard, included in the SAU set
PDS2	differential pressure switch	stage 1 filter clogging monitoring	standard, included in the SAU set
PDS3, PDS4	differential pressure switch	stage 2 and 3 filter clogging monitoring	supplied optionally
TS1, TS2	thermostat	protection against overheating of the electric heater unit	standard, included in the SAU set
M1	electric motor	fan operation	it is a part of the ventilation unit
M2	electric drive	air valve operation (220V)	it is a part of the ventilation unit
M3	electric drive	operation of the water/air-cooler valve (24V, 0 ... 10V)	connection is provided
RCU	remote control unit	remote control	supplied optionally

FEATURES OF THE DIAGRAM OPERATION

Provides control from the front panel of the cabinet or using the remote control of the supply duct system with both an electric air heater and a water/air-cooler equipped with a three-way control valve.
In addition to the functions of the C-SAU-EN-10 diagram, this diagram allows maintaining the supply air temperature (using a duct air temperature sensor) or the air temperature in the serviced premise (using a room air temperature sensor) by discrete control of the electric heater sections.
C-SAU-EN-11 (SR) - provides for the use of PWM regulation.

C-SAU-EN-12 (SR)

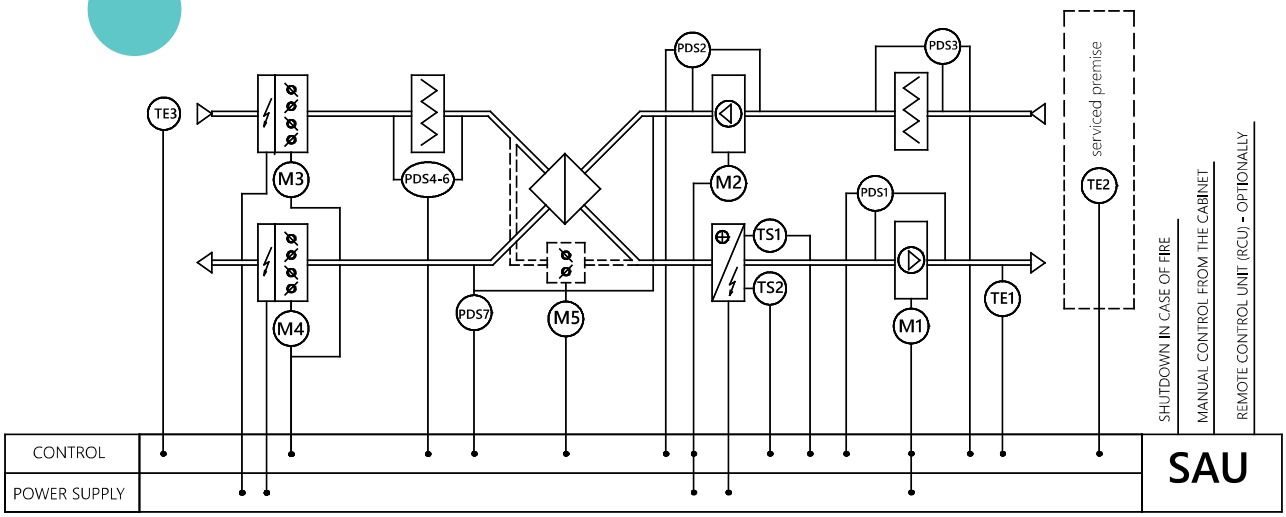


DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
TE1	temperature sensor	supply air temperature control (Pt1000)	standard, included in the SAU set
TE2	temperature sensor	indoor temperature control (Pt1000)	standard, included in the SAU set
TE3	temperature sensor	outdoor temperature control (Pt1000)	supplied optionally
PDS1	differential pressure switch	fan operation monitoring	standard, included in the SAU set
PDS2	differential pressure switch	stage 1 filter clogging monitoring	standard, included in the SAU set
PDS3, PDS4	differential pressure switch	stage 2 and 3 filter clogging monitoring	supplied optionally
TS1, TS2	thermostat	protection against overheating of the electric heater unit	it is a part of the ventilation unit
M1	electric motor	fan operation	it is a part of the ventilation unit
FR	CCU	CCU discrete control, "dry contact"	standard, included in the SAU set
M2	electric drive	air valve operation (220V)	it is a part of the ventilation unit
RCU	remote control unit	remote control	supplied optionally

FEATURES OF THE DIAGRAM OPERATION

This diagram is a complete analog of C-SAU-EN-11, except that instead of a water/air-cooler, the latter diagram diagram provides for completing the system with a Freon air cooler and controlling the compressor-condensing unit (CCU) by closing/opening the dry contact.
In this case, the controller implements two options of the CCU control logic: "on/off" and "operation permission".
Switching on/off provides for closing the contact when it is necessary to cool the air, and opening the contact if the temperature does not exceed the setpoint value.
The operation permission provides for closing the contact if nothing prevents the CCU from switching on. The mode is selected by the operator from the controller menu.
C-SAU-EN-12 (SR) - provides for the use of PWM regulation.

C-SAU-EN-20 (SR)

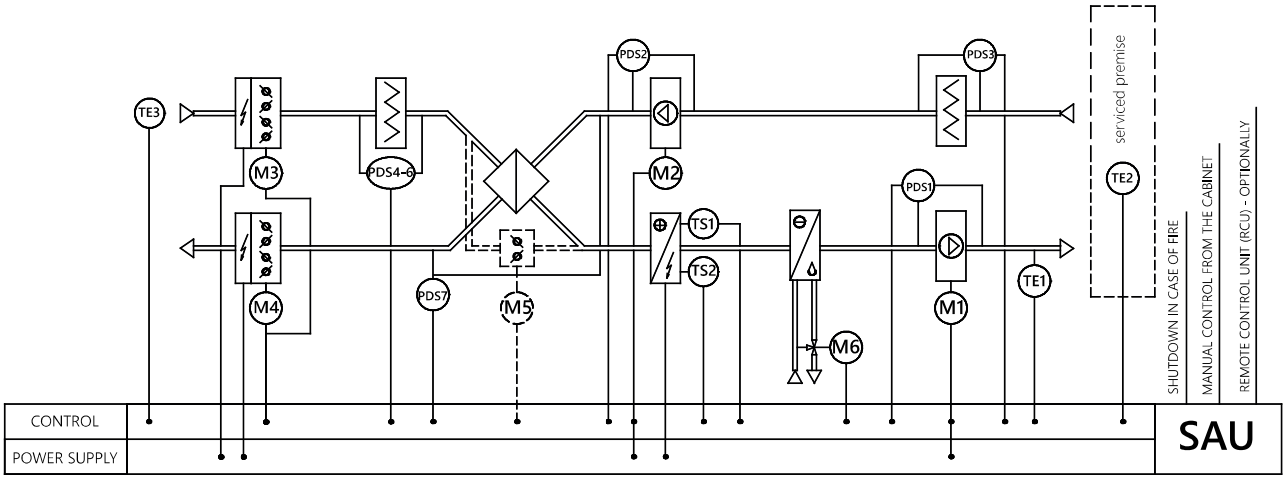


DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
TE1	temperature sensor	supply air temperature control (Pt1000)	standard, included in the SAU set
TE2	temperature sensor	indoor temperature control (Pt1000)	supplied optionally
TE3	temperature sensor	outdoor temperature control (Pt1000)	supplied optionally
PDS1, PDS2	differential pressure switch	fan operation monitoring	standard, included in the SAU set
PDS3	differential pressure switch	exhaust filter clogging monitoring	standard, included in the SAU set
PDS4	differential pressure switch	stage 1 filter clogging monitoring	standard, included in the SAU set
PDS5, PDS6	differential pressure switch	stage 2 and 3 filter clogging monitoring	supplied optionally
PDS7	differential pressure switch	recuperative heat exchanger operation monitoring (Pt1000)	standard, included in the SAU set
TS1, TS2	thermostat	protection against overheating of the electric heater unit	it is a part of the ventilation unit
M1, M2	electric motor	fan operation	it is a part of the ventilation unit
M3, M4	electric drive	air valve operation (220V)	it is a part of the ventilation unit
M5	electric drive	bypass air damper operation (220V, open/close)	recuperative heat exchanger bypass channel
RCU	remote control unit	remote control	supplied optionally

FEATURES OF THE DIAGRAM OPERATION

The scheme provides for the control of the supply and exhaust duct system with a plate heat recovery unit and an electric air heater from the front panel of the cabinet or using a remote control.
In addition to the functions provided by the C-SAU-EN-10 diagram, this diagram monitors the operation of the exhaust fan and the condition status of the filter in the exhaust air duct, and also issues a control signal to monitor the operation of the heat recovery unit valve via the differential pressure switch to the heat recovery unit.
The bypass channel and bypass channel valve are not included in the delivery package of the heat recovery unit.
C-SAU-EN-20 (SR) - provides for the use of PWM regulation.

C-SAU-EN-21 (SR)

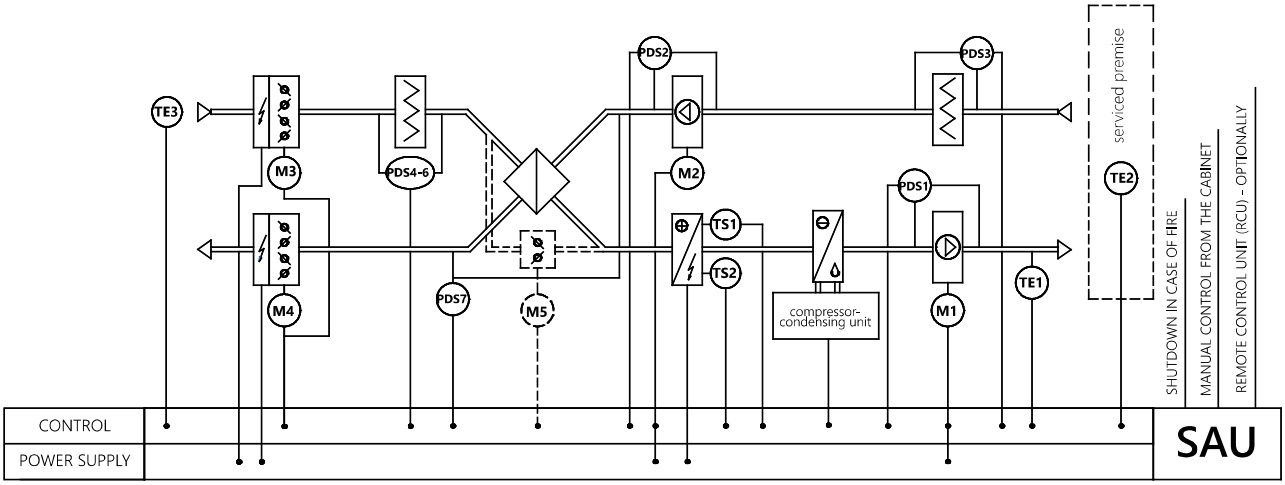


DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
TE1	temperature sensor	supply air temperature control (Pt1000)	standard, included in the SAU set
TE2	temperature sensor	indoor temperature control (Pt1000)	standard, included in the SAU set
TE3	temperature sensor	outdoor temperature control (Pt1000)	supplied optionally
PDS1, PDS2	differential pressure switch	fan operation monitoring	standard, included in the SAU set
PDS3	differential pressure switch	exhaust filter clogging monitoring	standard, included in the SAU set
PDS4	differential pressure switch	stage 1 filter clogging monitoring	standard, included in the SAU set
PDS5, PDS6	differential pressure switch	stage 2 and 3 filter clogging monitoring	supplied optionally
PDS7	differential pressure switch	recuperative heat exchanger operation monitoring (Pt1000)	standard, included in the SAU set
TS1, TS2	thermostat	protection against overheating of the electric heater unit	it is a part of the ventilation unit
M1, M2	electric motor	fan operation	it is a part of the ventilation unit
M3, M4	electric drive	air valve operation (220V)	it is a part of the ventilation unit
M5	electric drive	bypass air damper operation (220V, open/close)	it is a part of the bypass channel
M6	electric drive	operation of the water/air-cooler valve (24V, 0 ... 10V)	connection is provided
RCU	remote control unit	remote control	supplied optionally

FEATURES OF THE DIAGRAM OPERATION

This scheme provides for control from the front panel of the cabinet or using the remote control of the supply and exhaust duct system with a plate heat recovery unit, an electric air heater and a water/air-cooler equipped with a three-way control valve.
In addition to the functions provided by the C-SAU-EN-11 diagram, this diagram monitors the operation of the exhaust fan and the condition status of the filter in the exhaust air duct, and also issues a control signal to monitor the operation of the heat recovery unit valve via the differential pressure switch to the heat recovery unit.
The bypass channel and bypass channel valve are not included in the delivery package of the heat recovery unit.
C-SAU-EN-21 (SR) - provides for the use of PWM regulation.

C-SAU-EN-22 (SR)

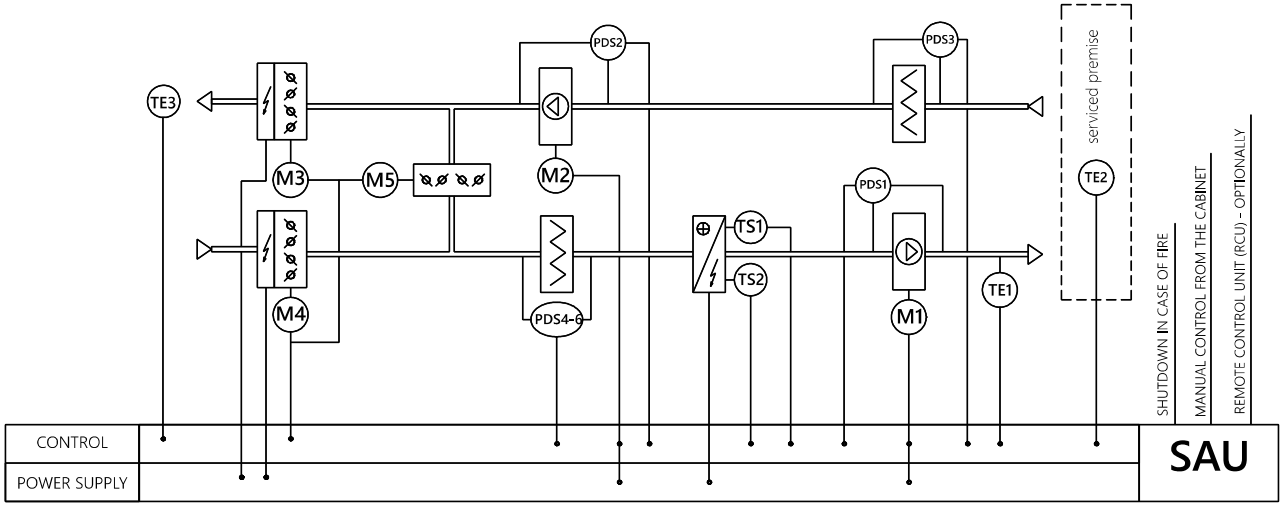


DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
TE1	temperature sensor	supply air temperature control (Pt1000)	standard, included in the SAU set
TE2	temperature sensor	indoor temperature control (Pt1000)	standard, included in the SAU set
TE3	temperature sensor	outdoor temperature control (Pt1000)	supplied optionally
PDS1, PDS2	differential pressure switch	fan operation monitoring	standard, included in the SAU set
PDS3	differential pressure switch	exhaust filter clogging monitoring	standard, included in the SAU set
PDS4	differential pressure switch	stage 1 filter clogging monitoring	standard, included in the SAU set
PDS5, PDS6	differential pressure switch	stage 2 and 3 filter clogging monitor-ing	supplied optionally
PDS7	differential pressure switch	recuperative heat exchanger operation monitoring (Pt1000)	standard, included in the SAU set
TS1, TS2	thermostat	protection against overheating of the electric heater unit	it is a part of the ventilation unit
FR	CCU	CCU discrete control, "dry contact"	standard, included in the SAU set
M1, M2	electric motor	fan operation	it is a part of the ventilation unit
M3, M4	electric motor	air valve operation (220V)	it is a part of the ventilation unit
M5	electric motor	bypass air damper operation (220V, open/close)	recuperative heat exchanger bypass channel
RCU	remote control unit	remote control	supplied optionally

FEATURES OF THE DIAGRAM OPERATION

The diagram is based on the C-SAU-EN-21 diagram, except that instead of a water/air-cooler, the latter diagram provides for completing the system with a Freon air cooler and controlling the compressor-condensing unit (CCU) by closing/opening the dry contact.
The control logic of the CCU is similar to C-SAU-EN-12.
The bypass channel and bypass channel valve are not included in the delivery package of the heat recovery unit.
C-SAU-EN-22 (SR) - provides for the use of PWM regulation.

C-SAU-EN-30 (SR)

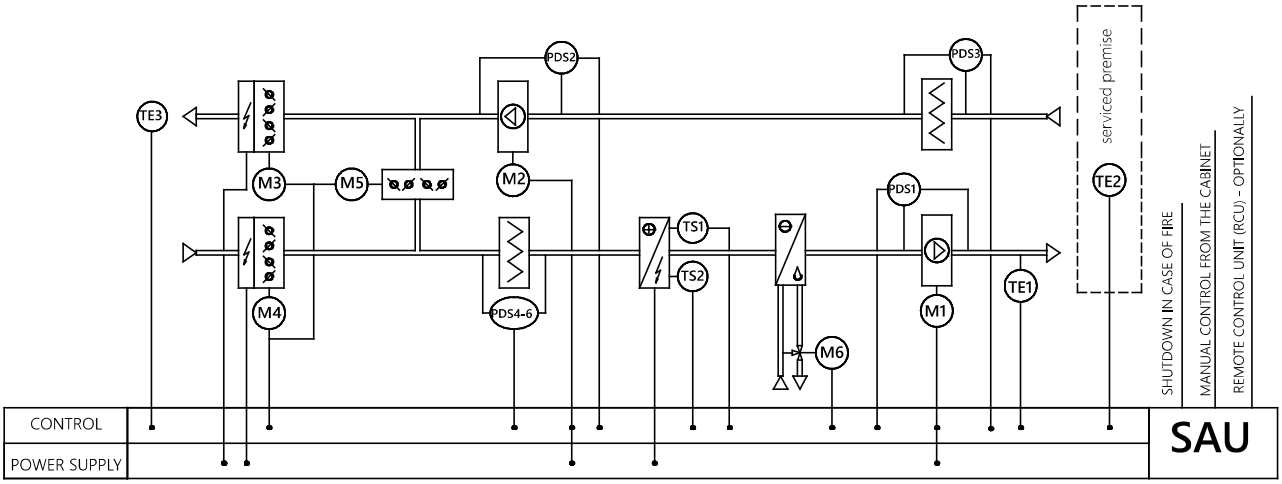


DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
TE1	temperature sensor	supply air temperature control (Pt1000)	standard, included in the SAU set
TE2	temperature sensor	indoor temperature control (Pt1000)	supplied optionally
TE3	temperature sensor	outdoor temperature control (Pt1000)	supplied optionally
PDS1, PDS2	differential pressure switch	fan operation monitoring	standard, included in the SAU set
PDS3	differential pressure switch	exhaust filter clogging monitoring	standard, included in the SAU set
PDS4	differential pressure switch	stage 1 filter clogging monitoring	standard, included in the SAU set
PDS5, PDS6	differential pressure switch	stage 2 and 3 filter clogging monitoring	supplied optionally
TS1, TS2	thermostat	protection against overheating of the electric heater unit	it is a part of the ventilation unit
M1, M2	electric motor	fan operation	it is a part of the ventilation unit
M3, M4, M5	electric drive	operation of the air valve (24V, 0...10V)	it is a part of the ventilation unit
RCU	remote control unit	remote control	supplied optionally

FEATURES OF THE DIAGRAM OPERATION

The scheme provides for the control of the supply and exhaust duct system with interlocked valves of supply, recirculating and exhaust air, as well as an electric air heater from the front panel of the cabinet or using the remote control.
In addition to the functions provided for in the C-SAU-EN-10 diagram, this diagram monitors the operation of the exhaust fan and the condition status of the filter in the exhaust duct, and also outputs a control signal (0...10V) to regulate the operation of recirculation valves.
C-SAU-EN-30 (SR) - provides for the use of PWM regulation.

C-SAU-EN-31 (SR)

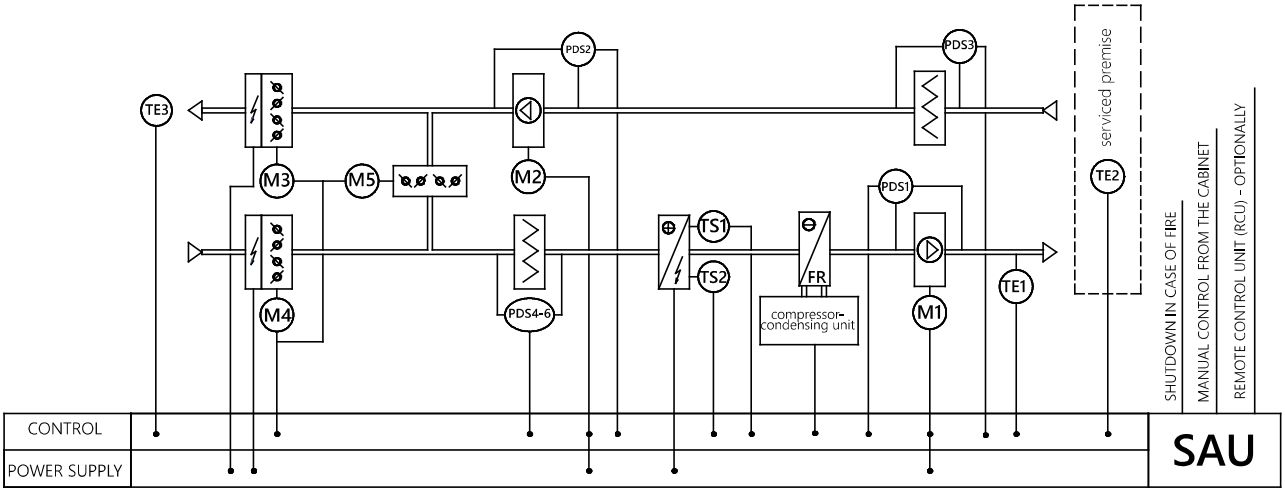


DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
TE1	temperature sensor	supply air temperature control (Pt1000)	standard, included in the SAU set
TE2	temperature sensor	indoor temperature control (Pt1000)	standard, included in the SAU set
TE3	temperature sensor	outdoor temperature control (Pt1000)	supplied optionally
PDS1, PDS2	differential pressure switch	fan operation monitoring	standard, included in the SAU set
PDS3	differential pressure switch	exhaust filter clogging monitoring	standard, included in the SAU set
PDS4	differential pressure switch	stage 1 filter clogging monitoring	standard, included in the SAU set
PDS5, PDS6	differential pressure switch	stage 2 and 3 filter clogging monitor-ing	supplied optionally
TS1, TS2	thermostat	protection against overheating of the electric heater unit	it is a part of the ventilation unit
M1, M2	electric motor	fan operation	it is a part of the ventilation unit
M3, M4, M5	electric drive	air valve operation (220V)	it is a part of the ventilation unit
M6	electric drive	bypass air damper operation (220V, open/close)	connection is provided
RCU	remote control unit	remote control	supplied optionally

FEATURES OF THE DIAGRAM OPERATION

This composition of the scheme provides for control from the front panel of the cabinet or using the remote control of the supply and exhaust duct system with interlocked valves of the supply, recirculating and exhaust air, as well as an electric air heater and a water/air-cooler equipped with a three-way control valve.
In addition to the functions provided for in the C-SAU-EN-11 diagram, this diagram monitors the operation of the exhaust fan and the condition status of the filter in the exhaust duct, and also outputs a control signal (0...10V) to regulate the operation of recirculation valves.
C-SAU-EN-31 (SR) - provides for the use of PWM regulation.

C-SAU-EN-32 (SR)



DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
TE1	temperature sensor	supply air temperature control (Pt1000)	standard, included in the SAU set
TE2	temperature sensor	indoor temperature control (Pt1000)	standard, included in the SAU set
TE3	temperature sensor	outdoor temperature control (Pt1000)	supplied optionally
PDS1, PDS2	differential pressure switch	fan operation monitoring	standard, included in the SAU set
PDS3	differential pressure switch	exhaust filter clogging monitoring	standard, included in the SAU set
PDS4	differential pressure switch	stage 1 filter clogging monitoring	standard, included in the SAU set
PDS5, PDS6	differential pressure switch	stage 2 and 3 filter clogging monitoring	supplied optionally
TS1, TS2	thermostat	protection against overheating of the electric heater unit	it is a part of the ventilation unit
FR	CCU	CCU discrete control, "dry contact"	standard, included in the SAU set
M1, M2	electric motor	fan operation	it is a part of the ventilation unit
M3, M4, M5	electric drive	operation of the air valve (24V, 0...10V)	it is a part of the ventilation unit
RCU	remote control unit	remote control	supplied optionally

FEATURES OF THE DIAGRAM OPERATION

This diagram is a complete analog of C-SAU-EN-31, except that instead of a water/air-cooler, the latter diagram provides for completing the system with a Freon air cooler and controlling the compressor-condensing unit (CCU) by closing/opening the dry contact.
The control logic of the CCU is similar to C-SAU-EN-12.
C-SAU-EN-32 (SR) - provides for the use of PWM regulation.

C-SAU, "AVK" TYPE

The C-SAU-AVK type diagrams are automatic control systems for AEROBLAST-K duct air curtains, structurally implemented in the form of a wall-mounted cabinet with sensors connected to it. SAU elements are designed to protect and regulate the operation of air curtains and provide the following functions:
CONTROL is carried out in two modes – manual and automatic. In automatic mode, the curtain is switched on by a signal from the limit switch, which is triggered when the serviced doors or gates are open, as well as from the room thermostat, to ensure the required air temperature in the room when cold air enters when the gates are open.
The BUILT-IN THERMAL CONTACT RELAY provides comprehensive protection against overload and overheating of duct fans that are part of the air curtains.
The thermal relay is installed in the windings of the electric motor, registers the temperature and, when the maximum permissible temperature is reached in the motor windings, opens the electrical power supply circuit of the starter, interrupting the power supply to the fan motor. After the electric motor cools down and the thermal contacts are closed, automatic start-up does not occur. The air curtain is turned on by the operator after identifying and eliminating the cause of the malfunction.
When connecting a duct air curtain without heating, a protective relay ensures overload protection of the air curtain fan. The relay provides automatic shutdown of the air curtain fan motor when the permissible temperature of the motor windings is exceeded.
The FAILURE indicator lights up on the door of the air curtain control cabinet in case of an emergency.
The air curtain is blocked. Restarting the air curtain is not possible until the causes of the failure are eliminated.

SELECTION OF DIAGRAMS DEPENDING ON THE COMPOSITION OF THE VENTILATION SYSTEM

C-SAU	FUNCTIONAL ELEMENTS							
diagram	valve	filter	fan	heat exchanger	C-VKO	C-FKO	C-PKT	recycling
AVK-00	—	—	supply fan	—	—	—	—	—
AVK-VN	—	—	supply fan	KVN	—	—	—	—
AVK-EN	—	—	supply fan	EVN	—	—	—	—

NOTE:
by default, the automation set includes:

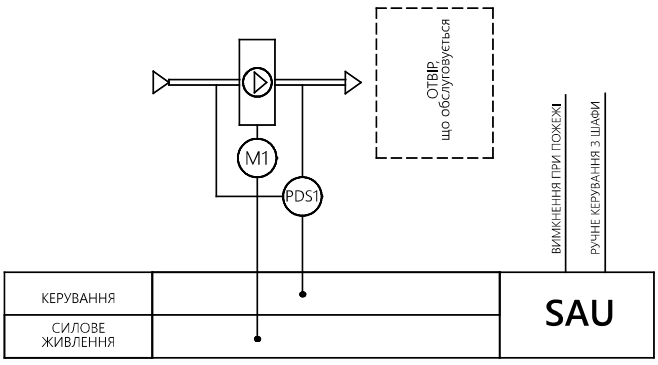
- return heat carrier protection thermostat – for AVK-VN diagrams;
- position switch - for all types of air curtains.

CHARACTERISTICS	DESIGNATION	ORDER EXAMPLE
designation of automation diagrams of the type	for duct air curtains	C-SAU-AVK
type (no.) of the SAU diagram	"00" - without heating "VN" - with water/air-heater "EN" - with electric heater	VN
number of air curtains	"1" - one air curtain, with one set of SAU "2" - two air curtains of the same type, with one set of SAU	1
specifications of the air curtain fan	number of phases of the electric motor "1p" - single-phase motor "3p" - three-phase motor	1p
	max. motor current, (A)	(0,16)
functional elements for diagrams	for "SAU-AVK-00": "0" - not available for "SAU-AVK-VN" (as part of one air curtain): number of pumps on the diagram, pcs. (1 or 2) pump type (for example, see the section "pumps") number of valve actuators in the heat carrier line (1 or 2) for "SAU-AVK-VN" (as part of one air curtain): "quantity, pcs."- number of C-EVN in the diagram (1, 2, 3) "width, cm/power, kW" - C-EVN as part of the air curtain	1-Star RS25/6-1
additional equipment	"0" - no additional equipment is provided "TE" - complete set with a room thermostat	TE
cabinet casing type	"Met" - metal casing "Plast" - plastic casing NOTE: for SAU-AVK-EN diagrams, the cabinet casing is always "Met"	Plast

EXAMPLE 1: C-SAU-AVK-VN-1-1p(0,16)-1-Star RS25/6-1-TE-Plast provides an automation set for one air curtain with a water/air-heater, with a single-phase fan and an electric motor current of 0.16A. It also provides control of one pump of the Star RS25/6 type with one drive, a valve in the heat carrier line, and is additionally equipped with a room thermostat.

EXAMPLE 2: The C-SAU-AVK-EN-2-1p(0,16)-2-40/9-TE-Plast provides an automation set for two air curtains with electric heaters, with single-phase fans and an electric motor current of 0.16A. It also provides control of two 400 mm wide electric heaters with a power of 9 kW, and is additionally equipped with a room thermostat.

C-SAU-AVK-00-1

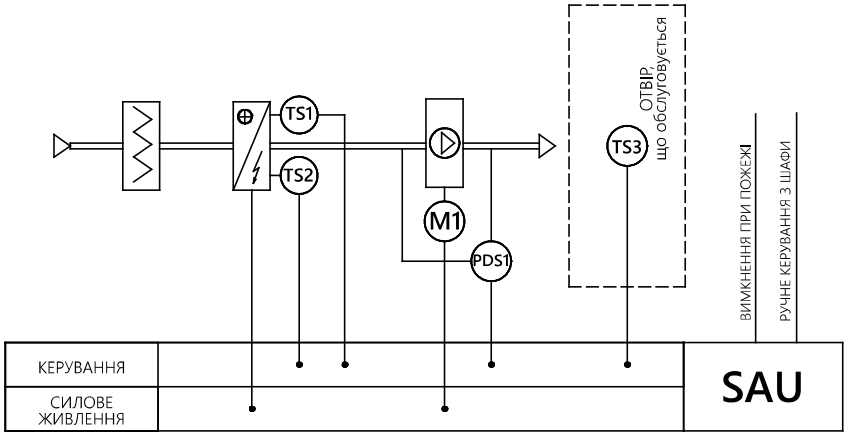


DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
M1	electric motor	fan operation	it is a part of the ventilation unit
PDS1	differential pressure switch	fan operation monitoring	standard, included in the SAU set

FEATURES OF THE DIAGRAM OPERATION

Diagram for controlling the AEROBLAST-K duct-type air curtain of the simplest configuration. The C-SAU-AVK-00 type system allows controlling the operation of the air curtain fan and perform the necessary elementary protection of the fan motor.
NOTE: electrical connection diagrams are provided in the "Reference information" section.

C-SAU-AVK-EN-1

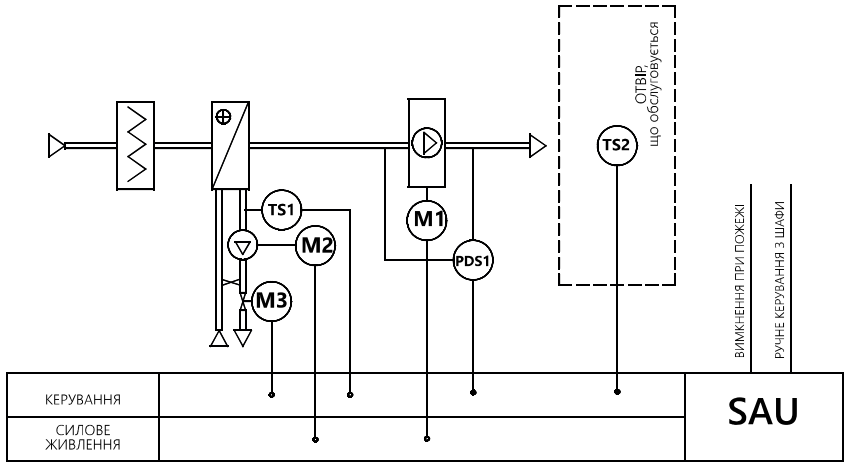


DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
M1	electric motor	fan operation	it is a part of the ventilation unit
PDS1	differential pressure switch	fan operation monitoring	standard, included in the SAU set
TS1, TS2	thermostat	protection against overheating of the electric heater unit	it is a part of the ventilation unit
TS3	thermostat	adjustment	supplied optionally

FEATURES OF THE DIAGRAM OPERATION

The C-SAU-AVK-EN type system for controlling the AEROBLAST-K duct air curtain with an electric heater, in addition to the standard functions of switching on, off, and protecting the fan from overload, provides two-stage protection of the electric heater from overheating.
The design of the electric air curtain heater provides protection against overheating by appropriate thermostats.
In the automatic control mode of the air curtain, when opening the serviced opening (door or gate), it is necessary to take into account the temperature inertia of the electric heater. Thus, after closing the opening and turning off the air curtain, C-SAU-AVK ensures that the fan continues to operate to cool the electric heater.
PROTECTION of electric heater from overheating is carried out in two stages by means of two bimetallic thermostats with automatic and manual reset.
Thermostat of the first degree of protection with automatic reset – gives a signal to turn off the heater when the temperature on the casing reaches 60°C. After cooling, the thermostat automatically returns to the operating position, and the system can be restarted.
The thermostat of the second degree of protection with manual return to its original position turns off the C-EVN when the temperature on the casing reaches 90°C. In this case, restarting the system requires direct operator involvement.
The fan SHUTDOWN DELAY TIME is set by the time relay, allows heat to be removed from the tubular heating elements after it has been switched off, and thus ensures its safe cooling.
For AEROBLAST-K air curtains with electric heating, the C-SAU-AVK-EN system provides a number of additional control functions, for example, the function of safely turning off the air curtain, which provides cooling (ventilation) of the electric heater before stopping the fan.
The power level of the electric air heater when controlling AEROBLAST-K curtains with electric heating is determined by the service personnel by manually switching on the required number of heating levels.
Accordingly, in automatic mode, if the service opening (door or gate) is open, the fan starts and the electric heater is turned on with the power required for a particular object (determined by the setup technician team).
NOTE: electrical connection diagrams are provided in the "Reference information" section.

C-SAU-AVK-VN

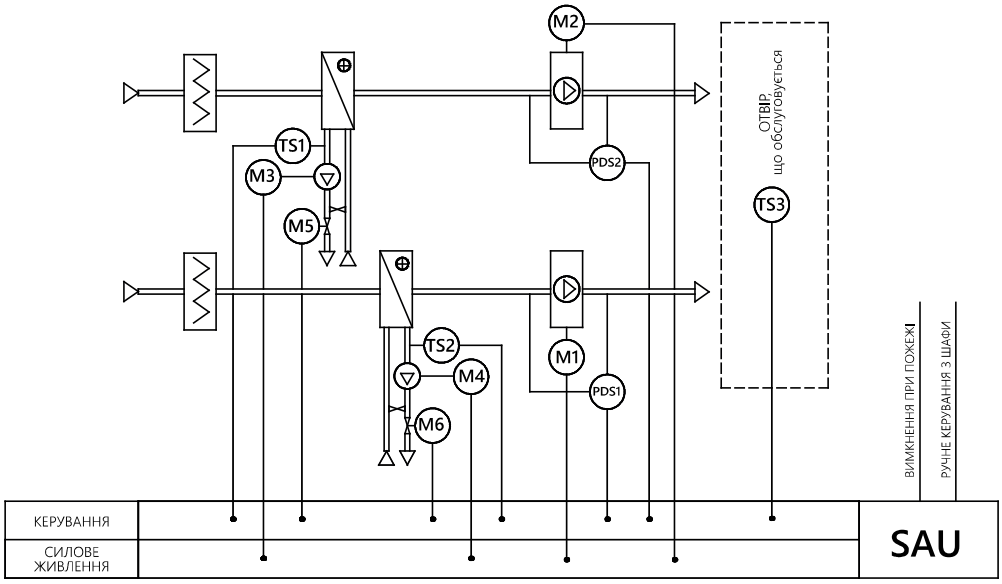


DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
M1	electric motor	fan operation	it is a part of the ventilation unit
PDS1	differential pressure switch	fan operation monitoring	standard, included in the SAU set
TS1	surface-mounted thermostat	freeze protection of the heater	supplied optionally
TS2	thermostat	adjustment	supplied optionally
M2	circulation pump	heat carrier transfer (220V)	supplied optionally or as a part of the UWS set
M3	electric drive	operation of the water/air-heater valve (220V)	supplied optionally or as a part of the UWS set

FEATURES OF THE DIAGRAM OPERATION

The type C-SAU-AVK-VN-1 system for controlling the AEROBLAST-K duct-type air curtain with a water/air-heater, in addition to the standard functions of switching on, off, and protecting the fan from overload, provides control from the front panel of the cabinet of the supply duct system with a water/air-heater equipped with a circulation pump and a control valve.
The AIR TEMPERATURE is maintained by a thermostat.
MONITORING THE OPERATION OF THE FAN(S) using differential pressure switches.
SWITCHING OFF the fan when the FAILURE signal is detected.
PROTECTION of the fan motor against short circuit and overload.
PROTECTION of the water/air-heater from freezing. For this purpose, the temperature of the return heat carrier is controlled using a surface-mounted thermostat. If there is a threat of freezing of the air heater, the fan turns off, the circulation pump turns on, if it was turned off, regardless of the selected operating mode; the control valve opens to 100% flow through the air heater.
The system remains in this state until the risk of freezing is eliminated.
NOTE: electrical connection diagrams are provided in the “Reference information” section.

C-SAU-AVK-VN-2
(TWO SUPPLY LINES OF THE HEAT CARRIER)

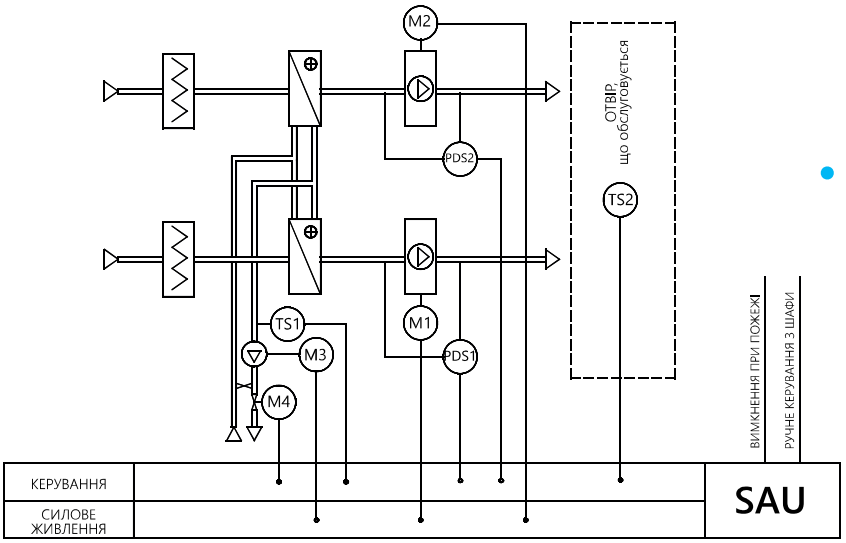


DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
M1, M2	electric motor	fan operation	it is a part of the ventilation unit
PDS1, PDS2	differential pressure switch	fan operation monitoring	standard, included in the SAU set
TS1, TS2	surface-mounted thermostat	freeze protection of the heater	supplied optionally
TS3	thermostat	adjustment	supplied optionally
M3, M4	circulation pump	heat carrier transfer (220V)	supplied optionally or as a part of the UWS set
M5, M6	electric drive	operation of the water/air-heater valve (220V)	supplied optionally or as a part of the UWS set

FEATURES OF THE DIAGRAM OPERATION

The C-SAU-AVK-VN-2 diagram (with two supply lines of the heat carrier) provides for the control of two air curtains with two heat carrier lines and, accordingly, with two circulation pumps.
NOTE: electrical connection diagrams are provided in the “Reference information” section.

C-SAU-AVK-VN-2
(ONE SUPPLY LINE OF THE HEAT CARRIER)



DESIGNATED NAME	NAME	CONTROL FUNCTION	COMPLETE SET
M1, M2	electric motor	fan operation	it is a part of the ventilation unit
PDS1, PDS2	differential pressure switch	fan operation monitoring	standard, included in the SAU set
TS1	surface-mounted thermostat	freeze protection of the heater	supplied optionally
TS2	thermostat	adjustment	supplied optionally
M3	circulation pump	heat carrier transfer (220V)	supplied optionally or as a part of the UWS set
M4	electric drive	operation of the water/air-heater valve (220V)	supplied optionally or as a part of the UWS set

FEATURES OF THE DIAGRAM OPERATION

The C-SAU-AVK-VN-2 diagram (with one heat carrier line) partially repeats the AEROBLAST-K air curtain control diagram with a water/air-heater, but assumes the control of two air curtains simultaneously with one heat carrier line and, accordingly, with one circulation pump.
NOTE: electrical connection diagrams are provided in the “Reference information” section.

DUCT UNITS

FAN CONTROL CABINETS

SAU-PPV, SAU-SPV

- use of reliable components made by European manufacturers;
- protection and control of actuators;
- connecting a fire alarm system;
- availability of equipment status indication;
- availability of local controls.

SAU-PPV and SAU-SPV control cabinets are only used for fans with a supply voltage of 380V: C-PKV, C-PKV-BC, C-KVARK, C-KVARK-P, KP-KVARK-N, KP-FDS and KP-FDR.

The SAU-PPV (SAU-SPV) fan control cabinet is implemented on the basis of a power disconnector, contactor and thermal electrical relay.

A CONTACTOR is a switching device that allows control of current in the main contact circuit by supplying control voltage to the coil (starter). The main purpose of the starter is remote starting of three-phase asynchronous motors by direct connection to the mains.

The thermal relay included protects the motors from overloads of unacceptable duration. In this case, the contactor is the same starter designed to control a 3-phase motor. Thus, the SAU-PPV (SAU-SPV) fan control cabinet performs the function of a contactor and starter.

A contactor with a 380V control coil is a relevant solution for industrial enterprises and developers, since the use of a 380V coil allows avoiding additional costs during installation. The load, in most cases, is asynchronous 3-phase motors 380V. In case of using 220 V coils, it is necessary to use a fourth neutral conductor and install it in the contactor control circuit, which accordingly results in additional financial costs and labor hours loss. High protection level (IP54) allows the use of the SAU-PPV (SAU-SPV) fan control cabinet in industrial enterprises.



SAU-PPV-9,0

- automation cabinet
- control type

(PPV - control cabinet with integrated voltage disconnector
SPV - control cabinet without integrated voltage disconnector)

- fan motor current

The CONTROL CIRCUIT and the versatility of serial production make it possible to avoid errors when connecting on site and reduce installation time, which is limited only by connecting to the mains. The SAU-PPV (SAU-SPV) fan control cabinet operates in a wide temperature range from -40°C to + 55°C, with a service life of at least 10 years. Careful design development allowed for getting a number of additional advantages and convenience during installation and operation.

To increase safety, a METAL CASING is used, which is coated with high-quality powder paint, which provides protection against corrosion. In addition, the grounded casing provides shielding of electromagnetic fields that occur when switching high currents. This ensures the protection of equipment and the safety of personnel. Additionally, a built-in load disconnector is provided, which allows increasing the safety of this equipment during motor maintenance.

In the SAU-PPV (SAU-SPV) fan control cabinet, a special fire safety contact is connected, when triggered, the SAU-PPV (SAU-SPV) control cabinet blocks the operation of the fan motor. Fire safety connection is mandatory when controlling the fan;

The main distinguishing feature of the SAU-PPV (SAU-SPV) control cabinet is precise adjustment to the requirements of a specific network. It is known that regulatory documents and the Electrical Installation Code do not recommend using standard circuit breakers and fuses to protect motors, since they have only one setpoint and it is impossible to adjust them to a specific motor load. In contrast, the settings of thermal relays can be changed up to 50%.

CONFIGURATION ALGORITHM. When connecting the load, it is necessary to set the relay setpoint to the maximum value first. Then this value changes downwards until the relay is triggered. Thus, the exact value of the relay response threshold is determined. After that, the value is changed for the third time - just above the trigger threshold. For more precise threshold adjustment, this procedure can be repeated several times.

FINE ADJUSTMENT is very important for low-power loads, namely for ventilation system motors. Correct relay settings will protect the motor from overloads that can be caused by aging of components, deterioration of insulation resistance, and drying out of grease in the bearings.

RESTART. When the protection is triggered, the fan will not start using the "Start" button. In order to restart the fan, it is necessary to open the SAU-PPV (SAU-SPV) control cabinet, press the button to force return to the operating state of the thermal relay "R", close the SAU-PPV (SAU-SPV) control cabinet and then start the fan by pressing the "Start" button.

WARNING! The main difference between SAU-PPV and SAU-SPV is the presence of a power service voltage disconnector. In order to increase the safety of operation and maintenance of the fan, it is recommended to use a cabinet with a SAU-PPV service switch. For more information about the type of service switch, see page 222.

RELAY TYPE	ADJUSTMENT RANGE, A	RELAY TYPE	ADJUSTMENT RANGE, A
РТЛ 1001(M)	0,10-0,17	РТЛ 1008(M)	2,40-4,00
РТЛ 1002(M)	0,16-0,26	РТЛ 1010(M)	3,80-6,00
РТЛ 10013(M)	0,24-0,40	РТЛ 1012(M)	5,50-8,00
РТЛ 1004(M)	0,38-0,65	РТЛ 1014(M)	7,00-10,00
РТЛ 1005(M)	0,61-1,00	РТЛ 1016(M)	9,50-14,00
РТЛ 1006(M)	0,95-1,60	РТЛ 1021(M)	13,00-19,00
РТЛ 1007(M)	1,50-2,60	—	—

MTP SPEED CONTROLLER



MTP

- speed controller

- to adjust the speed of fan motors;
- for fans with EC motors;
- for electric drives;
- 10 kOhm potentiometer;
- supply voltage: (10-12) V, 1 mA;
- output signal: 0-10 V (8 mA);
- optional contact: NO (4A/250 V or 10 A/12 V);
- provides smooth motor speed control;
- special regulation of operation;
- rotation speed of the EC motor can be adjusted by the potentiometer handle of the wall-mounted controller or by the handle of the potentiometer installed in the SAU cabinet. When ordering an automatic control system, the wall-mounted controller (MTP) must be ordered separately.

NOTE: It is recommended to install the controller as close to the fan as possible, however, the distance should not more than 50 m.

Speed controllers are designed to control the performance of fans by changing the supply voltage (changing the speed of rotation). The motor speed is regulated by a handle (potentiometer) on the front panel of the casing.

The MTP speed controller is used to work together with devices (EC motors, drives, controllers and regulators) that use a 0-10V signal.

It is used to regulate the rotation speed of fans with EC motors and to regulate electric drives by setting the exact open/closed position.

SPEED CONTROLLER

PROPELLER 01

- to regulate the rotation speed;
- for single-phase motors;
- for motors up to 1500 W;
- power supply voltage 230 V, 50 Hz;
- ingress protection rating: IP54 (IEC 529);
- controlled by a specialized controller;
- provides smooth motor speed control;
- prevents the risk of motor overheating;
- smooth motor start (SoftStart system) eliminates current overload at the moment of motor start;
- maintaining a constant torque of the fan motor shaft;
- prevention of unplanned motor stops when running at low speeds;
- motor current protection;
- minimum and maximum speed limits and current protection threshold limits;
- wide adjustment range without the risk of motor overheating;
- mains filter.

NOTE: It is recommended to install the controller as close to the fan as possible, however, the distance should not more than 50 m.



PROPELLER 01 (1500 SERIES)

- speed controller

NOTE: the set includes two vibration-proof bases.

The fan speed controller is designed to adjust the performance of fans by changing the supply voltage (changing the speed of rotation). The motor speed is adjusted by turning the knob (potentiometer) on the front panel of the casing.

It is used for smooth, with additional options, regulation of the rotation speed of single-phase fans with a rated current of up to 8A, 230V, 50Hz in ventilation and air conditioning systems.

A specialized MICROCONTROLLER allows for controlling the currents flowing in the motor windings, thereby smoothly regulating the motor speed by eliminating phase skipping. It also allows for expanding the adjustment range without the risk of motor overheating.

BUILT-IN ELECTRONICS - the controller maintains a constant torque when the fan motor is running at low speed, preventing an unexpected stop. When the load increases or the supply voltage changes, the system raises the motor voltage. Limiting the minimum and maximum speed, as well as limiting the current protection threshold set by the potentiometer.

The active current protection is reset by the mains switch on the regulator casing. When the protection is triggered, the motor speed is reset to a safe value for this type of motor, which is accompanied by a light signal: a red LED on the controller board. The controller is switched on in series between the power supply network and the electric motor.

SPEED CONTROLLER

PROPELLER 01

- to regulate the rotation speed;
- for single-phase motors,
- for motors up to 500 W;
- power supply voltage 230 V, 50 Hz;
- ingress protection rating IP30 (IEC 529);
- prevent line interference thanks to the built-in filter;
- reliable protection of the fan motor with a built-in fuse;
- additional phase-shifting damping capacitor for normal sine wave formation;
- imiting the minimum fan speed with a trim resistor;
- it is possible to control multiple fans if the total current consumption does not exceed the maximum permissible current value of the controller.

NOTE: It is recommended to install the controller as close to the fan as possible, however, the distance should not more than 50 m.



PROPELLER 01 (500 SERIES)

- speed controller

Speed controllers are designed to control the performance of fans by changing the supply voltage (changing the speed of rotation). The motor speed is regulated by a handle (potentiometer) on the front panel of the casing.

It is used for smooth control of the rotation speed of single-phase fans with rated current up to 2.5A, 230 V, 50 Hz in ventilation and air conditioning systems. Select the adjustment mode (from minimum to maximum speed and vice versa) using the jumper inside the casing. It has an additional unregulated 230 V output for controlling the air valve.

Additional unregulated output for controlling auxiliary devices.

FREQUENCY CONVERTER

FCO-1 FREQUENCY CONVERTER



FCO-1

- frequency converter

The FCO-1 series frequency converter is a high-performance vector inverter designed for asynchronous electric motors.

Frequency converters are used to monitor the operating mode of the electric motor:

- smooth start/stop;
- operation at a constant speed;
- maintaining the rotation speed regardless of the torque moment.

Benefits:

- built-in EFC filter;
- built-in RS-485 interface;
- removable control panel;
- removable potentiometer (installed on the control panel);
- integrated brake chopper unit;
- two mounting options (both DIN rail and mounting plate);
- boards with an additional protective varnish coating.

Output parameters of the frequency converter:

- 3-phase voltage, from 0 to U power supply;
- frequency from 0 to 500 Hz;
- standard switching frequency – 4 kHz;
- selectable switching frequency from 4 to 16 kHz;
- acceleration time from 0.1 to 6500 s;
- deceleration time from 0.1 to 6500 s;
- braking: integrated brake chopper unit as standard;
- ambient temperature from -10° to +40° C, deposited frost is not allowed;
- relative humidity: no more than 95% (without condensation);
- ingress protection rating IP20.

MODEL	POWER, KW	INPUT CURRENT, A	OUTPUT CURRENT UP TO 40° C, A	OVERALL DIMENSIONS, MM	INGRESS PROTECTION RATING
FCO-1-0K37-3-1	0,37	1,3	1,1	72x152x126	IP20
FCO-1-0K55-3-1	0,55	1,8	1,6		
FCO-1-0K75-3-1	0,75	3,4	2,1		
FCO-1-1K1-3-1	1,1	4,2	3,2		
FCO-1-1K5-3-1	1,5	5	3,8		
FCO-1-2K2-3-1	2,2	5,8	5,1		
FCO-1-4K0-3-2	4	10,5	9	85x179x132	
FCO-1-5K5-3-2	5,5	14,6	13		
FCO-1-7K5-3-2	7,5	20,5	17	107x241x165	
FCO-1-11K0-3-2	11	26	25		

FREQUENCY CONVERTERS

MICRO DRIVE

- to control the motor speed;
- output supply voltage (electric motor)
  for single-phase series: 3×200-240V±10%;
  for three-phase series: 3×380V±10%;
- vector and scalar motor control systems;
- 150% overload within 1 minute;
- built-in RS-485 FC-Protokol interface, Modbus RTU;
- increased strength and resistance to external influences;
- mains frequency 50/60 Hz;
- ingress protection rating IP40;
- multi-purpose drive;
- built-in PID controller;
- vector control, control by volt-frequency characteristic U/F;
- automatic energy optimization (AEO);
- automatic adaptation to the motor;
- built-in programmable logic controller;
- electronic thermal relay;
- built-in RF interference filter;
- ability to remove and install the control panel during operation, copy function;
- ideal for complex automation, improves energy efficiency and system performance;
- ability to configure about 100 parameters to optimize energy efficiency and operation.



ADDITIONALLY, upon request, VLT is equipped with an LCP 12 control panel with a potentiometer.

MICRO DRIVE FC-51 PK18 S CONTROL PANEL

- converter type
  Micro Drive FC-51; VLT HVAC Drive FC-102
- motor characteristics motor power
  type (S - single-phase, T - three-phase)
- complete with control panel (0 – without panel, control panel – included)

MODEL	Motor power, kW	Output current, A		Dimensions HxWxD, mm	Weight, kg, max
		continuous	intermittent		
SINGLE-PHASE INPUT 200-240 V					
VLT MICRO DRIVE FC-51PK18S	0,18	1,2	1,8	150x70x148	1,1
VLT MICRO DRIVE FC-51PK37S	0,37	2,2	3,3	150x70x148	1,1
VLT MICRO DRIVE FC-51PK75S	0,75	4,2	6,3	150x70x148	1,1
VLT MICRO DRIVE FC-51P1K5S	1,5	6,8	10,2	176x75x168	1,6
VLT MICRO DRIVE FC-51P2K2S	2,2	9,6	14,4	239x90x194	3,0
THREE-PHASE INPUT 380 V					
VLT MICRO DRIVE FC-051PK37T	0,37	1,2		150x70x148	1,1
VLT MICRO DRIVE FC-051PK75T	0,75	2,2		150x70x148	1,1
VLT MICRO DRIVE FC-051P1K5T	1,5	3,7		180x75x168	1,6
VLT MICRO DRIVE FC-051P2K2T	2,2	5,3		180x75x168	1,6
VLT MICRO DRIVE FC-051P3K0T	3,0	7,2		239x90x194	3,0
VLT MICRO DRIVE FC-051P4K0T	4,0	9		239x90x194	3,0
VLT MICRO DRIVE FC-051P5K5T	5,5	12		239x90x194	3,0
VLT MICRO DRIVE FC-051P7K5T	7,5	15,5		239x90x194	3,0
VLT MICRO DRIVE FC-051P11KT	11,0	23		292x125x241	6,0
VLT MICRO DRIVE FC-051P15KT	15,0	31		292x125x241	6,0
VLT MICRO DRIVE FC-051P18KT	18,5	37		335x165x248	9,5
VLT MICRO DRIVE FC-051P22KT	22,0	43		335x165x248	9,5

The overall dimensions of the VLT Micro Drive FC-051 units are shown including the mounting rim (+6 mm with potentiometer).
WARNING! Danfoss mains filters and brake resistors must be ordered separately.

ASC | FREQUENCY CONVERTERS



ASC

frequency converters

The ASC-150, ASC-310 series of frequency converters is universal for use in heating, ventilation and air conditioning systems with the possibility of integration into the upper level;

Energy savings 98% efficiency, "Automatic Energy Optimization" function.

The Automatic Energy Optimization (AEO) function built into the standard frequency converter ensures optimal motor magnetization at all speeds and loads. Thanks to this function, power consumption is reduced by 5-15% under partial load.

Energy consumption monitoring. Ability to monitor power consumption using ASC-150 and ASC-310 frequency converters for specified counting periods in hours, days or weeks.

TYPE	**ASC-150**	**ASC-310**
Operating voltage	3x380-480 V / 3x200-240 V	3x380-480 V / 1x200-240 V
Mains frequency	45-66 Hz	45-66 Hz
Ingress protection rating	•IP 20	•IP 20 •IP 21
Maximum motor cable length	30-60 m	30-60 m
Normal overload	(150%) within 1 min.	(110%) within 1 min.

MODEL		Power **motor, kW**		Continuous output Current, A		Weight, kg, no more		Dimensions **HxWxD, mm**	
ASC-150	**ASC-310**	**ASC-150**	**ASC-310**	**ASC-150**	**ASC-310**	**ASC-150**	**ASC-310**	**ASC-150**	**ASC-310**
						IP20/IP21		IP20/IP21	
SINGLE-PHASE SUPPLY VOLTAGE 200-240 V									
0,37	0,37	0,37	0,37	2,4	2,4	1,1	1,1	239x70x142	239x70x161
0,75	0,75	0,75	0,75	4,7	4,7	1,3	1,3		
1,1	1,1	1,1	1,1	6,7	6,7				
1,5	1,5	1,5	1,5	7,5	7,5	1,5	1,5	239x105x142	239x105x165
2,2	2,2	2,2	2,2	9,8	9,8				
THREE PHASE SUPPLY VOLTAGE 380-480 V									
0,37	0,37	0,37	0,37	1,2	1,3	1,1	1,1	239x70x142	239x70x161
0,55	0,55	0,55	0,55	1,9	2,1				
0,75	0,75	0,75	0,75	2,4	2,6	1,3	1,3	239x105x142	239x70x161
1,1	1,1	1,1	1,1	3,3	3,6				
1,5	1,5	1,5	1,5	4,1	4,5				
2,2	2,2	2,2	2,2	5,6	6,2				
3	3	3	3	7,3	8,0				
4	4	4	4	8,8	9,7				
-	5,5	-	5,5	-	13,8	—	2,5	—	236x169x169
-	7,5	-	7,5	-	17,2				
-	11	-	11	-	25,4				
-	15	-	15	-	34,1		4,4		244x260x169
-	18,5	-	18,5	-	41,8				
-	22	-	22	-	48,4				

Note: for motors over 37 kW, frequency converters are available on request.

DIFFERENTIAL PRESSURE RELAY SENSOR S6021

- for monitoring the pressure difference in air, gaseous non-aggressive medium in air ducts, in air supply and exhaust devices;

- temperature range from -15° C to + 60° C;

- maximum load is 2 A.

RECOMMENDATIONS

When setting up the differential pressure relay sensor, it is recommended to set the value:

- for filters:
  G3÷F5 ΔP=150-200 Pa;
  F6÷F8 ΔP=450-500 Pa
- for fans: ΔP=50-70 Pa.

There are two types of relays:
S6021-B: 30 Pa - 300 Pa
S6021-C: 50 Pa – 500 Pa



S6021-B-30-300
S6021-C-50-500

- differential pressure relay sensor

SENSOR-THERMOSTAT PTC 30

- to protect the air heaters of ventilation units from freezing;
- they can be used in refrigeration and air conditioning units;
- ambient temperature from -40° C to +65° C (+80°C for maximum 2 hours);
- ingress protection rating IP65 (according to IEC529);
- sealed sensor element ensures reliability;
- easy installation and small size;
- comfortable operation - short intervals of noise generation;
- extended service life - eliminating unnecessary equipment switching on and off;
- standard version with pole switching – the ability to use the switches at the other end or connect an alarm system;
- hidden setting knob to prevent accidental setpoint changes;
- setpoint setting range is -15°... + 15° C;
- single-pole double-throw switch (SPDT).

CONTACT LOADS:

- AC current: AC1: 16A, 400V, AC3: 16A, 400V, AC15: 10A, 400V;
- maximum inrush current (LP): 112A, 400V;
- DC current: DC13: 12A, 220V control current;
- suitable for DC and AC applications;
- cable gland in the form of a PG 11 seal for cables with a diameter of 5-10 mm;
- air must not contain substances that are aggressive to metal;
- extreme vibrations must be avoided.



PTC 30 (WITH TUBE L = 3 M)

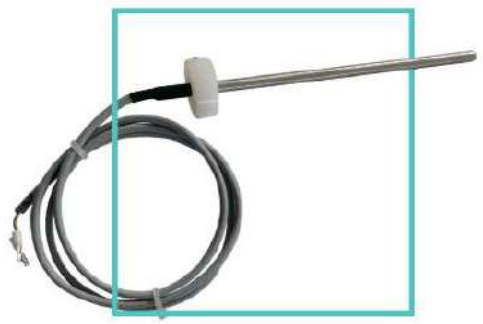
- sensor-thermostat

NOTE:
there are sensors with tube L = 3 m, L = 6 m.
For "Duct" systems, sensors with a 3 m long tube are used as standard.

The thermostat has a hydraulic system with a capillary tube filled with heat-sensitive liquid, a temperature setting unit and a contact group.
The thermostat is installed on the air heater so that the capillary is located in the air flow near the heater tubes.
The unit is mounted on a flat surface or on a bracket. The bracket must be secured in such a way that all unused holes are closed.
The thermal bulb must be positioned in such a way that its temperature is clearly lower than the temperature of the relay itself and the capillary tube.
The operation of the thermostat does not depend on the ambient temperature.

DTP-150/ DTN-150

DUCT TEMPERATURE SENSOR



- for measuring the temperature of gaseous media in ventilation and air conditioning systems. As well as for liquid media, if installed in the immersion shells recommended by manufacturer;
- range of measured temperature is from -40° C to +100° C

sensor element types:

DTp - PT1000 (DIN EN 60751, Class B);

DTn - NTC10K (B= 3988);

- two-wire connection type;
- 1.0 m connection cable (other lengths optional);
- insulation resistance ≥ 100 MOhm, at 20°C (500V DC);
- Protection Class III (complies with EN 60730);
- ingress protection rating: IP54 (IEC 529).

NOTE: it is possible to order a sensor with a length of L = 150, 300 mm.

DTP-150

- duct temperature sensor
- sensor element type

(p – PT1000; n – NTC10K)

- length of the immersion part, mm

DTP-50/ DTN-50

SURFACE-MOUNTED TEMPERATURE SENSOR



- for measuring the surface temperature of solids such as pipes in heating, ventilation and air conditioning systems;
- range of measured temperature is from -40° C to +100° C;
- types of sensor element:

DTp - PT1000 (DIN EN 60751, Class B);

DTn - NTC10K (B = 3988);

- two-wire connection type;
- 1.0 m connection cable (other lengths optional);
- insulation resistance ≥ 100 MOhm, at 20°C (500V DC);
- Protection Class III (complies with EN 60730);
- ingress protection rating: IP54 (IEC 529).

DTP-50

- surface-mounted temperature sensor
- sensor element type

(p – PT1000; n – NTC10K)

- length of the surface-mounted part, mm

OUTDOOR TEMPERATURE SENSOR NDTp/ NDTn

- for heating, ventilation and air conditioning systems as reference sensors for weather-dependent control;
- for measuring sensors for optimizing algorithms of ventilation and air conditioning systems, as well as other building subsystems in cases where there is no need for a quick response to changes in ambient temperature;
- measuring temperature range from -40°C to +100°C;
- types of sensor element:
  DTp - PT1000 (DIN EN 60751, Class B);
  DTn - NTC10K (B = 3988);
- two-wire connection type;
- insulation resistance ≥ 100 MOhm, at 20°C (500V DC);
- Protection Class III (complies with EN 60730);
- ingress protection rating: IP54 (IEC 529).



NDTp

- outdoor temperature sensor
- sensor element type (p – PT1000; n – NTC10K)

ROOM TEMPERATURE SENSOR KDTp

- for indoor air temperature measurement;
- range of measured temperature is from -40° C to +80° C;
- sensor element type/output: optional, PT1000;
- ingress protection rating IP30 (IEC 529).



KDTp

- room temperature sensor
- sensor element type (p - PT1000)

UWS | WATER MIXING UNIT



UWS 2-1-R

- water mixing unit
- design version:
  with two-way valve (1),
  with three-way valve (2)
- unit size (1, 2, 3, 4, 5)
- direction of the heat carrier at the UWS inlet:
  R - right-hand version, L – left-hand version,
  E - special (economy)

- ensuring circulation and temperature control of the heat carrier in heat exchangers of ventilation systems and supply air installations;
- functions are performed by regulating the temperature of the supplied heat carrier at its constant flow rate;
- heat carrier can be water, aqueous solutions (up to 50%) of ethylene glycol and propylene glycol, saline solutions, etc.;
- complete with SAU components, UWS reliably protects the heat exchanger from freezing and damage.

A set of compact fittings that is designed to regulate the heat output and protect against freezing of water heat exchangers. Water mixing units (UWS) are used to regulate the operation parameters of both separate water heat exchangers of ducted ventilation systems and built-in heat exchangers in ventilation devices: central air conditioners and supply air chambers, compact air conditioners, air curtains.

Automatic control systems provide continuous monitoring of the main protective functions of the ventilation system, including protection against freezing.

There are two types of water mixing units:

UWS 1 - mainly used when connecting heat exchangers to a centralized heat carrier supply system.

At the same time, the operation of water mixing units does not depend on the pressure level of the heat carrier in the main pipeline.

UWS 2 - are mainly used to ensure reliable uninterrupted operation of local heating systems (using individual boilers), which require ensuring a constant flow of heat carrier not only in the internal circulation circuit, but also in the external one.

The standard size of the unit depends on the flow rate of the heat carrier (m3/h) that passes through the heat exchanger.

According to the direction of the heat carrier, the "right-hand" (R) and "left-hand" (L) type units are distinguished.

Special offer – UWS-E water mixing units – economy package without a thermomanometer and flexible connections at a special price. They are manufactured for standard sizes 3, 4, and 5.

UWS 1-E units are always supplied in the right-hand version (when viewed from the side of the two-way valve drive and the circulation pump motor, the heat carrier flow in the internal UWS 1-E circuit moves counterclockwise).

UWS 2-E units are always supplied in the left-hand version (when viewed from the side of the three-way valve drive and the circulation pump motor, the heat carrier flow in the internal circuit of UWS 2-E moves clockwise).

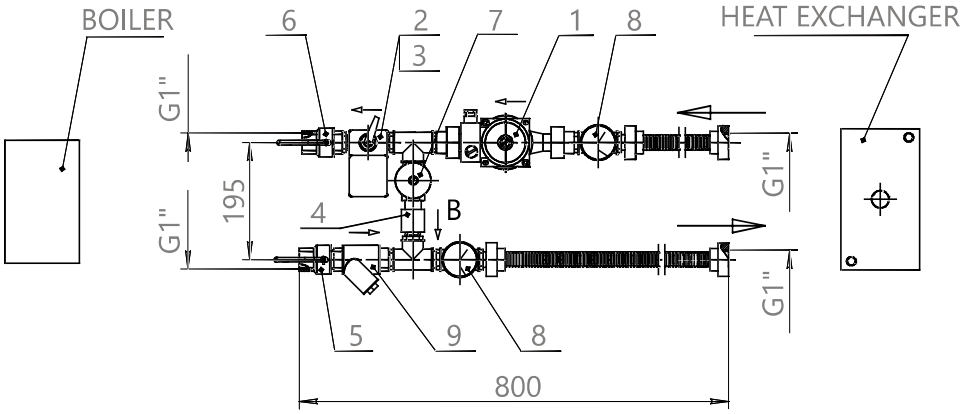
DESIGNATION	Water flow rate, m^3/h	Head, m of water column	Kvs* m^3/h	Valve Belimo	Pump	Weight, kg, max
UWS 1-1-R (L)	до 0,8	до 4	1	R 2015-1-B1	GHN 15/40-130	8
UWS 1-2-R (L)	0,81...1,3	до 6	1,6	R 2015-1P6-B1	GHN 25/65-130	8
UWS 1-3-R (L)	1,31...2,5	до 6	2,5	R 2015-2P5-B1	GHN 25/65-130	8
UWS 1-4-R (L)	2,51...3,6	до 4	4	R 2020-4-B1	GHN 32/80-180	11
UWS 1-5-R (L)	3,61...6	до 6,5	6,3	R 2025-6P3-B2	GHN 32/85-180	11

DESIGNATION	Water flow rate, m^3/h	Head, m of water column	Kvs* m^3/h	Valve Belimo	Pump	Weight, kg, max
UWS 2-1-R (L)	до 0,8	до 4	1,6	R 3015-1P6-B1	GHN 15/40-130	8
UWS 2-2-R (L)	0,81...1,3	до 6	2,5	R 3015-2P5-B1	GHN 25/65-130	8
UWS 2-3-R (L)	1,31...2,5	до 6	4	R 3015-4-B1	GHN 25/65-130	8
UWS 2-4-R (L)	2,51...3,6	до 4	6,3	R 3020-6P3-B2	GHN 32/80-180	11
UWS 2-5-R (L)	3,61...6	до 6,5	10	R 3025-10-B2	GHN 32/85-180	11

DESIGNATION	Water flow rate, m³/h	Head, m of water column	Kvs* m³/h	Valve ball	Pump	Weight, kg, max
UWS 1-3 E	1,31...2,5	до 6	2,5	R 212 P	GHN 25/65-130	7
UWS 1-4 E	2,51...3,6	до 4	4	R 212 P	GHN 32/80-180	10
UWS 1-5 E	3,61...6	до 6,5	6,3	R 222 P	GHN 32/85-180	10

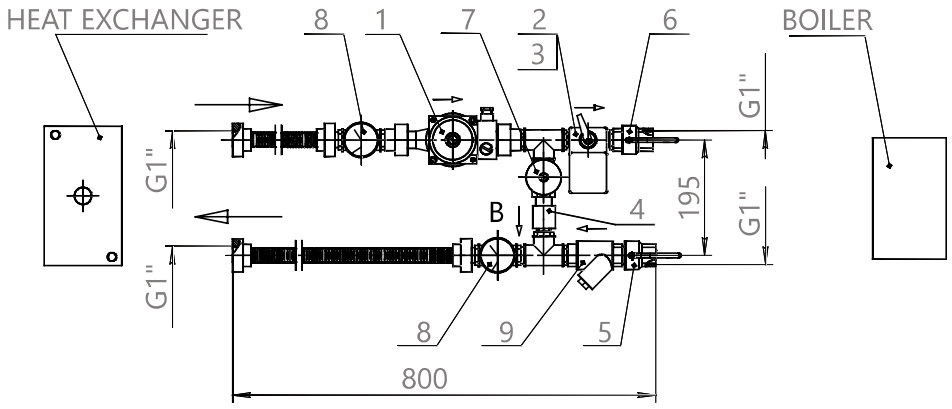
DESIGNATION	Water flow rate, m³/h	Head, m of water column	Kvs* m³/h	Valve ball	Pump	Weight, kg, max
UWS 2-3 E	1,31...2,5	до 6	2,5	R 312 P	GHN 25/65-130	7
UWS 2-4 E	2,51...3,6	до 4	4	R 317 P	GHN 32/80-180	10
UWS 2-5 E	3,61...6	до 6,5	6,3	R 322 P	GHN 32/85-180	10

UWS 1 – R (RIGHT-HAND VERSION)



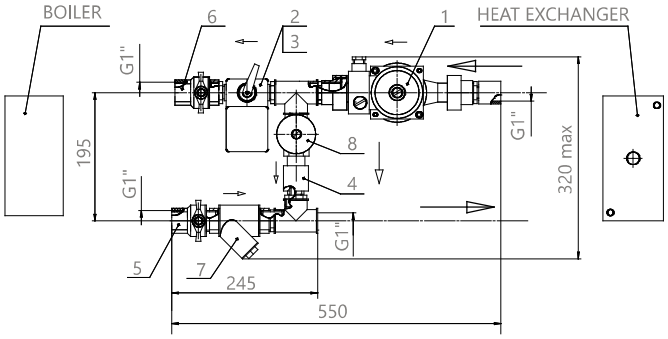
1 - circulation pump; 2 - two-way control ball valve; 3 - electric drive; 4 - check valve; 5, 6 - ball valves; 7 - control valve; 8 - thermomanometers; 9 - filter

UWS 1 – L (LEFT-HAND VERSION)



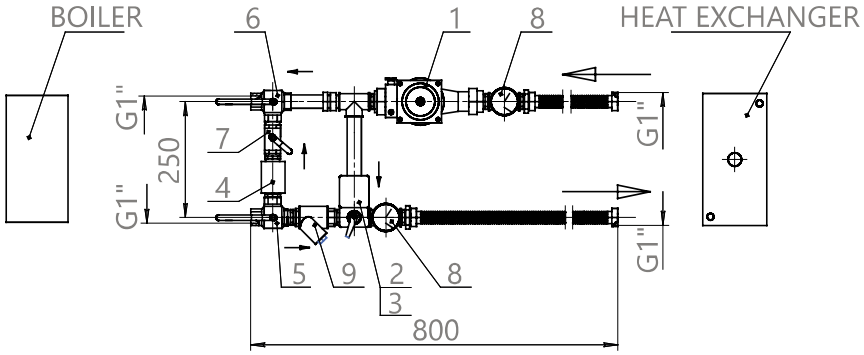
1 - circulation pump; 2 - two-way control ball valve; 3 - electric drive; 4 - check valve; 5, 6 - ball valves; 7 - control valve; 8 - thermomanometers; 9 - filter

UWS 1 – E (ECONOMY VERSION)



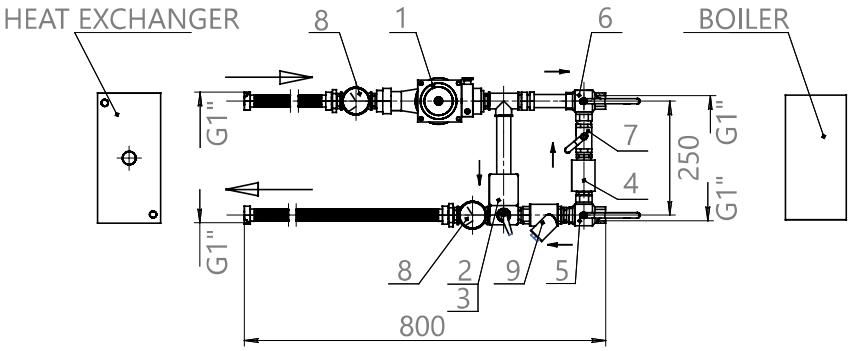
1 - circulation pump; 2 - two-way control ball valve; 3 - electric drive; 4 - check valve;
5, 6 - ball valves; 7 - filter; 8 - manual regulating valve

UWS 2 – R (RIGHT-HAND VERSION)



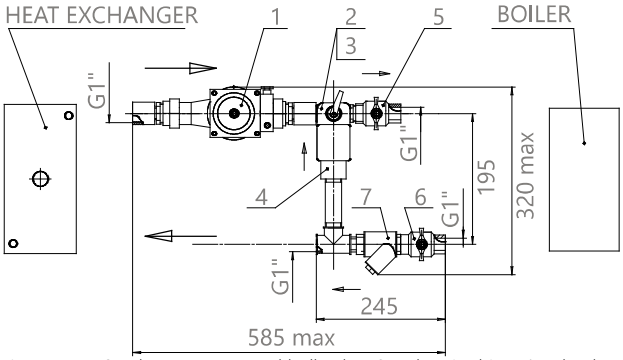
1 - circulation pump; 2 - three-way control ball valve; 3 - electric drive; 4 - check valve;
5, 6 - ball valves; 7 - control valve; 8 - thermomanometers; 9 - filter

UWS 2 – L (LEFT-HAND VERSION)



1 - circulation pump; 2 - three-way control ball valve; 3 - electric drive; 4 - check valve;
5, 6 - ball valves; 7 - control valve; 8 - thermomanometers; 9 - filter

UWS 2 – E (ECONOMY VERSION)



1 - circulation pump; 2 - three-way control ball valve; 3 - electric drive; 4 - check valve;
5, 6 - ball valves; 7 - filter

BALL VALVE

- for smooth control of heat carrier and refrigerant flows;
- two-way valve (R2 X X);
- three-way valve (R3 X X);
- it is a part of water mixing units (UWS).

A special feature of the design of these ball valves is the flow characteristic that is equally proportional to the heat exchanger, which ultimately allows for a linear relationship between the heat output and the opening (angle of rotation) of the valve. This effect is achieved by installing a correction disk with a V-shaped flow hole in the inlet hole

$$K_{VS} = \frac{V_{100}}{\sqrt{\frac{\Delta pv_{100}}{100}}}$$

, where

Δ pv100 – pressure loss when the valve is fully open;

V100 – nominal flow rate of the heat carrier at Δ pv100

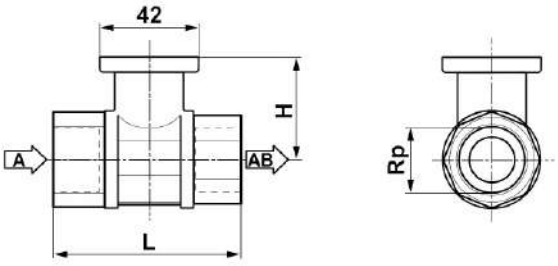


R 2015-1-B1

ball valve

2-WAY	R 2015-1-B1	R 2015-1P6-B1	R 2015-2P5-B1	R 2015-4-B1	R 2020-8P6-B2	R 2025-6P3-B2
3-way	R 3015-1-B1	R 3015-1P6-B1	R 3015-2P5-B1	R 3015-4-B1	—	R 3025-6P3-B2
K vs, m³/h	1,0	1,6	2,5	4	8,6	6,3
DN, mm	15	15	5	15	20	25
Drive	TR 24-SR				LR 24 A-SR	

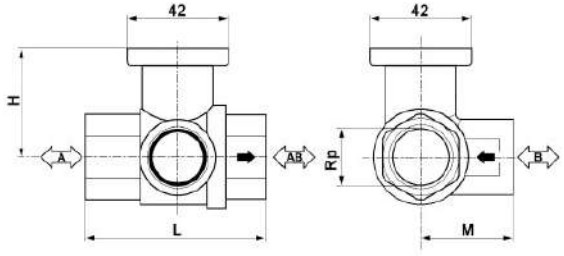
R2...
TWO-WAY, INTERNAL THREAD



VALVE TYPE	DN, mm	Rp	Dimensions, mm		Valve depth, mm	Weight*, kg
			L	H		
R 2015-1-B1, R 2015-1P6-B1	15	½"	67	35	13	0,24
R 2015-2P5-B1	15	½"	67	44	13	0,3
R 2015-4-B1	15	½"	78	46	14	0,42
R 2020-8P6-B2	20	¾"	78	46	14	0,42
R 2025-6P3-B2	25	1"	87	46	16	0,55

* weight without drive

R3...
THREE-WAY, INTERNAL THREAD



VALVE TYPE	DN, mm	Rp	Dimensions, mm			Γvalve depth, mm	Weight*, kg
			L	H	M		
R 3015-1-B1	15	½"	67	35	36	13	0,27
R 3015-1P6-B1	15	½"	67	44	36	13	0,37
R 3015-2P5-B1	15	½"	67	44	36	13	0,37
R 3015-4-B1	15	½"	67	44	36	13	0,37
R 3025-6P3-B2	25	1"	87	46	45	16	0,65

* weight without drive

TECHNICAL SPECIFICATIONS	R2... two-way	R3... three-way
Processing medium	cold and hot water, glycol content no more than 50%	
Medium temperature, °C	+5...+100	
Shut-off pressure drop, kPa	1 400	
Flow characteristics	regulating flow path A-AB: equiproportional characteristic	
Leak level	A, sealed	regulating A, sealed flow path A-AB:
Permissible pressure drop	350 kPa (200 kPa - for quiet operation)	
Angle of rotation	90°	
Installation position	from vertical to horizontal	
Maintenance	not required	

CIRCULATION PUMP



GHN 15/40-130

pump type

- designed for pumping heat carrier and refrigerant in closed circulation systems;
- it is a part of UWS.

This type belongs to the group of pumps with a "wet rotor", in which all moving parts, including the motor rotor, are washed with the pumped liquid. The liquid washes the plain bearings, cooling them and the rotor.

There is no need for shaft seals. The pump does not require special maintenance.

The pumped media can be water, saline solutions, aqueous solutions of propylene and ethylene glycol in a ratio of 1:1 max, and so on.

It should be borne in mind that when glycol is added to the pumped medium, its viscosity increases. Depending on the percentage of glycol, it becomes necessary to adjust the hydraulic

characteristics of the pump.

WARNING! Pumps for liquid flow rates over 7000 m^3/h are selected individually.

Pumps with non-metallic impellers are used to move media with temperatures up to +110° C and can only be used in

waste heat carrier discharge lines.

The table shows the characteristics of the pumps most commonly used in circulation systems.

TECHNICAL SPECIFICATIONS	**GHN 15/40-130**	**GHN 25/65-130**	**GHN 32/80-180**	**GHN 32/85-180**
Water flow rate, m^3/h	up to 3.5	up to 4	up to 8.4	up to 12
Head, m	up to 4	up to 6.5	up to 8	up to 7.1
Power consumption, W	up to 50	up to 95	up to 210	up to 277
Nominal diameter/threaded connection	DN15	DN25	DN32	DN32
Supply voltage, V	230 V AC	230 V AC	230 V AC	230 V AC
Current consumption, A	0,21	0,41	0,91	1,2
Speed change	3 steps			
Maximum allowable operating pressure, atm	10			
Temperature of the moved medium, °C	up to +110			
Weight, kg	2,2	2,4	4,7	5,3

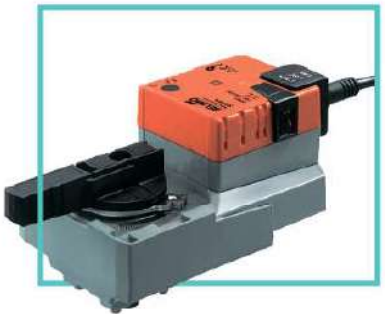
DRIVE LR24A-SR

- it is a part of UWS;
- for controlling the control ball valves R2... and R3...;
- smooth adjustment is performed using the standard signal 0 ... 10 V DC.

The drive is easily attached to the control ball valve with a single screw. The drive design provides overload protection and stops automatically when

the extreme positions are reached.

Manual control with a lever is possible.



LR24A-SR

drive

TECHNICAL SPECIFICATIONS	TR24-SR	LR24A-SR
Supply voltage	24V, 50/60 Hz, 24V DC	
Rated power, VA	1	2
Power consumption, W	0,5	1
Connecting cable	length 1 m, 3x0.75 mm^3	length 1 m, 4x0.75 mm^3
Control signal Y	0.10V DC, input impedance of 100 kOhm	

TECHNICAL SPECIFICATIONS	TR24-SR	LR24A-SR
Torque, Nm	2 (at nominal voltage	5 (at nominal voltage)
Full travel time, sec	105	90
Temperature of the controlled medium, °C	+5...+100	+5...+120
Maintenance	not required	
Weight, kg (without valve)	0,4	0,55

SERVICE SWITCH S32

- ensures compliance with the safety rules for maintenance work;
- located on electrical machines or devices;
- ingress protection rating IP65.

It is mounted in a plastic casing with a rotary handle with the possibility of fixing by three padlocks – Ingress protection rating IP 65.

It is attached to the panel with two M5 screws.

The set includes two Pg 16 cable glands.

Type and rated breaking current (32 A).

Plastic casing.



S32

service switch

MC1 WALL-MOUNTED CONTROL UNIT



MC1

- wall-mounted control unit

- for monitoring and indicating the status of ventilation and air conditioning systems;
- status signals: "Operation", "Clogged filter", "Failure";
- On/Off control signals;
- power supply voltage 220 V (indication);
- switching capacity: 220V, 300 mA;
- ingress protection rating IP54.

Designed for remote monitoring and management of the system status. These processes are carried out by issuing control commands ("Start"/"Stop") and indicating the status ("Operation", "Clogged filter", "Failure") of the ventilation and air conditioning systems.

Control is carried out using momentary push buttons, indication by means of LEDs.

P 01 WALL-MOUNTED CONTROL UNIT



P 01

- wall-mounted control unit

- for control of ventilation and air conditioning systems;
- On/Off control signals;
- ingress protection rating IP54.

It is intended for remote control of the system status, which is carried out by issuing control commands ("Start"/"Stop") of ventilation and air conditioning systems. Control is carried out using a switch.

REFERENCE INFORMATION

DESIGNATION OF THE AIR VALVE DRIVE

The company uses a universal model designation of electric drives for air valves of general ventilation systems. When ordering, it is enough to specify in a simplified form the requirements for the drive parameters, writing them in encrypted form in the valve marking.

Based on the drive code specified in the order, our manager will select the required number and type of drives for a specific valve.

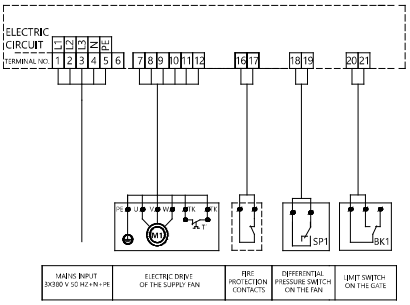
VALVE-H×B-M 220

- valve designation (see the catalog section)
- drive designation

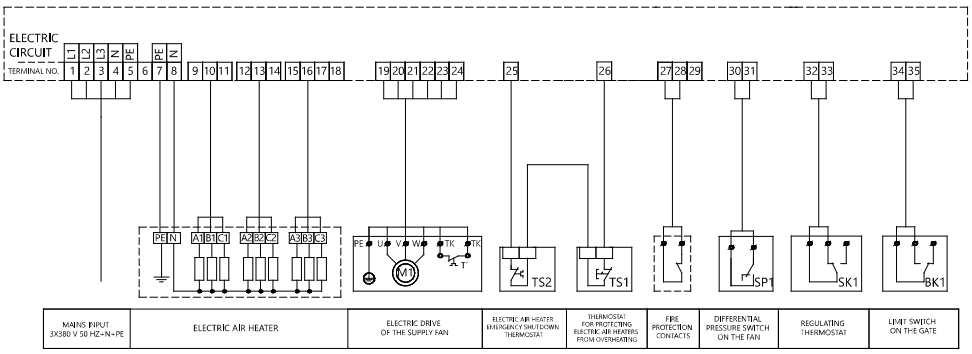
M - drive without return spring;
F - drive with return spring;
220 - supply voltage, 220V;
24 - supply voltage, 24V;
S - availability of additional contacts;
SR - drive with analog control (“smooth adjustment”)

ELECTRICAL CONNECTION DIAGRAMS OF THE AIR CURTAIN

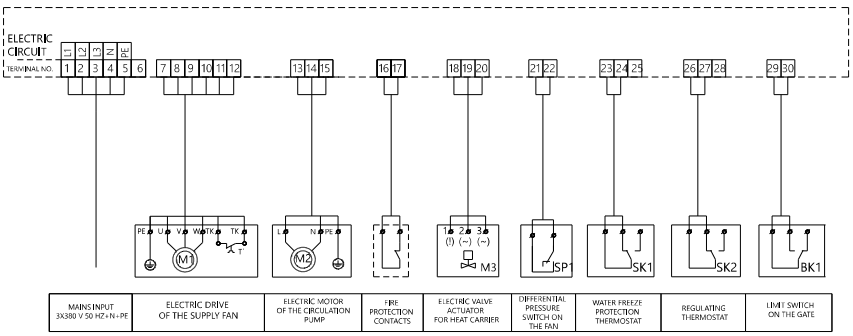
SAU-AVK-00-1



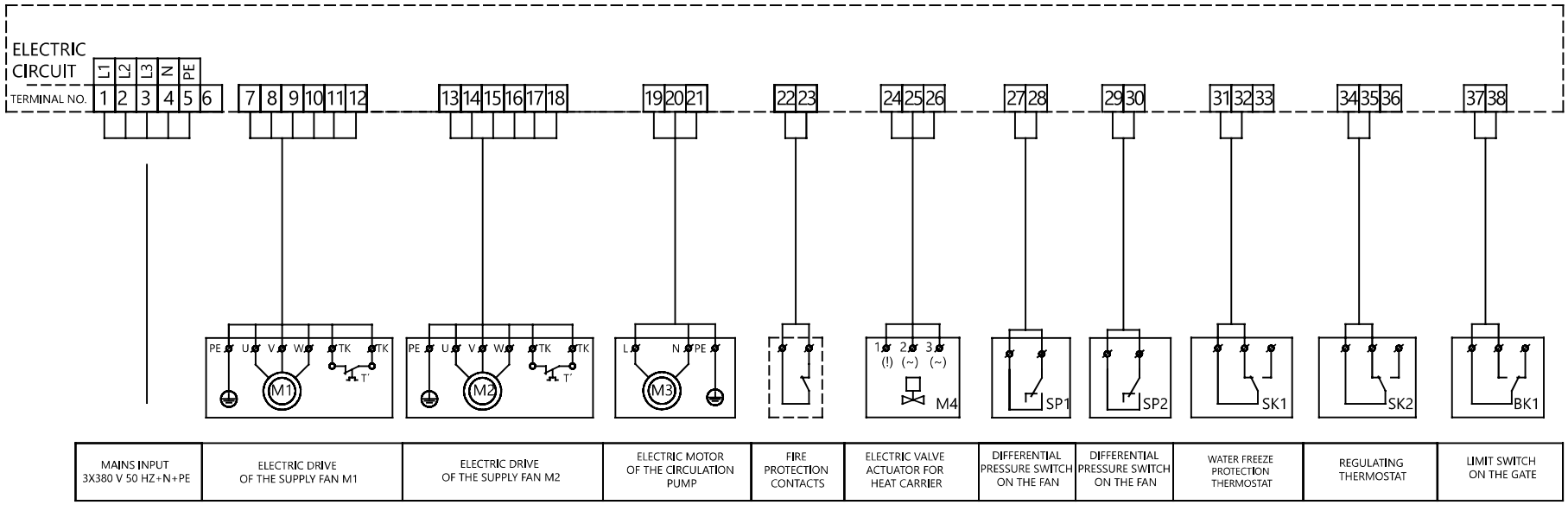
SAU-AVK-EN-1



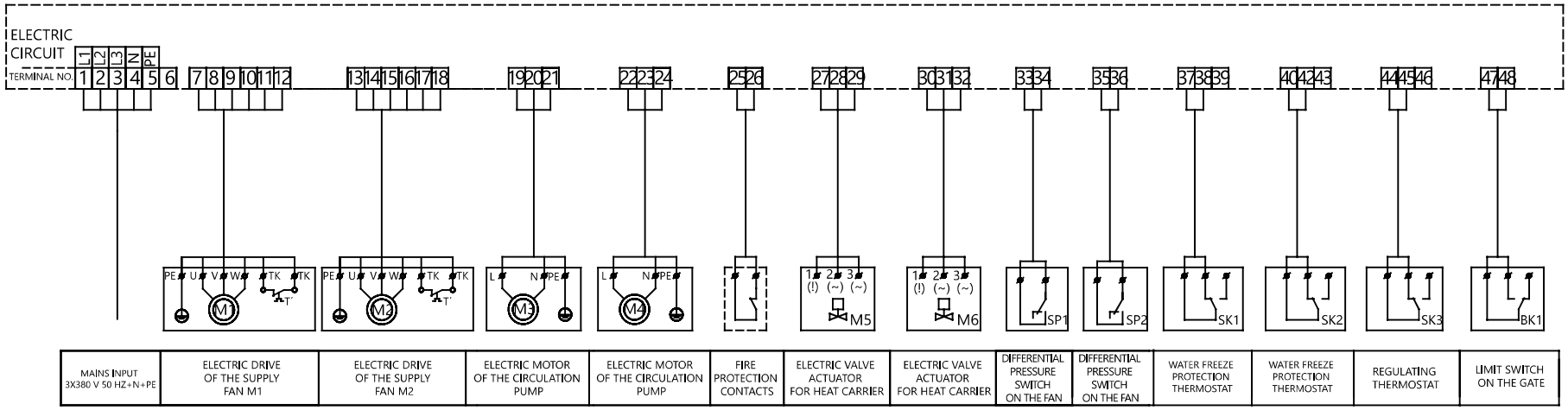
SAU-AVK-VN-1



SAU–AVK–VN–2 (ONE SUPPLY LINE OF THE HEAT CARRIER)



SAU–AVK–VN–2 (TWO SUPPLY LINES OF THE HEAT CARRIER)



DUCT UNITS

DESCRIPTION OF DATA FOR COMMUNICATIONS PROTOCOLS

Using the MODBUS protocol, all analog points are transmitted as Integer * 10, i.e. 13.50° C → 135.
In the tables below, I is the controller number in the interface network.

АНАЛОГОВІ ПОІНТИ ПЕРЕДАЧА В АРМ (INPUT-REGISTER)

VARIABLE NAME (LON) REGISTER NUMBER (MODBUS) POINT NUMBER (UNIVERS)	TYPE (LON)	DESCRIPTION
nvo_TpomdTpom 1025 I*256	SNVT_temp_p	Room temperature or mismatch between the room air temperature and its setpoint (if the sensor-set-point adjuster is connected) or the current humidity in the room
nvo_Tprv 1026 I*256+1	SNVT_temp_p	Supply air temperature or current supply air humidity
nvo_Tobr 1027 I*256+2	SNVT_temp_p	Temperature of the return heat carrier
nvo_Tnv 1028 I*256+3	SNVT_temp_p	Outdoor temperature
nvo_Tout 1029 I*256+4	SNVT_temp_p	Exhaust air temperature
nvo_Pol_KL_T_EK 1030 I*256+5	SNVT_lev_percent	Air heater valve position or output signal for control of the analog section of the electric heater
nvo_Pol_KL_X 1031 I*256+6	SNVT_lev_percent	Air cooler valve position
nvo_Pol_ZS_RK 1032 I*256+7	SNVT_lev_percent	Position of the outdoor air damper or the damper of the cross-flow recuperative heat exchanger or the rotation speed of the rotary heat exchanger
nvo_CurrTprv_def 1033 I*256+8	SNVT_temp_p	Current setpoint for supply air temperature or supply air humidity
nvo_CurrTpom_def 1034 I*256+9	SNVT_temp_p	Current setpoint for indoor air temperature or indoor humidity
nvo_PowerEK 1037 I*256+12	SNVT_lev_percent	Heating power of electric air heater

RECEIVING/TRANSMITTING FROM/TO THE ARM (HOLDING-REGISTER)

VARIABLE NAME (LON) REGISTER NUMBER (MODBUS) POINT NUMBER (UNIVERS)	ТИП (LON)	DESCRIPTION
nvi_Tobr_def 2049 I*256+10	SNVT_temp_p	Setting the temperature of the return heat carrier
nvi_Tprv_pom_def 2050 I*256+11	SNVT_temp_p	Setting the setpoint for adjustable air temperature or humidity

DISCRETE POINTS, TRANSMISSION TO THE ARM (INPUT-REGISTER)

VARIABLE NAME (LON) REGISTER NUMBER (MODBUS) POINT NUMBER (UNIVERS)	TYPE (LON)	BIT	DESCRIPTION
nvoD_ State0 1312 I*256+32	SNVT_state	0	1 - power-on alarm after a power failure
		1	not used
		2	1 - power-on alarm according to the work schedule
nvoD_State1 1313 I*256+33	SNVT_state	0	1 - supply fan failure
		1	1 - exhaust fan failure
		2	1 - failure - electric heater overheating
		3	1 - failure - risk of freezing of heat exchanger by or risk of freezing of heat exchanger by AIR (general risk)
		4	1 - failure - risk of freezing of heat exchanger by WATER
		5	1 - failure - risk of freezing of heat exchanger by AIR
		6	1 - failure - low supply air temperature
		7	1 - failure - electric heater underheating
		8	1 - failure - Tout. min
		9	1 - the fan is turned on, the temperature is maintained by the water/air-heater valve
		10	1 - the fan is turned off, "winter" mode, maintaining the temperature of the return heat carrier
		11	1 - the fan is turned off, "Summer" mode, temperature maintenance by the water/ air-cooler valve
		12	1 - the fan is turned on, maintaining the temperature of electric air heater
		13	1 - the fan is turned on, the temperature is maintained by dampers or by the recuperative heat exchanger
		14	1 - the fan is turned on, reversing the dampers or recuperative heat exchanger in the "summer" mode
		15	1 - the fan is turned on, the temperature is maintained by dampers or by the recuperative heat exchanger in reverse mode
nvoD_ State2 1314 I*256+34	SNVT_state	0	digital output status of the controller 1 (term. no. 13, 14) - fan: 0 - open 1 - closed
		1	digital output status of controller 2 (term. no. 14, 15) - water/air-cooler pump (if 3-section electric air heater with different section power capacities is not used) or 1st section of CCU (if 3-section electric air heater with the same section power capacities is used) or 3rd section of electric air heater (if 3-section electric air heater with different section power capacities is used): 0 - open 1 - closed
		2	digital output status of the controller 3 (term. no. 16, 17) - water/air-heater pump or 1st section of electric air heater: 0 - open 1 - closed
		3	digital output status of the controller 4 (term. no. 17, 18) - 2nd section of electric air heater: 0 - open 1 - closed
		4	discrete output status of the controller 5 (term. no. 19, 20) - general failure: 0 - open 1 - closed
		5	digital output status of the expansion module - water/air-cooler pump or the 1st section of the CCU (if 3-section electric air heater with different section power capacities is used) or the 2nd section of the CCU (if a 3-section electric air heater with different section power capacities is not used or a 3-section electric air heater with the same section power capacities is used: 0 - open 1 - closed

VARIABLE NAME (LON) REGISTER NUMBER (MODBUS) POINT NUMBER (UNIVERS)	TYPE (LON)	BIT	DESCRIPTION
nvoD_ State3 1315 I*256+35	SNVT_state	0	digital input status of the controller 1 (term. no. 1) - Stop button: 0 - open 1 - closed
		1	digital input status of the controller 2 (term. no. 2) - Start button: 0 - open 1 - closed
		2	digital input status of the controller 3 (term. no. 3) - water/air-cooler protection thermostat or electric air heater protection thermostat, or protection hygrostat of the air handling unit: 0 - open 1 - closed
		3	digital input status of the controller 4 (term. no. 4) - supply fan operation monitoring device: 0 - open 1 - closed
		4	digital input status of the expansion module - exhaust fan operation monitoring device: 0 - open 1 - closed
		5	not used
		6	0 - the system is turned off 1 - the system is turned on (common enable signal)
		7	not used
		8	0 - the water/air-heater pump is turned off 1 - the water/air-heater pump is turned on
		9	not used
		10	not used
		11	1 - warming up the water/air-heater
nvoD_ State4 1316 I*256+36	SNVT_state	0	0 - the water/air-heater pump is turned off 1 - the water/air-heater pump is turned on
nvoD_ State5 1317 I*256+37	SNVT_state	0	1 - failure reset - automatic alarm - risk of freezing of heat exchanger by WATER and/or risk of freezing of heat exchanger by AIR
		1	0 - manual operation mode 1 - automatic or remote operation mode
		2	0 - remote operation mode 1 - automatic operation mode
		3	not used
		4	0 - the 1st section of the CCU is turned off or a CCU operation permit issued 1 - the 1st section of the CCU is turned on or the CCU operation permit is removed
		5	0 - the 2nd section of the CCU is turned off 1 - the 2nd section of the CCU is turned on
		6	0 - the 1st section of the electric heater is turned off 1 - the 1st section of the electric heater is turned on
		7	0 - the 2nd section of the electric heater is turned off 1 - the 2nd section of the electric heater is turned on
		8	0 - the 3rd section of the electric heater is turned off 1 - the 3rd section of the electric heater is turned on
		9	not used
		10	not used
		11	not used
		12	1 - heat removal from the electric heater
		13	not used
		14	1 - connected sensor-set-point adjuster

VARIABLE NAME (LON) REGISTER NUMBER (MODBUS) POINT NUMBER (UNIVERS)	TYPE (LON)	BIT	DESCRIPTION
nvoD_ State6 1318 I*256+38	SNVT_state	0	1 - automatic defrost alarm of the heat exchanger
		1	not used
		2	1 – аварія Зап. відт.
		3	not used
		4	0 - CCU operation mode using the law 1 - CCU operation mode without using the law
nvoD_State7 1319 I*256+39	SNVT_state	0	1 - the fan is turned on, maintaining the CCU temperature (regulation according to the law or on/off without the law)
		1	1 - the fan is turned on, maintaining the CCU temperature (issuing a permit for operation)
		2	1 - the fan is turned off, "Winter" mode (if there is no water/air-heater valve)
		3	1- the fan is turned off, "Summer" mode
		4	1 - fan on, transition mode, no temperature control
		5	not used
		6	1 – аварія Заборона скидання У
		7	not used
		8	1 - the fan is turned on, the temperature of the air exhausted by the heat exchanger is maintained
nvoD_ State8 1320 I*256+40	SNVT_state	0	0 - prohibited work schedule 1 - permitted work schedule
		1	0 - status “off” according to the work schedule 1 - status “on” according to the work schedule
		2	not used
		3	not used
		4	0 - “Summer” mode 1 - “Winter” mode
nvoD_ State9 1321 I*256+41	SNVT_state	0	0 - indoor temperature control in the “Winter” mode 1 - supply air temperature control in the “Winter” mode
		1	0 - indoor temperature control in the “Summer” mode 1 - supply air temperature control in the “Summer” mode
nvoD_ State10 1322 I*256+42	SNVT_state	0	1 – аварія Стоп гр. роботи

RECEIVING FROM THE ARM (HOLDING-REGISTER)

VARIABLE NAME (LON) REGISTER NUMBER (MODBUS) POINT NUMBER (UNIVERS)	TYPE (LON)	BIT	DESCRIPTION
nviD_Cmd_Regim 2359 I*256+55	SNVT_state	0 1	Changing the operating mode Bit 0 - permission to change the operating mode, bit 1 - select the operating mode. Bit 0 bit 1 0 X - the mode does not change 1 1 - setting the automatic mode 1 0 - setting the remote mode
nviD_CmdVent 2360 I*256+56	SNVT_st ate	0 1	Fan control in remote and automatic modes. Bit 0 - start, bit 1 - stop Bit 0 bit 1 1 0 - turning on fans 0 1 - shutdown fans 1 1 - shutdown fans
nviD_CmdPump 2361 I*256+57	SNVT_state	0 1	Control of the water/air-heater pump in remote mode. Bit 0 - start, bit 1 - stop Bit 0 bit 1 1 0 - turning on pump 0 1 - shutdown pump 1 1 - shutdown pump
nviD_CmdPumpX 2362 I*256+58	SNVT_state	Remote control of the electric air heater sections	
		0 1	Control of the 1st section of the electric air heater (issuing a permit for operation of the analog section) in remote mode Bit 0 - on, bit 1 - off Bit 0 bit 1 1 0 - turning on section 0 1 - turning off the section 1 1 - turning off the section
		2 3	Remote control of the 2nd section of the electric heater Bit 2 - on, Bit 3 - off Bit 2 Bit 3 1 0 - turning on the section
		4 5	Remote control of the 3rd section of the electric heater Bit 4 - on, Bit 5 - off Bit 4 Bit 5 1 0 - turning on the section 0 1 - turning off the section 1 1 - turning off the section
	Warning! Switching on/off of the electric heater sections must be carried out strictly sequentially. That is, first the 1st section is turned on, then the 2nd and then the 3rd. Switching off should be done in reverse order.		
nviD_CmdXM 2364 i*256+60	SNVT_state	Remote control of the CCU	
		0 1	Control of the 1st section of the CCU or issuing a permit for remote operation of the CCU Bit 0 - on, bit 1 - off Bit 0 bit 1 1 0 - turning on section 0 1 - turning off section 1 1 - turning off section
		2 3	Control of the 2nd section of the CCU in remote mode Bit 2 - on, bit 3 - off Bit 2 Bit 3 1 0 - turning on section 0 1 - shutdown section 1 1 - shutdown section

VARIABLE NAME (LON) REGISTER NUMBER (MODBUS) POINT NUMBER (UNIVERS)	TYPE (LON)	BIT	DESCRIPTION
nvi_Tobr_def 2049 I*256+10	SNVT_state	0 1	Control of the outdoor air damper or damper of the cross-flow recuperative heat exchanger or the rotation speed of the rotary heat exchanger in remote mode Bit 0 - direction of movement, bit 1 - permission Bit 0 bit 1 X 0 - the position of the damper or the rotation speed of the recuperative heat exchanger does not change 0 1 - the damper closes or the rotation speed of the recuperative heat exchanger decreases 1 1 - the damper opens or the rotation speed of the recuperative heat exchanger increases
nviD_Cmd_KL_T 2366 i*256+62	SNVT_state	0 1	Remote control of the air heater valve or analog section of the electric air heater Bit 0 - direction of movement, bit 1 - permission Bit 0 bit 1 X 0 - valve position or control signal of the analog section of the electric air heater does not change 0 1 - valve closes or the amplitude of the analog section control signal decreases electric air heater 1 1 - valve opens or the amplitude of the analog section control signal increases electric air heater
nviD_Cmd_KL_X 2367 i*256+63	SNVT_state	0 1	Control of the water/air-cooler valve in remote mode Bit 0 - direction of movement, bit 1 - permission Bit 0 bit 1 X 0 - valve position does not change 0 1 - valve closes 1 1 - valve opens
nviD_CmdRstAlrm 2368 i*256+64	SNVT_state	0	1 - remote alarm reset

NOTE.
Commands for controlling fans, pumps, sections of the electric air heater, and CCU are perceived by the controller as pulse signals. That is, after processing, the corresponding bit is reset.

WARNING!
If the equipment includes the electric air heater or CCU, it is strictly forbidden to issue commands to turn on non-existent sections.

YOU CAN GET FULL TECHNICAL ADVICE AT
ALL REGIONAL REPRESENTATIVE OFFICES