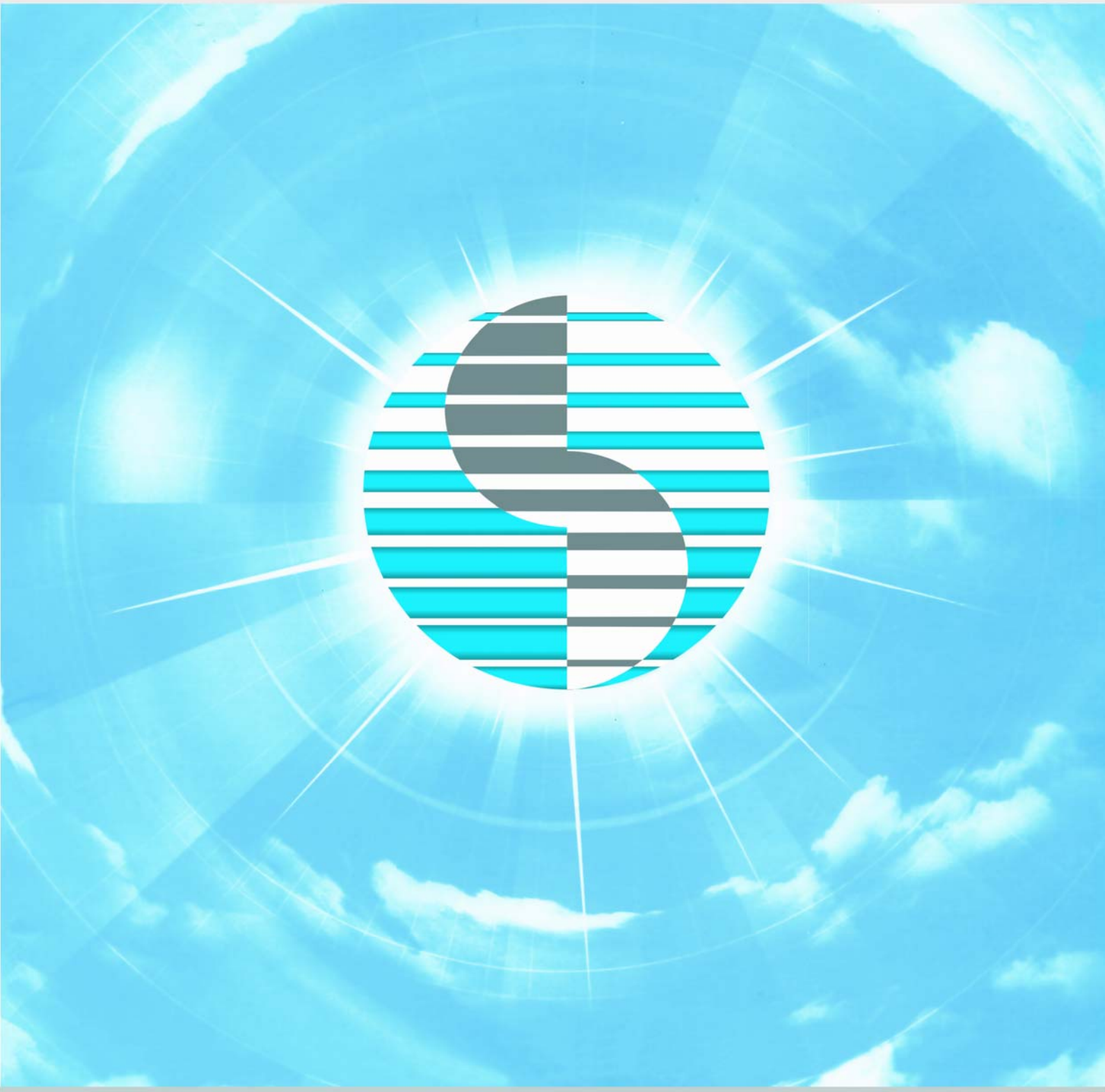
Библиотека СОК

CATALOGUE

OF PRODUCTS

GENERAL AND SPECIAL PURPOSE FANS



MOVEN

VENTILATION • HEATING • AIR CONDITIONING

PRODUCTION SUPPLY

EQUIPMENT FOR VENTILATION, AIR CONDITIONING AND SMOKE PROTECTION SYSTEMS












MOVEN

CATALOGUE OF EQUIPMENT AT WWW.MOVEN.RU

RADIAL FANS
LOW, MEDIUM, HIGH PRESSURE
VR-300-45-2 ... 4; V-C14-46-5 ... 8;
VR-86-77-2.5 ... 8; VR-80-70-10; 12.5;
V-C4-70-16, VR132-30-5 ... 10, etc.

AXIAL FANS VO-14-320-4 … 12.5

EXPLOSION-PROOF RADIAL, AXIAL FANS

COMPACT REVERSIBLE AXIAL FAN VO-18-270-1,6

VALVES AND GATE VALVES, VENTILATION GRILLES, DIFFUSERS, AIR DUCTS, NETWORK EQUIPMENT, ETC.

ROOF MOUNTED FANS VKRM-3.15 ... 12.5

SMOKE REMOVAL FANS
RADIAL VR-280-46-5DU ... 8DU,
VR-86-77-5DU ... 8DU, VR-80-70-10DU;
12.5DU AXIAL VO-13-284-5 ... 12.5DU
ROOF MOUNTED VKRM-5 ... 8DU; 12.5DU

AXIAL FAN SUPPORT
VO-25-188 No. 8, 10, VO-14-320-10D
VO-14-320-12.5 (VOP-12.5)

COMBINED FIRE-FIGHTING VALVES KP-F1

FIRE-RETARDENT VALVES AZE-MF

FIRE DOORS AND HATCHES

OOO MOVEN-S
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DEAR COLLEAGUES!

This catalogue is dedicated to key products of our company – MOVEN general and special purpose fans.

The fans are produced under technical documents developed at the Moscow fan factory – OAO MOVEN. They are well known and are in demand both in our country and abroad.

To continue traditions of the Moscow fan factory, recording its history since 1937, the products manufactured are constantly improved, new products are developed, and great attention is paid to the issues of quality and observance of delivery dates.

You are welcome to submit your recommendations as regards to improvement of our products and quality of our work.

In addition to serially produced fans presented in this catalogue, the company offers following services:

- Development and manufacturing of fans under technical requirements of the customer.
- Selection of equipment for ventilation, air conditioning and heating systems.
- Supply of entire set of equipment for ventilation, air conditioning and heating systems for your facilities.
- Factory repair and balancing of the working wheels of fans.
- Development and manufacturing of fans for nuclear power plants.
- Consultation on technical parameters and selection of fans.

OUR PRODUCTS

MOVEN OFFERS FOLLOWING EQUIPMENT:

Fans for smoke removal for 400 °C and 600 °C (Fire safety certificate from the Ministry of Internal Affairs of the Russian Federation)

- Radial No. 5-12.5
- Axial No. 5-12,5
- Roof mounted No. 5-12.5

Low and medium pressure radial fans in various variants

- VR-86-77 (to replace V-C4-75, VR-80-75) No. 2,5-8
- VR-80-70 (to replace V-C4-70) No. 10; 12.5
- V-C4-70 No. 16
- VR-300-45 (to replace V-C14-46) No. 2-4
- V-C14-46 No. 5-8
- V.C5-35; V.C5-45; V.C5-50

Axial fans

- V0-14-320 (to replace V-06-300, V0-12-330) No. 4-12,5
- V0-18-270-1.6

Roof mounted fans

- VKRM (to replace VKR) No. 3.15-12.5

High pressure radial fans

- V.C12-49 No. 8
- V-C6-20 No. 8
- VR-132-30 (to replace VC6-28, VR6-28, VR-120-28, VVD) No. 5-10

Dust fans

- VR-6 (to replace VCPV) for environments with fine dust
- VR-100-45 (to replace VCP7-40, VCCP6-45, VCP5-45) No. 5-8 for environments with coarse dust

Jet fans

- VS-10-400-4; 6.3

Ship fans

- VOS; VOS B
- VRS; VRS B

Central air-conditioners KC-M:

- Air capacity 1,000-110,000 m^3/h

Draught equipment (smoke exhausters and fans):

- VD-2.5; VD(D)-3.5; VDN(DN)-6.3; VDN(DN)-8; VDN(DN)-9; VDN(DN)10 x 1,000; VDN(DN) 10 x 1,500; VDN(DN)-11.2 x 1,000; VDN(DN) 11.2 x 1,500; VDN(DN)12.5 x 1,000; VDN(DN)12.5 x 1,500; VDN(DN)-13; VDN(DN)-15; VD(D)-15.5; VDN(DN)-17; VDN(DN)-19; VDN(DN)-21; VVDN (VGDN)-15; VVDN(VGDN)-17; VGDN-19

Heating equipment:

- LADOMIR, TROPIC fan heaters
- VTZ TROPIC, VZM, KEV (P), ZTV1.00.000, ZT.V2-28.01.UZ air heat curtains
- AO 2, AO 2D, AVO, AV and AP air-heating units
- SF0 heat guns
- KEV, SF0, UVE, EKOC electroheater plants
- EKO, VE Electroheaters
- KSk, KR-Sk, KVB, KVS, VNV, VNP heaters
- VTU air-heating devices

PUA, APR, AOUM, ZIL, EFVA, FSK, FVA-M, FVM-10 filter-ventilation and dust aggregates

FyaRB; FyaVB; FyaPB; FyaUB; FyaG; FyaK; FyaS; FyaS-S; FyaS-R; FVG-M(P) filters

KP-F1 combined fire-fighting valves

KDF-1; KDP- 5A smoke removal valves

AZE-MF fire-retardent valves

Explosion-proof and intrinsically safe return valves, explosion-proof and intrinsically safe reversing valves, lip, return valves. Explosion-proof choker valves, uniform manually controlled choker valves and electrically driven ones.

KVU, UVK valves, throttle-valves

Silencers

- Tubular round silencers, series 5.904-17 (GTK)
- Tubular rectangular silencers, series 5.904-17 (GTP)
- Acoustic panels, series 5.904-17 (P)
- Tabulated silencers, series 5.904-17 (GP)

UP, UP-1, UP-2, U/7-3, UP-4, UP-5 transition pieces

Ventilation grills

- Slot grills P
- Supply-extract grills
- Ventilation grills RV
- Air distributors VSP, VR

Flexible connectors V and N, deflection units, cowls, hermetic doors, etc.

GENERAL INFORMATION

ON CONFIGURATION AND OPERATIONAL CONDITIONS OF FANS

Aerodynamic characteristics of fans correspond to air operations under normal conditions (density 1.2 kg/m^3, barometric pressure 101.34 kPa, temperature of plus 20 °C and relative humidity of 50 %).

For fans, moving air and gas with density other than 1.2 kg/m^3, aerodynamic characteristics shall be recalculated under GOST 10616-90. (See also page 4).

This catalogue contains fan configurations with engines of standard AIR series and AIM explosion-proof series.

Fans with indices containing codes Zh or Zh2, are meant for movement of air and gas environments with temperature of up to 200 °C. The diagram of aerodynamic characteristics contain an additional scale for them, corresponding to temperature of 200 °C.

Structural variants of radial fans are given under GOST 5976-90. MOVEN radial fans are manufactured under 1, 3 and 5 structural variants. Under the 1st structural variant working wheel is installed immediately on the engine shaft. Under the 3rd variant – working wheel is installed on the shaft of intermediate bearing unit, transmission of torque from engine to the shaft of intermediate bearing unit is through the coupling. Under the 5th variant transmission of torque is through 'V' belt drive. Fans are available with left and right rotation. In case of right rotation working wheel turns clockwise, if one looks on the wheel from the side of air intake, in case of left rotation it turns counter clockwise. Permissible angles of housing rotation are shown in this catalogue for certain fans.

Structural variants of axial fans – under GOST 11442-90. Under structural variant 1 air flow direction is from the working wheel towards engine, under variant 2 it is from engine to working wheel.

Fan number for both radial, and axial fans indicates diameter of working wheel on the outer edges of the blades in decimeters. E.g., fan with working wheel with the diameter of 630 mm is indicated with No. 6.3.

Fans are meant for use under conditions of moderate (U) and tropical climate (T). Categories of placement 1, 2 or 3 under GOST 15150-69 – are shown in the catalogue for certain fans.

1st category of placement – outdoors; 2nd category – for use under shelter or indoors, where changes in temperature and humidity of air insignificantly differ from that outdoors (in tents, cars, metal premises without heat insulation, etc.); 3rd category – for use in premises with natural ventilation without artificially adjusted climatic conditions, where changes in temperature and humidity of air, impact of sand and dust are significantly lower, than outdoors (stone, concrete, wooden premises, etc.).

Mean square value of vibration velocity from external sources at the places of installation of fans shall not exceed 2 mm/s.

The manufacturer retains the right:

- To introduce structural changes, not resulting in any deterioration of aerodynamic or acoustic parameters of products;
- Provide fans with other engines with similar technical parameters.

FANS

OPERATING CONDITIONS

- General purpose fans are meant for use under conditions of moderate or tropical climate of 2nd category of placement under GOST 15150. Temperature of the environment from -40 °C up to +40 °C (up to +45 °C for tropical climate). Subject to engine protection from weather impacts and direct sunlight, use of fans in moderate climate under 1st category of placement is allowed. Possibility to use fans in certain conditions shall be defined by the client. Fans are meant for installation outside of the areas of long stay of people. Mean square value of vibration velocity of external vibration sources at the places of installation of fans shall not exceed 2 mm/s.
- Explosion-proof fans are meant for use under conditions of moderate or tropical climate of 2nd category of placement under GOST 15150. Temperature of the environment from -40 °C up to +40 °C (up to +45 °C for tropical climate). Subject to engine protection from weather impacts and direct sunlight, use of fans in moderate climate under 1st category of placement is allowed. Possibility to use fans in certain conditions shall be defined by the client. Fans are meant for installation outside of the areas of long stay of people. Mean square value of vibration velocity of external vibration sources at the places of installation of fans shall not exceed 2 mm/s. Fans shall be installed in explosive zones of class 1 and 2 under GOST R 51330.9-99 (zones of class V1a, V1b and VIIa under PUE), in which explosive gas mixtures are present or possible of category IIA, IIB, group T1-T4.

ELECTRIC ENGINES

- All fans (except for explosion-proof variant) shall feature asynchronous general purpose electric engines.
- Type of climatic variant of electric engines -U2 or U3 (for fans used indoors).
- Level of protection under GOST 17494-87-IP54
- Parameters of power supply network:
- - rated voltage – 380 V;
  - rated frequency – 50 Hz;
  - kind of current – three-phase AC voltage.

SERVICE LIFE

- Service life of fans (at least):
- General purpose and dust – 12 years;
  Corrosion-resistant – 5 years;
  Explosion-proof – 8 years;
- Guaranty for MOVEN fans is 2 years.

RECALCULATION OF AERODYNAMIC CHARACTERISTICS

To recalculate aerodynamic characteristics of fans moving air with temperature other than 20 °C one shall apply following equations:

a) air density at the temperature of t °C:

$$\rho = \rho_H \left(\frac{293}{273 + t} \right) \frac{kg}{m^3}$$

where $\rho_H = 1{,}2 \frac{kg}{m^3}$ air density for standard conditions at t = 20 °C;

b) pressures P_v, P_{dv} and P_{sv} are proportional to air density.

LEGEND

Q – capacity, ths. m^3/h
P_v – full pressure of fan, Pa
P_{dv} – dynamic pressure, Pa (for axial fans defined by circular output area)
P_{sv} – static pressure of fan, Pa
N_y – power installed, kW
ŋ – performance factor, unit fractions
u – radial velocity of working wheel, m/s
n – rotation frequency of working wheel, min^{-1}
LpA – adjusted sound power level, dBA

UNITS

Table 1

Capacity, Q			Pressure, $P_v P_{dv}$					Power, N		
m^3/s	l/s	m^3/h	Pa, N/m^2	mm.w.g., kgf/m^2	mm.Hg.	kgf/cm^2, atm	bar	W	kW	h.p.
1	10^{-3}	3600	1	0,102	$7{,}5 \times 10^{-3}$	$1{,}02 \times 10^{-5}$	10^{-5}	1	10^{-3}	$1{,}36 \times 10^{-3}$

FAN REPLACEMENT
by aerodynamic characteristics

Table 2

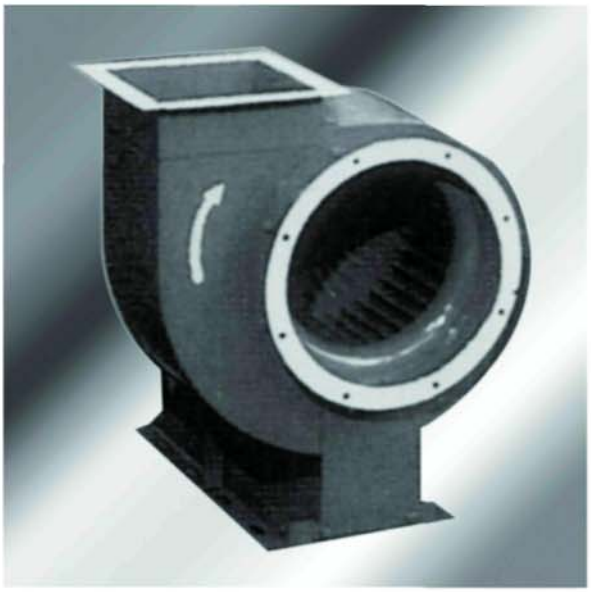
Required fan	*Fan offered for replacement*
V-C14-46 VR-15-45	VR-300-45
V-C4-75 VR-80-75	VR-86-77
V-C4-70	VR-80-70
VR 12-26-2.5	V.C5-35-3.55
VC6-28; VR6-28; VR-120-28; VVD	VR 132-30
VCP7-40 VCP6-45 VCP5-45	VR 100-45
VCPV	VR6
V-Ob-300 VO-12-330	VO-14-320
VKR-4 ... 12.5	VKRM-4... 12.5

FANS VARIANTS BY PURPOSE AND MATERIALS

Table 3

Line	Variant	Flow range material	Designation	Previous designation	Purpose
1	General purpose	Carbon steel	—	S	For movement of air and other non-explosive gas-vapor-air mixtures, with temperature from-40 °C up to +80 °C (up to +200 °C for fans in heat resistant variant), not causing accelerated corrosion (over 0,1 mm a year) of flow range materials, with contents of dust and other solid admixtures of no more than 0,1 g/m^3 for radial fans and no more than 0,01 g/m^3 for axial fans, containing no sticky or fibrous materials.
2	Heat resistant		Zh Zh2	Zh3	
3	Corrosion-resistant	Stainless steel (12X18Kh10T)	K1 K		For movement of corrosive non-explosive gas-vapor-air mixtures, with temperature from -40 °C up to +80 °C (up to +200 °C for fans in heat resistant variant), not causing accelerated corrosion (over 0.1 mm a year) of flow range materials, with contents of dust and other solid admixtures of no more than 0,1 g/m3 for radial fans and no more than 0,01 g/m^3 for axial fans, containing no sticky or fibrous materials.
4	Corrosion-resistant and heat resistant		K1Zh KZh2	K1Zh3	
5	Explosion-proof	Carbon steel, brass	V V1	R I1	For movement of explosive gas mixtures of category NA, IV under GOST R 51330.11 group T1-T4 under GOST R 51330.5, with temperature from -40 °C up to +80 °C (for heat-resistant fans up to +200 °C, but no more than 80 % of mixture self-ignition temperature, up to + 40 °C for axial fans and up to + 45°C for axial fans in tropic variant), not causing accelerated corrosion (over 0,1 mm a year) of flow range materials, with contents of dust and other solid admixtures of no more than 0,1 g/m^3 for radial fans and no more than 0,01 g/m3 for axial fans, containing no sticky or fibrous materials.
6	Explosion-proof and heat resistant		VZh V1Zh2	VZh3 I1-02	
7	Explosion-proof	Aluminium alloys	VK3 V2	K3	For movement of explosive gas mixtures of category IIA, IV under GOST R 51330.11 group T1-T4 under GOST R 51330.5, with temperature from -40 °C up to +80 °C, not causing accelerated corrosion (over 0.1 mm a year) of flow range materials, with contents of dust and other solid admixtures of no more than 0.1 g/m^3, containing no sticky or fibrous materials.
8	Explosion-proof and corrosion-resistant	Stainless steel (12X18Kh10T) -brass	VK1 V4		For movement of corrosive explosive gas mixtures category HA, IV under GOST R 51330.11 group T1-T4 under GOST R 51330.5, with temperature from -40 °C up to +80 °C (up to 200 °C for mixtures of groups T1 and T2 and 150 °C for mixtures of groups T1-T3 in corrosion-resistant and heat resistant variant), not causing accelerated corrosion (over 0,1 mm a year) of flow range materials, with contents of dust and other solid admixtures of no more than 0,1 g/m^3 for radial fans and no more than 0,01 g/m^3 for axial fans, containing no sticky or fibrous materials.
9	Explosion-proof corrosion-resistant heat resistant		VK1Zh V4Zh2		
10	Dust	Carbon steel	P or without any designation		For movement of non-explosive dust-gas mixtures, with temperature from -40 °C up to +80 °C, not causing accelerated corrosion (over 0.1 mm a year) of flow range materials, with contents of dust and other solid admixtures of no more than 1 kg/m^3, containing no sticky or fibrous materials (for VR7-20-8P.-03 fan dust contents shall be no more than 2 g/m^3). Particle size in moved mixture shall be no more than 2.0 mm.
11	Dust explosion-proof	Carbon steel, brass	PV1		For movement of explosive dust-gas mixtures category HA, IV under GOST R 51330.11 group T1-T4 under GOST R 51330.5, with temperature from -40 °C up to +80 °C, not causing accelerated corrosion (over 0.1 mm a year) of flow range materials, with contents of dust and other solid admixtures of no more than 1 g/m3, containing no sticky or fibrous materials. Particle size in moved mixture shall be no more than 50 μm.
12	Dust explosion-proof and corrosion-resistant	Stainless steel (12X18Kh10T) -brass	PV4		

VR-300-45 **RADIAL FANS**



GENERAL INFORMATION

- Low and medium pressure
- Single-inlet
- Spiral turning case
- Forward curved blades
- Number of blades – 34
- Direction of rotation – right and left

AVAILABLE VARIANTS

TU 4861-033-00270366-96

- General purpose made of galvanized* or carbon steel
- General purpose heat resistant made of carbon steel
- Corrosion-resistant made of stainless steel
- Corrosion-resistant and heat resistant made of stainless steel

TU 4861-036-00270366-96

- Explosion-proof made of dissimilar metals
- Explosion-proof and heat resistant made of dissimilar metals
- Explosion-proof made of aluminium alloys
- Explosion-proof and corrosion-resistant made of stainless steel
- Explosion-proof, corrosion-resistant and heat resistant made of stainless steel

PURPOSE

- General purpose made of galvanized or carbon steel (for the purpose see Table 3 line 1).
- General purpose heat resistant made of carbon steel (for the purpose see Table 3 line 2).
- Corrosion-resistant made of stainless steel (for the purpose see Table 3 line 3).
- Corrosion-resistant and heat resistant made of stainless steel (for the purpose see Table 3 line 4).
- Explosion-proof made of dissimilar metals (for the purpose see Table 3 line 5).
- Explosion-proof and heat resistant made of dissimilar metals (for the purpose see Table 3 line 6).
- Explosion-proof made of aluminium alloys (for the purpose see Table 3 line 7).
- Explosion-proof and corrosion-resistant made of stainless steel (for the purpose see Table 3 line 8).
- Explosion-proof and corrosion-resistant and heat resistant made of stainless steel (for the purpose see Table 3 line 9).

* *For operation conditions of the fans see page 5.*

VR-300-45 **RADIAL FANS**

TECHNICAL PARAMETERS

- General purpose made of galvanized or carbon steel
- General purpose heat resistant made of carbon steel (Zh)
- Corrosion-resistant made of stainless steel (K1)
- Corrosion-resistant and heat resistant made of stainless steel (K1Zh)

Fan size	*Structura l variant*	*Engine*		*Frequency of working wheel rotation, min.[1]*	*Parameters in the working zone*		*Maximum fan weight, kg*	*Vibration isolators*	
		Size	*Power, kW*		*Capacity, ths. m³/h*	*Full pressure, Pa*		*Type*	*Number*
VR-300-45-2 VR-300-45-2Zh VR-300-45-2K1 VR-300-45-2K1Zh	1	AIR56V4	0,18	1330	0,6-0,9	260-270	14,5	D038*	4*
		AIR63A4	0,25	1330	0,6-1,15	260-265	15,8		
		AIR63V4	0,37	1330	0,6-1,15	260-265	16,7		
		AIR80A2	1,5	2850	1,3-2,0	1200-1250	25		
		AIR80V2	2,2	2850	1,3-2,5	1200-1200	26,9		
VR-300-45-2.5 VR-300-45-2.5Zh VR-300-45-2.5K1 VR-300-45-2.5K1Zh	1	AIR71A4	0,55	1350	1,1-1,8	430-500	27,1	D038*	4*
		AIR71V4	0,75	1350	1,1-2,2	430-510	27,4		
		AIR90L2	3	2850	2,4-2,7	1950-2000	36,6		
		AIR100S2	4	2850	2,4-3,4	1950-2200	42,1		
		AIR100L2	5,5	2850	2,4-4,4	1950-2300	48		
VR-300-45-3.15 VR-300-45-3.15Zh VR-300-45-3.15K1 VR-300-45-3.15K1Zh	1	AIR71V6	0,55	920	1,5-2,7	330-370	34	D038	4
		AIR80A6	0,75	920	1,5-3,5	330-360	36,2		
		AIR80V4	1,5	1400	2,3-3,5	800-880	38,4		
		AIR90L4	2,2	1400	2,3-5,1	800-850	43,2		
VR-300-45-4 VR-300-45-4Zh VR-300-45-4K1 VR-300-45-4K1Zh	1	AIR90L6	1,5	930	3,5-5,2	550-620	58,7	D039	4
		AIR100L6	2,2	930	3,5-7,3	550-630	68,7		
		AIR100L4	4	1430	5,2-6,0	1320-1400	66,7		
		AIR112M4	5,5	1430	5,2-8,3	1320-1520	88,9		
		AIR132S4	7,5	1430	5,2-10,8	1320-1550	109,5	D040/D039	4

* *It is recommended to use vibration isolators for engines with 3,000 rpm.*

ACOUSTIC CHARACTERISTICS

Fan	*p, min.[-1]*	*Lpi, dB in octave bands f, Hz*								*LpA, dBA*
		63	*125*	*250*	*500*	*1000*	*2000*	*4000*	*8000*	
VR-300-45-2	1330	71	71	75	77	84	70	67	60	86
	2850	83	83	88	91	94	95	87	84	99
VR-300-45-2.5	1350	76	76	77	78	79	74	72	70	83
	2850	91	92	92	93	94	95	90	88	100
VR-300-45-3.15	920	74	74	76	82	69	66	59	56	83
	1400	79	79	83	85	91	78	75	68	92
VR-300-45-4	930	82	83	83	85	81	78	75	68	87
	1430	90	92	93	92	94	91	88	75	96

Acoustic characteristics measured from the side of discharge under nominal operation conditions of fan. Levels of sound powerat the side of intake are 3 dB below the levels indicated in the table.

On the borders of the working area of aerodynamic characteristic levels of sound power are 3 dB higher than the level of sound power corresponding to the nominal operation conditions of the fan.

VR-300-45 **RADIAL FANS**

TECHNICAL PARAMETERS

- Explosion-proof made of dissimilar metals (V)
- Explosion-proof and heat resistant made of dissimilar metals (VZh)
- Explosion-proof and corrosion-resistant made of stainless steel (VK1)
- Explosion-proof and corrosion-resistant and heat resistant made of stainless steel (VK1Zh)

Fan size	*Structural variant*	*Engine*		*Frequency of working wheel rotatiop, min^{-1}*	*Parameters in the working zone*		*Maximum fan weight, kg*	*Vibration isolators*	
		Size	*Power, kW*		*Capacity, ths. m^3/h*	*Full pressure, Pa*		*Type*	*Number*
VR-300-45-2V VR-300-45-2VZh VR-300-45-2VK1 VR-300-45-2VK1Zh	1	AIM63A4	0,25	1330	0,6-1,15	260-265	25,2	VR-201	4
		AIM63V4	0,37	1330	0,6-1,15	260-265	25,7		
		AIM80A2	1,5	2850	1,3-2,0	1200-1250	35,6		
		AIM80V2	2,2	2850	1,3-2,5	1200-1200	38,3		
VR-300-45-2.5V VR-300-45-2.5VZh VR-300-45-2.5VK1 VR-300-45-2.5VK1Zh	1	AIM71A4	0,55	1350	1,1-1,8	430-500	34,3	VR-201	4
		AIM71V4	0,75	1350	1,1-2,2	430-510	35,3		
		AIM901.2	3	2850	2,4-2,7	1950-2000	66,6	VR-202	4
		AIM100S2	4	2850	2,4-3,4	1950-2200	77,7		
		AIM100L2	5,5	2850	2,4-4,4	1950-2300	83		
VR-300-45-3D5V VR-300-45-3D5VZh VR-300-45-3D5VK1 VR-300-45-3D5VK1Zh	1	AIM71V6	0,55	920	1,5-2,7	330-370	43,4	VR-201	4
		AIM80A6	0,75	920	1,5-3,5	330-360	49,4		
		AIM80V4	1,5	1400	2,3-3,5	800-880	52		
		AIM90L4	2,2	1400	2,3-5,1	800-850	74,8	VR-202	4
VR-300-45-4V VR-300-45-4VZh VR-300-45-4VK1 VR-300-45-4VK1Zh	1	AIM90L6	1,5	930	3,5-5,2	550-620	89,9	VR-202	4
		AIM100L6	2,2	930	3,5-7,3	550-630	106		
		AIM100L4	4	1430	5,2-6,0	1320-1400	106		
		AIM112M4	5,5	1430	5,2-8,3	1320-1520	125,2		
		AIM132S4	7,5	1430	5,2-10,8	1320-1550	160		

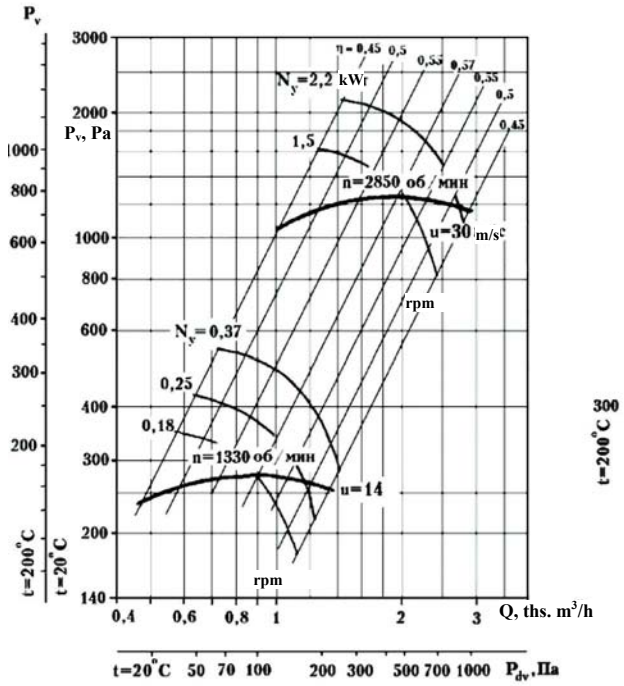
- Explosion-proof made of aluminium alloys (VKZ)

VR-300-45-2VKZ	1	AIM63A4	0,25	1330	0,6-1,15	260-265	21,7	VR-201	4
		AIM63V4	0,37	1330	0,6-1,15	260-265	22,2		
		AIM80A2	1,5	2850	1,3-2,0	1200-1250	31,9		
		AIM80V2	2,2	2850	1,3-2,5	1200-1200	34,6		
VR-300-45-2.5VKZ	1	AIM71A4	0,55	1350	1,1-1,8	430-500	27,9	VR-201	4
		AIM71V4	0,75	1350	1,1-2,2	430-510	28,9		
		AIM90L2	3	2850	2,4-2,7	1950-2000	60,1	VR-202	4
		AIM100S2	4	2850	2,4-3,4	1950-2200	71,2		
		AIM100L2	5,5	2850	2,4-4,4	1950-2300	76,5		
VR-300-45-3.15VKZ	1	AIM71V6	0,55	920	1,5-2,7	330-370	33,4	VR-201	4
		AIM80A6	0,75	920	1,5-3,5	330-360	39,3		
		AIM80V4	1,5	1400	2,3-3,5	800-880	42		
		AIM90L4	2,2	1400	2,3-5,1	800-850	64,8		
VR-300-45-4VKZ	1	AIM90L6	1,5	930	3,5-5,2	550-620	73,8	VR-201	4
		AIM100L6	2,2	930	3,5-7,3	550-630	90,1		
		AIM100L4	4	1430	5,2-6,0	1320-1400	90,1	VR-202	4
		AIM112M4	5,5	1430	5,2-8,3	1320-1520	103,7		
		AIM132S4	7,5	1430	5,2-10,8	1320-1550	143,3		

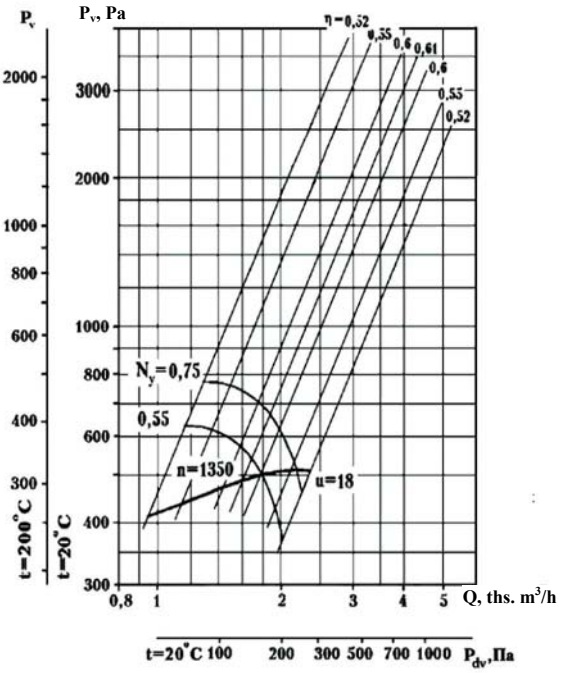
VR-300-45 **RADIAL FANS**

AERODYNAMIC CHARACTERISTICS

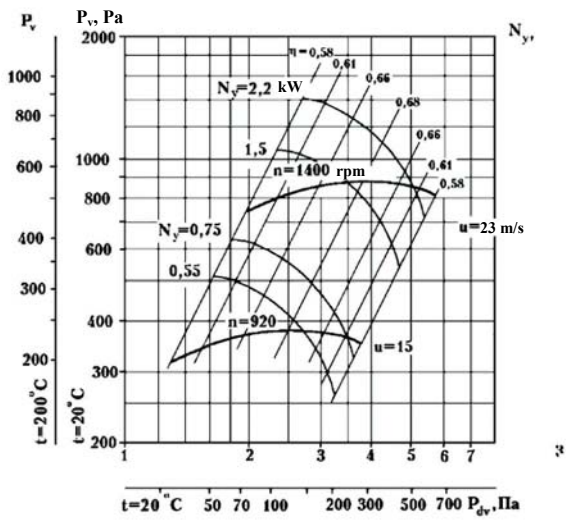
VR-300-45-2



VR-300-45-2.5



VR-300-45-3.15

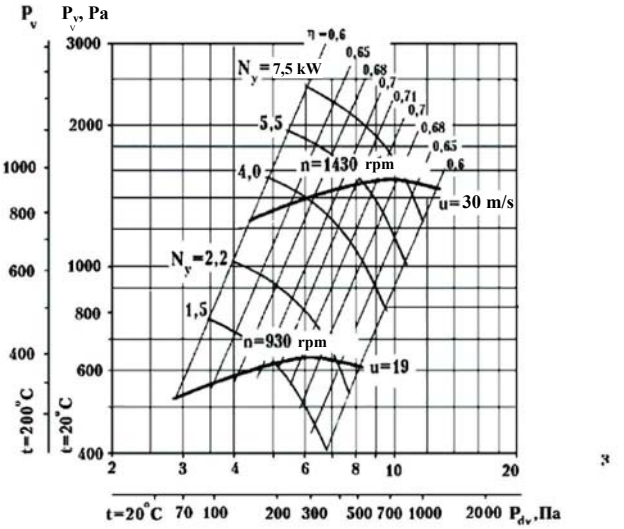


Pdv, Pa

Q, ths. m3/h

Pdv, Pa

VR-300-45-4



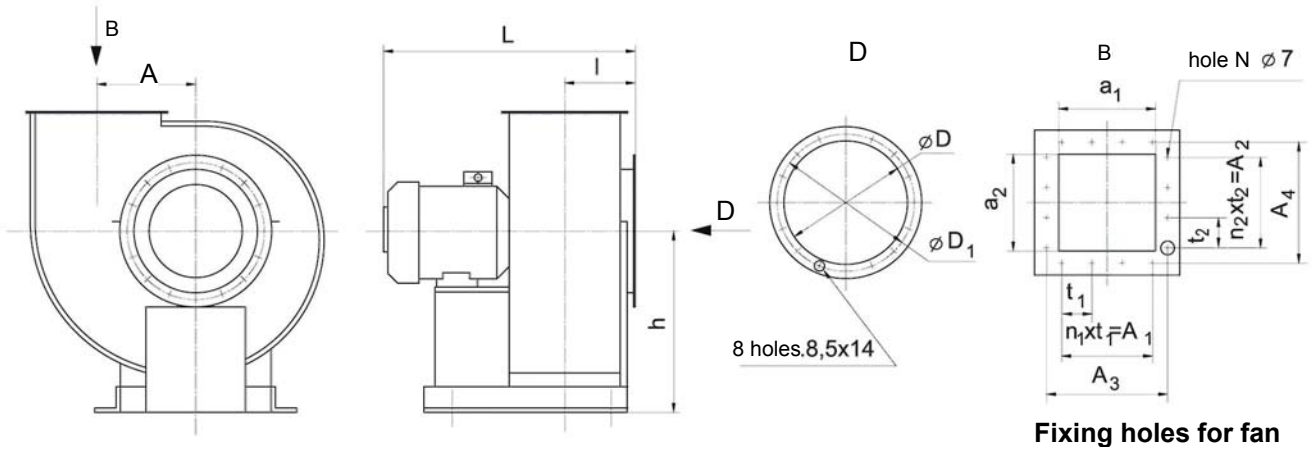
Pdv, Pa

Q, ths. m3/h

Pdv, Pa

VR-300-45 **RADIAL FANS**

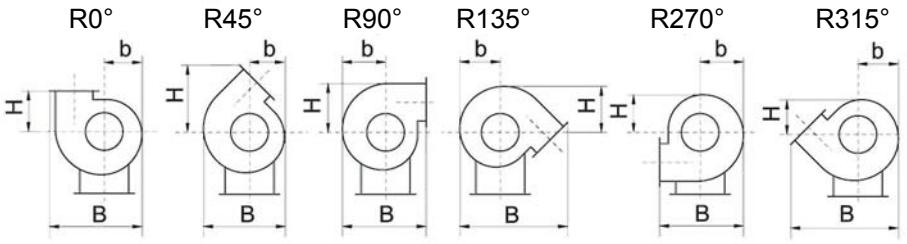
OVERALL AND FITTING DIMENSIONS

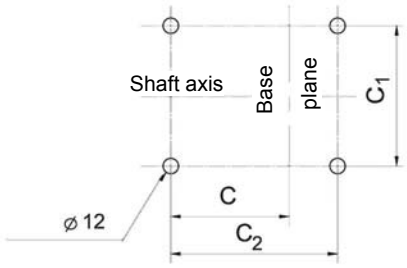


Fixing holes for fan VR-300-45-2.5; -3.15; -4

FAN CASE POSITIONS

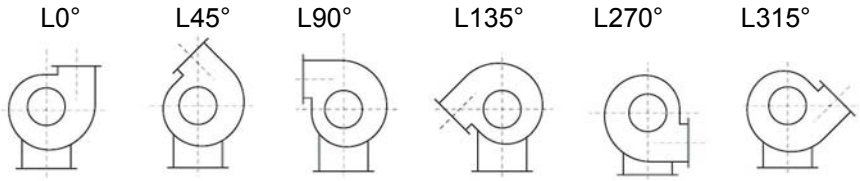
Right turning

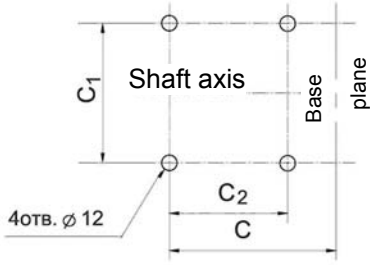




Fixing holes for fan VR-300-45-2

Left turning





Fan	Dimensions, mm																	n	n_1	n_2
	h	l	L_{max}	A	D	D_1	a_1	a_2	A_1	A_2	A_3	A_4	t_1	t_2	C	C_1	C_2			
VR-300-45-2	250	111	533	130	200	235	140	140	85	85	170	170	85	85	268	220	210	8	1	1
VR-300-45-2.5	320	140	625	162	252	280	175	175	100	100	205	205	100	100	265	220	300	8	1	1
VR-300-45-3.15	410	162	625	205	318	345	221	221	200	200	255	255	100	100	316	220	400	12	2	2
VR-300-45-4	520	192	820	260	403	430	280	280	200	200	310	310	100	100	386	290	500	12	2	2

Fan	R0°, L0°			R45°, L45°			R90°, L90°			R135°, L 135°			R270°, P270°			R315°, P315°		
	B	b	H	B	b	H	B	b	H	B	b	H	B	b	H	B	b	H
VR-300-45-2	378	151	166	327	139	279	342	176	227	441	164	189	342	176	151	441	164	139
VR-300-45-2.5	465	189	198	408	173	335	417	220	276	535	204	235	417	219	189	539	204	173
VR-300-45-3.15	580	238	239	515	218	413	516	277	342	670	258	297	516	277	238	670	258	218
VR-300-45-4	728	301	291	648	273	500	642	351	428	856	322	376	642	351	301	856	322	273

RADIAL FANS V-C14-46

GENERAL INFORMATION



- Low and medium pressure
- Single-inlet
- Spiral turning case
- Forward curved blades
- Number of blades – 32
- Direction of rotation – right and left

AVAILABLE VARIANTS

TU 16-90-C14-46-5...B

- General purpose made of carbon steel
- General purpose heat resistant made of carbon steel

TU 16-90-C14-46-5K...B

- Corrosion-resistant made of stainless steel
- Corrosion-resistant and heat resistant made of stainless steel

TU 16-91-C14-46-5V1...B

- Explosion-proof made of dissimilar metals
- Explosion-proof and heat resistant made of dissimilar metals

TU 16-91-C14-46-5V2...B

- Explosion-proof made of aluminium alloys

TU 16-90-C14-46-5V4...B

- Explosion-proof and corrosion-resistant made of stainless steel
- Explosion-proof and corrosion-resistant and heat resistant made of stainless steel

Parallel operations of several fans without network elements **is not recommended**. In case of only drafting operations, a diffuser at the output is needed.

PURPOSE

- General purpose made of carbon steel (for the purpose see Table 3 line 1).
- General purpose heat resistant made of carbon steel (for the purpose see Table 3 line 2).
- Corrosion-resistant made of stainless steel (for the purpose see Table 3 line 3).
- Corrosion-resistant and heat resistant made of stainless steel (for the purpose see Table 3 line 4).
- Explosion-proof made of dissimilar metals (for the purpose see Table 3 line 5).
- Explosion-proof and heat resistant made of dissimilar metals (for the purpose see Table 3 line 6).
- Explosion-proof made of aluminium alloys (for the purpose see Table 3 line 7).
- Explosion-proof and corrosion-resistant made of stainless steel (for the purpose see Table 3 line 8).
- Explosion-proof and corrosion-resistant and heat resistant made of stainless steel (for the purpose see Table 3 line 9).

* *For operation conditions of the fans see page 5.*

V-C14-46 **RADIAL FANS**

TECHNICAL PARAMETERS

- General purpose made of carbon steel
- General purpose heat resistant made of carbon steel (Zh2)
- Corrosion-resistant made of stainless steel (K)
- Corrosion-resistant and heat resistant made of stainless steel (KZh2)

Fan size	Structural variant	Engine		Frequency of working wheel rotation, min^{-1}	Parameters in the working zone		Maximum fan weight, kg	Vibration isolators	
		Size	Power, kW		Capacity, ths. m^3/h	Full pressure. Pa		Type	Number
V-C14-46-5 V-C14-46-5Zh2 V-C14-46-5K V-C14-46-5KZh2	1	AIR112MV6	4	970	6,0-8,4	950-1070	139	D040	5
		AIR132S6	5,5	970	6,0-11,5	950-1120	160		
		AIR132M6	7,5	970	6,0-14,5	950-1180	176		
		AIR132M4	11	1460	9,0-11,0	2200-2350	176		
		AIR160S4	15	1460	9,0-14,5	2200-2500	218	D041	5
		AIR160M4	18,5	1460	9,0-17,0	2200-2550	243		
		AIR180S4	22	1460	9,0-20,0	2200-2500	268		
		AIR180M4	30	1460	9,0-23,0	2200-2400	278		
V-C14-46-6.3 V-C14-46-6.3Zh2 V-C14-46-6.3K V-C14-46-6.3KZh2	1	AIR132M8	5,5	730	9,2-13,0	890-980	214	D041	5
		AIR160S8	7,5	730	9,2-17,0	890-1040	256		
		AIR160M8	11	730	9,2-23,0	890-1020	281		
		AIR160S6	11	975	12,3-15,0	1580-1700	268		
		AIR160M6	15	975	12,3-19,5	1580-1800	293		
		AIR180M6	18,5	975	12,3-24,0	1580-1820	328	D042	5
		AIR200M6	22	975	12,3-28,0	1580-1800	403		
V-C14-46-8 V-C14-46-8Zh2 V-C14-46-8K V-C14-46-8KZh2	1	AIR180M8	15	735	19,0-22,5	1430-1530	398	D042	5
		AIR200M8	18,5	735	19,0-27,5	1430-1620	473		
		AIR200L8	22	735	19,0-32,0	1430-1640	513	D043	6
		AIR225M8	30	735	19,0-41,0	1430-1630	558		
		AIR225M6	37	985	24,5-31,0	2600-2750	589		
		AIR250S6	45	985	24,5-37,0	2600-2850	724		

ACOUSTIC CHARACTERISTICS

Fan	p, min^{-1}	Lpi, dB in octave bands f, Hz								LpA, dBA
		63	125	250	500	1000	2000	4000	8000	
V-C14-46-5	970	87	88	92	94	90	86	81	73	94
	1460	95	96	97	101	103	99	95	88	106
V-C14-46-6.3	730	88	89	93	95	91	87	82	74	93
	975	96	97	101	103	99	95	90	82	110
V-C14-46-8	735	96	97	101	103	99	95	90	82	103
	985	103	104	108	110	106	102	97	89	110

Acoustic characteristics measured from the side of discharge under nominal operation conditions of fan. Levels of sound powerat the side of intake are 3 dB below the levels indicated in the table.

On the borders of the working area of aerodynamic characteristic levels of sound power are 3 dB higher than the level of sound power corresponding to the nominal operation conditions of the fan.

RADIAL FANS V-C14-46

TECHNICAL PARAMETERS

- Explosion-proof made of dissimilar metals (V1)
- Explosion-proof and heat resistant made of dissimilar metals (V1Zh2)
- Explosion-proof and corrosion-resistant made of stainless steel (V4)
- Explosion-proof and corrosion-resistant and heat resistant made of stainless steel (V4Zh2)

Fan size	Structural variant	Engine		Frequency of working wheel rotatiop, min^{-1}	Parameters in the working zone		Maximum fan weight, kg	*Vibration isolators*	
		Size	Power, kW		Capacity, ths. m^3/h	Full pressure, Pa		*Type*	*Number*
V-C14-46-5V1 V-C14-46-5V1Zh2 V-C14-46-5V4 V-C14-46-5V4Zh2	1	AIM112MV6	4	970	6,0-8,4	950-1070	165	VR-202	6
		AIM132S6	5,5	970	6,0-11,5	950-1120	190		
		AIM132M6	7,5	970	6,0-14,5	950-1180	200		
		AIM132M4	11	1460	9,0-11,0	2200-2350	200		
		AIM160S4	15	1460	9,0-14,5	2200-2500	245	VR-203	6
		AIM160M4	18,5	1460	9,0-17,0	2200-2550	245		
		AIM180S4	22	1460	9,0-20,0	2200-2500	355		
		AIM180M4	30	1460	9,0-23,0	2200-2400	355		
V-C14-46-6.3V1 V-C14-46-6.3V1Zh2 V-C14-4B-6.3V4 V-C14-46-6.3V4Zh2	1	AIM132M8	5,5	730	9,2-13,0	890-980	250	VR-202	6
		AIM160S8	7,5	730	9,2-17,0	890-1040	295	VR-202	6
		AIM160M8	11	730	9,2-23,0	890-1020	315		
		AIM160S6	11	975	12,3-15,0	1580-1700	295		
		AIM160M6	15	975	12,3-19,5	1580-1800	295		
		AIM180M6	18,5	975	12,3-24,0	1580-1820	405	VR-203	6
		AIM200M6	22	975	12,3-28,0	1580-1800	455		
V-C14-46-8V1 V-C14-46-8V1Zh2 V-C14-46-8V4 V-C14-46-8V4Zh2	1	AIM180M8	15	735	19,0-22,5	1430-1530	510	VR-203	6
		AIM200M8	18,5	735	19,0-27,5	1430-1620	560		
		AIM200L8	22	735	19,0-32,0	1430-1640	600	VR-203	6
		AIM225M8	30	735	19,0-41,0	1430-1630	655		
		AIM225M6	37	985	24,5-31,0	2600-2750	655		
		AIM250S6	45	985	24,5-37,0	2600-2850	919	VR-203	6

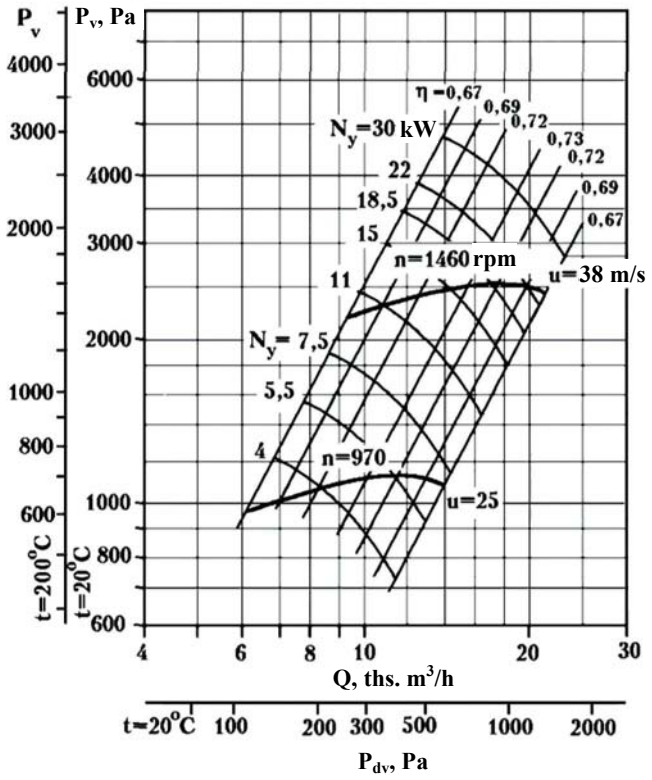
- Explosion-proof made of aluminium alloys (V2)

V-C14-46-5V2	1	AIM112MV6	4	970	6,0-8,4	950-1070	142	VR-202	6
		AIM132S6	5,5	970	6,0-11,5	950-1120	176		
		AIM132M6	7,5	970	6,0-14,5	950-1080	185		
V-C14-46-6.3V2	1	AIM132M8	5,5	730	9,2-13,0	890-980	219	VR-202	6
		AIM160S8	7,5	730	9,2-17,0	890-1040	296	VR-202	6
		AIM160M8	11	730	9,2-23,0	890-1020	321		
V-C4-46-8V2	1	AIM180M8	15	735	19,0-22,5	1430-1530	470	VR-203	6
		AIM200M8	18,5	735	19,0-27,5	1430-1620	528	VR-203	6
		AIM200L8	22	735	19,0-32,0	1430-1640	565		
		AIM225M8	30	735	19,0-41,0	1430-1630	615		

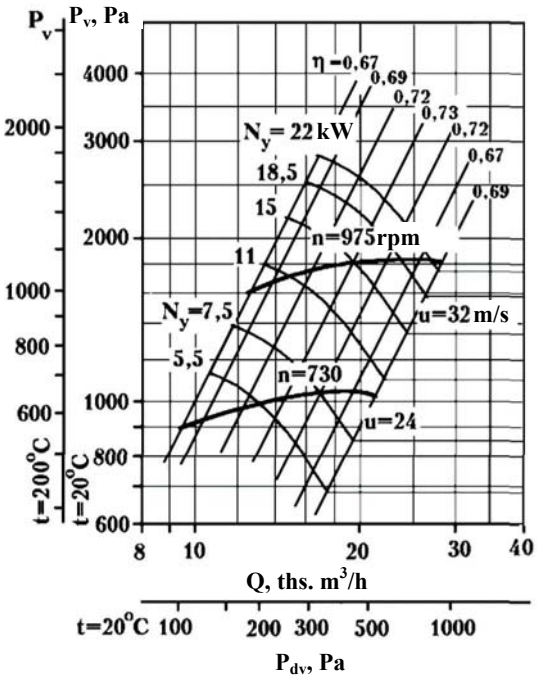
V-C14-46 **RADIAL FANS**

AERODYNAMIC CHARACTERISTICS

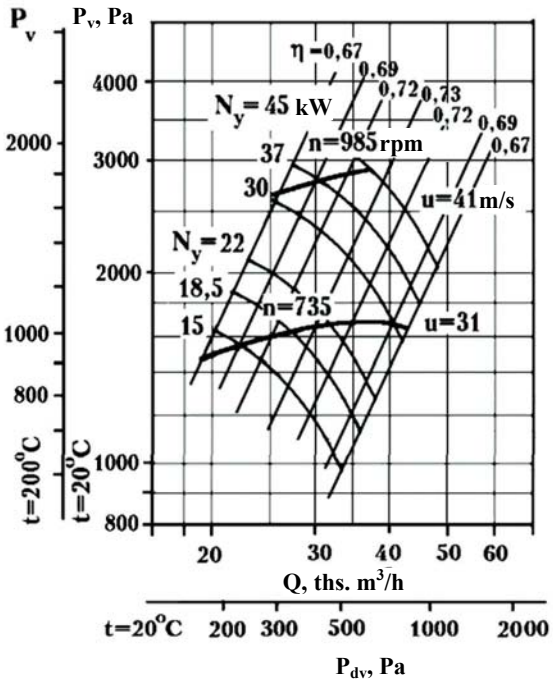
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V-C14-46-6.3

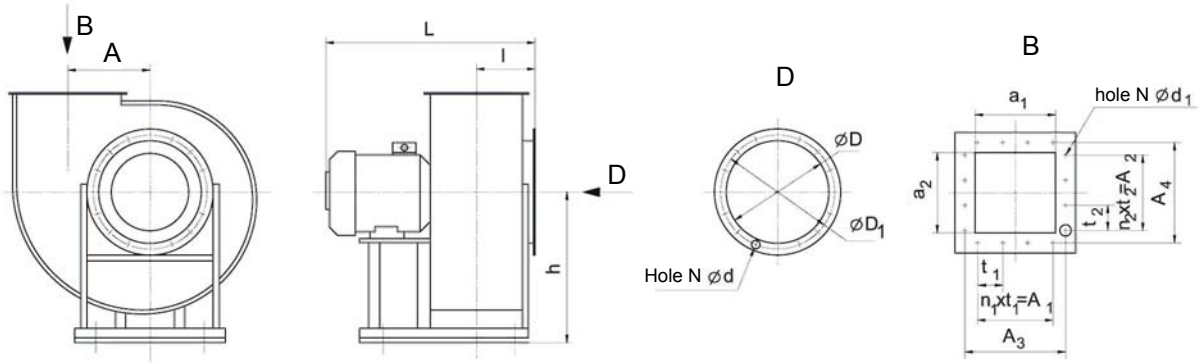


V-C14-46-8



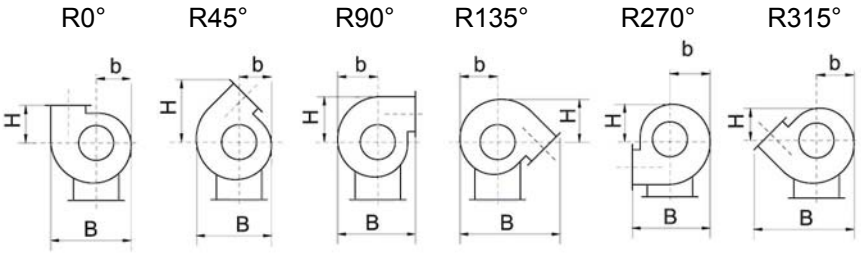
V-LL14-46 **RADIAL FANS**

OVERALL AND FITTING DIMENSIONS

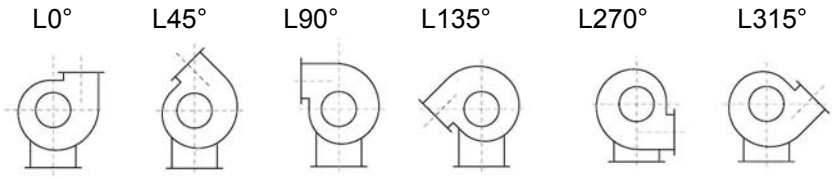


FAN CASE POSITIONS

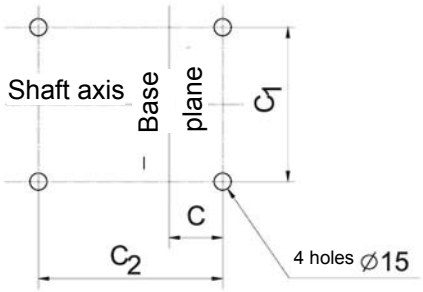
Right turning



Left turning



Fixing holes for fan



Fan	Dimensions, mm																			N	n	n_1	n_2
	h	l	L_{max}	A	D	D_1	d	d_1	a_1	a_2	A_1	A_2	A_3	A_4	t_1	t_2	C	C_1	C_2				
V-C14-46-5	650	252	1025	324	510	530	7x14	7	350	350	300	300	380	380	100	100	95	410	600	16	16	3	3
V-C14-46-6.3	720	298	1250	410	640	660	7x14	7	441	441	400	400	470	470	100	100	153	460	650	16	20	4	4
V-C14-46-8	905	378	1500	520	820	850	10x14	11	560	560	600	600	600	600	150	150	212	606	1050	16	16	4	4

Fan	R0°, L0°			R45°, L45°			R90°, L90°			R135°, L135°			R270°, L270°			R315°, L315°		
	B	b	H	B	b	H	B	b	H	B	b	H	B	b	H	B	b	H
V-C14-46-5	915	389	340	940	357	612	790	454	526	1032	420	482	790	454	389	1032	420	357
V-C14-46-6.3	1143	487	420	1052	447	760	985	564	656	1286	526	605	985	564	487	1286	526	447
V-C14-46-8	1450	614	533	1328	564	965	1247	714	836	1629	664	764	1247	714	614	1629	664	564

VR-86-77 **RADIAL FANS**



GENERAL INFORMATION

- Low and medium pressure
- Single-inlet
- Spiral turning case
- Backward curved blades
- Number of blades – 13
- Direction of rotation – right and left

AVAILABLE VARIANTS

TU 4861-038-00270366-96

- General purpose made of galvanized* or carbon steel
- General purpose heat resistant made of carbon steel
- Corrosion-resistant made of stainless steel
- Corrosion-resistant and heat resistant made of stainless steel

TU 4861-040-00270366-96

- Explosion-proof made of dissimilar metals
- Explosion-proof and heat resistant made of dissimilar metals
- Explosion-proof made of aluminium alloys
- Explosion-proof and corrosion-resistant made of stainless steel
- Explosion-proof and corrosion-resistant and heat resistant made of stainless steel

* *Only for No. 2.5; 3.15; 4 with relative diameter of working wheel 1 and frequency of rotation of up to 1380 min^{-1}.*

PURPOSE

- General purpose made of galvanized or carbon steel (for the purpose see Table 3 line 1).
- General purpose heat resistant made of carbon steel (for the purpose see Table 3 line 2).
- Corrosion-resistant made of stainless steel (for the purpose see Table 3 line 3).
- Corrosion-resistant and heat resistant made of stainless steel (for the purpose see Table 3 line 4).
- Explosion-proof made of dissimilar metals (for the purpose see Table 3 line 5).
- Explosion-proof and heat resistant made of dissimilar metals (for the purpose see Table 3 line 6).
- Explosion-proof made of aluminium alloys (for the purpose see Table 3 line 7).
- Explosion-proof and corrosion-resistant made of stainless steel (for the purpose see Table 3 line 8).
- Explosion-proof and corrosion-resistant and heat resistant made of stainless steel (for the purpose see Table 3 line 9).

** *For operation conditions of the fans see page 5.*

VR-86-77 **RADIAL FANS**

TECHNICAL PARAMETERS

- General purpose made of galvanized or carbon steel
- General purpose heat resistant made of carbon steel (Zh)
- Corrosion-resistant made of stainless steel (K1)
- Corrosion-resistant and heat resistant made of stainless steel (K1Zh)

Fan size	*Structural variant*	*Relative wheel diameter*	*Engine*		*Frequency of working wheel rotation, min^{-1}*	*Parameters in the working*		*Weight of fan of no more than, kg*	*Vibration isolators*	
			Size	*Power, kW*		*Capacity, ths. m^3/h*	*Full pressure. Pa*		*Type*	*Number*
VR-86-77-2.5 VR-86-77-2.5Zh VR-86-77-2.5K1 VR-86-77-2.5K1Zh	1	1	AIR56A4	0,12	1350	0,45-0,85	170-110	20,7	D038*	4*
			AIR63V2	0,55	2750	0,85-1,75	720-450	22,2		
		0,9	AIR56A4	0,12	1350	0,4-0,8	120-70	20,7		
			AIR63A2	0,37	2750	0,85-1,65	490-300	22,0		
			AIR63V2	0,55	2750	0,85-1,65	490-300	22,0		
		0,95	AIR56A4	0,12	1350	0,44-0,85	150-95	20,7		
			AIR63V2	0,55	2750	0,9-1,75	620-380	22,2		
		1,05	AIR56A4	0,12	1350	0,45-0,85	190-130	20,7		
			AIR71A2	0,75	2750	0,85-1,7	800-540	27,0		
		1,1	AIR56A4	0,12	1350	0,47-0,85	230-170	20,7		
			AIR71A2	0,75	2750	0,9-1,75	960-740	27,0		
VR-86-77-3.15 VR-86-77-3.15Zh VR-86-77-3.15K1 VR-86-77-3.15K1Zh	1	1	AIR63A4	0,25	1350	0,85-1,84	280-170	30,8	D038	4
			AIR80A2	1,5	2850	1,8-4,0	1220-680	38,9		
		0,9	AIR56A4	0,12	1350	0,76-1,15	185-175	30		
			AIR56V4	0,18	1350	0,76-1,82	185-110	30		
			AIR71V2	1,1	2850	1,65-3,80	830-480	37		
		0,95	AIR56V4	0,18	1350	0,76-1,82	185-110	30		
			AIR80A2	1,5	2850	1,9-3,85	1080-640	40,9		
		1,05	AIR63A4	0,25	1350	0,9-1,9	320-190	29,9		
			AIR80V2	2,2	2850	1,7-4,0	1350-880	40,1		
		1,1	AIR63V4	0,37	1350	0,9-1,95	370-230	29,9		
			AIR80V2	2,2	2850	1,7-4,1	1650-1070	40,1		
VR-86-77-4 VR-86-77-4Zh VR-86-77-4K1 VR-86-77-4K1Zh	1	1	AIR63V6	0,25	880	1,4-2,7	210-120	46,2	D038	4
			AIR71V4	0,75	1380	2,2-4,1	500-300	51,5	D038	
			AIR100L2	5,5	2850	4,3-8,3	2200-1250	72,2	D039	
		0,9	AIR63A6	0,18	880	1,2-2,6	140-75	46,2	D038	
			AIR71A4	0,55	1380	1,95-4,0	340-190	52	D038	
		0,95	AIR63A6	0,18	880	1,4-2,6	175-100	46,3	D038	
			AIR71A4	0,55	1380	2,3-4,0	430-250	52,2	D038	
			AIR71V4	0,75	1380	2,3-4,0	430-250	52,4	D038	
		1,05	AIR63V6	0,25	880	1,3-2,75	230-140	46,6	D038	
			AIR71V4	0,75	1380	2,0-4,2	560-330	51,5	D038	
			AIR80A4	1,1	1380	2,0-4,2	560-330	54,8	D038	
			AIR112M2	7,5	2850	4,3-8,6	2350-1500	89,8	D039	
		1,1	AIR71A6	0,37	880	1,3-2,7	270-180	51,6	D038	
			AIR80A4	1,1	1380	2,1-4,2	670-440	54,5	D038	
			AIR112M2	7,5	2850	4,2-8,8	2850-1800	89,8	D039	

* *It is recommended to use vibration isolators for engines with 3,000 rpm.*

VR-86-77 **RADIAL FANS**

TECHNICAL PARAMETERS

- General purpose made of carbon steel
- General purpose heat resistant made of carbon steel (Zh)
- Corrosion-resistant made of stainless steel (K1)
- Corrosion-resistant and heat resistant made of stainless steel (K1Zh)

Fan size	*Structural variant*	*Relative wheel diamete*	*Engine*		*Frequency of working wheel rotation, min^{-1}*	*Parameters in the working zone*		*Weight of fan of no more than, kg*	*Vibration isolators*	
			Size	*Power, kW*		*Capacity, ths. m^3/h*	*Full pressure. Pa*		*Type*	*Number*
VR-86-77-5 VR-86-77-5Zh VR-86-77-5K1 VR-86-77-5K1Zh	1	1	AIR71V6	0,55	920	2,75-4,1	340-315	92	D039	5
			AIR80A6	0,75	920	2,75-5,6	340-215	95		
			AIR90L4	2,2	1420	4,3-8,6	810-500	107		
		0,9	AIR71V6	0,55	920	2,4-5,3	230-140	91		
			AIR80V4	1,5	1420	3,6-8,2	550-340	95		
		0,95	AIR71V6	0,55	920	2,8-5,6	280-170	92		
			AIR80V4	1,5	1420	4,5-5,3	700-680	96		
			AIR90L4	2,2	1420	4,5-8,7	700-400	101		
		1,05	AIR80A6	0,75	920	2,7-5,6	370-270	95		
			AIR100S4	3	1420	4,2-8,5	880-620	107		
		1,1	AIR80V6	1,1	920	3,0-5,7	460-315	97		
			AIR100S4	3	1420	4,6-8,8	1100-730	107		
VR-86-77-6.3 VR-86-77-6.3Zh VR-86-77-6.3K1 VR-86-77-6.3K1Zh	1	1	AIR100L6	2,2	935	5,6-11,3	560-350	162	D040	5
			AIR112M4	5,5	1435	8,6-12,0	1320-1250	179		
			AIR132S4	7,5	1435	8,6-17,5	1320-800	200		
		0,9	AIR80V6	1,1	935	4,7-7,3	380-350	144		
			AIR90L6	1,5	935	4,7-11,0	380-230	148		
			AIR100L4	4	1435	7,2-12,3	885-780	160		
			AIR112M4	5,5	1435	7,2-17,0	885-530	178		
		0,95	AIR90L6	1,5	935	5,8-8,6	470-430	149		
			AIP100L6	2,2	935	5,8-11,5	470-280	161		
			AIR112M4	5,5	1435	9,0-17,5	1130-670	178		
		1,05	AIP100L6	2,2	935	5,4-11,5	610-400	163		
			AIR132S4	7,5	1435	8,3-17,5	1430-940	201		
		1,1	AIR112MA6	3	935	6,2-11,5	750-530	180		
			AIR132M4	11	1435	9,2-17,8	1750-1200	201		
VR-86-77-8 VR-86-77-8Zh VR-86-77-8K1 VR-86-77-8K1Zh	1	1	AIR132S6	5,5	960	12,0-17,0	950-880	277	D041	6
			AIR132M6	7,5	960	12,0-23,0	950-580	293		
		0,9	AIR112MV6	4	960	9,5-17,0	640-570	257		
			AIR132S6	5,5	960	9,5-23,0	640-380	277		
		0,95	AIR132S6	5,5	960	12,5-23,0	800-470	277		
		1,05	AIR132M6	7,5	960	11,0-24,0	1020-720	293		
		1,1	AIR160S6	11	960	13,0-24,0	1280-900	337		

VR-86-77 **RADIAL FANS**

TECHNICAL PARAMETERS

- Explosion-proof made of dissimilar metals (V)
- Explosion-proof and heat resistant made of dissimilar metals (VZh)
- Explosion-proof and corrosion-resistant made of stainless steel (VK1)
- Explosion-proof and corrosion-resistant and heat resistant made of stainless steel (VK1Zh)

Fan size	Structural variant	Relative wheel diameter	Engine		Frequency of working wheel rotation, min^{-1}	Parameters in the working zone		Weight of fan, of no more than, kg	Vibration isolators	
			Size	Power, kW		Capacity, ths. m^3/h	Full pressure, Pa		Type	Number
VR-86-77-2.5V VR-86-77-2.5VZh VR-86-77-2.5VK1 VR-86-77-2.5VK1Zh	1	1	AIM63A4	0,25	1350	0,45-0,85	170-110	31,5	VR-201	4
			AIM63V2	0,55	2750	0,85-1,75	720-440	31,5		
		0,9	AIM63A4	0,25	1350	0,4-0,8	120-70	31,5		
			AIM63A2	0,37	2750	0,85-1,65	490-300	31,5		
		0,95	AIM63A4	0,25	1350	0,44-0,85	150-95	31,5		
			AIM63V2	0,55	2750	0,9-1,75	620-380	31,5		
		1,05	AIM63A4	0,25	1350	0,45-0,85	190-130	31,5		
			AIM71A2	0,75	2750	0,85-1,7	800-540	34,5		
		1,1	AIM63A4	0,25	1350	0,47-0,85	230-170	31,5		
			AIM71A2	0,75	2750	0,9-1,75	960-740	34,5		
VR-86-77-3.15V VR-86-77-3.15VZh VR-86-77-3.15VK1 VR-86-77-3.15VK1Zh	1	1	AIM63A4	0,25	1350	0,85-1,84	280-170	40	VR-201	4
			AIM80A2	1,5	2750	1,8-4,0	1220-680	49,5		
		0,9	AIM63A4	0,25	1350	0,76-1,82	185-110	40		
			AIM71V2	1,1	2750	1,55-3,7	800-480	44,7		
		0,95	AIM63A4	0,25	1350	0,76-1,82	185-110	40		
			AIM80A2	1,5	2750	1,9-3,85	1080-640	50,6		
		1,05	AIM63A4	0,25	1350	0,9-1,9	320-190	40		
			AIM80V2	2,2	2750	1,7-4,0	1350-880	52,4		
		1,1	AIM63V4	0,37	1350	0,9-1,9	380-220	39,8		
			AIM80V2	2,2	2750	1,9-4,1	1650-1070	52,4		
VR-86-77-4V VR-86-77-4VZh VR-86-77-4VK1 VR-86-77-4VK1Zh	1	1	AIM71A6	0,37	880	1,4-2,7	210-120	59	VR-201	4
			AIM71V4	0,75	1380	2,2-4,1	500-300	59		
			AIM100L2	5,5	2850	4,3-8,3	2200-1250	107	VR-201	4
		0,9	AIM71A6	0,37	880	1,2-2,6	140-75	59		
			AIM71A4	0,55	1380	1,95-4,0	340-190	59		
		0,95	AIM71A6	0,37	880	1,4-2,6	175-100	59		
			AIM71A4	0,55	1380	2,3-4,0	430-250	59	VR-201	4
			AIM71V4	0,75	1380	2,3-4,0	430-250	60		
		1,05	AIM71A6	0,37	880	1,3-2,75	230-140	59		
			AIM71V4	0,75	1380	2,0-4,2	560-330	59		
			AIM80A4	1,1	1380	2,0-4,2	560-330	65	VR-201	4
			AIM112M2	7,5	2850	4,1-8,5	2380-1450	121		
		1,1	AIM71A6	0,37	880	1,3-2,7	270-180	59	VR-201	4
			AIM80A4	1,1	1380	2,1-4,2	670-440	59	VR-202	4
			AIM112M2	7,5	2850	4,4-8,6	2900-1900	121		

VR-86-77 RADIAL FANS

TECHNICAL PARAMETERS

- Explosion-proof made of dissimilar metals (V)
- Explosion-proof and heat resistant made of dissimilar metals (VZh)
- Explosion-proof and corrosion-resistant made of stainless steel (VK1)
- Explosion-proof and corrosion-resistant and heat resistant made of stainless steel (VK1Zh)

Fan size	Structural variant	Relative wheel diameter	Engine		Frequency of working wheel rotation, min^{-1}	Parameters in the working zone		Weight of fan, of no more than, kg	Vibration isolators	
			Size	Power, kW		Capacity, ths. m^3/h	Full pressure, Pa		Type	Number
VR-86-77-5V VR-86-77-5VZh VR-86-77-5VK1 VR-86-77-5VK1	1	1	AIM71V6	0,55	920	2,75-4,1	340-315	99	VR-202	4
			AIM80A6	0,75	920	2,75-5,6	340-215	106		
			AIM90L4	2,2	1420	4,3-8,6	810-500	137		
		0,9	AIM71V6	0,55	920	2,4-5,3	230-140	99		
			AIM80V4	1,5	1420	3,6-8,2	550-340	106		
		0,95	AIM71V6	0,55	920	2,8-5,6	280-170	99		
			AIM80V4	1,5	1420	4,5-5,3	700-680	106		
			AIM90L4	2,2	1420	4,5-8,7	700-400	131		
		1,05	AIM80A6	0,75	920	2,7-5,6	370-270	107		
			AIM100S4	3	1420	4,2-8,5	880-620	142		
		1,1	AIM80V6	1,1	920	3,0-5,7	460-315	108		
			AIM100S4	3	1420	4,6-8,8	1100-730	142		
VR-86-77-6.3V VR-86-77-6.3VZh VR-86-77-6.3VK VR-86-77-6.3VK	1	1	AIM100L6	2,2	935	5,6-11,3	560-350	197	VR-202	6
			AIM112M4	5,5	1435	8,6-12,0	1320-1250	210	VR-203	4
			AIM132S4	7,5	1435	8,6-17,5	1320-800	248		
		0,9	AIM80V6	1,1	935	4,7-7,3	380-350	155	VR-202	6
			AIM90L6	1,5	935	4,7-11,0	380-230	178		
			AIM100L4	4	1435	7,2-12,3	885-780	194	VR-203	4
			AIM112M4	5,5	1435	7,2-17,0	885-530	208		
		0,95	AIM90L6	1,5	935	5,8-8,6	470-430	179	VR-202	6
			AIM100L6	2,2	935	5,8-11,5	470-280	196		
			AIM112M4	5,5	1435	9,0-17,5	1130-670	209	VR-203	4
		1,05	AIM100L6	2,2	935	5,4-11,5	610-400	198	VR-202	6
			AIM132S4	7,5	1435	8,3-17,5	1430-940	249	VR-203	4
		1,1	AIM112MA6	3	935	6,2-11,5	750-530	217		
			AIM132M4	11	1435	9,2-17,8	1750-1200	249		
VR-86-77-8V VR-86-77-8VZh VR-86-77-8VK1 VR-86-77-8VK1)	1	1	AIM132S6	5,5	960	12,0-17,0	950-880	338	VR-203	5
			AIM132M6	7,5	960	12,0-23,0	950-580	338		
		0,9	AIM112MV6	4	960	9,5-17,0	640-570	289		
			AIM132S6	5,5	960	9,5-23,0	640-380	338		
		0,95	AIM132S6	5,5	960	12,5-23,0	800-470	338		
		1,05	AIM132M6	7,5	960	11,0-24,0	1020-720	337		
		1,1	AIM160S6	11	960	13,0-24,0	1280-900	372		

VR-86-77 **RADIAL FANS**

TECHNICAL PARAMETERS

- Explosion-proof made of aluminium alloys (VKZ)

Fan size	Structural variant	Relative wheel diameter	Engine		Frequency of working wheel rotation, min^{-1}	Parameters in the working zone		Weight of fan, of no more than, kg	Vibration isolators	
			Size	Power, kW		Capacity, ths. m^3/h	Full pressure, Pa		Type	Number
VR-86-77-2.5VKZ	1	1	AIM63A4	0,25	1350	0,45-0,85	170-110	25	VR-201	4
			AIM63V2	0,55	2750	0,85-1,75	720-450	26		
VR-86-77-3.15VKZ	1	1	AIM63A4	0,25	1350	0,85-1,84	280-170	30	VR-202	4
VR-86-77-4VKZ	1	1	AIM71A6	0,37	880	1,4-2,7	210-120	42	VR-201	4
			AIM71V4	0,75	1380	2,2-4,1	500-300	44		
VR-86-77-5VKZ	1	1	AIM71V6	0,55	920	2,75-4,1	340-315	79	VR-201	5
			AIM80A6	0,75	920	2,75-5,6	340-215	85		
VR-86-77-6.3VKZ	1	1	AIM100L6	2,2	935	5,6-11,3	560-350	141	VR-202	4
VR-86-77-8VKZ	1	1	AIM132S6	5,5	960	10,5-17,0	950-870	227	VR-203	4
			AIM132M6	7,5	960	10,5-24,0	950-550	254		

ACOUSTIC CHARACTERISTICS

Fan	p, min^{-1}	Lpi, dB in octave bands f, Hz								LpA, dBA
		63	125	250	500	1000	2000	4000	8000	
VR-86-77-2.5	1350	58	61	69	62	60	58	50	41	67
	2750	70	73	76	84	77	75	73	65	84
VR-86-77-3.15	1350	65	68	76	69	67	65	57	48	74
	2850	78	81	84	92	85	83	81	73	92
VR-86-77-4	880	65	68	76	69	67	65	57	46	73
	1380	74	77	85	78	76	74	66	57	82
	2850	87	90	93	101	94	92	90	82	101
VR-86-77-5	920	70	73	81	74	72	70	62	53	78
	1420	81	84	92	85	83	81	73	64	89
VR-86-77-6.3	935	78	81	89	82	80	73	70	61	86
	1435	89	92	100	93	91	89	81	72	97
VR-86-77-8	960	88	91	99	92	90	88	80	71	96

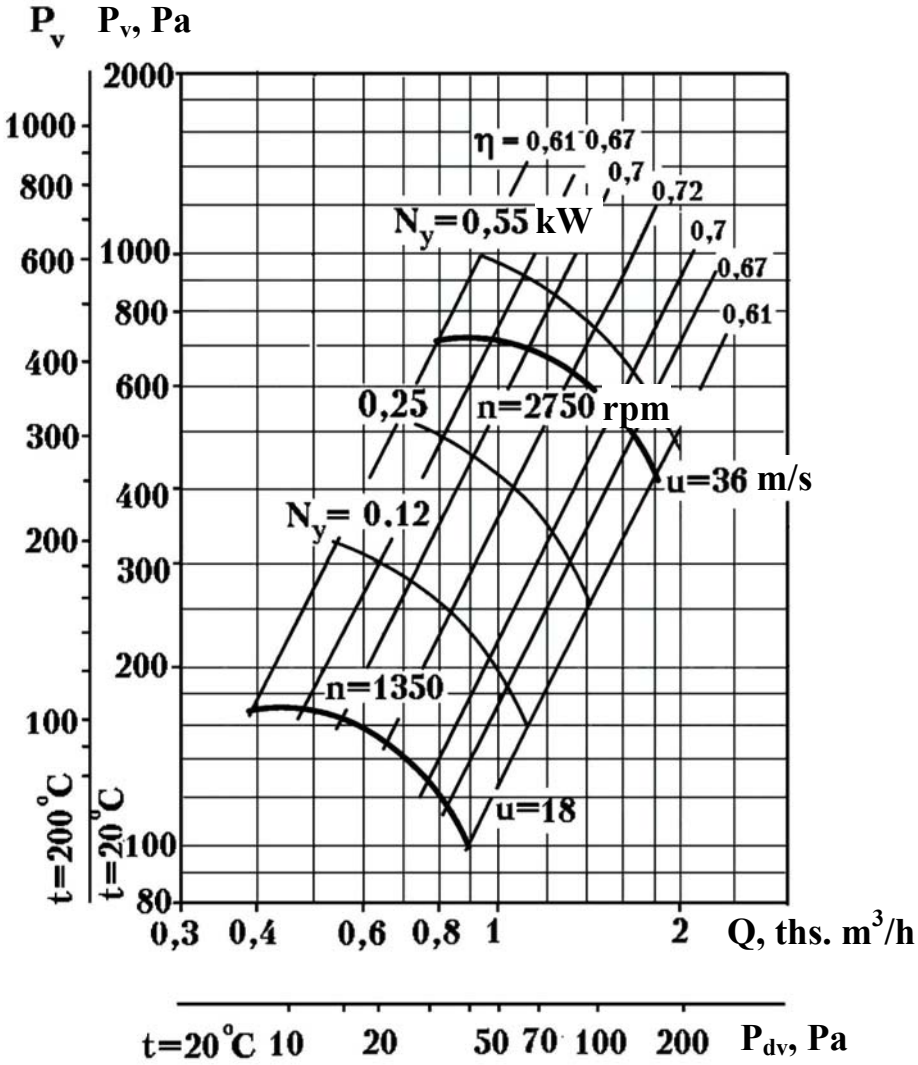
Acoustic characteristics measured from the side of discharge under nominal operation conditions of fan. Levels of sound powerat the side of intake are 3 dB below the levels indicated in the table.

On the borders of the working area of aerodynamic characteristic levels of sound power are 3 dB higher than the level of sound power corresponding to the nominal operation conditions of the fan.

VR-86-77 **RADIAL FANS**

VR-86-77-2.5 AERODYNAMIC CHARACTERISTICS

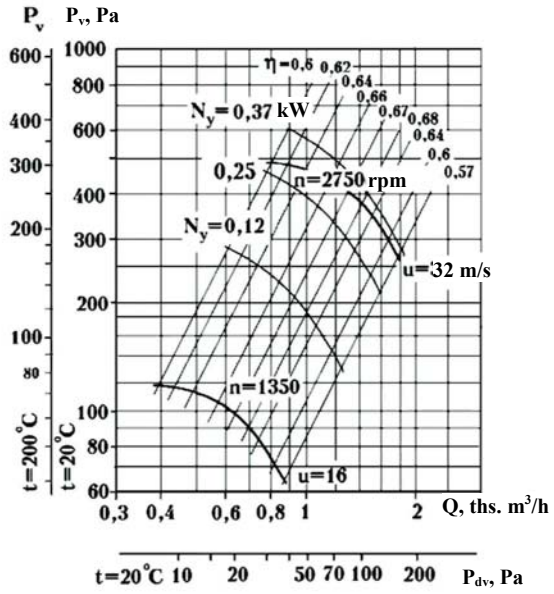
D = D_{rated}



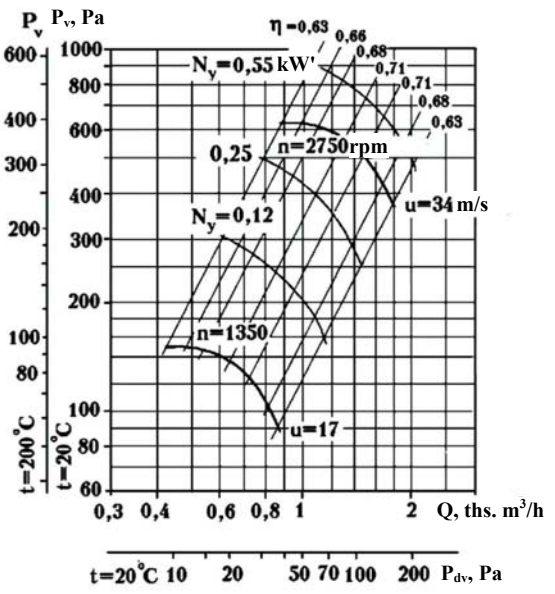
VR-86-77 **RADIAL FANS**

VR-86-77-2.5 AERODYNAMIC CHARACTERISTICS

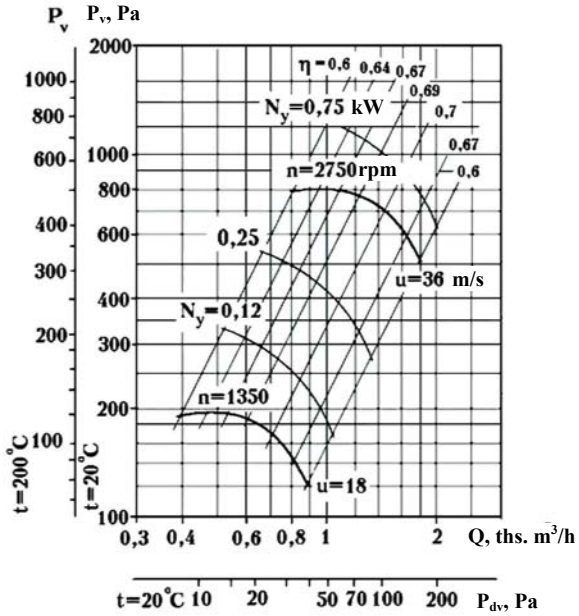
D = 0.9D_{rated}



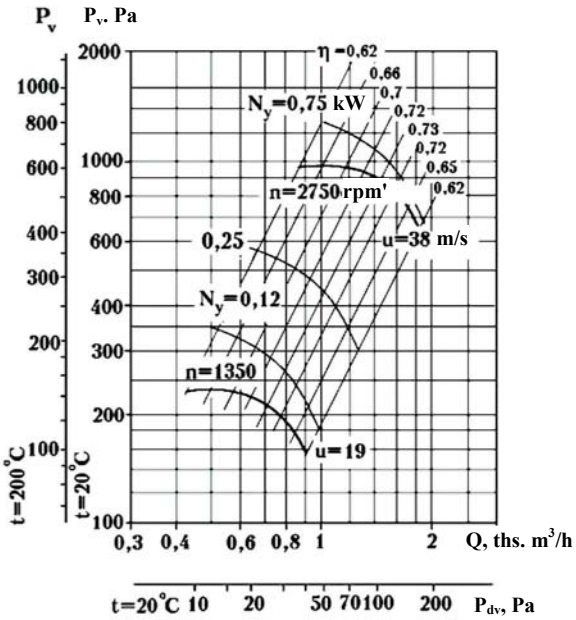
D = 0.95D_{rated}



D = 1.05D_{rated}



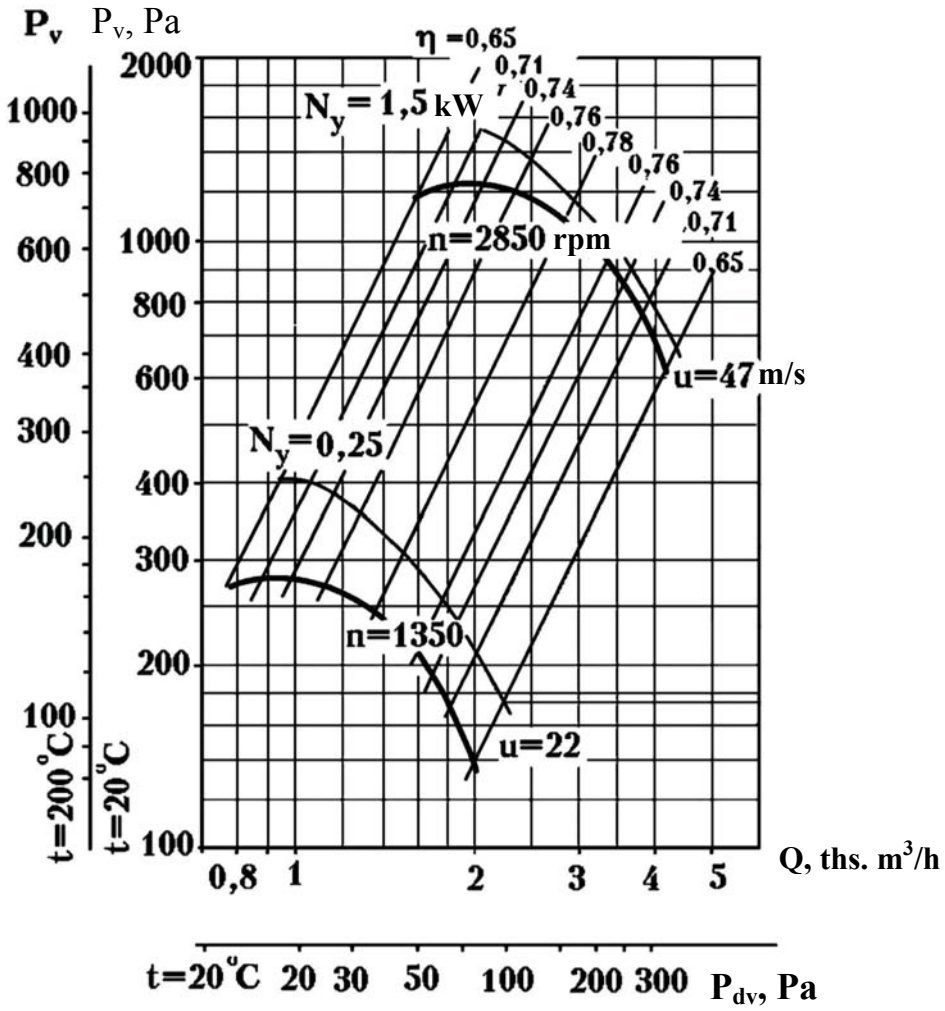
D = 1.1D_{rated}



VR-86-77 **RADIAL FANS**

VR-86-77-3.15 AERODYNAMIC CHARACTERISTICS

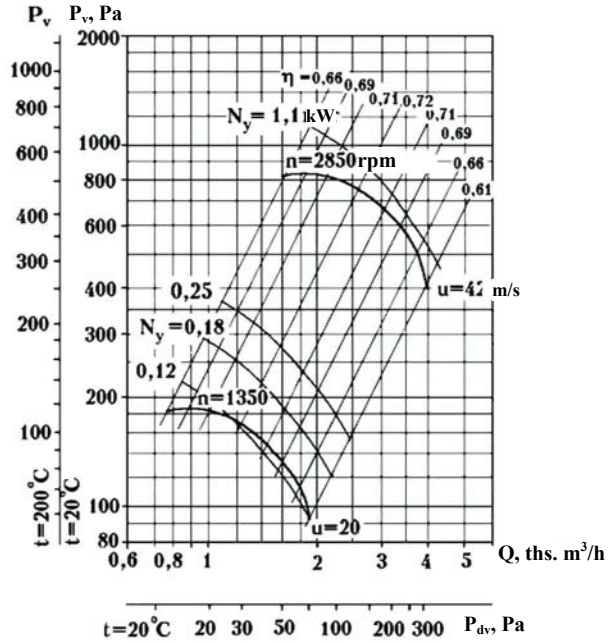
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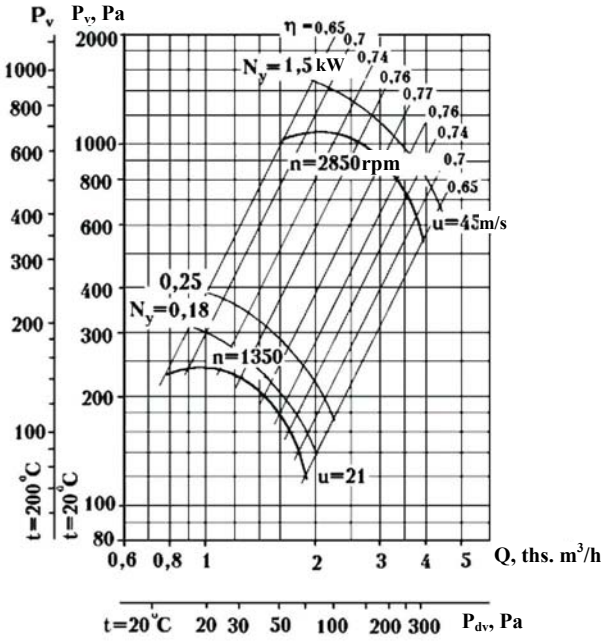
VR-86-77 **RADIAL FANS**

VR-86-77-3.15 AERODYNAMIC CHARACTERISTICS

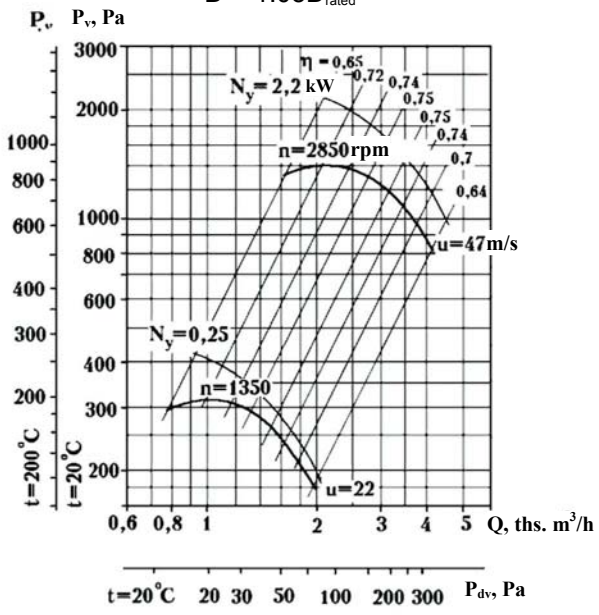
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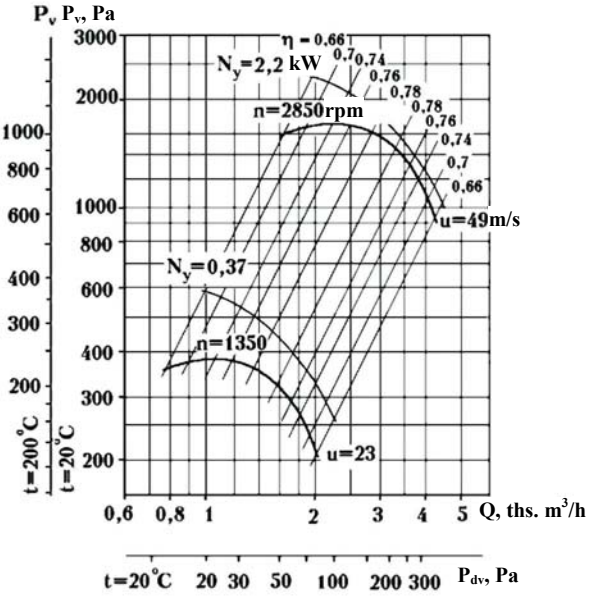
D = 0.95D_{rated}



D = 1.05D_{rated}



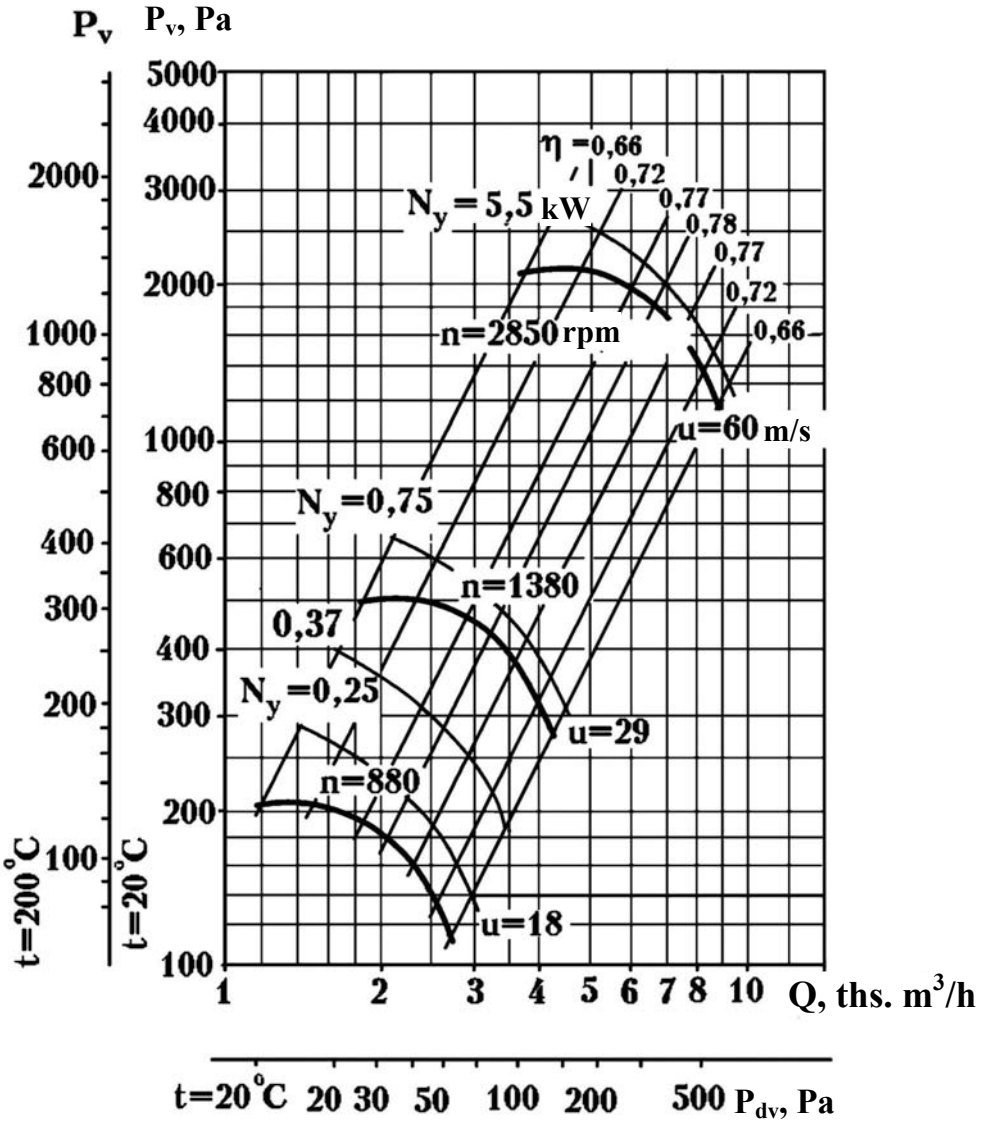
D = 1.1D_{rated}



VR-86-77 **RADIAL FANS**

VR-86-77-4 AERODYNAMIC CHARACTERISTICS

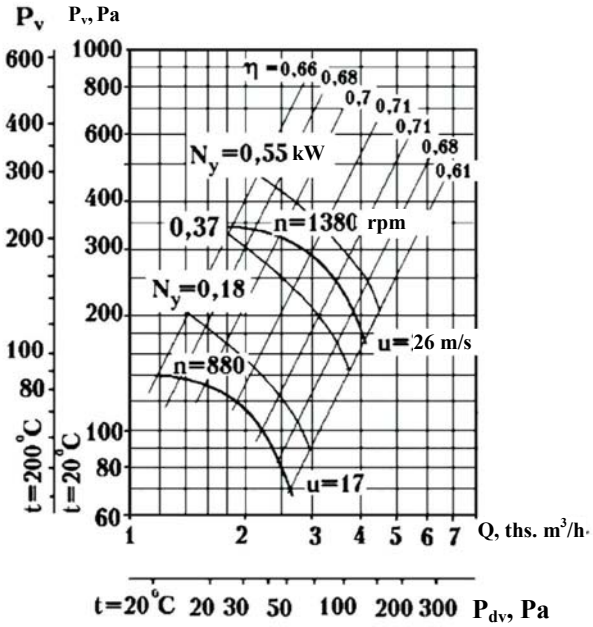
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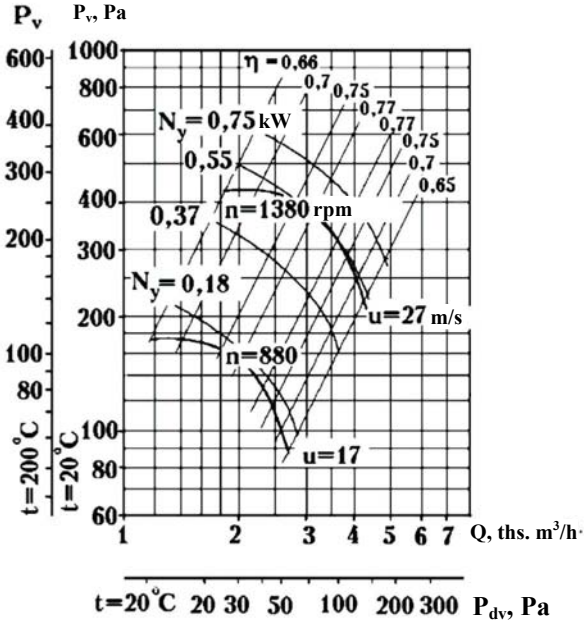
VR-86-77 **RADIAL FANS**

VR-86-77-4 AERODYNAMIC CHARACTERISTICS

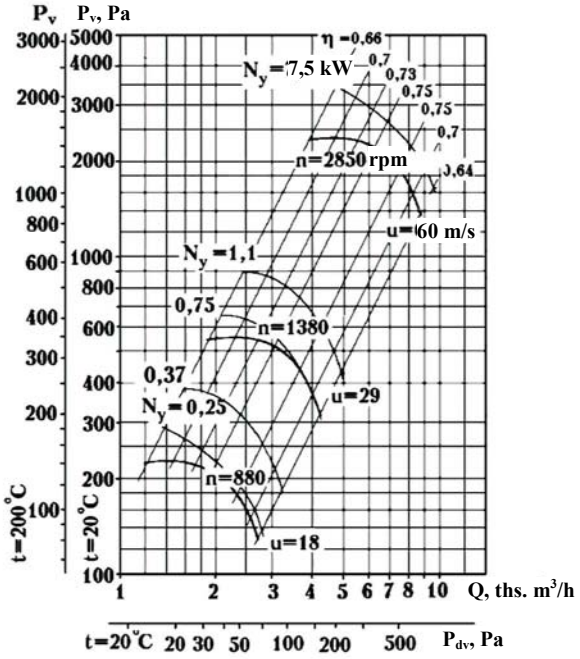
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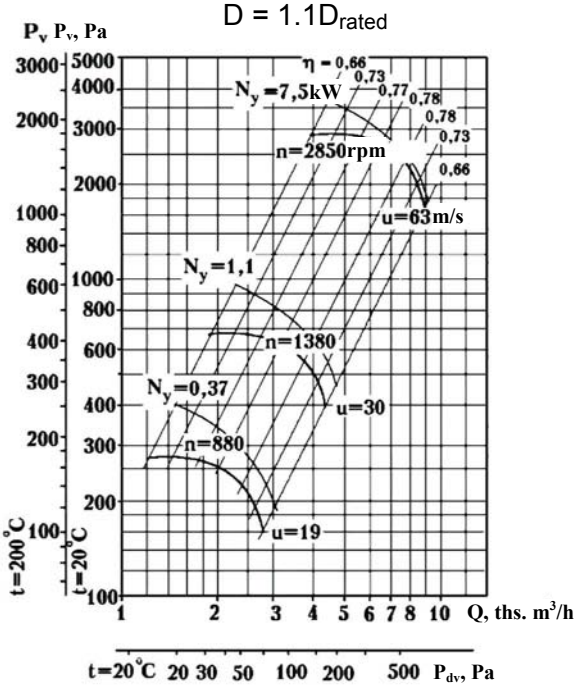
D = 0.95D_{rated}



D = 1.05D_{rated}



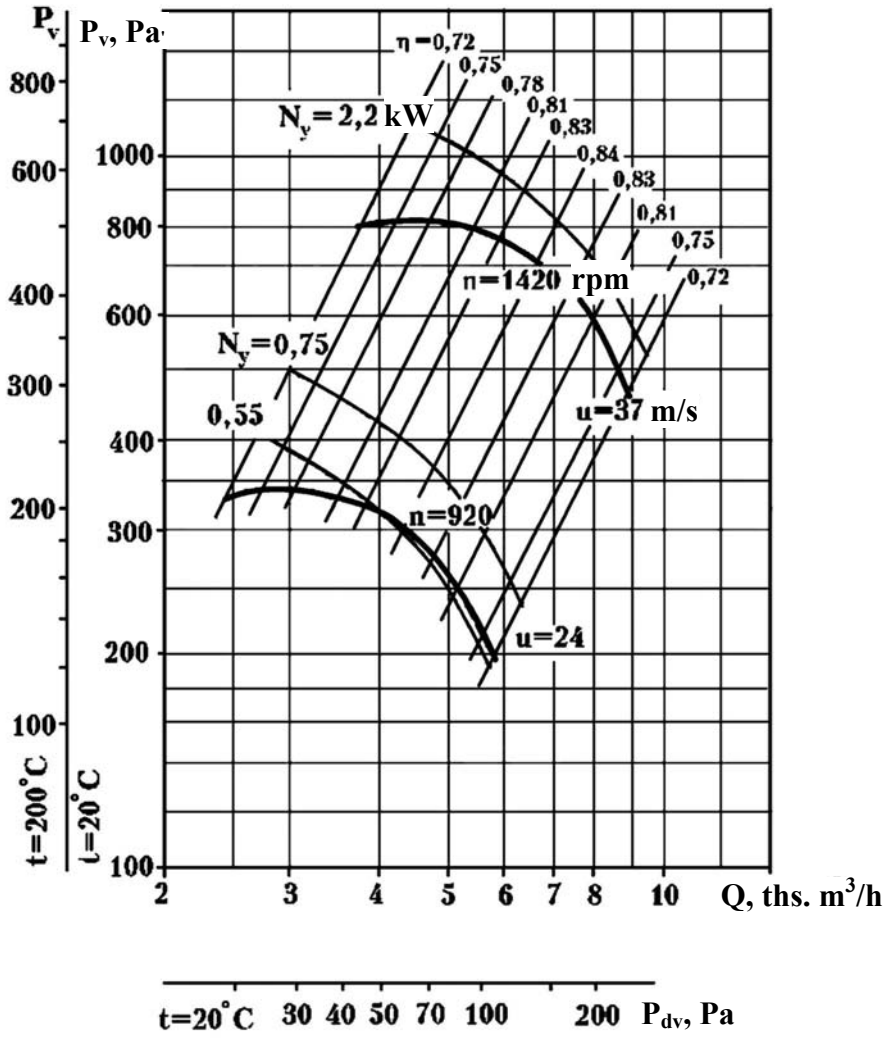
D = 1.1D_{rated}



VR-86-77 **RADIAL FANS**

VR-86-77-5 AERODYNAMIC CHARACTERISTICS

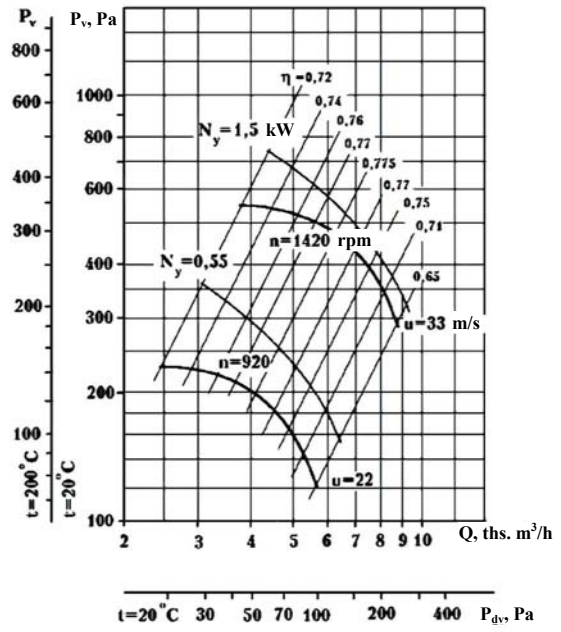
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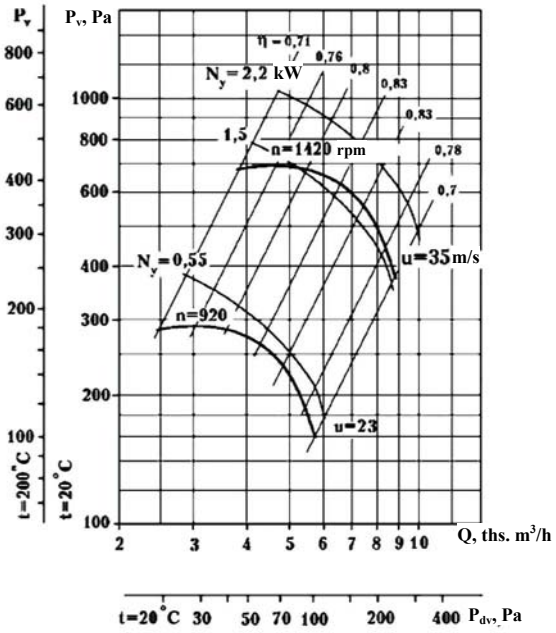
VR-86-77 **RADIAL FANS**

AERODYNAMIC CHARACTERISTICS VR-86-77-5

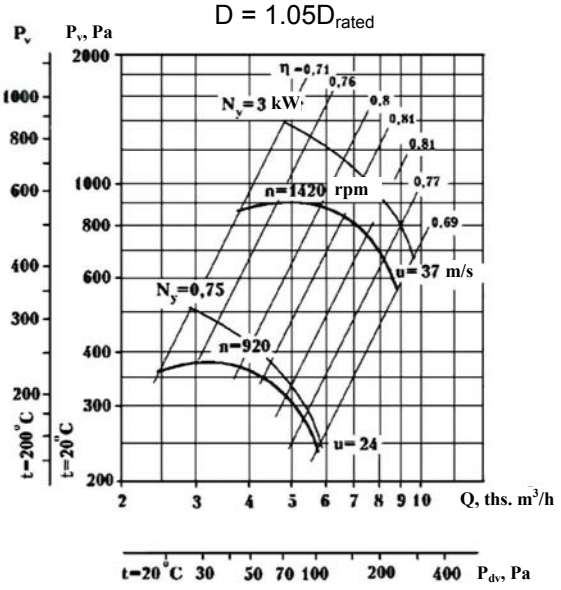
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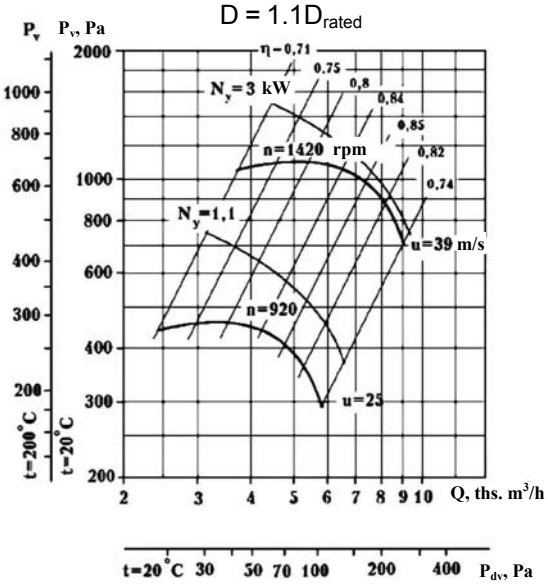
D = 0.95D_{rated}



D = 1.05D_{rated}



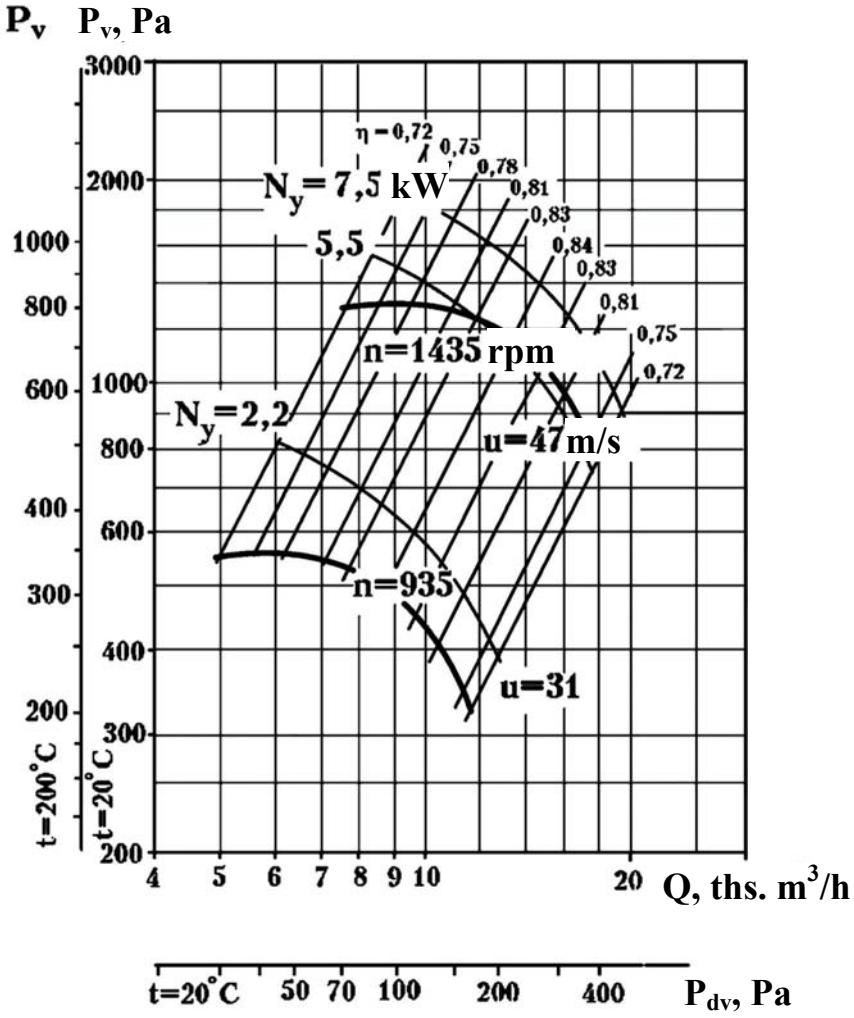
D = 1.1D_{rated}



VR-86-77 **RADIAL FANS**

VR-86-77-6.3 AERODYNAMIC CHARACTERISTICS

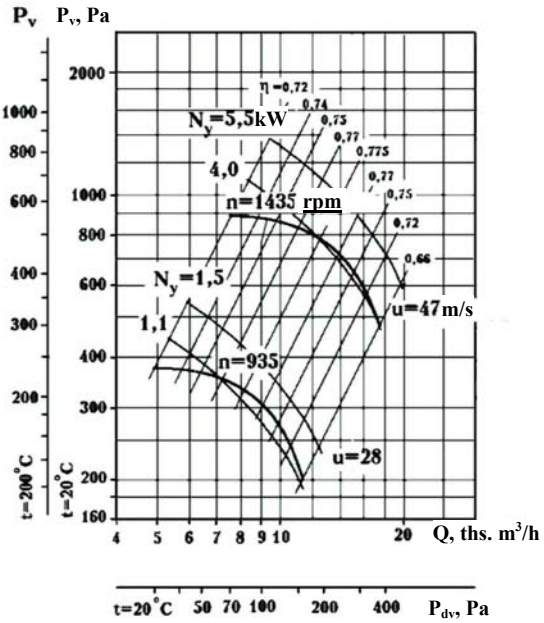
$D = D_{rated}$



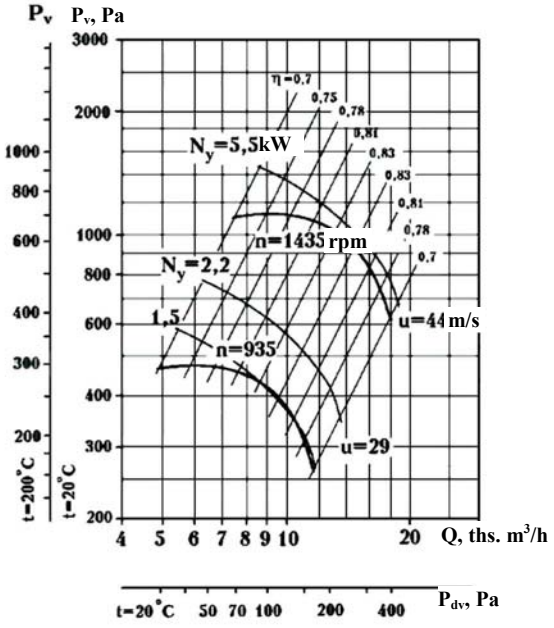
VR-86-77 **RADIAL FANS**

VR-86-77-6.3 AERODYNAMIC CHARACTERISTICS

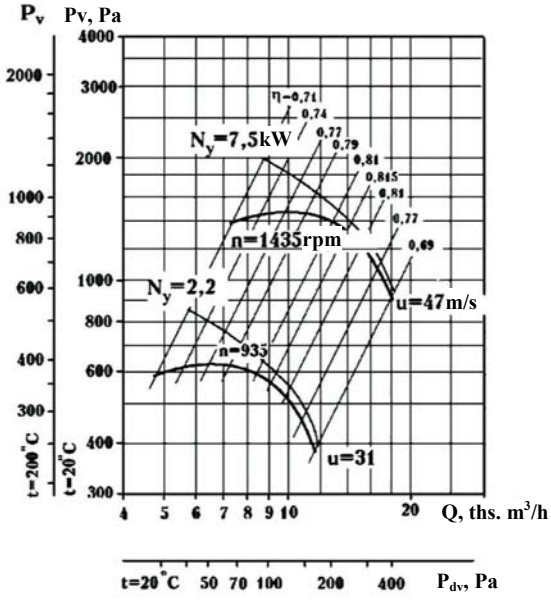
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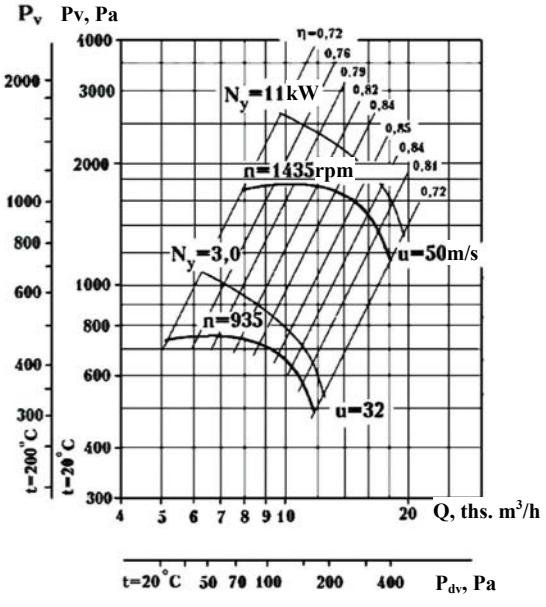
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D = 1.05D_{rated}



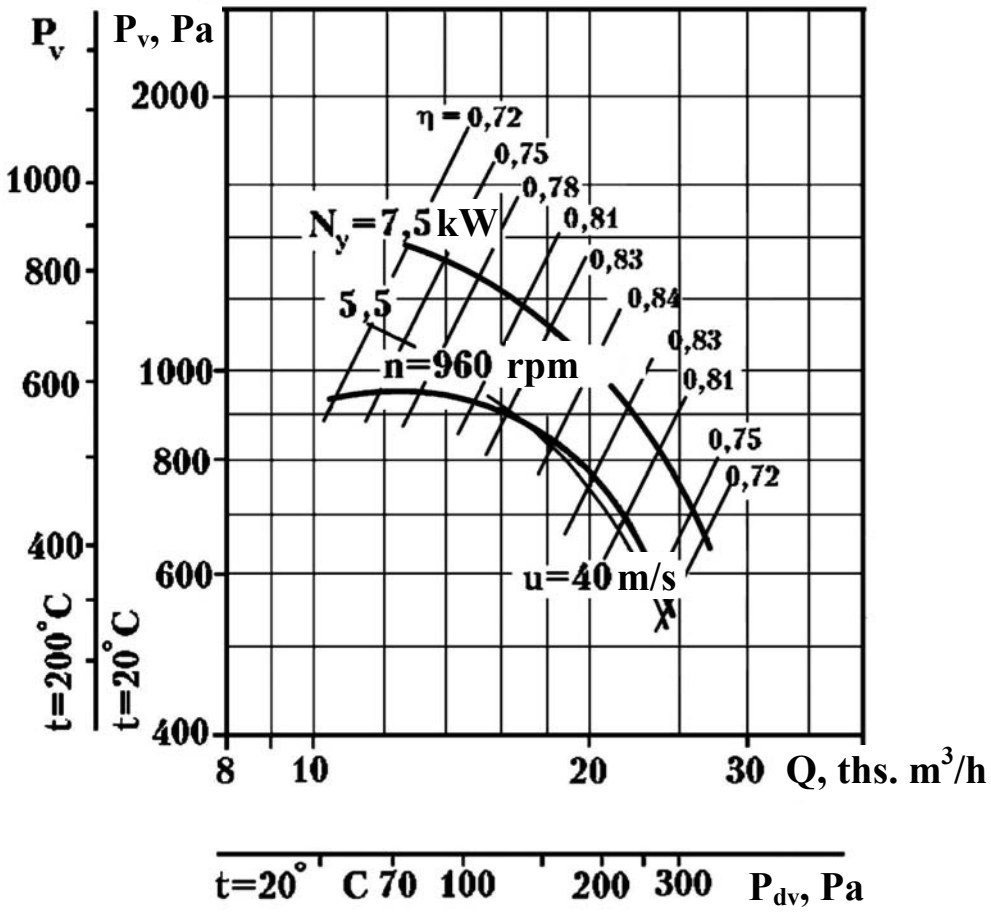
D = 1.1D_{rated}



VR-86-77 **RADIAL FANS**

VR-86-77-8 AERODYNAMIC CHARACTERISTICS

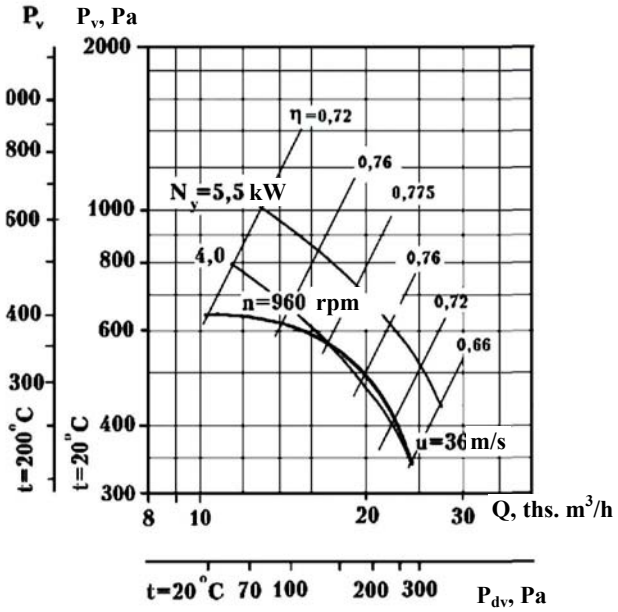
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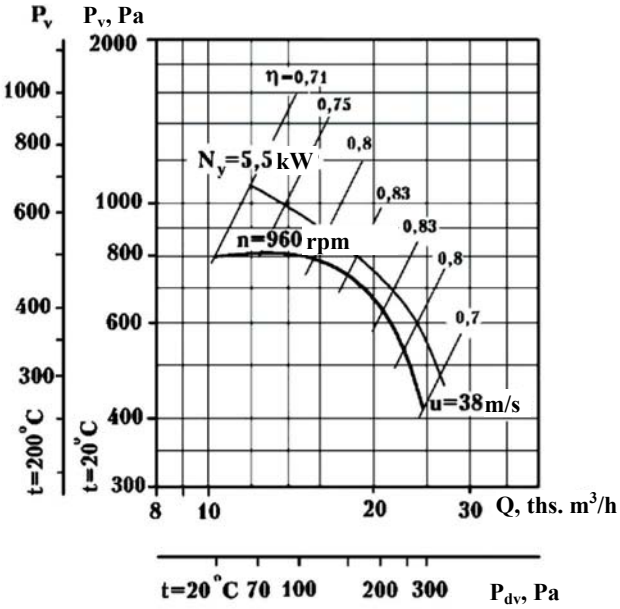
VR-86-77 **RADIAL FANS**

VR-86-77-8 AERODYNAMIC CHARACTERISTICS

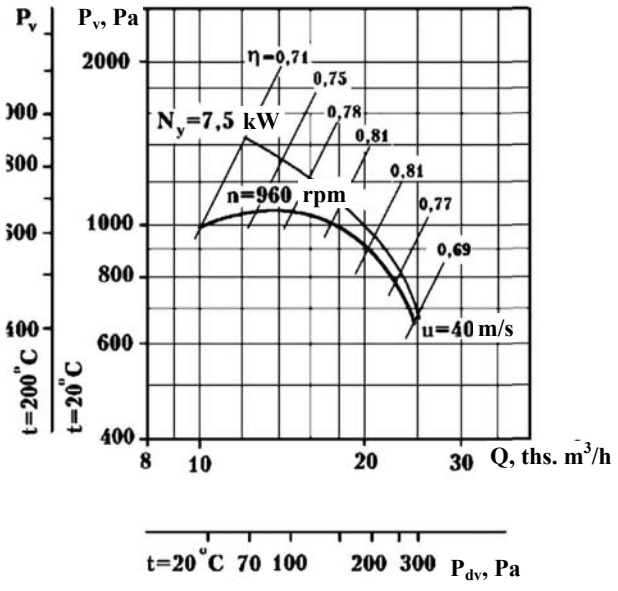
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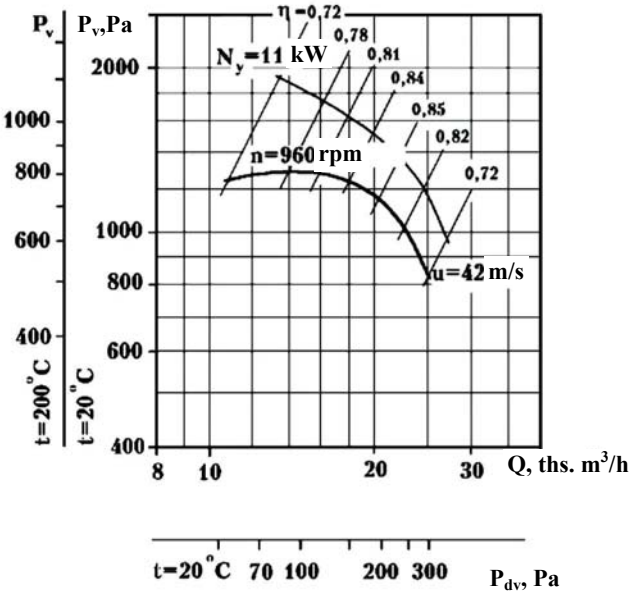
D = 0.95D_{rated}



D = 1.05D_{rated}

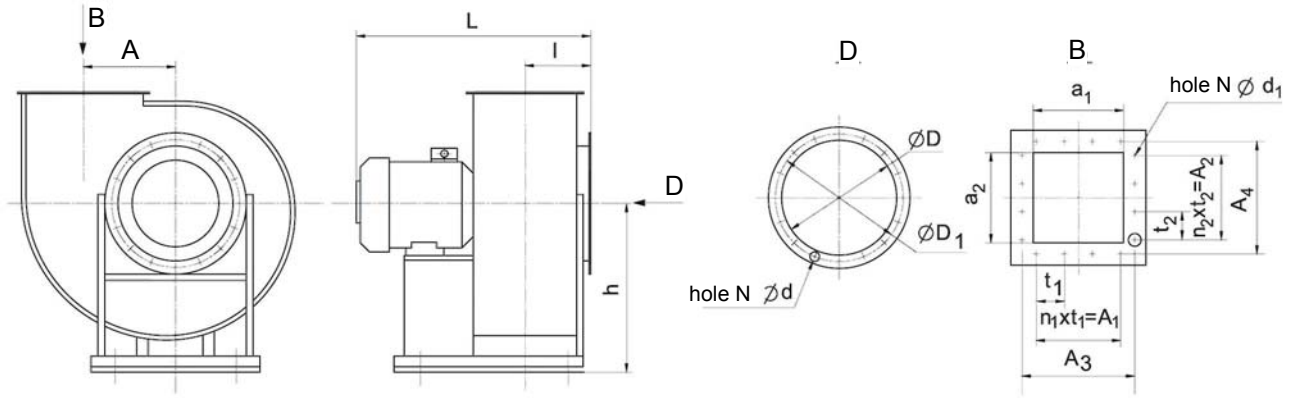


D = 1.1D_{rated}



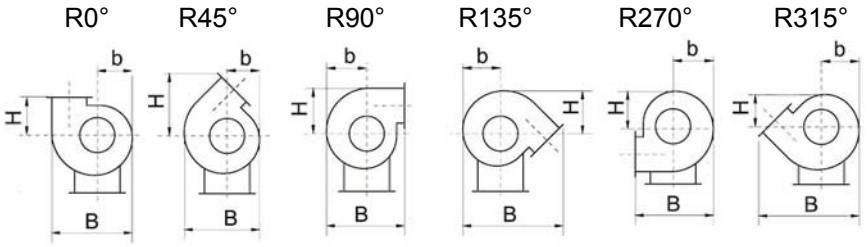
VR-86-77 **RADIAL FANS**

OVERALL AND FITTING DIMENSIONS

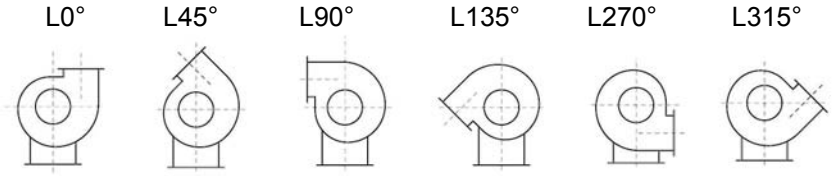


RIGHT TURNING FAN CASE POSITIONS

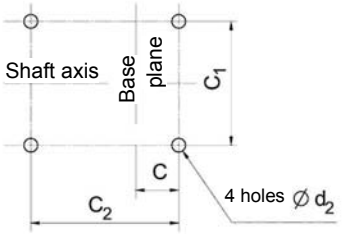
Right turning



Left turning



Fixing holes for fan



Fan	Dimensions, mm																						
	h	l	L_{max}	A	D	D_1	d	d_1	d_2	a_1	a_2	A_1	A_2	A_3	A_4	t_1	t_2	C	C_1	C_2	N	n	n_1	n_2
VR-86-77-2.5	320	140	493	162	252	280	8,5x14	7	12	175	175	100	100	205	205	100	100	35	220	300	8	8	1	1
VR-86-77-3.15	410	162	552	205	318	345	8,5x14	7	12	221	221	200	200	255	255	100	100	84	220	400	8	12	2	2
VR-86-77-4	520	192	695	260	403	430	8,5x14	7	12	280	280	200	200	310	310	100	100	114	290	500	8	12	2	2
VR-86-77-5	650	252	740	324	510	530	7x14	7	15	350	350	300	300	380	380	100	100	104	410	480	16	16	3	3
VR-86-77-6.3	720	308	1000	410	640	660	7x14	7	15	441	441	400	400	470	470	100	100	125	460	520	16	20	4	4
VR-86-77-8	905	378	1170	520	820	850	7x14	11	15	560	560	600	600	600	600	150	150	135	606	600	16	16	4	4

Fan	R0°, L0°			R45°, L5°			R90°, L90°			R135°, L35°			R270°, L270°			R315°, L315°		
	B	b	H	B	b	H	B	b	H	B	b	H	B	b	H	B	b	H
VR-86-77-2.5	465	189	198	408	173	335	417	220	276	535	204	235	417	219	189	539	204	173
VR-86-77-3.15	580	238	239	515	218	413	516	277	342	670	258	297	516	277	238	670	258	218
VR-86-77-4	728	301	291	648	273	500	642	351	428	856	322	376	642	351	301	856	322	273
VR-86-77-5	915	389	340	940	357	612	790	454	526	1032	420	482	790	454	389	1032	420	357
VR-86-77-8	1143	487	420	1052	447	760	985	564	656	1286	526	605	985	564	487	1286	526	447
VR-86-77-6.3	1450	614	533	1328	564	965	1247	714	836	1629	664	764	1247	714	614	1629	664	564

VR-80-70 **RADIAL FANS**

GENERAL INFORMATION



- Low pressure
- Single-inlet
- Spiral turning case
- Backward curved blades
- Number of blades – 12
- Direction of rotation – right and left

AVAILABLE VARIANTS

TU 4861-052-00270366-99

- General purpose made of carbon steel
- General purpose heat resistant made of carbon steel (Zh)
- Corrosion-resistant made of stainless steel (K1)
- Corrosion-resistant and heat resistant made of stainless steel (K1Zh)

PURPOSE

- General purpose made of carbon steel (for the purpose see Table 3 line 1).
- General purpose heat resistant made of carbon steel (Zh) (for the purpose see Table 3 line 2).
- Corrosion-resistant made of stainless steel (K1) (for the purpose see Table 3 line 3).
- Corrosion-resistant and heat resistant made of stainless steel (K1Zh) (for the purpose see Table 3 line 4).

* *For operation conditions of the fans see page 5.*

VR-80-70 **RADIAL FANS**

TECHNICAL PARAMETERS

- General purpose made of galvanized or carbon steel
- General purpose heat resistant made of carbon steel (Zh)
- Corrosion-resistant made of stainless steel (K1)
- Corrosion-resistant and heat resistant made of stainless steel (K1Zh)

Fan size	*Structural variant*	*Engine*		*Frequency of working wheel rotatiop, min^{-1}*	*Parameters in the working zone*		*Maximum fan weight, kg*	*Vibration isolators*	
		Size	*Power, kW*		*Capacity, ths. m^3/h*	*Full pressure, Pa*		*Type*	*Num-ber*
VR-80-70-10-02 VR-80-70-10Zh-02 VR-80-70-10K1-02 VR-80-70-10K1Zh-02	1	AIR160S8	7,5	730	15,0-28,0	820-660	600	D043	5
		AIR160M8	11	730	15,0-30,5	820-610	620		
		AIR180M6	18,5	980	20,5-39,0	1480-1200	680		
		AIR200M6	22	980	20,5-41,0	1480-1120	720		
VR-80-70-10-01 VR-80-70-10Zh-01 VR-80-70-10K1-01 VR-80-70-10K1Zh-01	5	AIR132S6	5,5	615	12,8-26,0	580-430	745	D043	6
		AIR132M6	7,5	685	14,2-28,0	720-540	770		
		AIR160S6	11	770	16,0-33,7	910-690	810		
		AIR160M6	15	865	18,0-37,0	1150-860	840		
VR-80-70-12.5-02 VR-80-70-12.5Zh-02 VR-80-70-12.5K1-02 VR-80-70-12.5K1Zh-02	1	AIR200M8	18,5	730	29,5-35,5	1280-1320	910	D043	6
		AIR200L8	22	730	29,5-50,0	1280-1200	950		
		AIR225M8	30	730	29,5-60,0	1280-960	1100		
VR-80-70-12.5-01 VR-80-70-12.5Zh-01 VR-80-70-12.5K1-01 VR-80-70-12.5K1Zh-01	5	AIR160S6	11	536	22,0-45,0	700-520	1090	D044	6
		AIR160M6	15	602	25,0-51,5	880-680	1110		
		AIR180M6	18,5	685	27,0-57,0	1150-840	1180		
		AIR200M6	22	685	27,0-57,0	1150-840	1240		
		AIR200L6	30	768	31,0-63,5	1450-1120	1270		

ACOUSTIC CHARACTERISTICS

Fan	*p, min^{-1}*	*Lpi, dB in octave bands f, Hz*								*LpA, dBA*
		63	*125*	*250*	*500*	*1000*	*2000*	*4000*	*8000*	
VR-80-70-10-02	730	91	94	90	88	85	80	73	64	90
	980	92	95	100	96	94	91	86	79	99
VR-80-70-10-01	615	87	90	86	84	81	76	69	60	86
	685	90	93	89	87	84	79	72	63	89
	770	91	94	90	89	86	81	74	63	91
	865	95	98	94	92	89	84	77	68	94
VR-80-70-12.5-02	730	98	101	97	95	92	87	80	71	97
VR-80-70-12.5-01	536	91	94	90	88	85	80	73	64	90
	602	94	97	93	91	88	83	76	67	93
	685	97	100	96	94	91	86	79	70	97
	768	99	102	98	96	93	88	81	72	99

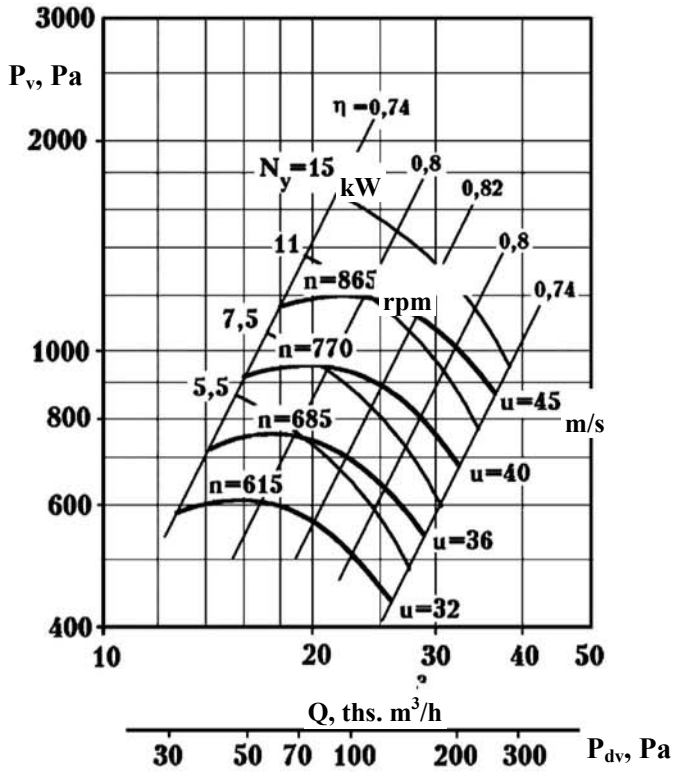
Acoustic characteristics measured from the side of discharge under nominal operation conditions of fan. Levels of sound powerat the side of intake are 3 dB below the levels indicated in the table.

On the borders of the working area of aerodynamic characteristic levels of sound power are 3 dB higher than the level of sound power corresponding to the nominal operation conditions of the fan.

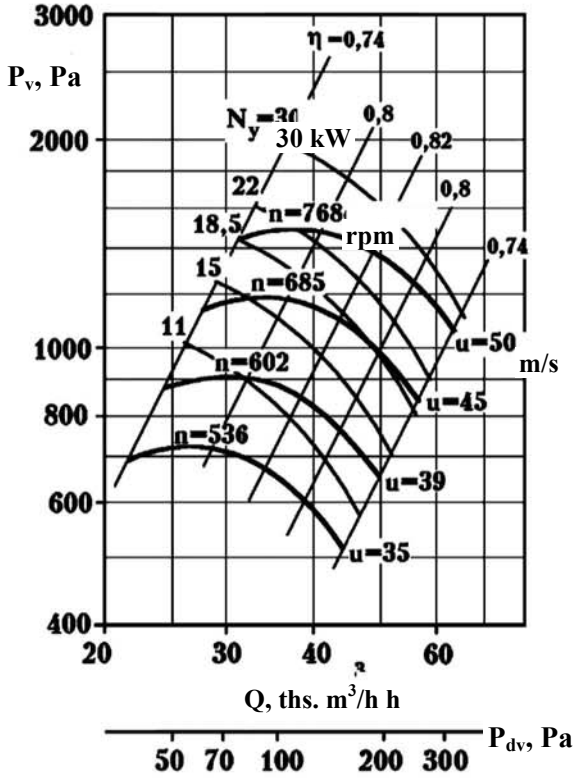
VR-80-70 **RADIAL FANS**

VR-80-70 AERODYNAMIC CHARACTERISTICS

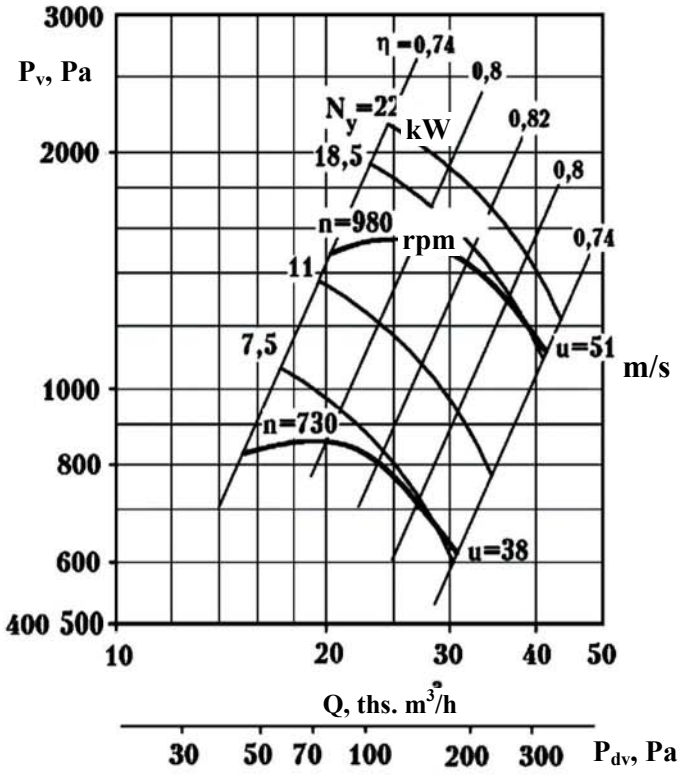
VR-80-70-10-01



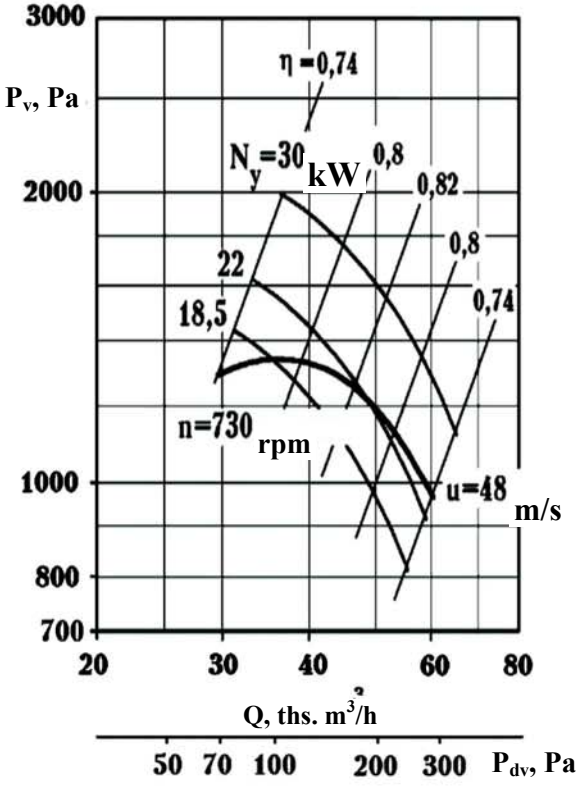
VR-80-70-12.5-01



VR-80-70-10-02



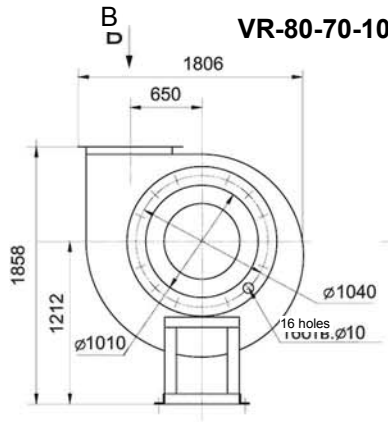
VR-80-70-12.5-02

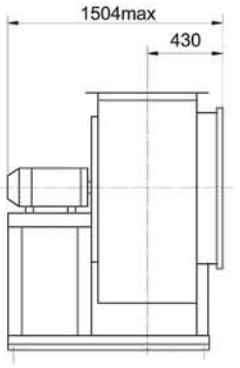


VR-80-70 **RADIAL FANS**

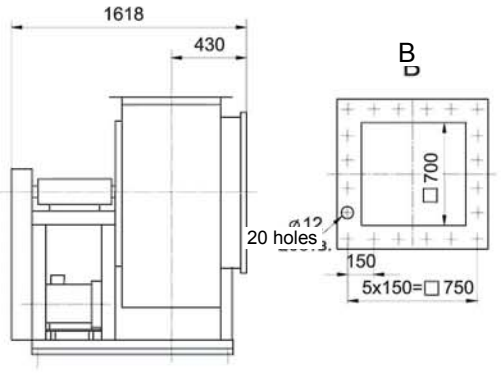
OVERALL AND FITTING DIMENSIONS

VR-80-70-10-02

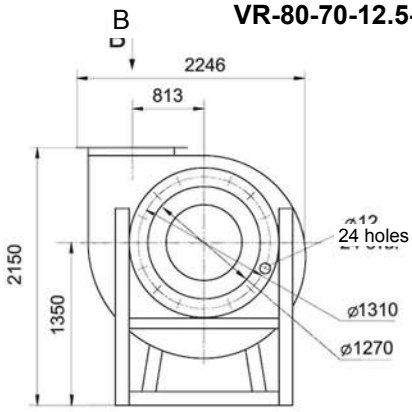


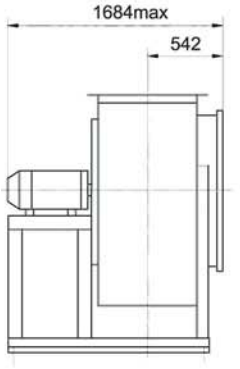


VR-80-70-10-01

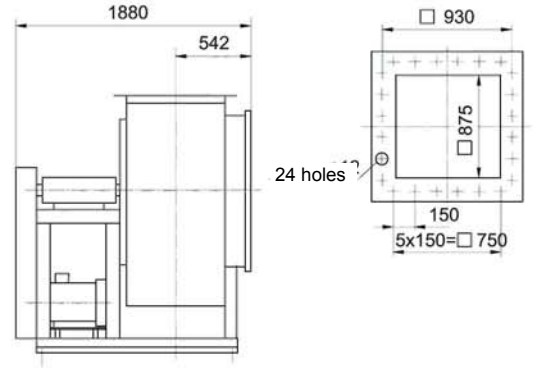


VR-80-70-12.5-02



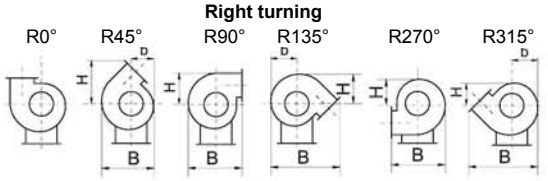


VR-80-70-12.5-01

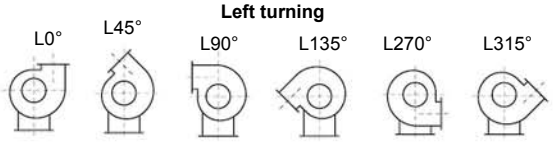


FAN CASE POSITIONS

Right turning

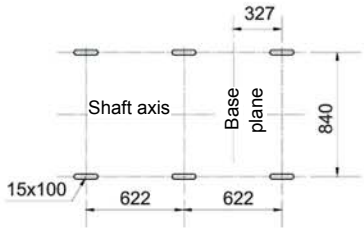


Left turning

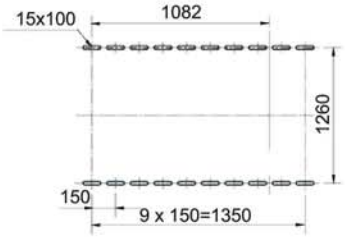


Fixing holes for fan

VR-80-70-10



VR-80-70-12.5



Fan	Dimensions, mm														
	R45°, L45°			R90°, L90°			R35°, L35°			R270°, L270°			R315°, L315°		
	B	b	H	B	b	H	B	b	H	B	b	H	B	b	H
VR-80-70-10	1642	695	1191	1528	888	1044	2012	820	951	1528	888	764	2012	820	695
VR-80-70-12.5	2060	880	1490	1908	1107	1294	2520	1030	1180	1908	1107	952	2520	1030	880

V-C4-70-16 **RADIAL FANS**

GENERAL INFORMATION

- Low pressure
- Single-inlet
- Spiral turning case
- Backward curved blades
- Number of blades – 12
- Direction of rotation – right and left

AVAILABLE VARIANTS

TU 4861-102-00270366-2004

- General purpose made of carbon steel
- Corrosion-resistant made of stainless steel (K)
  (manufactured under special order)

PURPOSE

- General purpose made of carbon steel (for the purpose see Table 3 line 1).
- Corrosion-resistant made of stainless steel (for the purpose see Table 3 line 3).

* *For operation conditions of the fans see page 5.*

TECHNICAL PARAMETERS

- General purpose made of carbon steel
- Corrosion-resistant made of stainless steel (K)

Fan size	*Structural variant*	*Engine*		*Frequency of working wheel rotation, min^{-1}*	*Parameters in the working zone*		*Maximum fan weight, kg*
		Size	*Power, kW*		*Capacity, ths. m^3/h*	*Full pressure, Pa*	
V-C4-70-16 V-C4-70-16K	5	AIR132M4	11	350	27,0-60,0	480-370	1930
		AIR160S4	15	370	27,0-68,0	540-420	1944
		AIR160M4	18,5	420	34,0-71,0	690-520	1979
		AIR180S4	22	450	37,0-78,0	800-600	2001
		AIR180M4	30	500	42,0-88,0	980-730	2018
		AIR200L4	45	550	45,0-94,0	1200-900	2142
		AIR250M6	55	600	45,0-108,0	1420-1100	2387
		AIR280S6	75	670	56,0-116,0	1780-1340	2717

ACOUSTIC CHARACTERISTICS

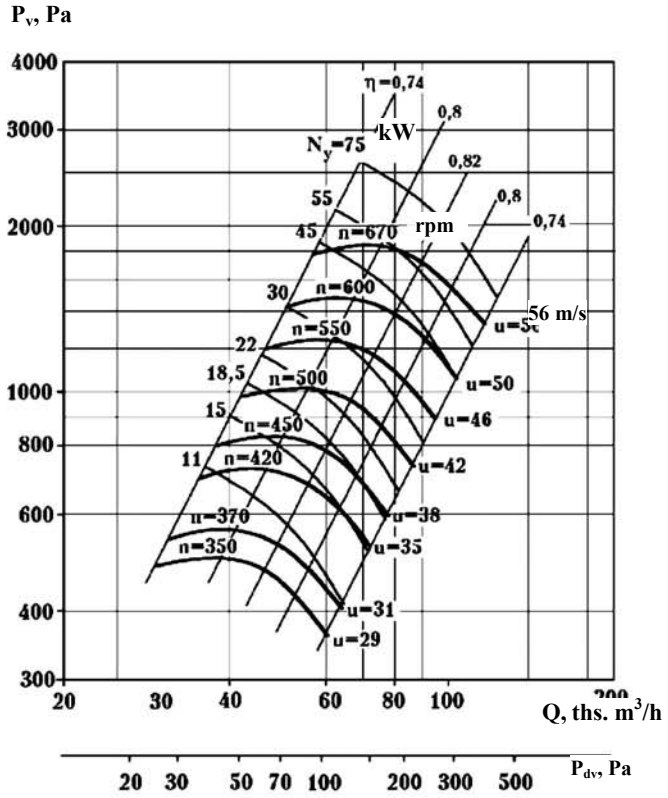
Fan	*p, min^{-1}*	*Lpi, dB in octave bands f, Hz*								*LpA, dBA*
		63	*125*	*250*	*500*	*1000*	*2000*	*4000*	*8000*	
V-C4-70-16	350	86	90	97	96	95	90	83	71	98,7
	370	86	90	97	96	95	90	83	71	98,7
	420	91	95	102	101	1 00	95	88	76	104
	450	92	96	103	102	101	96	89	77	105
	500	95	99	106	105	104	99	92	80	108
	550	97	101	108	107	106	101	94	82	110
	600	100	104	111	110	109	104	97	85	113
	670	102	106	113	112	111	106	99	87	115

Acoustic characteristics measured from the side of discharge under nominal operation conditions of fan. Levels of sound powerat the side of intake are 3 dB below the levels indicated in the table.

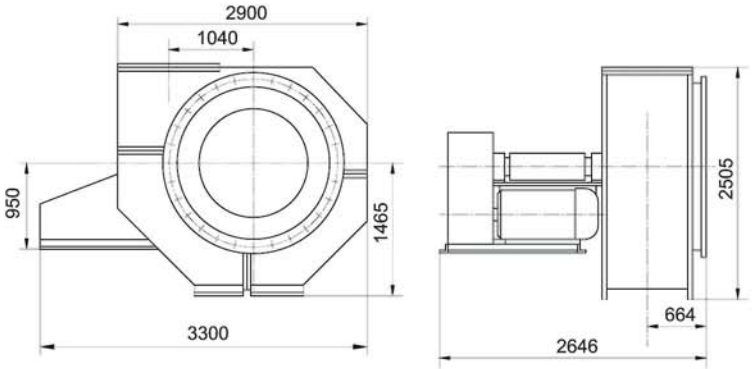
On the borders of the working area of aerodynamic characteristic levels of sound power are 3 dB higher than the level of sound power corresponding to the nominal operation conditions of the fan.

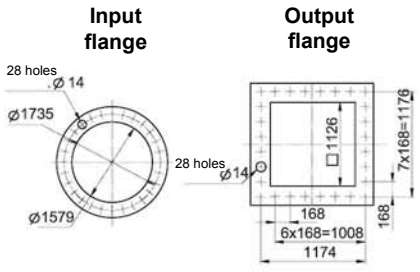
V-C4-70-16 **RADIAL FANS**

AERODYNAMIC CHARACTERISTICS (for asynchronous frequency of rotation)

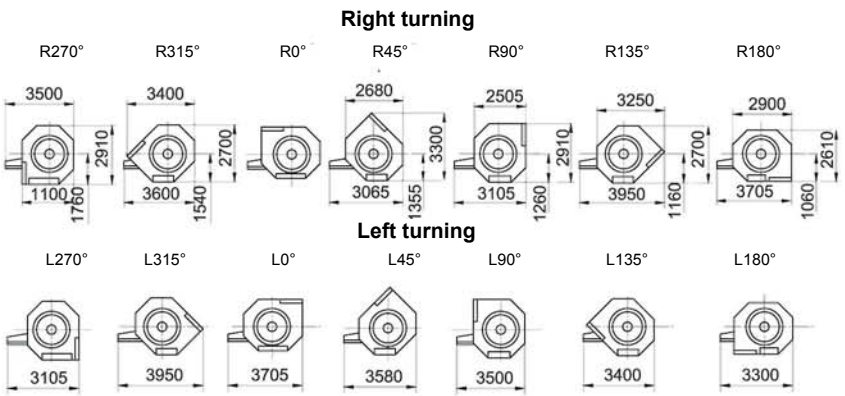


OVERALL AND FITTING DIMENSIONS

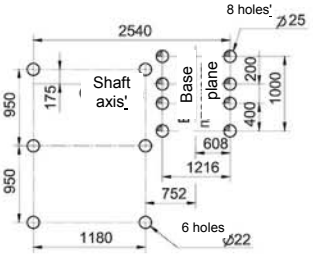




RIGHT TURNING FAN CASE POSITIONS



Fixing holes for fan



Position of Ø 25 holes for left turning fans shall be mirrored about the fan shaft axis

V.C5 **RADIAL FANS**

GENERAL INFORMATION



V.C5 series consists of 3 types of fans: V.C5-35, V.C5-45, V.C5-50

- Medium pressure
- Single-inlet
- Direct-drive
- Spiral unturning case
- Backward curved blades
- Number of blades – 9 (V.C5-35); 10 (V.C5-45); 9 (V.C5-50)
- Direction of rotation – right and left

AVAILABLE VARIANTS

TU 22-5661-84

- Explosion-proof made of dissimilar metals

PURPOSE

- Explosion-proof made of dissimilar metals (for the purpose see Table 3 line 5).

* *For operation conditions of the fans see page 5.*

TECHNICAL PARAMETERS

- Explosion-proof made of dissimilar metals (V1)

Fan size	*Structural variant*	*Engine*		*Frequency of working wheel rotation, min^{-1}*	*Parameters in the working zone*		*Maximum fan weight, kg*	*Vibration isolators*	
		Size	*Power, kW*		*Capacity, ths. m^3/h*	*Full pressure, Pa*		*Type*	*Number*
V.C5-35-3.55V1-01	1	AIM71A2 AIM71V2	0,75 1,1	2840 2840	0,5-0,9 0,5-1,75	1870-1600 1870-1300	66 67	VR-201	6
V.C5-35-4V1-01	1	AIM80V2	2,2	2930	0,85-2,3	2750-1970	94	VR-201	6
V.C5-35-8V1-01	1	AIM132M4	11	1450	5,0-12,0	2900-2060	403	VR-203	6
V.C5-35-8V1-02	1	AIM132M4	11	1450	4,5-12,2	3140-2260	403	VR-203	6
V.C5-35-8.5V1-01	1	AIM132M4	11	1450	4,5-11,5	3300-2360	403	VR-203	6
V.C5-45-4.25V1-01	1	AIM100S2	4	2900	1,7-4,5	2750-1900	145	VR-202	6
V.C5-45-8V1-01	1	AIM132M4	11	1450	6,5-12,0	2650-2300	407	VR-203	6
V.C5-45-8.5V1-01	1	AIM160S4	15	1450	8,0-17,0	3140-2300	476	VR-203	6
V.C5-50-8V1-01	1	AIM160S4	15	1450	10,0-20,0	2650-2260	507	VR-203	8
V.C5-50-8V1-02	1	AIM160M4	18,5	1450	11,0-28,0	2750-1500	527	VR-203	8
V.C5-50-9V1-01	1	AIM180M4	30	1450	16,0-35,0	3170-2260	695	VR-203	8

V.C5 **RADIAL FANS**

ACOUSTIC CHARACTERISTICS

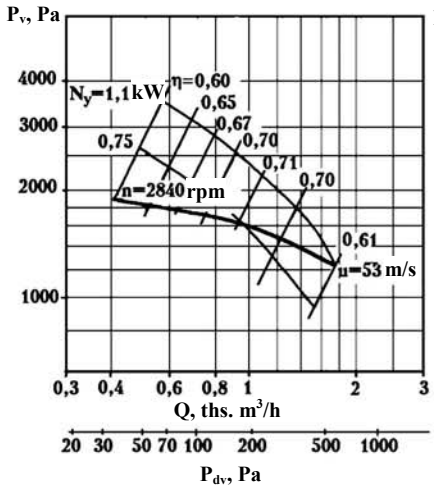
Fan	p, min^{-1}	Lpi, dB in octave bands f, Hz								LpA, dBA
		63	125	250	500	1000	2000	4000	8000	
V.C5-35-3.55	2840	75	79	80	83	82	81	79	72	87
V.C5-35-4	2930	77	81	82	85	84	83	82	77	89,5
V.C5-35-8-01	1450	88	90	92	92	91	90	87	81	95
V.C5-35-8-02	1450	88	90	92	92	91	90	87	81	95
V.C5-35-8.5	1450	89	91	93	93	92	91	88	82	96
V.C5-45-4.25	2930	86	88	92	94	91	89	85	81	96
V.C5-45-8	1450	97	101	103	100	98	94	90	88	103
V.C5-45-8.5	1450	97	101	103	100	98	94	90	88	103
V.C5-50-8-01	1450	90	93	101	100	97	96	91	85	102,5
V.C5-50-8-02	1450	90	93	101	100	97	96	91	85	102,5
V.C5-50-9	1450	92	95	103	102	99	98	93	87	104,5

Acoustic characteristics measured from the side of discharge under nominal operation conditions of fan. Levels of sound powerat the side of intake are 3 dB below the levels indicated in the table.

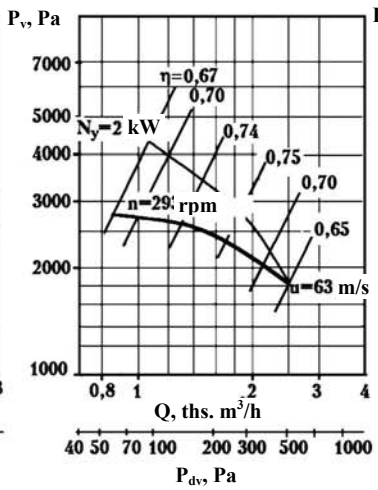
On the borders of the working area of aerodynamic characteristic levels of sound power are 3 dB higher than the level of sound power corresponding to the nominal operation conditions of the fan

AERODYNAMIC CHARACTERISTICS

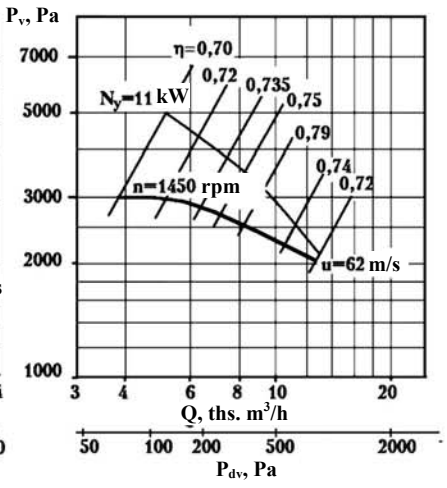
V.C5-35-3.55.01



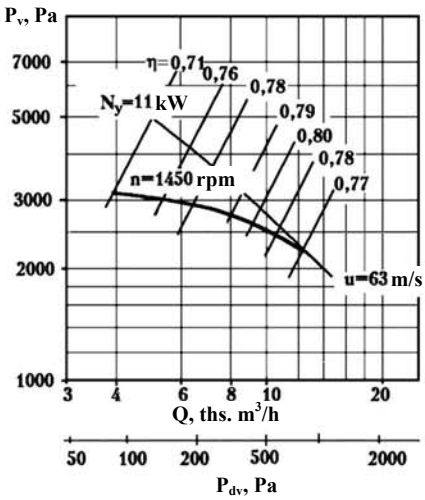
V.C5-35-4.01



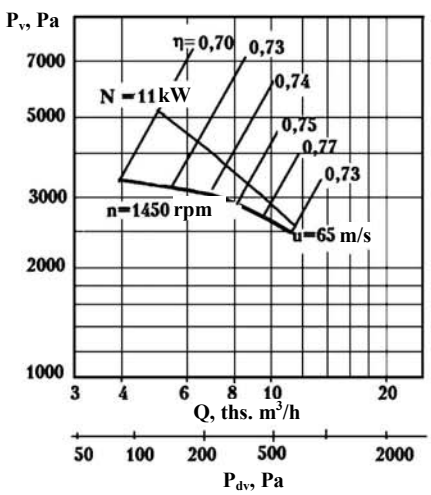
V.C5-35-8.01



V.C5-35-8.02



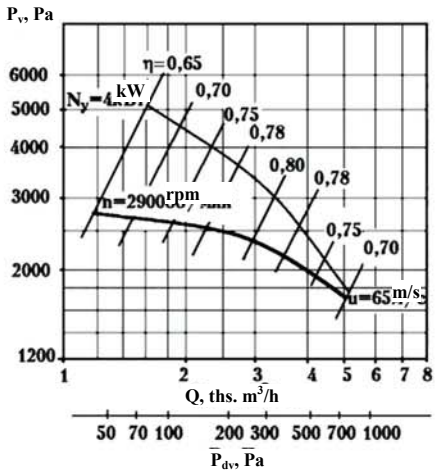
V.C5-35-8.5.01



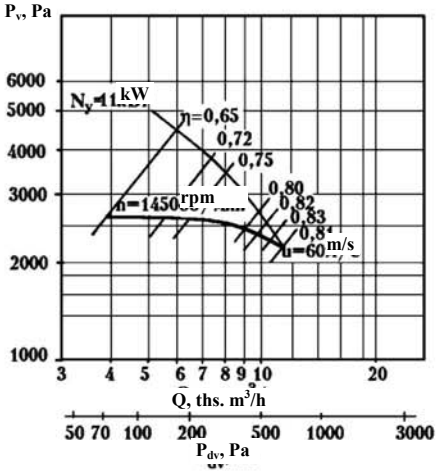
V.C5 **RADIAL FANS**

AERODYNAMIC CHARACTERISTICS

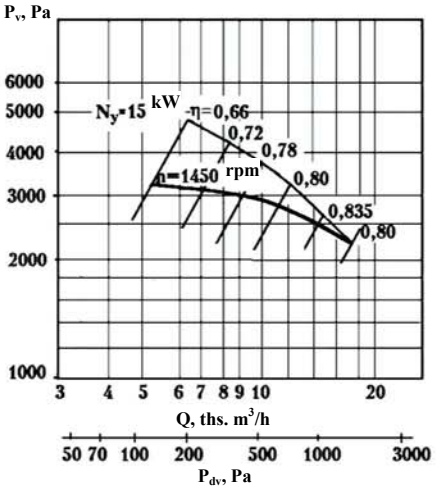
V.C5-45-4.25.01



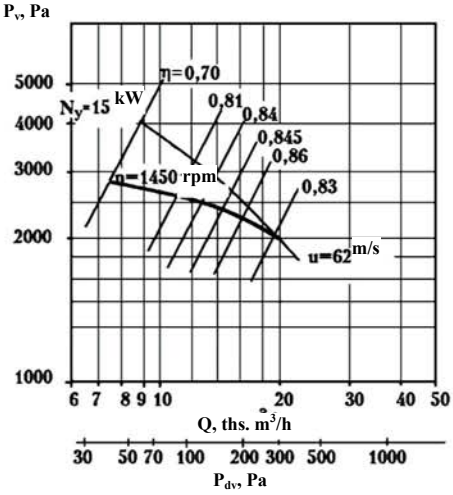
V.C5-45-8.01



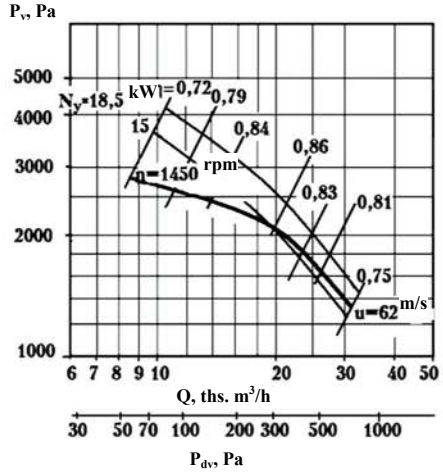
V.C5-45-8.5.01



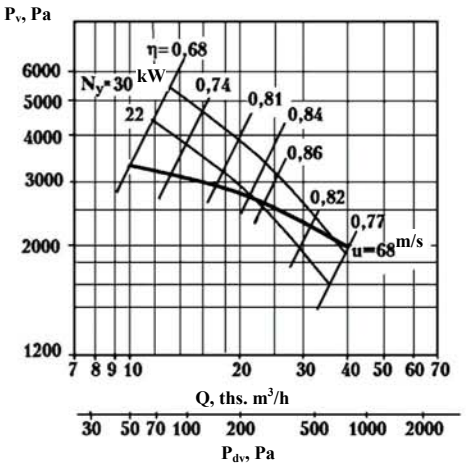
V.C5-50-8.01



V.C5-50-8.02

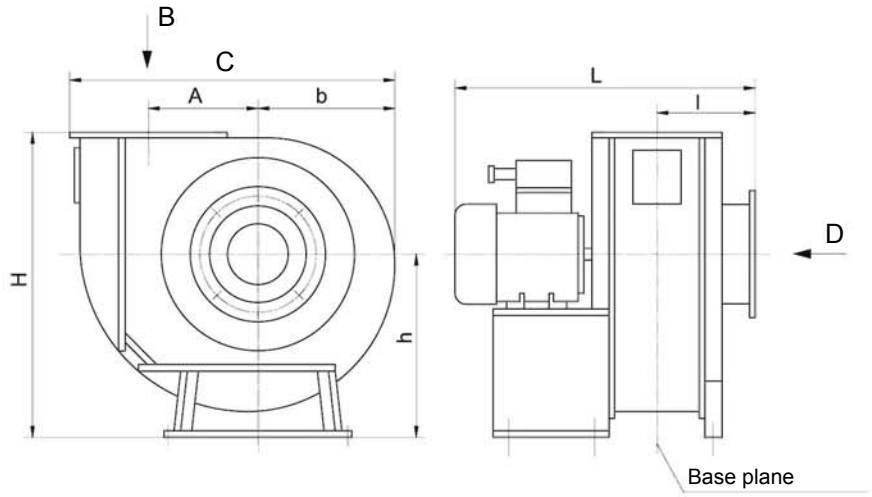


V.C5-50-9.01

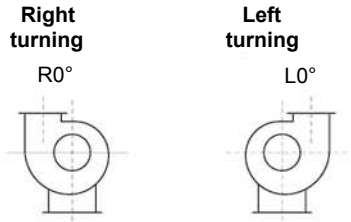


V.C5 **RADIAL FANS**

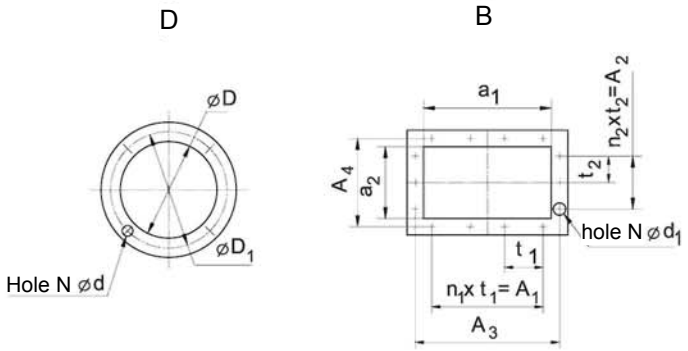
OVERALL AND FITTING DIMENSIONS



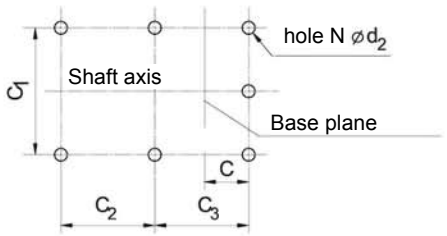
FAN CASE POSITIONS



Fans with other case positions are available subject to special order



Fixing holes for fan



Fan	Dimensions, mm																												
	h	H	l	L	A	B	b	D	D_1	d	d_1	d_2	a_1	a_2	A_1	A_2	A_3	A_4	t_1	t_2	C	C_1	C_2	C_3	N	n	n_1	n_2	n_3
V.C5-35-3.55	335	586	142	478	205	580	260	139	182	11,5	11,5	11	156	97	112	-	200	141	112	-	69	360	170	146	8	6	1	-	6
V.C5-35-4	400	682	165	554	228	638	284	174	219	11,5	11,5	11	175	138	112	112	219	182	112	112	92	450	200	189	8	8	1	1	6
V.C5-35-8-01	750	1365	217	852	575	1400	643	352	405	11,5	11,5	14	394	246	375	250	448	300	125	125	161	810	330	313	8	12	3	1	7
V.C5-35-8-02	750	1365	217	852	575	1400	643	352	405	11,5	11,5	14	394	246	375	250	448	300	125	125	161	810	330	313	8	12	3	1	7
V.C5-35-8.5	750	1365	217	852	575	1400	643	352	405	11,5	11,5	14	394	246	375	250	448	300	125	125	161	810	330	313	8	12	3	1	7
V.C5-45-4.25	450	765	181	656	268	752	334	220	265	11,5	11,5	11	221	175	112	112	265	219	112	112	110	450	230	228	8	8	1	1	7
V.C5-45-8	800	1418	270	948	536	1460	658	444	497	11,5	11,5	14	443	351	375	250	497	405	125	125	208	870	320	418	12	14	3	2	7
V.C5-45-8.5	800	1418	270	1078	536	1460	658	444	497	11,5	11,5	14	443	351	375	250	497	405	152	152	208	870	360	418	12	14	3	2	7
V.C5-50-8-01	800	1300	316	1160	520	1470	614	557	629	14	14	14	559	443	480	320	629	513	160	160	254	870	360	510	16	14	3	2	7
V.C5-50-8-02	800	1300	316	1200	520	1470	614	557	629	14	14	14	559	443	480	320	629	513	160	160	254	870	400	510	16	14	3	2	7
V.C5-50-9	900	1549	343	1265	584	1640	688	626	698	14	14	18	628	497	480	320	698	567	160	160	286	930	400	583	16	14	3	2	7

V-C12-49-8 **RADIAL FANS**

GENERAL INFORMATION

- Medium and high pressure
- Single-inlet
- Direction of rotation – right and left
- Spiral unturning integral case
- Forward curved blades
- Number of blades – 20

AVAILABLE VARIANTS

TU 22-3665-76

- General purpose made of carbon steel
- Corrosion-resistant made of stainless steel (K) *(manufactured under special order)*

PURPOSE

- General purpose made of carbon steel (for the purpose see Table 3 line 1).
- Corrosion-resistant made of stainless steel (K) (for the purpose see Table 3 line 3).

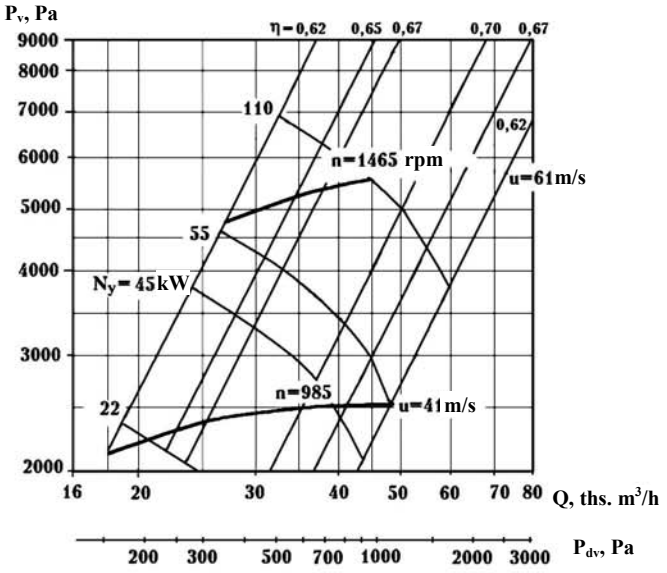
* *For operation conditions of the fans see page 5.*

TECHNICAL PARAMETERS

- General purpose made of carbon steel
- Corrosion-resistant made of stainless steel (K)

Fan size	*Structural variant*	*Engine*		*Frequency of working wheel rotatiop, min^{-1}*	*Parameters in the working zone*		*Weight of fan of no more than, kg*
		Size	*Power kW*		*Capacity, ths. m^3/h*	*Full pressure, Pa*	
V-C12-49-8-01 V-C12-49-8K-01	3	AIR250S6	45	985	19,0-40,0	2200-2550	1290
		AIR250M6	55	985	19,0-48,0	2200-2520	1335
		AIR280S4	110	1465	28,0-45,0	4900-5500	1585

AERODYNAMIC CHARACTERISTICS



V-C12-49-8 **RADIAL FANS**

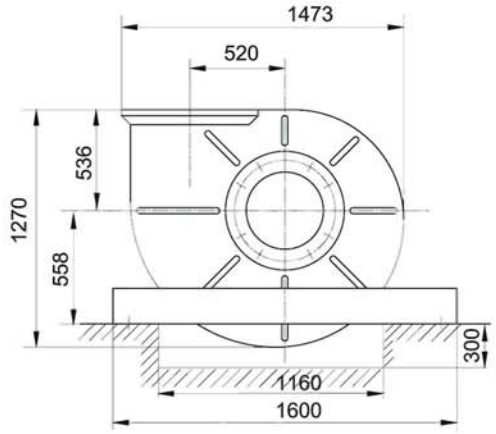
ACOUSTIC CHARACTERISTICS

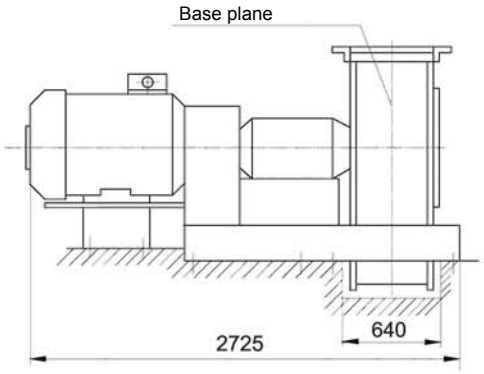
Fan	p, min^{-1}	Lpi, dB in octave bands f, Hz								LpA, dBA
		63	125	250	500	1000	2000	4000	8000	
V-C12-49-8	985	110	114	116	114	105	101	95	88	114
	1485	115	118	122	124	122	113	109	103	126

Acoustic characteristics measured from the side of discharge under nominal operation conditions of fan. Levels of sound powerat the side of intake are 3 dB below the levels indicated in the table.

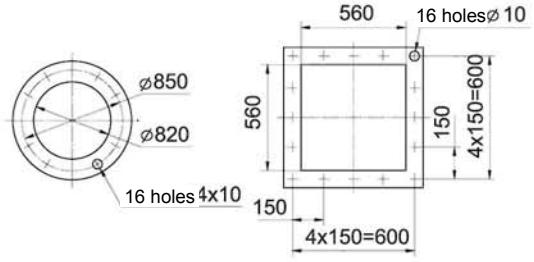
On the borders of the working area of aerodynamic characteristic levels of sound power are 3 dB higher than the level of sound power corresponding to the nominal operation conditions of the fan.

OVERALL AND FITTING DIMENSIONS

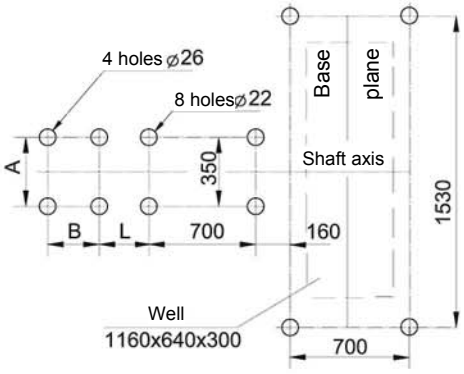




Input flange **Output flange**

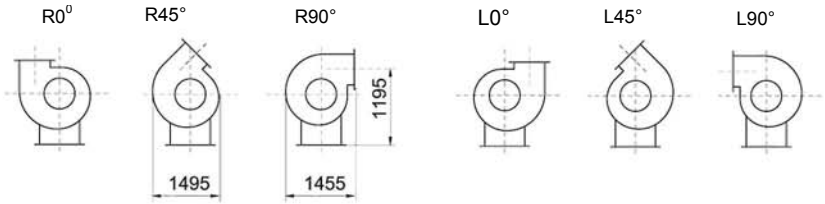


Holes for foundation screws



FAN CASE POSITIONS

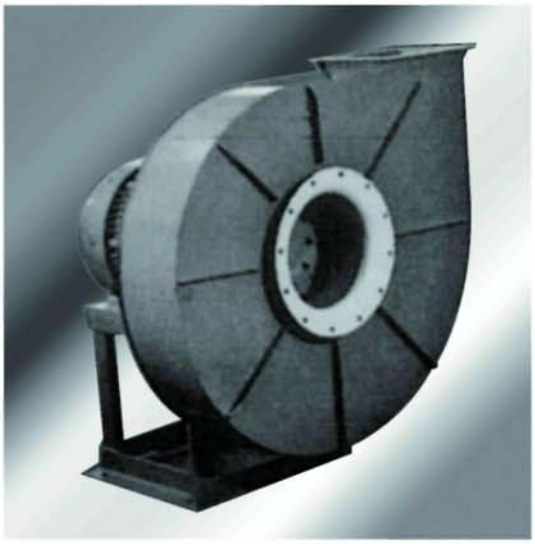
Right turning **Left turning**



Engine	Dimensions, mm		
	A	B	L
4A250S6	406	311	339
4A250M6	406	349	339
4A280M4	457	368	391

V-C6-20-8 **RADIAL FANS**

GENERAL INFORMATION



- High pressure
- Single-inlet
- Direction of rotation – right and left
- Spiral turning case
- Backward curved blades
- Number of blades – 16

AVAILABLE VARIANTS

TU 22-124-6-90

- General purpose made of carbon steel
- Corrosion-resistant made of stainless steel (K) (manufactured under special order)

PURPOSE

- General purpose made of carbon steel (for the purpose see Table 3 line 1).
- Corrosion-resistant made of stainless steel (K) (for the purpose see Table 3 line 3).

* *For operation conditions of the fans see page 5.*

TECHNICAL PARAMETERS

- General purpose made of carbon steel
- Corrosion-resistant made of stainless steel (K)

Fan size	*Structural variant*	*Engine*		*Frequency of working wheel rotation, min^{-1}*	*Parameters in the working zone*		*Maximum fan weight, kg*	*Vibration isolators*	
		Size	*Power, kW*		*Capacity, ths. m^3/h*	*Full pressure, Pa*		*Type*	*Number*
V.C6-20-8-01	1	AIR200L2	45,0	2945	4,0-9,5	12000-10500	550	D042	6
V.C6-20-8K-01		AIR200M2	37,0	2945	4,0-7,6	12000-11800	550	D042	6

ACOUSTIC CHARACTERISTICS

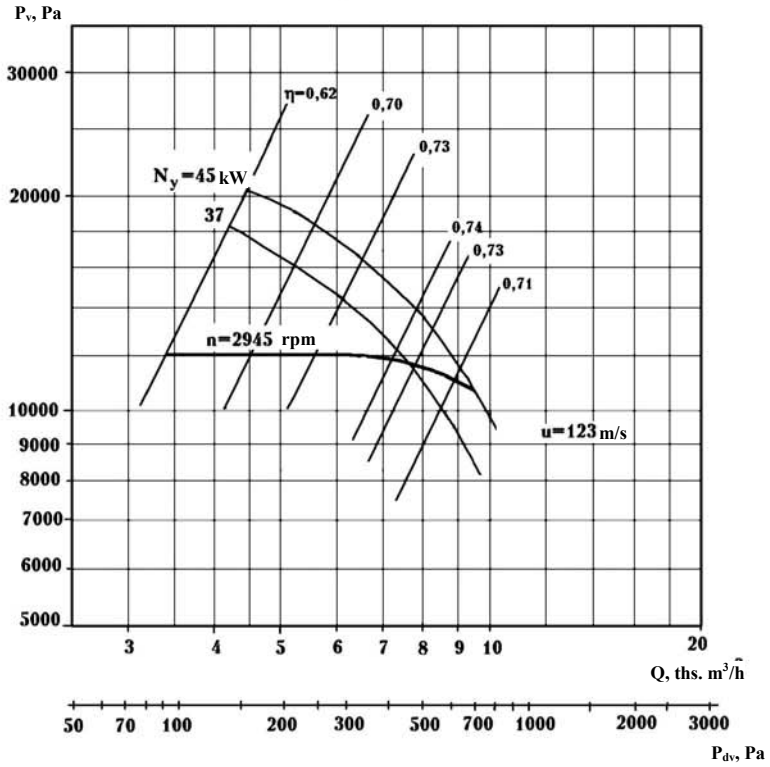
Fan	*p, min^{-1}*	*Lpi, dB in octave bands f, Hz*								*LpA, dBA*
		63	*125*	*250*	*500*	*1000*	*2000*	*4000*	*8000*	
V-C6-20-8	2945	102	103	108	110	112	109	105	102	116

Acoustic characteristics measured from the side of discharge under nominal operation conditions of fan. Levels of sound powerat the side of intake are 3 dB below the levels indicated in the table.

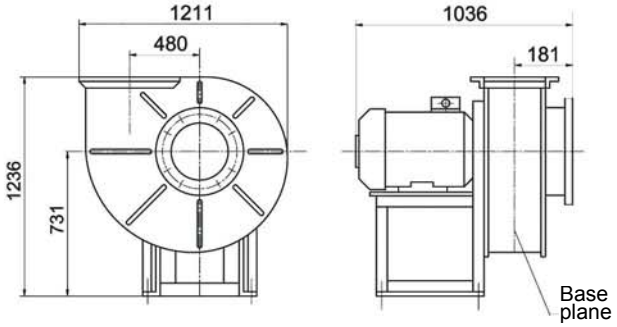
On the borders of the working area of aerodynamic characteristic levels of sound power are 3 dB higher than the level of sound power corresponding to the nominal operation conditions of the fan.

V-C6-20-8 **RADIAL FANS**

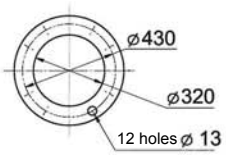
AERODYNAMIC CHARACTERISTICS



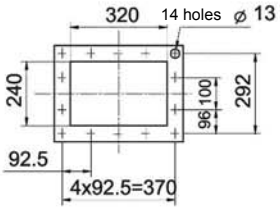
OVERALL AND FITTING DIMENSIONS



Input flange

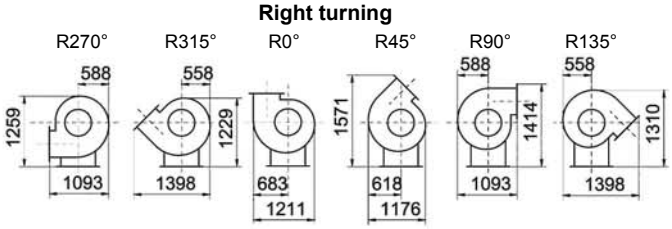


Output flange

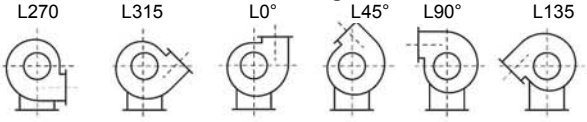


RIGHT TURNING FAN CASE POSITIONS

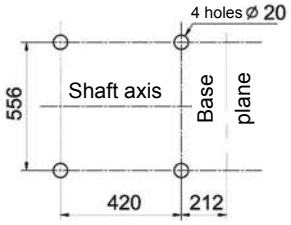
Right turning



Left turning



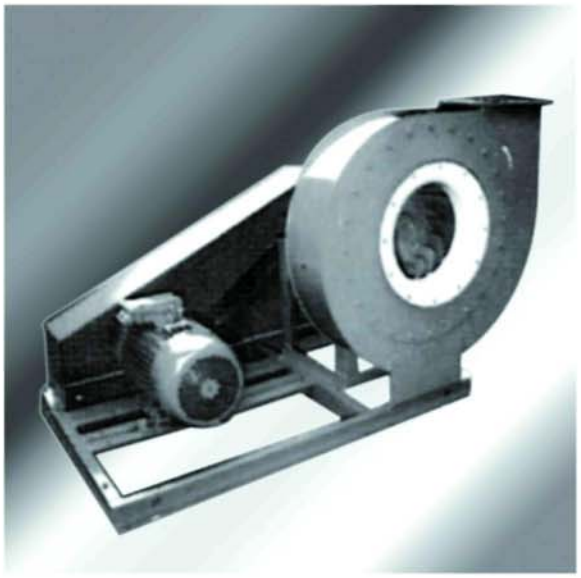
Fixing holes for fan



VR 132-30 **RADIAL FANS**

GENERAL INFORMATION

- High pressure
- Single-inlet
- Direction of rotation – right and left
- Spiral turning case
- Backward curved blades
- Number of blades – 16



AVAILABLE VARIANTS

TU 4861-054-00270366-99

- General purpose made of carbon steel
- Corrosion-resistant made of stainless steel (К) (manufactured under special order)

PURPOSE

- General purpose made of carbon steel (for the purpose see Table 3 line 1).
- Corrosion-resistant made of stainless steel (К) (for the purpose see Table 3 line 3).

* *For operation conditions of the fans see page 5.*

ACOUSTIC CHARACTERISTICS

Fan	*p, min^{-1}*	*Lpi, dB in octave bands f, Hz*								*LpA, dBA*
		63	*125*	*250*	*500*	*1000*	*2000*	*4000*	*8000*	
VR132-30-5-02	1395	78	81	82	85	80	76	72	64	86
	2850	86	88	97	98	101	96	92	88	104
VR132-30-6.3-02	2940	89	92	97	102	103	99	97	92	107
VR132-30-6.3-03	2040	90	93	96	98	97	96	87	78	101
	2300	92	95	98	100	99	98	89	80	103
	2620	95	98	101	103	102	102	92	83	106
	2940	94	97	100	103	105	104	103	95	109
VR132-30-8-01	1450	91	94	97	99	98	97	88	79	102
	1625	94	97	100	102	101	100	91	82	105
	1810	96	99	102	104	103	102	93	84	107
	2040	99	102	105	107	106	105	96	87	110
	2300	101	104	107	109	108	107	98	89	112
VR132-30-10-02	1470	95	98	103	104	100	98	93	81	106
VR132-30-10-01	1650	101	104	107	109	108	107	98	89	112
	1860	103	106	109	111	110	109	100	91	114

Acoustic characteristics measured from the side of discharge under nominal operation conditions of fan. Levels of sound powerat the side of intake are 3 dB below the levels indicated in the table.

On the borders of the working area of aerodynamic characteristic levels of sound power are 3 dB higher than the level of sound power corresponding to the nominal operation conditions of the fan.

VR 132-30 **RADIAL FANS**

TECHNICAL PARAMETERS

- General purpose made of carbon steel
- Corrosion-resistant made of stainless steel (K)

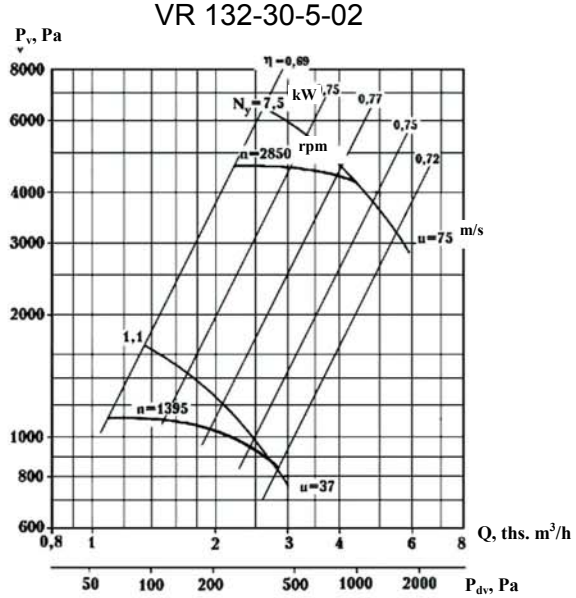
Fan size	*Structural variant*	*Engine*		*Frequency of working wheel rotation, min^{-1}*	*Parameters in the working zone*		*Maximum fan weight, kg*	*Vibration isolators*	
		Size	*Power, kW*		*Capacity, ths. m3/h*	*Full pressure. Pa*		*Type*	*Number*
VR132-30-5-02 VR132-30-5K*	1	AIR80A4	1,1	1395	1,1-2,7	1110-880	91	D039	5
		AIR112M2	7,5	2850	2,2-4,7	4640-4300	124		
VR132-30-6.3-02 VR132-30-6.3K*	1	AIR180S2	22	2940	4,6-7,2	7800-7600	327	D042	4
		AIR180M2	30	2940	4,6-12,0	7800-6000	347		
VR132-30-6.3-03 VR132-30-6.3K*	5	AIR132S4	7,5	2040	3,3-4,6	3980-3960	419	D042	6
		AIR132M4	11	2045	3,3-8,5	3980-3000	444		
		AIR132M4	11	2300	3,6-5,6	4940-4750	449		
		AIR160S4	15	2300	3,6-9,0	4940-4000	509		
		AIR160S4	15	2600	4,1-6,0	6200-6200	516		
		AIR160M4	18,5	2610	4,1-8,1	6200-5800	543		
		AIR180S2	22	2620	4,1-10,8	6200-4800	541		
VR132-30-8-01 VR132-30-8K*	5	AIR132M4	11	1450	4,6-10,3	3100-2600	658	D043	6
		AIR132M4	11	1625	5,2-6,9	3900-3800	662		
		AIR160S4	15	1625	5,2-10,8	3900-3450	705		
		AIR160S4	15	1810	5,8-7,5	4800-4800	701		
		AIR160M4	18,5	1810	5,8-10,2	4800-4500	730		
		AIR180S4	22	1810	5,8-13,2	4800-4100	745		
		AIR180S4	22	2040	6,6-9,0	6100-6050	767		
		AIR180M4	30	2040	6,6-13,8	6100-5400	819		
		AIR180M4	30	2300	7,4-9,3	7700-7700	787		
		AIR200M4	37	2300	7,4-12,5	7700-7350	894		
		AIR200L4	45	2300	7,4-16,8	7700-6500	1038		
VR132-30-10-02 VR132-30-10K*	1	AIR180M4	30	1470	9,2-16,4	4900-4700	550	D042	6
		AIR200M4	37	1470	9,2-22,0	4900-4000	620		
VR132-30-10-01 VR132-30-10K*	5	AIR200M4	37	1650	10,4-15,0	6200-6150	935	D043	6
		AIP200L4	45	1650	10,4-20,0	6200-5800	975		
		AIR225M4	55	1650	10,4-27,0	6200-4800	1040	D044	6
		AIR225M4	55	1860	11,7-17,7	7900-7850	1075		
		AIR250S4	75	1860	11,7-27,2	7900-6400	1235		

** Fan is produced under special order*

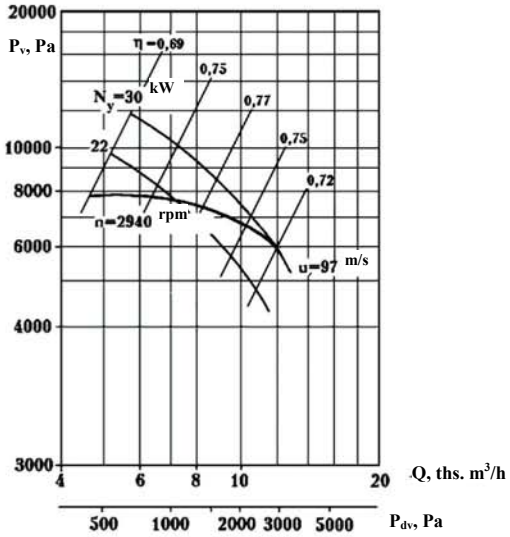
VR 132-30 **RADIAL FANS**

AERODYNAMIC CHARACTERISTICS

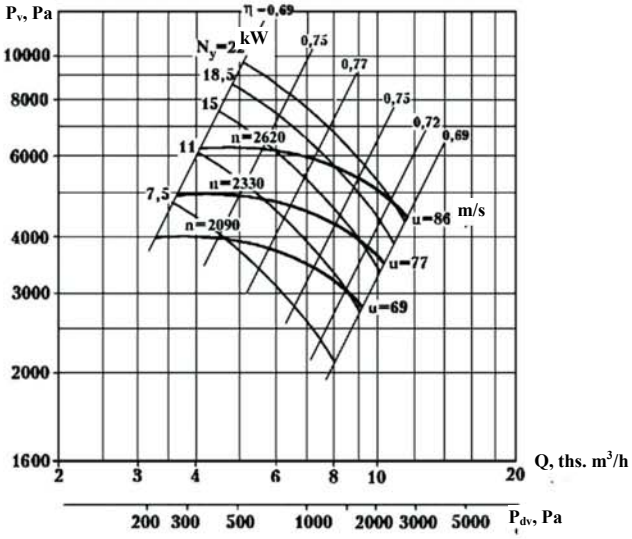
VR 132-30-5-02



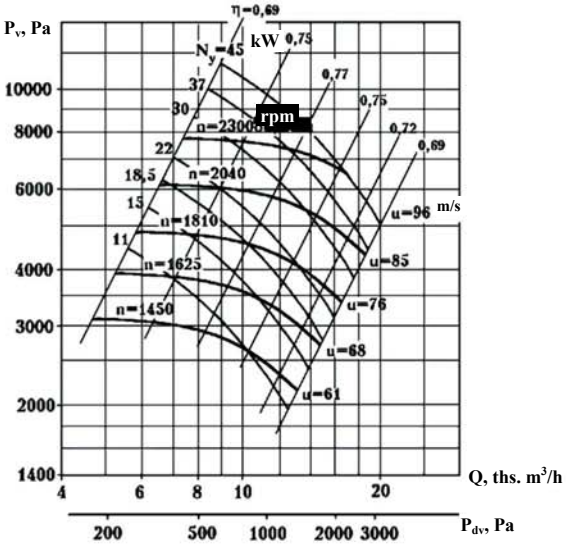
VR 132-30-6.3-02



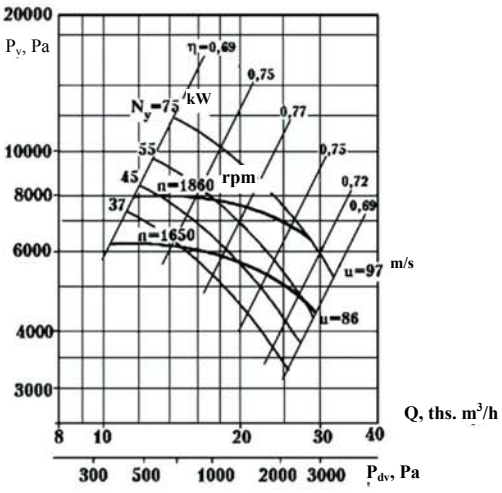
VR 132-30-6.3-03



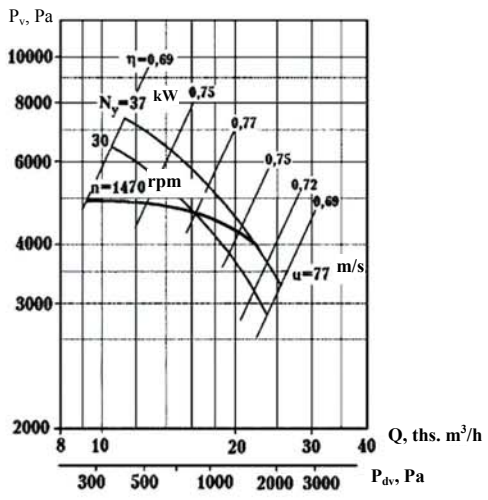
VR 132-30-8-01



VR 132-30-10-01



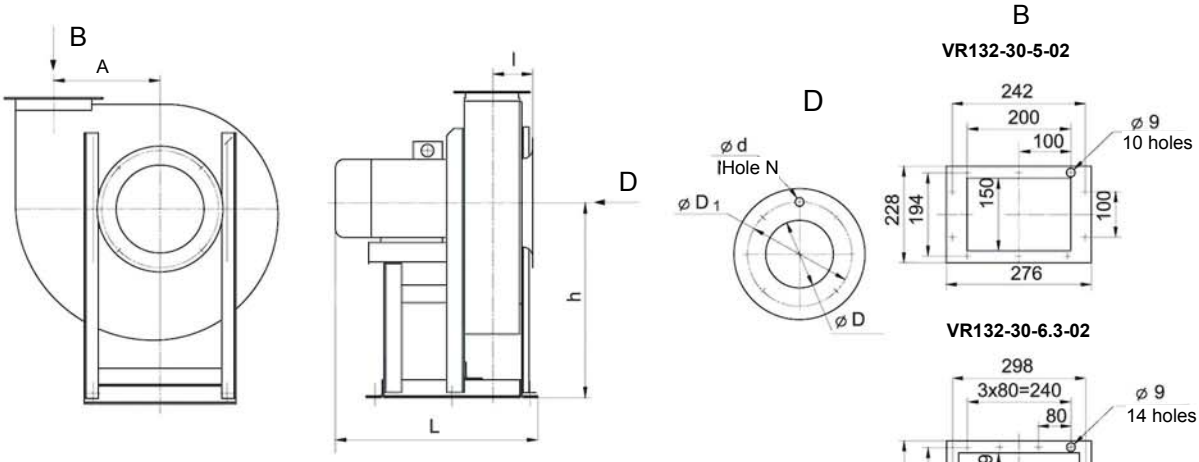
VR 132-30-10-02



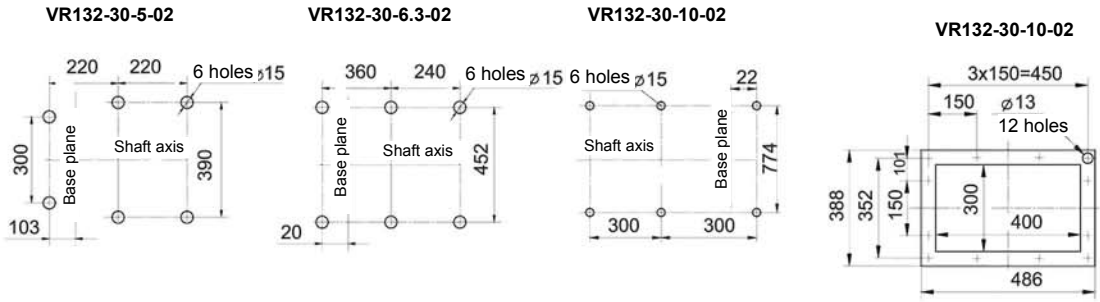
VR 132-30 **RADIAL FANS**

OVERALL AND FITTING DIMENSIONS

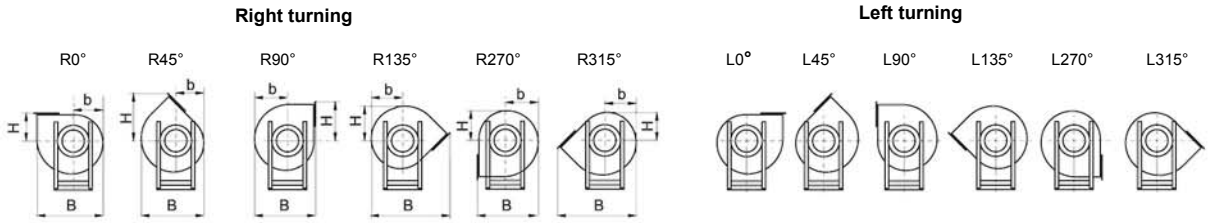
VR132-30-5-02; VR132-30-6.3-02; VR132-30-10-02



Fixing holes for fan



FAN CASE POSITIONS



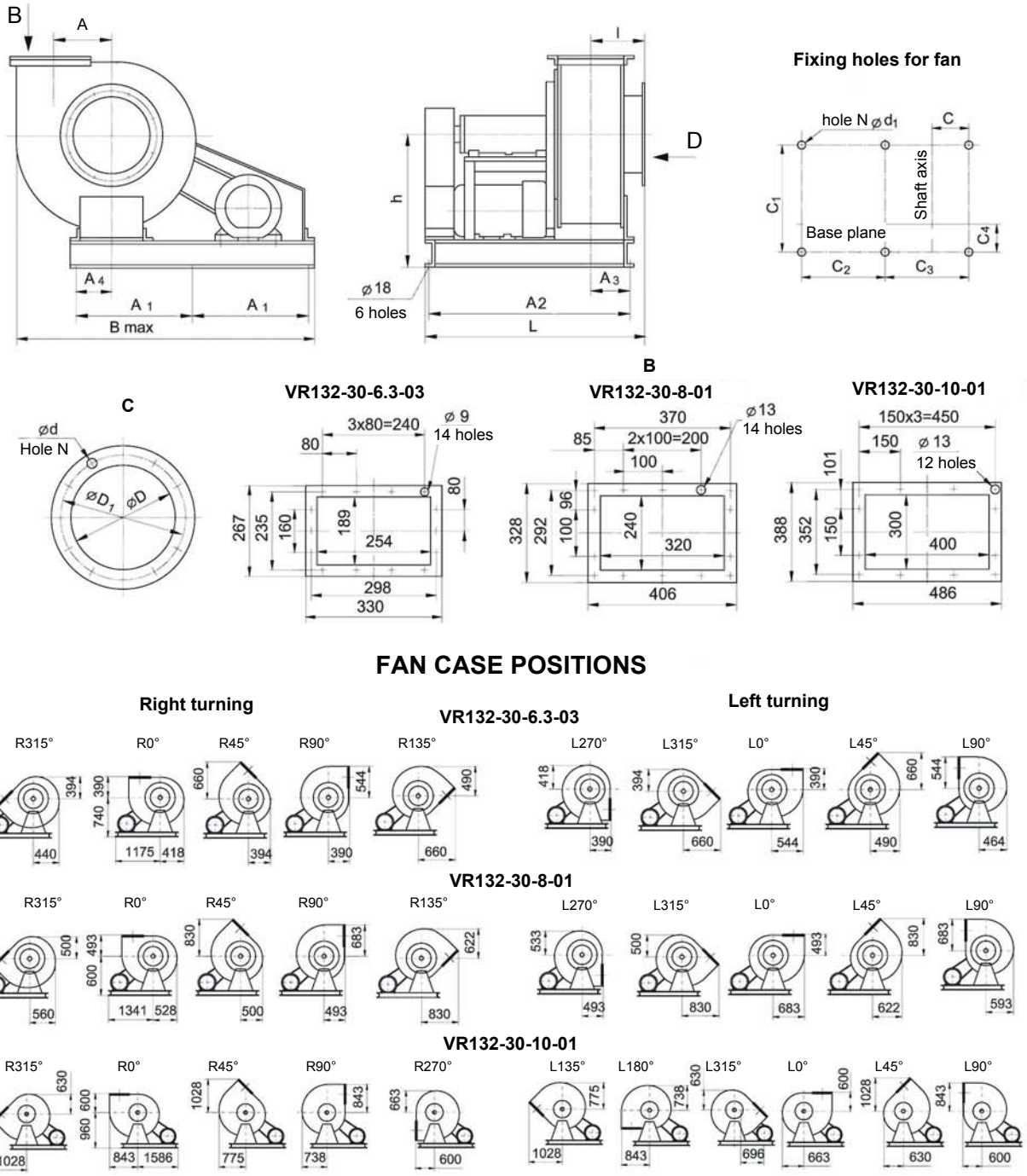
Fan	Dimensions, mm							
	h	*l*	*L*	*A*	*D*	D_1	*d*	*N*
VR132-30-5-02	550	115	571	300	250	336	9	8
VR132-30-6.3-02	600	146	880	377	315	430	9	12
VR132-30-10-02	900	228	1100	600	500	645	15	12

Fan	R0°, L0°			R45°, L45°			R90°, L90°			R135°, L135°			R270°, L270°			R315°, L315°		
	B	*b*	*H*	*B*	*b*	*H*	*B*	*b*	*H*	*B*	*b*	*H*	*B*	*b*	*H*	*B*	*b*	*H*
VR132-30-5-02	771	333	315	701	313	533	685	370	438	884	351	388	685	370	333	884	351	313
VR132-30-6.3-02	960	418	388	882	394	660	853	388	542	1100	440	488	853	465	418	1100	440	394
VR132-30-10-02	1507	663	600	1402	626	1030	1338	738	884	1730	1030	776	1338	738	663	1730	700	626

VR 132-30 **RADIAL FANS**

OVERALL AND FITTING DIMENSIONS

VR132-30-6.3-03; VR132-30-8-01; VR132-30-10-01



FAN CASE POSITIONS

Fan	Dimensions, mm																			
	h	*l*	L_{max}	B_{max}	*D*	D_1	*d*	d_1	*A*	A_1	A_2	A_3	A_4	*C*	C_1	C_2	C_3	C_4	*N*	*n*
VR132-30-6.3-03	740	145	1010	1719	315	430	9	18	377,5	700	920	77	275	275	920	700	700	77	12	6
VR132-30-8-01	800	182	1144	1874	400	530	15	18	480	780	1042	102	262	262	1042	780	780	102	12	6
VR132-30-10-01	960	228	1210	2430	500	645	15	18	600	845	1090	181	202	202	1090	845	845	181	12	6

AVDm-3.5 **RADIAL FANS**

GENERAL INFORMATION

- High pressure
- Single-inlet
- Spiral turning case
- Forward curved blades
- Number of blades – 12
- Direction of rotation – right

AVAILABLE VARIANTS

TU 4861-055-00270366-99

- General purpose made of carbon steel

PURPOSE

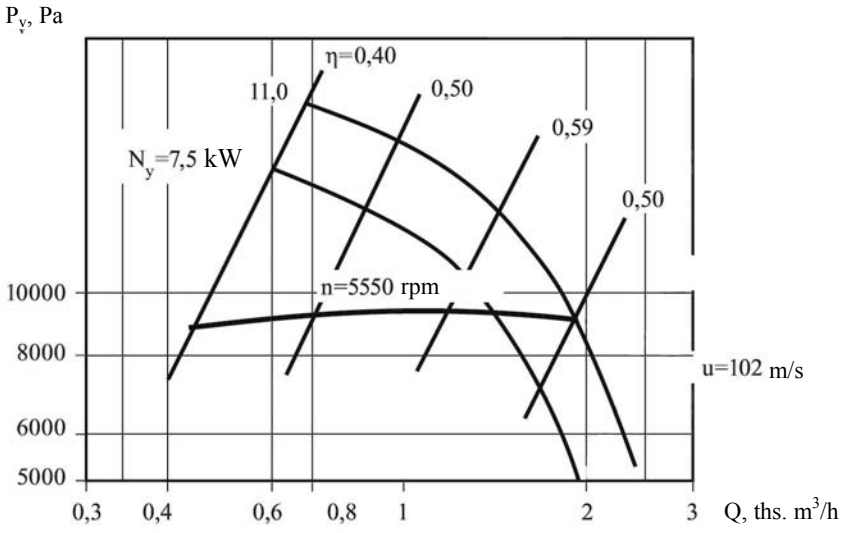
- General purpose made of carbon steel (for the purpose see Table 3 line 1).

* *For operation conditions of the fans see page 5.*

TECHNICAL PARAMETERS

Fan size	*Structural variant*	*Engine*		*Frequency of working wheel rotation, min^{-1}*	*Parameters in the working zone*		*Maximum fan weight, kg*	*Vibration isolators*	
		Size	*Power, kW*		*Capacity, ths. m^3/h*	*Full pressure, Pa*		*Type*	*Number*
AVDm-3.5.2-02	5	AIR112M2	7,5	5550	0,8-1,7	9700	172	D040	5
		AIR132M2	11,0	5550	1,4-2,0	9400-9300	200		

AERODYNAMIC CHARACTERISTICS



AVDm-3.5 **RADIAL FANS**

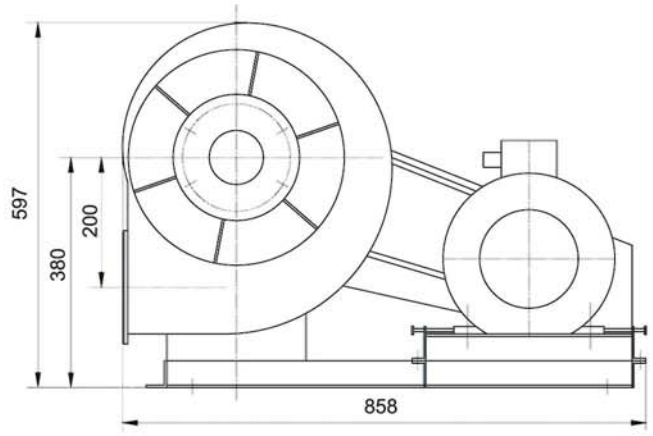
ACOUSTIC CHARACTERISTICS

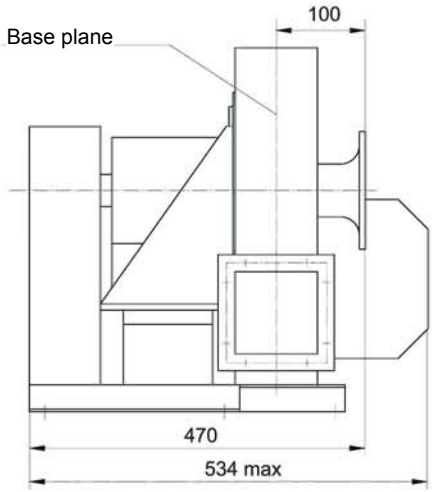
Fan	p, min^{-1}	Lpi, dB in octave bands f, Hz								LpA, dBA
		63	125	250	500	1000	2000	4000	8000	
AVDm-3.5	5500	84	87	91	99	117	1 04	95	92	118

Acoustic characteristics measured from the side of discharge under nominal operation conditions of fan. Levels of sound powerat the side of intake are 3 dB below the levels indicated in the table.

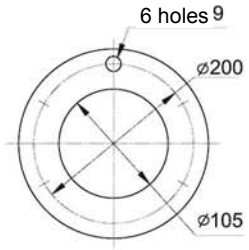
On the borders of the working area of aerodynamic characteristic levels of sound power are 3 dB higher than the level of sound power corresponding to the nominal operation conditions of the fan

OVERALL AND FITTING DIMENSIONS

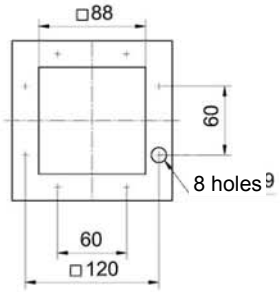




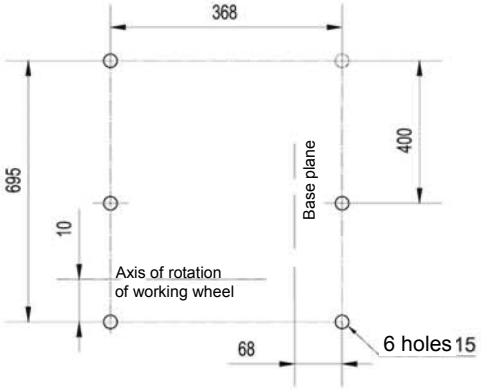
Input flange



Output flange



Fixing holes for fan



Following case positions are
available subject to special order:
R0°, R45°, R90°, R270° and R315°.

VO-14-320 **AXIAL FANS**



GENERAL INFORMATION

- Low pressure
- Number of blades:

3 (VO-14-320-4)
4 (VO-14-320-5)
5 (VO-14-320-6.3)
3 (VO-14-320-8)
4 (VO-14-320-10)
5 (VO-14-320-12.5)

Structural variant 1 and 2
(along the flow direction)
No. 4; 5 and 6.3 are available both with
and without collector
No. 8 ... 12.5 are available with
resiliently supported base

PURPOSE

- General purpose made of carbon steel (for the purpose see Table 3 line 1).
- Explosion-proof made of dissimilar metals (for the purpose see Table 3 line 5).

AVAILABLE VARITANT

TU 4861-035-00270366-96

- General purpose made of carbon steel

TU 4861-051-00270366-98

- Explosion-proof made of dissimilar metals

* *For operation conditions of the fans see page 5.*

VO-14-320 **AXIAL FANS**

TECHNICAL PARAMETERS

- General purpose made of carbon steel

Fan size	Structural variant	Engine		Frequency of working wheel rotatiop, min^{-1}	Parameters in the working zone		Maximum fan weight, kg
		Size	Power, kW		Capacity, ths. m^3/h	Full pressure, Pa	
VO-14-320-4	1, 2	AIR56V4	0,18	1320	2,3-3,7	90-53	19,8
	1, 2	AIR63A4	0,25	1320	2,3-3,7	90-53	20,6
VO-14-320-5	1, 2	AIR63V4	0,37	1320	4,6-6,5	145-75	26,5
VO-14-320-6.3	1, 2	AIR71A6	0,37	915	7,0-9,9	95-65	45
		AIR80A4	1,1	1395	10,4-15,5	230-150	48
VO-14-320-8	1, 2	AHP100S4	3	1410	21,0-27,7	320-200	88
VO-14-320-10	1, 2	AIR112MA6	3	950	25,3-37,0	220-140	130
VO-14-320-10D	2	AIRM132S4	7,5	1440	30,0-48,0	480-250	172
VO-14-320-12.5	1, 2	AIR112MV8	3	720	35,0-53,5	193-125	175
		AIR132M6	7,5	960	47,5-72,0	340-220	210

- Explosion-proof made of dissimilar metals (V)

Fan size	Structural variant	Engine		Frequency of working wheel rotatiop, min^{-1}	Parameters in the working zone		Weight of fan of no more than, kg
		Size	Power, kW		Capacity, ths. m^3/h	Full pressure, Pa	
VO-14-320-4V1	1, 2	AIM63A4	0,25	1320	2,3-3,7	90-53	30
VO-14-320-5V1	1, 2	AIM63V4	0,37	1320	4,6-6,5	145-75	34,5
VO-14-320-6.3V1	1, 2	AIM71A6	0,37	915	7,0-9,9	95-65	47,3
		AIM80A4	1,1	1395	10,4-15,5	230-150	55,1
VO-14-320-8V1	1, 2	AIM100S4	3	1410	21,0-27,7	320-200	122
VO-14-320-10V1	1, 2	AIM112MA6	3	950	25,3-37,0	220-140	167
VO-14-320-12.5V1	1, 2	AIM112MV8	3	720	35,0-53,5	193-125	207
		AIM132M6	7,5	960	47,5-72,0	340-220	240

ACOUSTIC CHARACTERISTICS

Fan	p, min^{-1}	Lpi, dB in octave bands f, Hz								LpA, dBA
		63	125	250	500	1000	2000	4000	8000	
VO-14-320-4	1320	64	70	69	71	69	65	59	51	73
VO-14-320-5	1320	75	79	76	78	77	74	67	59	81
VO-14-320-6.3	915	63	68	73	74	78	73	67	61	80
	1395	78	83	84	83	83	81	77	71	88
VO-14-320-8	1410	84	88	91	92	89	85	79	71	93
VO-14-320-10	950	97	100	98	99	96	89	82	74	100
VO-14-320-10D	1440	88	98	106	109	108	104	99	90	112
VO-14-320-12.5	720	90	94	99	100	96	90	83	73	100
	960	95	100	105	106	102	96	89	79	106

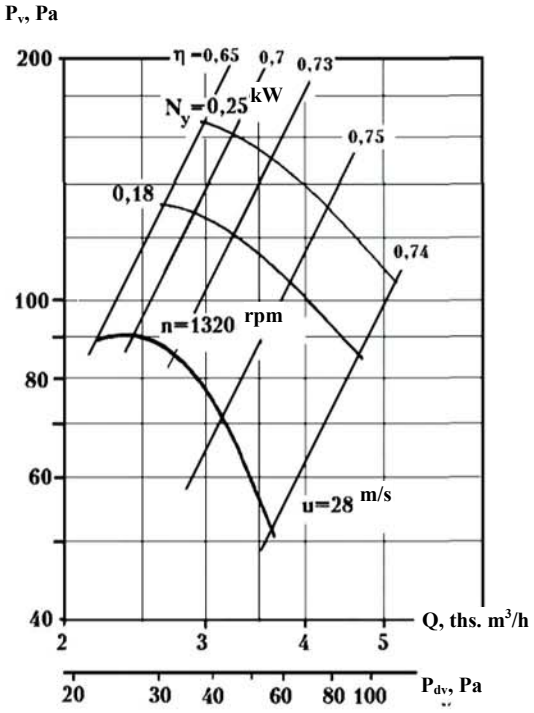
Acoustic characteristics measured from the side of discharge under nominal operation conditions of fan. Levels of sound powerat the side of intake are 3 dB below the levels indicated in the table.

On the borders of the working area of aerodynamic characteristic levels of sound power are 3 dB higher than the level of sound power corresponding to the nominal operation conditions of the fan.

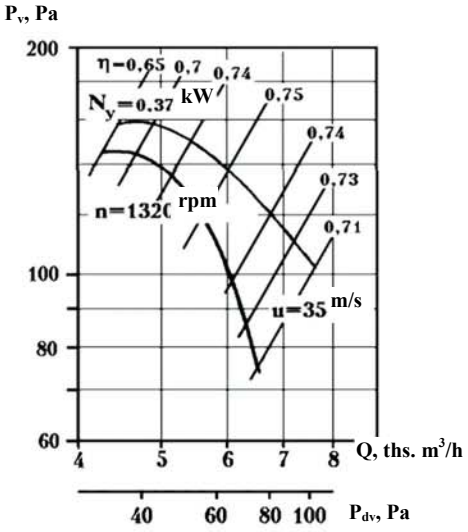
VO-14-320 **AXIAL FANS**

AERODYNAMIC CHARACTERISTICS

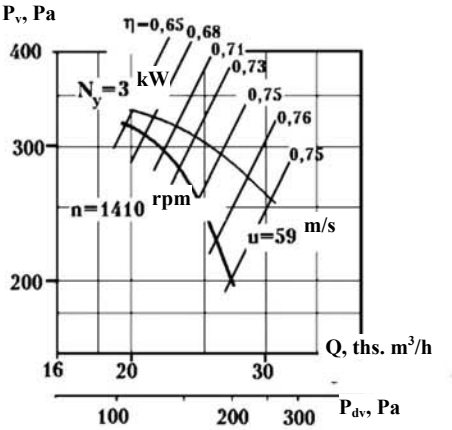
VO-14-320-4



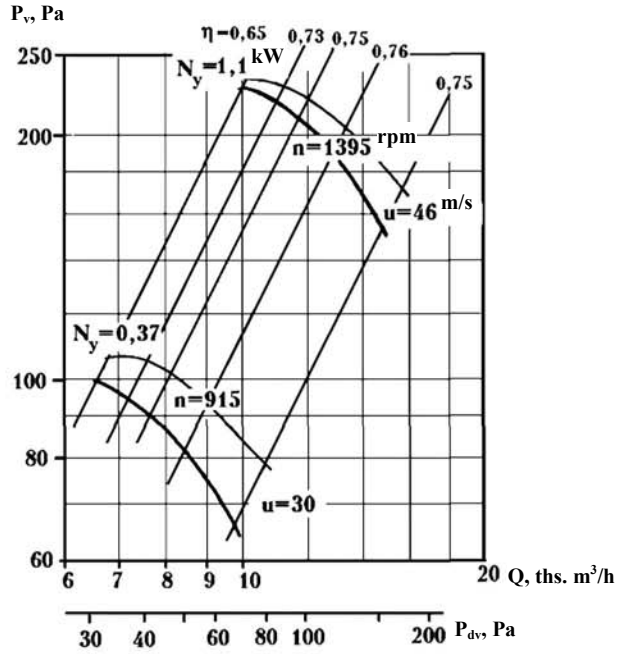
VO-14-320-5



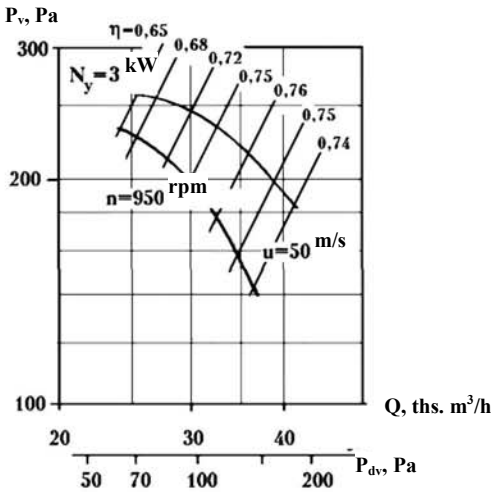
VO-14-320-8



VO-14-320-6.3



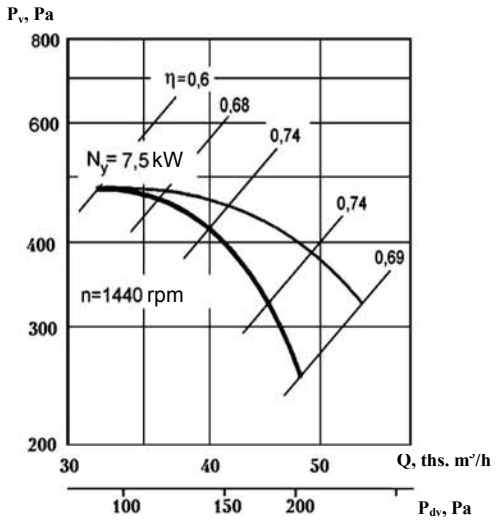
VO-14-320-10



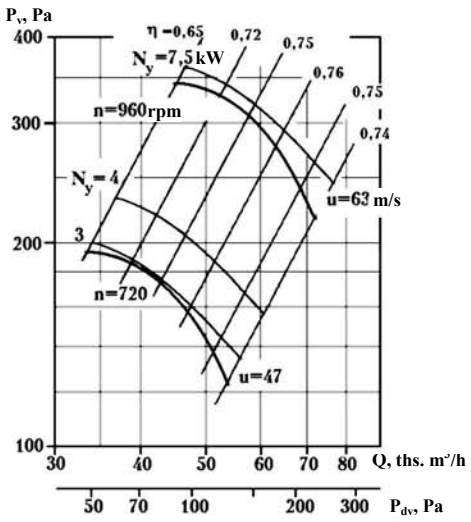
RO-14-320 **AXIAL FANS**

AERODYNAMIC CHARACTERISTICS

VO-14-320-10D

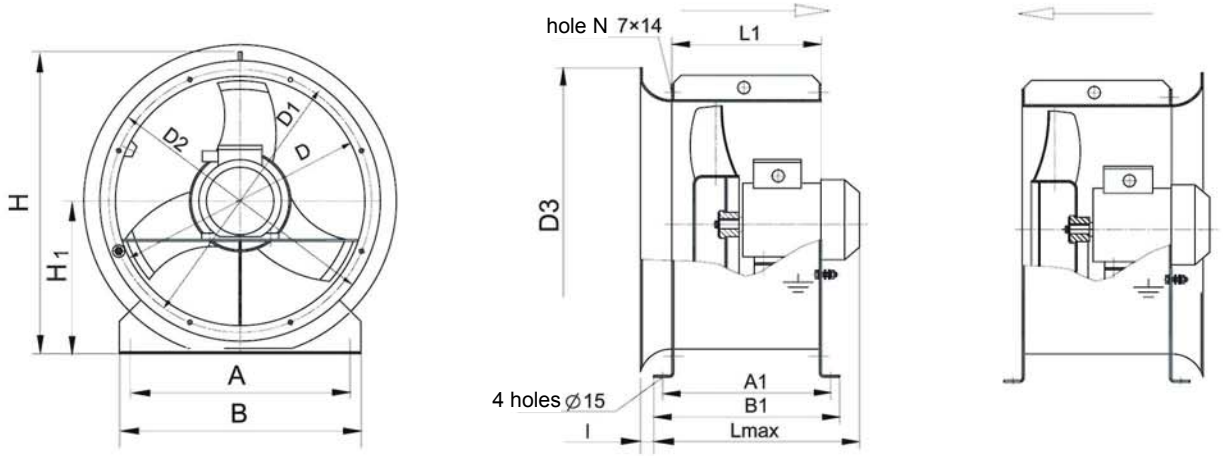


VO-14-320-12.5



OVERALL AND FITTING DIMENSIONS

Air flow direction

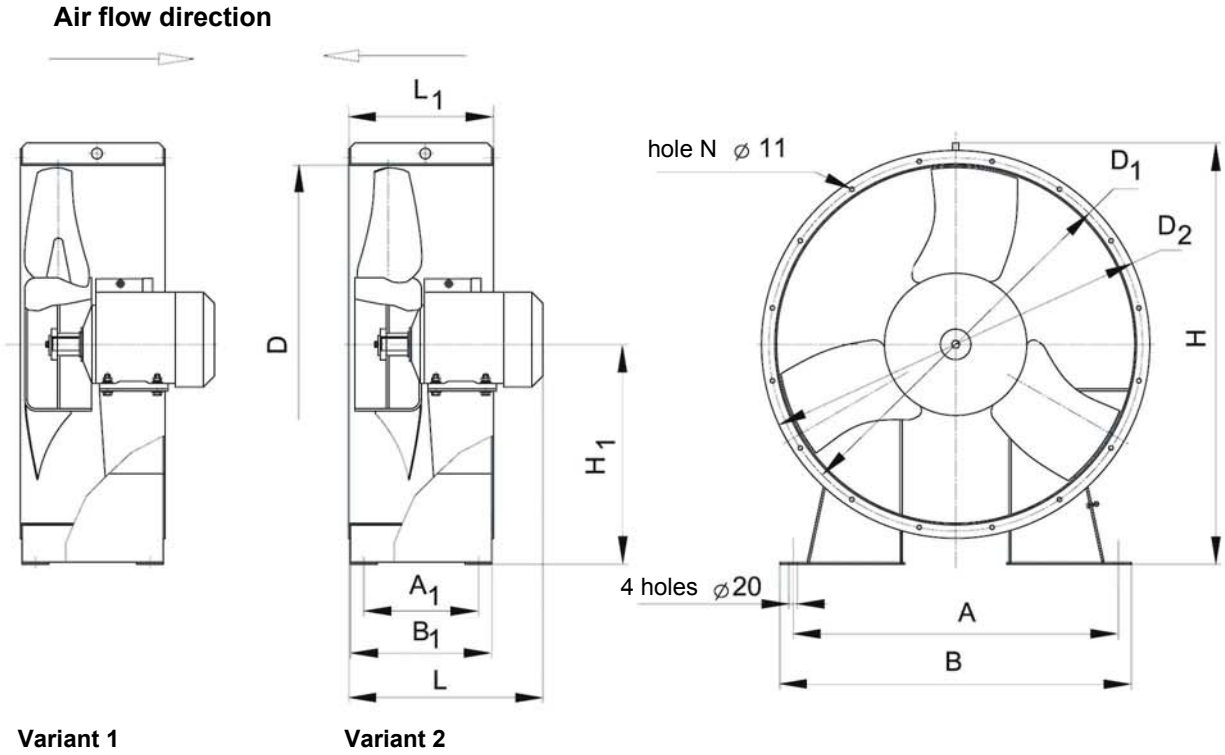


Variant 1 **Variant 2**

Fan	Dimensions, mm														Number of blades
	A	A_1	*B*	B_1	*D*	D_1	D_2	D_3	*H*	H_1	L_{max}	L_1	*l*	*n*	
VO-14-320-4	360	280	400	310	403	430	460	530	486	250	390	250	28	8	3
VO-14-320-5	450	290	490	320	502	530	560	650	596	310	352	260	40	16	4
VO-14-320-6.3	550	330	590	360	633	660	696	790	726	375	415	300	56	16	5

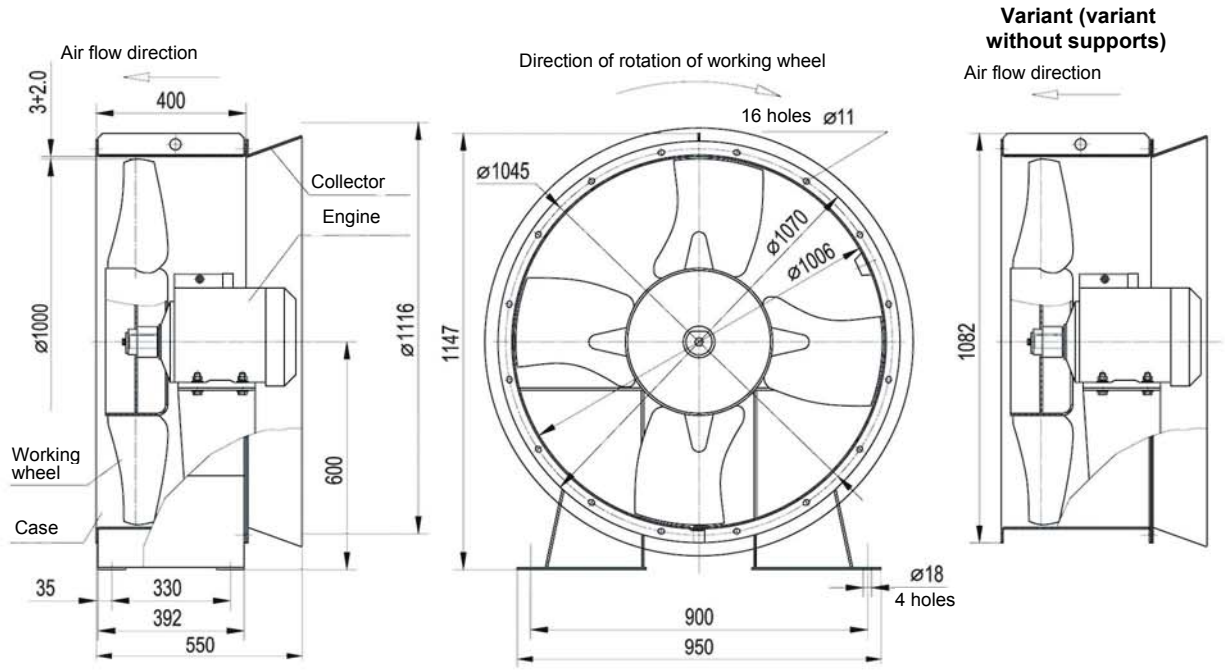
VO-14-320 **AXIAL FANS**

OVERALL AND FITTING DIMENSIONS



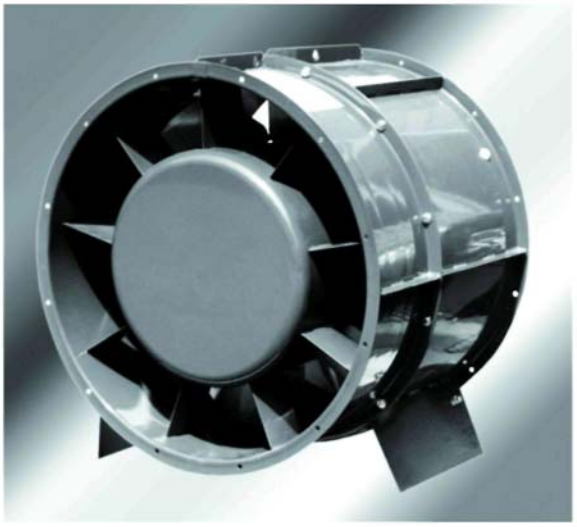
Fan	Dimensions, mm												Number of blades
	A	A_1	*B*	B_1	*D*	D_1	D_2	*H*	H_1	L_{max}	L_1	*n*	
VO-14-320-8	700	250	740	342	800	830	875	947	495	520	350	12	3
VO-14-320-10	900	330	950	392	1006	1040	1070	1145	595	593	400	16	4
VO-14-320-12.5	1100	400	1146	460	1258	1290	1316	1408	725	620	460	18	5

OVERALL AND FITTING DIMENSIONS VO-14-320-10D



VO-25-188 No. 8; 10 **AXIAL FANS**

GENERAL INFORMATION



- Medium pressure
- Number of blades – 6
- Fans are provided with inlet guide vanes (VNA) to ensure optimum direction of the air flow on blades of working wheel. Variants of fans differ by angles of installation of blades within inlet guide vanes and working wheel.

  Variants without inlet guide vanes are available: -02; -05.

PURPOSE

- General purpose made of carbon steel (for the purpose see Table 3 line 1).

AVAILABLE VARIANTS

TU 4861-074-00270366-2002

- General purpose made of carbon steel

* *For operation conditions of the fans see page 5.*

VO-25-188 No. 8; 10 **AXIAL FANS**

TECHNICAL PARAMETERS

Fan size	Engine		Frequency of rotation, min^{-1}	Parameters in the working zone*		Weight of fan of no more than, kg
	Size	Power, kW		Capacity, ths. m^3/h	Full pressure. Pa	
VO-25-188-8-01 -00	AIR132S4	7,5	1420	20,0-26,0	670-400	179
-01	AIR132M4	11		23,0-31,0	790-520	187,5
-02	AIR100L4	4		17,0-22,0	500-300	106,4
-03	AIP132S4	7,5		22,0-29,0	700-520	179
-04	AIR132M4	11		25,0-32,0	820-640	187,5
-05	AIR132B4	7,5		18,0-26,0	560-440	107,4
VO-25-188-8-01 -00	AIR160S4	15,0	1455	33,0-51,0	770-400	290
-01				35,0-55,0	850-460	
-02				31,0-46,0	710-350	258
-03	AIR160M4	18,5	1455	40,0-57,0	820-500	305
-04				43,0-61,0	890-550	
-05				38,0-53,0	750-450	273

Variants:
00, 01, 03, 04 – with inlet guide vanes;
02, 05 – without inlet guide vanes.

ACOUSTIC CHARACTERISTICS

Fan	p, min^{-1}	Lpi, dB in octave bands f, Hz								LpA, dBA
		63	125	250	500	1000	2000	4000	8000	
VO-25-188-8-01-00	1420	82	92	102	101	99	94	86	78	103
VO-25-188-8-01-01	1420	86	94	104	104	101	95	88	83	105
VO-25-188-8-01-02	1420	84	92	103	102	98	92	84	76	103
VO-25-188-8-01-03	1420	92	97	105	104	101	95	91	82	105
VO-25-188-8-01-04	1420	92	97	105	105	103	96	90	83	107
VO-25-188-8-01-05	1420	86	93	104	103	102	95	88	83	105
VO-25-188-10-01-00	1455	91	100	110	109	106	100	93	85	111
VO-25-188-10-01-01	1455	94	101	112	112	109	103	96	89	113
VO-25-188-10-01-02	1455	92	100	111	110	105	99	92	84	110
VO-25-188-10-01-03	1455	100	105	113	112	109	103	97	89	113
VO-25-188-10-01-04	1455	100	105	113	113	111	104	98	91	114
VO-25-188-10-01-05	1455	94	101	112	111	110	103	96	90	113

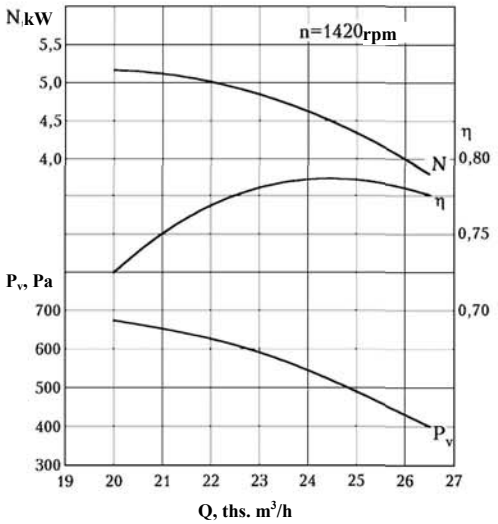
Acoustic characteristics measured from the side of discharge under nominal operation conditions of fan. Levels of sound powerat the side of intake are 3 dB below the levels indicated in the table.

On the borders of the working area of aerodynamic characteristic levels of sound power are 3 dB higher than the level of sound power corresponding to the nominal operation conditions of the fan.

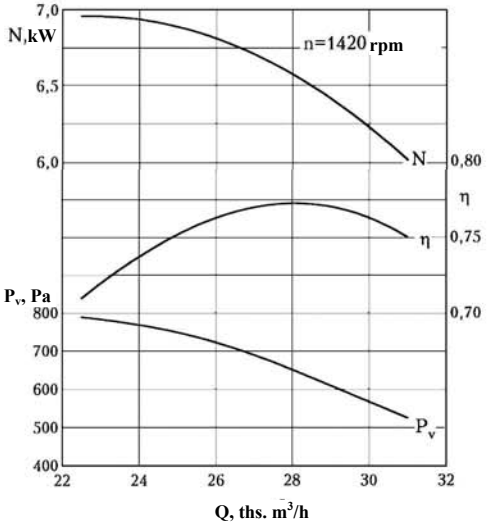
VO-25-188 No. 8; 10 **AXIAL FANS**

AERODYNAMIC CHARACTERISTICS

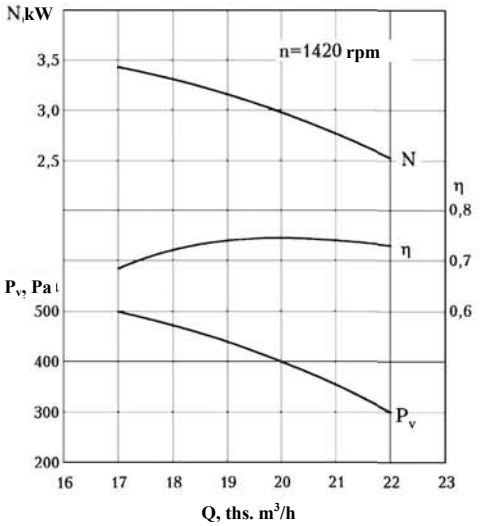
VO-25-188-8-01-00



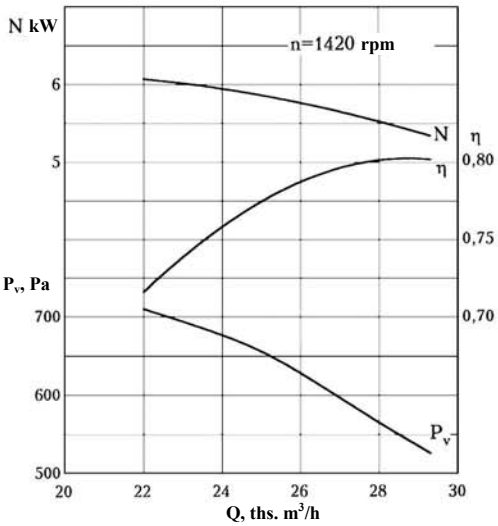
VO-25-188-8-01-01



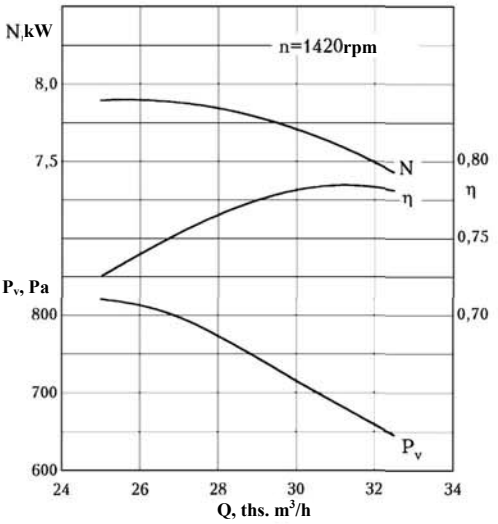
VO-25-188-8-01-02



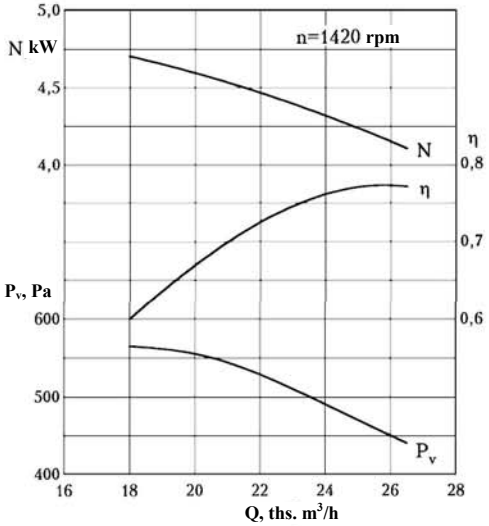
VO-25-188-8-01-03



VO-25-188-8-01-04



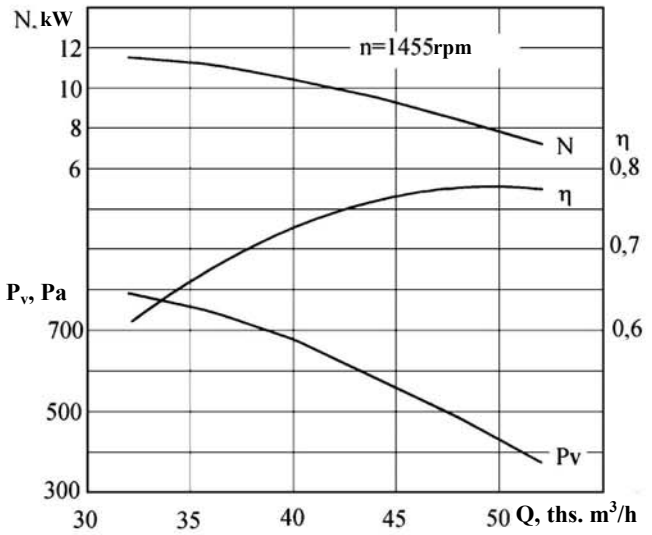
VO-25-188-8-01-05



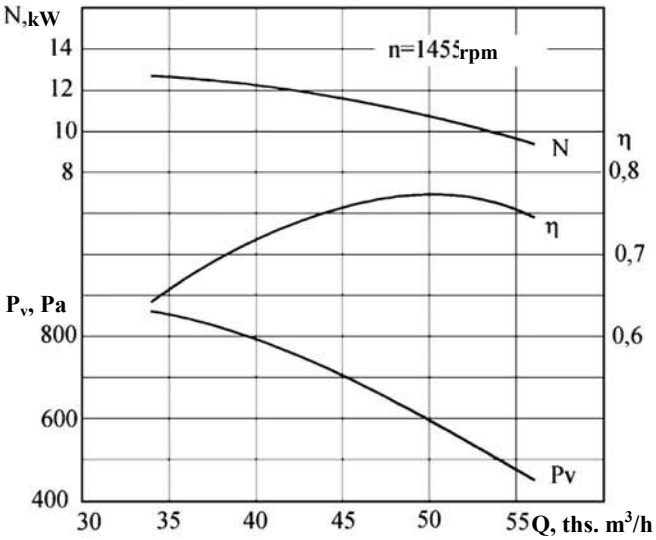
VO-25-188 No. 8;10 **AXIAL FANS**

AERODYNAMIC CHARACTERISTICS

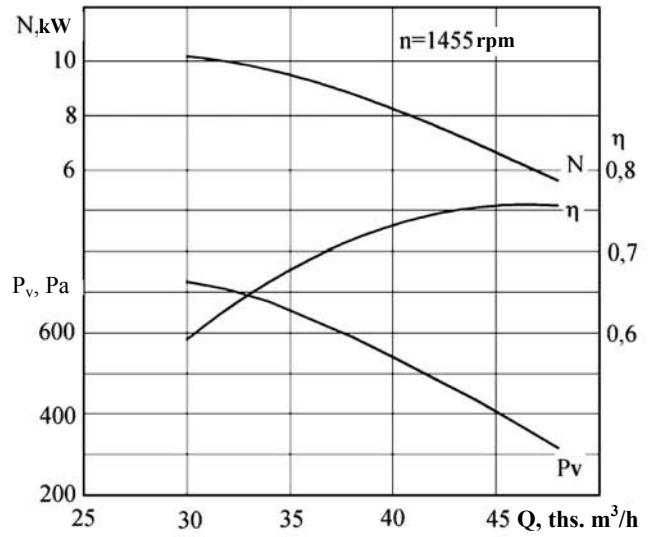
VO-25-188-10-01-00



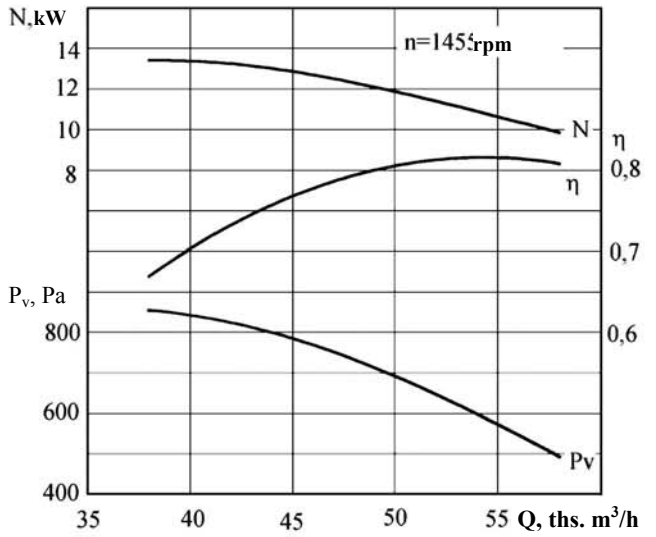
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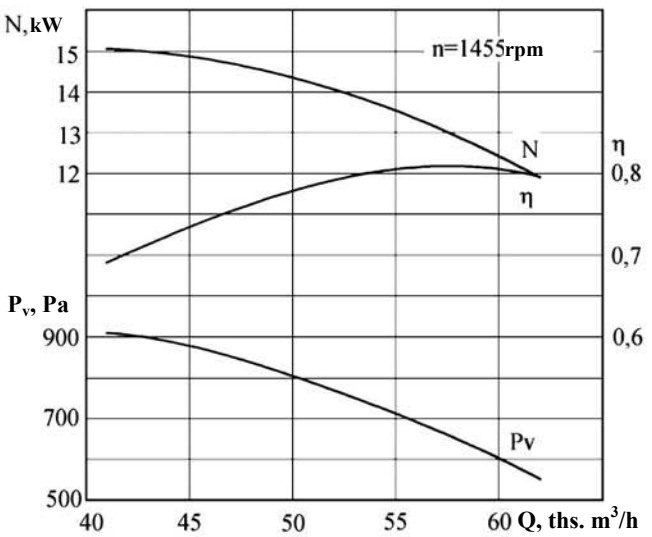
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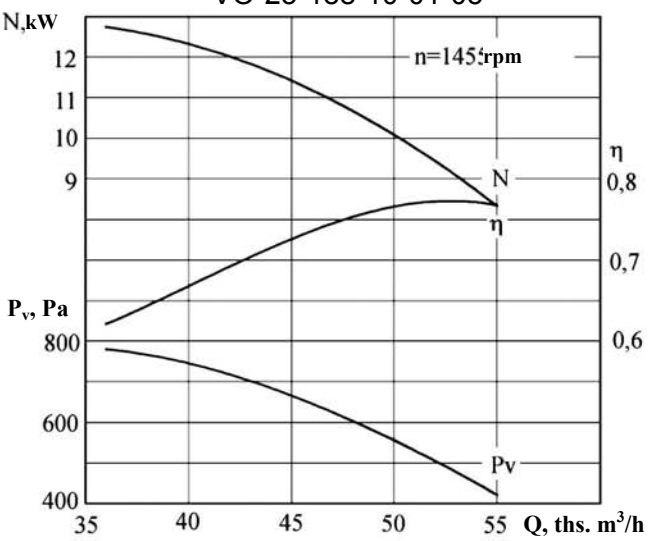
VO-25-188-10-01-03



VO-25-188-10-01-04



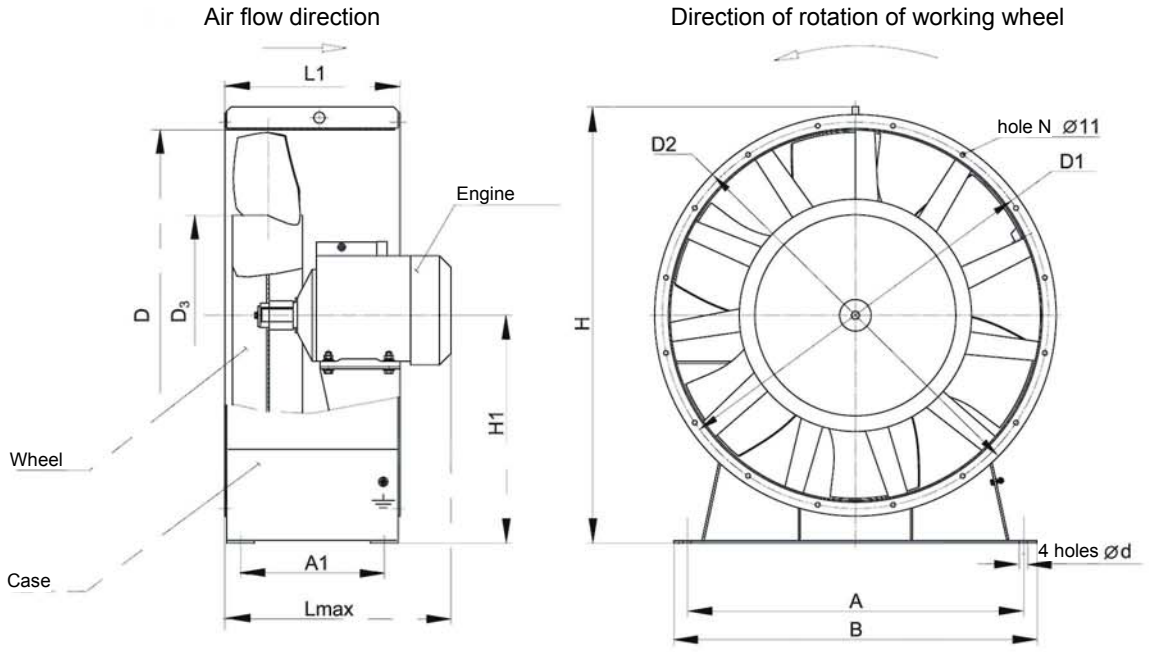
VO-25-188-10-01-05



VO-25-188 No. 8; 10 **AXIAL FANS**

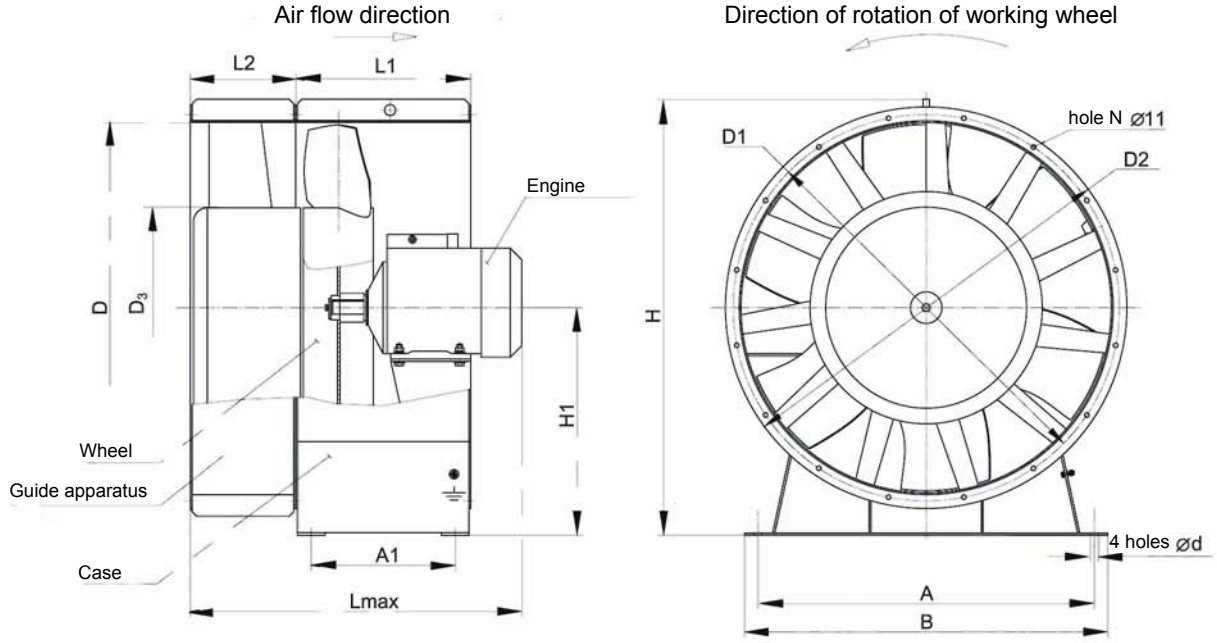
OVERALL AND FITTING DIMENSIONS

VO-25-188 No. 8; 10 VARIANT -02; -05 (without inlet guide vanes)



Fan	Dimensions, mm												
	A	A_1	B	D	D_1	D_2	D_3	d	H	H_1	L_{max}	L_1	n
VO-25-188-8-01-02; -05	700	310	740	800	830	875	500	18	947	495	540	410	12
VO-25-188-10-01-02; -05	900	415	946	1006	1040	1070	500	20x36	1140	595	692	485	16

VO-25-188 No. 8; 10 VARIANT -00; -01; -03; -04 (with inlet guide vanes)



Fan	Dimensions, mm													
	A	A_1	B	D	D_1	D_2	D_3	d	H	H_1	L_{max}	L_1	L_2	n
VO-25-188-8-01-00; -01; -03; -04	700	310	740	800	830	875	500	18	947	495	800	410	260	12
VO-25-188-10-01-00; -01; -03; -04	900	415	946	1006	1040	1070	500	20x36	1140	595	917	485	225	16

VO-18-270-1.6 **COMPACT REVERSIBLE AXIAL FAN**



GENERAL INFORMATION

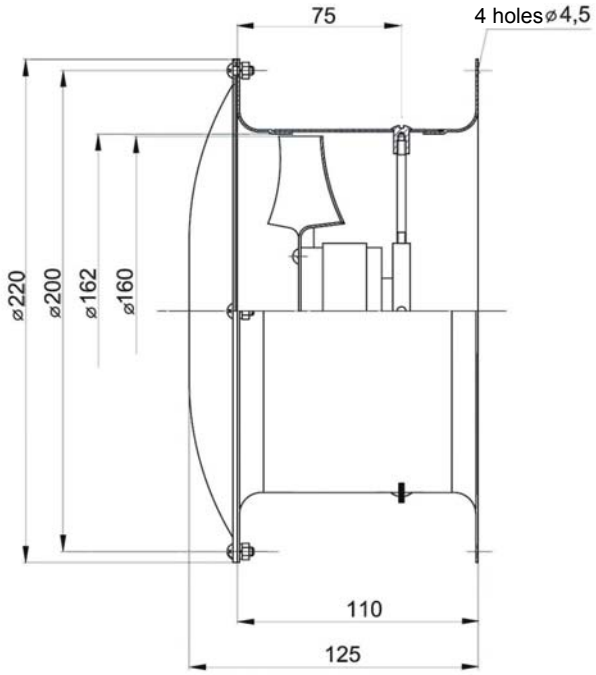
TU 4861-039-00270366-96

- Fan is provided with controller of frequency and direction of rotation

PURPOSE

- For air exchange (inlet and exhaust ventilation) in domestic (kitchens, WC, living rooms, utility premises, etc.) and small industrial facilities, work rooms
- For blowing of various equipment

TECHNICAL PARAMETERS



Parameter	*Value*
Engine size	DA 65-8-3
Frequency of working wheel rotatiop, min^{-1}	2,800
Diameter of working wheel, mm	160
Installed power, Wt	10
Capacity, m^3/h	300
Static pressure (P_{sv} max), Pa	50
Total sound power, dB, maximum	70
Weight, kg	1.5
Rated supply voltage, V	200
Rated supply frequency, Hz	50
kind of current – 1-phase AC voltage	

VS-10-400 **JET AXIAL FANS**

GENERAL INFORMATION



TU 4861-041-00270366-96

If these fans are used without air ducts long range jets are possible.

- Maximum speed at jet axis reduces with distance
- The flow shows linear increase due to turbulent interaction of the jet and stable air. As a result of this, having very low initial power, one may move significant amounts of air.

Amount of moved air at the distance equal to the jet range of jet fans is 40 times more than at output section.

VARIANT OF FAN:

suspended, floor mounted, wall mounted.

PURPOSE

- For combined use with ventilation systems or independent ventilation of premises.
- Air jet supply to long distances without air ducts.

FIELD OF APPLICATION

- Local ventilation of work places from 30 meter distance
- Ventilation of warehouses, hot workshops and other industrial premises with high heat dissipation (power plants), premises for cattle and poultry
- Ventilation of premises with large amount of people (cinemas, roofed stadiums, shops, disco halls, casinos, etc.)
- Ventilation of tunnels and drying of various premises, tanks
- Cooling of equipment, hot materials

TECHNICAL PARAMETERS

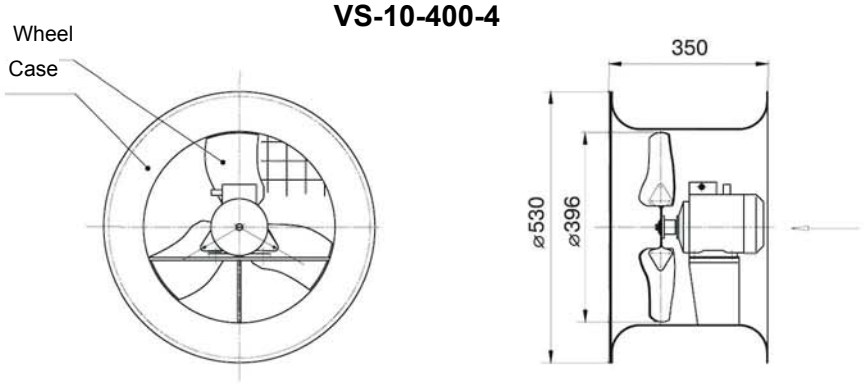
Fan size	*Engine size*	*Installed power, kW*	*Synchronous frequency of rotatiop, min^{-1}*	*Capacity at output section, m^3/h*	*Range*, m*	*Weight, kg*
VS-10-400-4	AIR56V4	0,18	1500	4700	20	14
VS-10-400-6.3	AIR71V4	0,75	1500	15000	55	26

* - (distance from output section of fan to the section with the speed of 0.5 m/s)

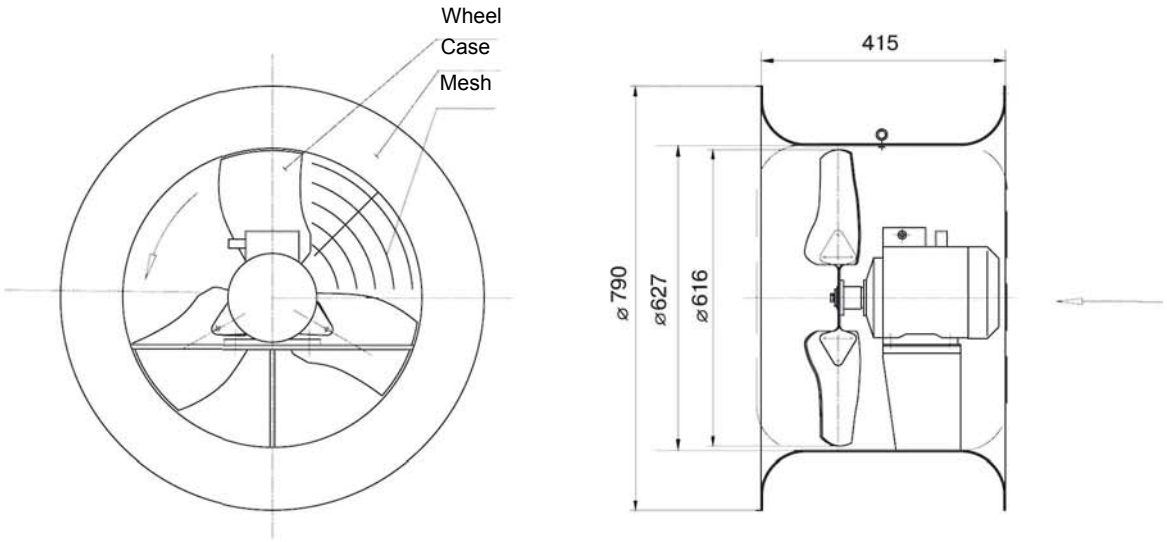
VS-10-400 **JET AXIAL FANS**

OVERALL AND FITTING DIMENSIONS

VS-10-400-4

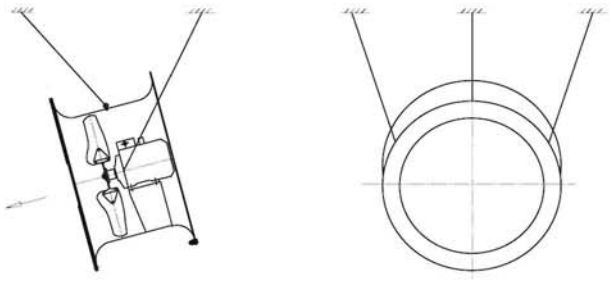


VS-10-400-6.3

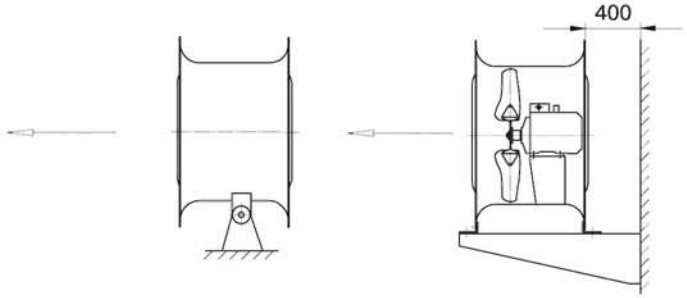


Fitting of jet fan

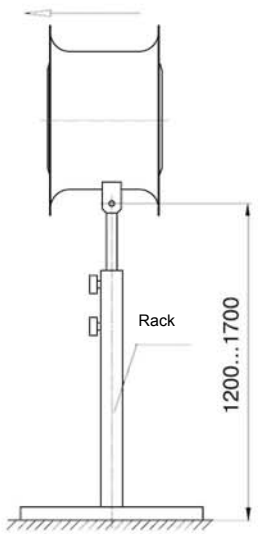
Fitting of jet fan to frames, flooring with 3 ears



on arms



Fitting on a rack



V.R7-20-8.P-03 **RADIAL FAN**

GENERAL INFORMATION

- Dust high pressure
- Single-inlet
- Spiral unturning case
- Backward curved blades
- Number of blades – 16
- Direction of rotation – right

AVAILABLE VARIANTS

TU 16-90 V.R7-20-8P

- Dust made of carbon steel

PURPOSE

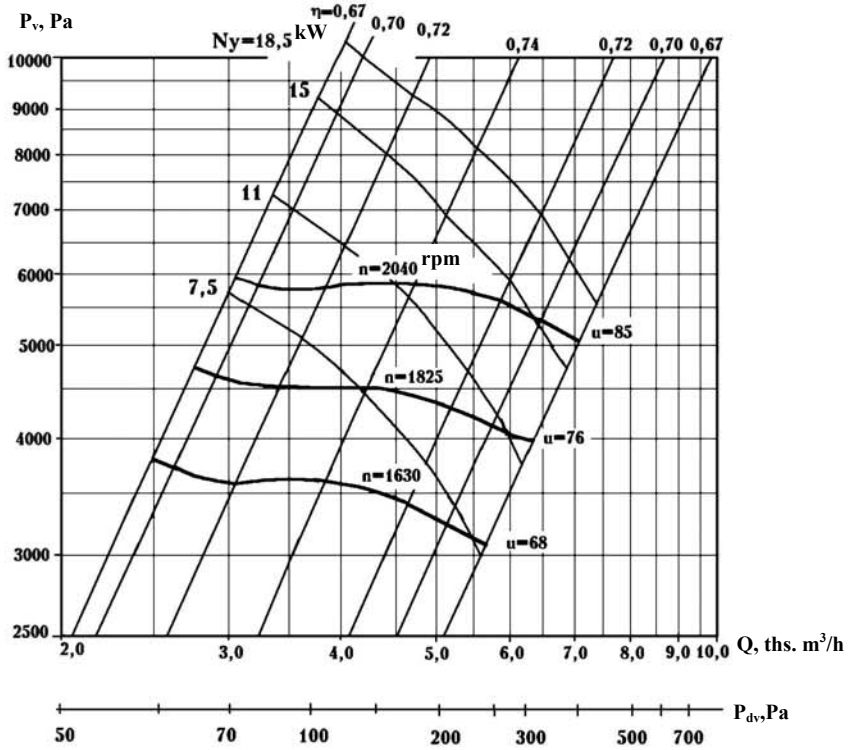
- Dust made of carbon steel (for the purpose see Table 3 line 10).

* *For operation conditions of the fans see page 5.*

TECHNICAL PARAMETERS

Fan size	*Structural variant*	*Engine*		*Frequency of working wheel rotation, min^{-1}*	*Parameters in the working zone*		*Maximum fan weight, kg*	*Vibration isolators*	
		Size	*Power, kW*		*Capacity, ths. m^3/h*	*Full pressure. Pa*		*Type*	*Number*
V.R7-20-8.P-03	5	AIR132S4	7,5	1630	2,7-5,3	3750-3200	500	D042	6
		AIR132M4	11	1825	3,0-5,9	4600-4050	520		
		AIR160S4	15	2040	3,3-6,3	5900-5300	575		
		AIR160M4	18,5	2040	6,3-7,4	5900-5050	600		

AERODYNAMIC CHARACTERISTICS



V.R7-20-8.P-03 **RADIAL FAN**

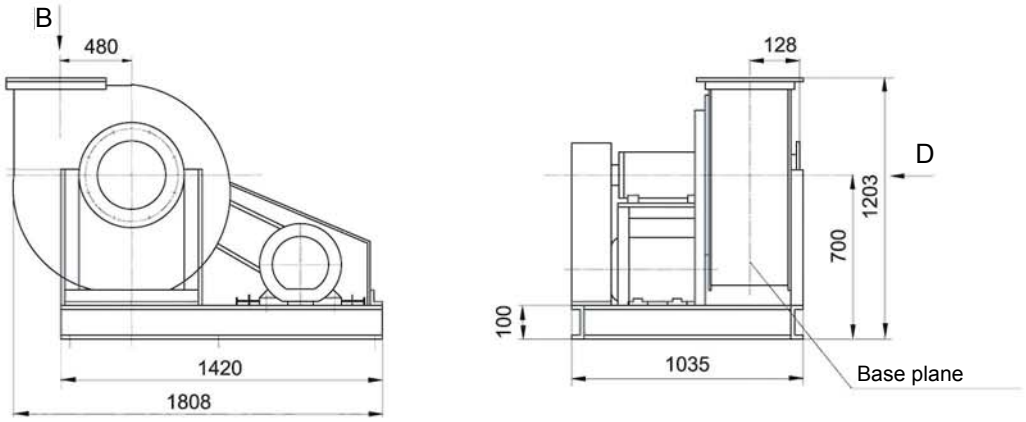
ACOUSTIC CHARACTERISTICS

Fan	p, min^{-1}	Lpi, dB in octave bands f, Hz								LpA, dB A
		63	125	250	500	1000	2000	4000	8000	
V.R7-20-8.R-03	1630	89	90	95	97	99	96	92	89	103
	1825	92	93	98	100	102	99	95	92	106
	2100	94	95	100	102	104	101	97	94	108

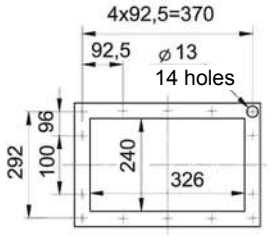
Acoustic characteristics measured from the side of discharge under nominal operation conditions of fan. Levels of sound powerat the side of intake are 3 dB below the levels indicated in the table.

On the borders of the working area of aerodynamic characteristic levels of sound power are 3 dB higher than the level of sound power corresponding to the nominal operation conditions of the fan.

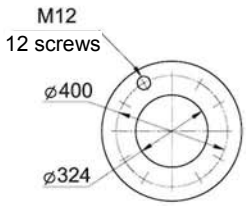
OVERALL AND FITTING DIMENSIONS



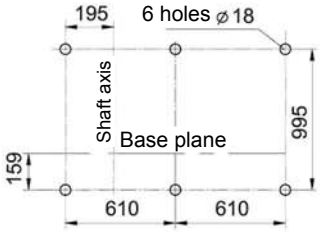
B



D

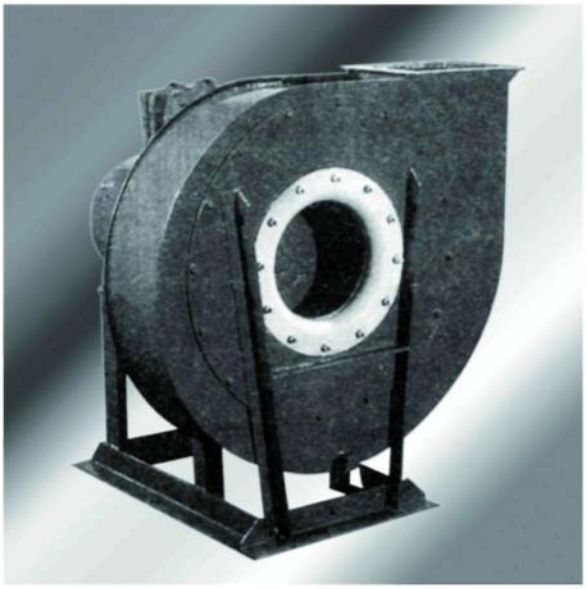


Fixing holes for fan



VR6 **RADIAL FANS**

GENERAL INFORMATION



VR6 series consists of 3 types of fans: VR6-13-6.3; VR6-28-6 and VR6-27-6.3

- Dust high pressure
- Single-inlet
- Spiral turning case
- Backward curved blades
- Number of blades – 7 (VR6-13-6.3); 16 (VR6-28-6); 16 (VR6-27-6.3)
- Direction of rotation – right and left

AVAILABLE VARIANTS

TU 400 "V3"-330-754-157.23.92

- Dust explosion-proof (PV1)
- Dust explosion-proof and corrosion-resistant (PV4)

PURPOSE

- Dust explosion-proof (PV1) (for the purpose see Table 3 line 11).
- Dust explosion-proof and corrosion-resistant (PV4) (for the purpose see Table 3 line 12).

* *For operation conditions of the fans see page 5.*

TECHNICAL PARAMETERS

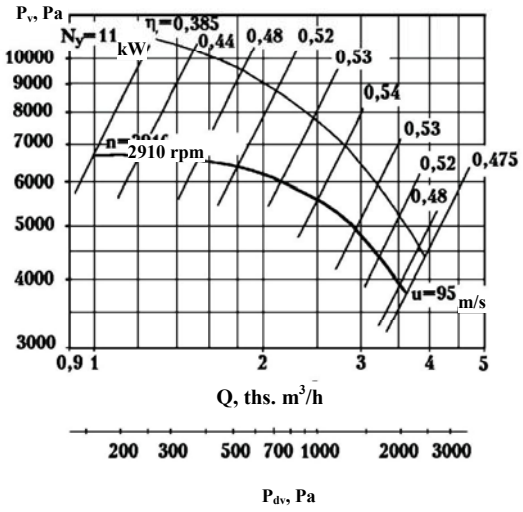
- Dust explosion-proof (PV1)
- Dust explosion-proof and corrosion-resistant (PV4)

Fan size	*Structural variant*	*Engine*		*Frequency of working wheel rotation, min^{-1}*	*Parameters in the working zone*		*Maximum fan weight, kg*
		Size	*Power, kW*		*Capacity, ths. m^3/h*	*Full pressure. Pa*	
VR6-13-6.3.PV1-01 VR6-13-6.3.PV4-01	1	AIM132M2	11	2910	1,6-3,4	6500-4000	290
VR6-28-6.PV1-01 VR6-28-6.PV4-01	1	AIM160M2	18,5	2920	**2,6-6,8**	**7370-6700**	**380**
VR6-27-6.3.PV1-01 VR6-27-6.3.PV4-01	1	VA200M2	37	2950	**3,5-9,3**	**8000-6400**	**565**

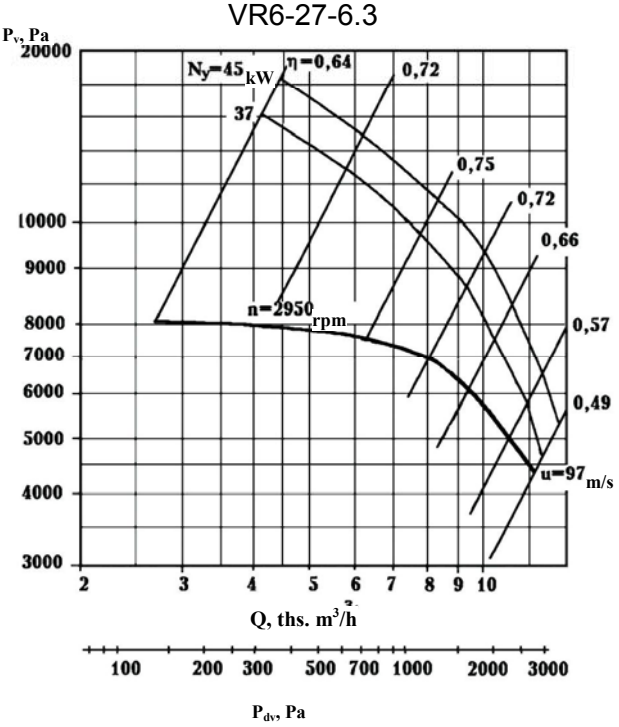
VR6 **RADIAL FANS**

AERODYNAMIC CHARACTERISTICS

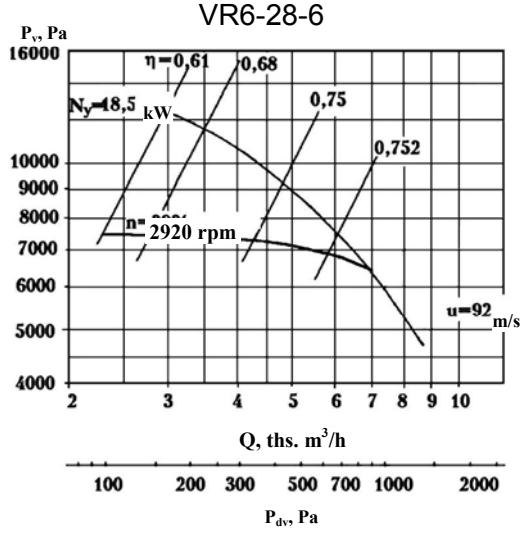
VR6-13-6.3



VR6-27-6.3



VR6-28-6



ACOUSTIC CHARACTERISTICS

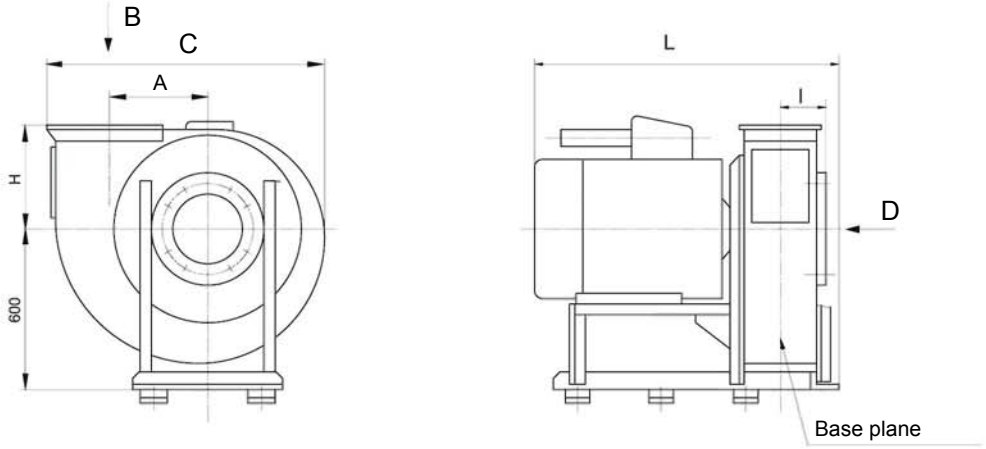
Fan	p, min^{-1}	Lpi, dB in octave bands f, Hz								LpA, dB A
		63	125	250	500	1000	2000	4000	8000	
VR6-13-6.3	2910	95	102	101	102	101	100	98	94	109
VR6-27-6.3	2950	107	108	112	114	110	106	101	93	118
VR6-28-6	2920	105	106	110	112	108	104	99	91	116

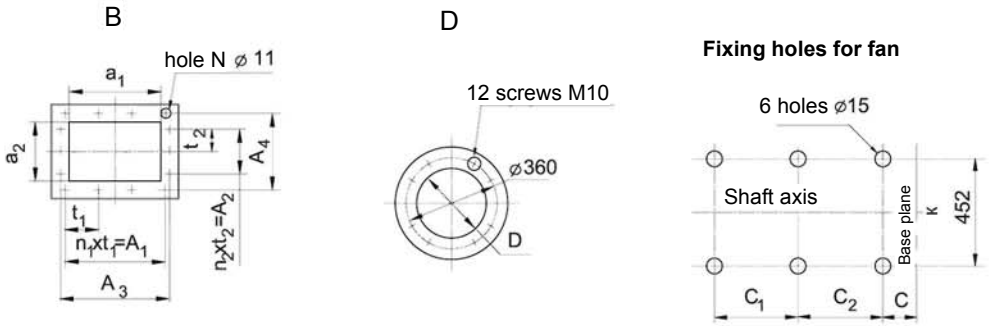
Acoustic characteristics measured from the side of discharge under nominal operation conditions of fan. Levels of sound powerat the side of intake are 3 dB below the levels indicated in the table.

On the borders of the working area of aerodynamic characteristic levels of sound power are 3 dB higher than the level of sound power corresponding to the nominal operation conditions of the fan.

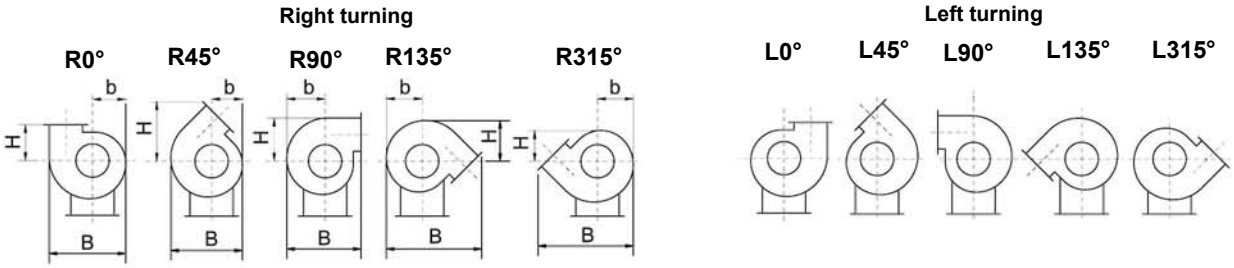
VR6 **RADIAL FANS**

OVERALL AND FITTING DIMENSIONS





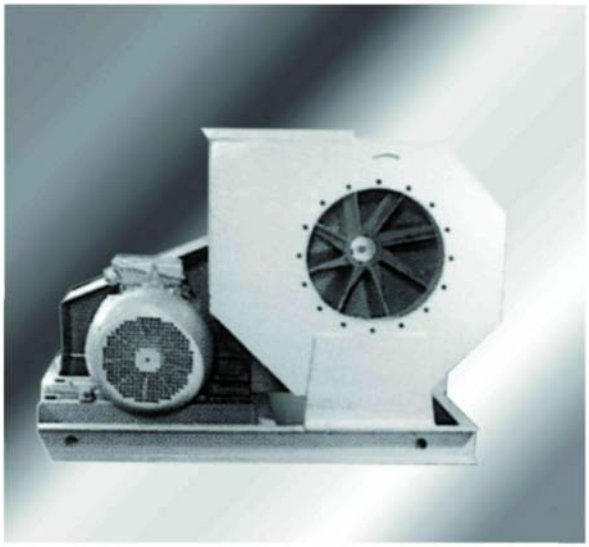
FAN CASE POSITIONS



Fan	Dimensions, mm															n	n_1	n_2
	L	l	A	D	a_1	a_2	A_1	A_2	A_3	A_4	t_1	t_2	C	C_1	C_2			
VR6-13-6.3	790	78	373	129	140	122	125	-	190	172	125	-	-	280	200	6	1	-
VR6-27-6.3	1030	113	378	249	252	200	300	250	300	250	100	125	17	350	350	10	3	2
VR6-28-6	945	113	378	249	252	200	300	250	300	250	100	125	62	250	250	10	3	2

Fan	R0°, L0°			R45°, L45°			R90°, L90°			R135°, L135°			R315°, L315°		
	B	b	H	B	b	H	B	b	H	B	b	H	B	b	H
VR6-13-6.3	903	414	402	850	404	630	836	434	489	1055	425	448	1055	427	404
VR6-27-6.3	965	421	382	887	397	655	848	468	544	1100	444	490	1100	444	397
VR6-28-6	965	421	382	887	397	655	848	468	544	1100	444	490	1100	444	397

VR-100-45 **RADIAL FANS**



GENERAL INFORMATION

- Medium pressure
- Single-inlet
- Spiral unturning case
- Radial blades
- Number of blades – 8
- Direction of rotation – right and left

PURPOSE

- Dust made of carbon steel (for the purpose see Table 3 line 10).
- Dust corrosion-resistant made of stainless steel (K) (for the purpose see Table 3 line 10).

AVAILABLE VARIANTS

TU 4861-024-11429031-93

- Dust made of carbon steel
- Dust corrosion-resistant made of stainless steel (K) *(manufactured under special order)*

* *For operation conditions of the fans see page 5.*

VR-100-45 **RADIAL FANS**

TECHNICAL PARAMETERS

- General purpose made of carbon steel
- Corrosion-resistant made of stainless steel (K)

Fan size	Engine		Frequency of working wheel rotation, min^{-1}	Parameters in the working zone		Maximum fan weight, kg	Vibration isolators	
	Size	Power, kW		Capacity, ths. m^3/h	Full pressure, Pa		Type	Number
VR100-45-5-02 VR100-45-5K	AIR112M4	5,5	1810	2,7-6,2	1600-1220	354	D042	5
	AIR112M4	5,5	2030	3,0-5,2	2000-1840	356		
	AIR132B4	7,5	2030	3,0-7,3	2000-1600	376		
	AIR132S4	7,5	2285	3,4-5,8	2550-2350	377		
	AIR132M4	11	2285	3,4-8,0	2550-2000	403		
	AIR132M4	11	2575	3,7-7,2	3250-2700	414		
	AIR160S4	15	2575	3,7-9,0	3250-2450	469		
VR100-45-6.3-02 VR100-45-6.3K	AIR132M4	11	1615	6,3-10,5	2100-1800	480	D042	6
	AIR160S4	15	1810	7,0-11,0	2600-2300	531		
	AIR160M4	18,5	1810	7,0-13,5	2600-2100	546		
	AIR160M4	18,5	2040	8,0-10,4	3300-3100	573		
	AIR180S4	22	2040	8,0-13,2	3300-2900	557		
VR100-45-8-01 VR100-45-8K	AIR160M4	18,5	1450	8,0-16,0	2600-2200	703	D043	5
	AIR180B4	22	1450	8,0-19,0	2600-1950	721		
	AIR180B4	22	1615	8,7-14,0	3200-2900	729		
	AIR180M4	30	1615	8,7-22,0	3200-2450	749		
	AIR180M4	30	1810	10,0-15,5	4000-3600	749		
	AIR200M4	37	1615	8,7-22,5	3200-2350	830	D043	6
	AIR200M4	37	1810	10,0-20,0	4000-3400	832		
	AIR200L4	45	1810	10,0-25,0	4000-2900	872		

ACOUSTIC CHARACTERISTICS

Fan	p, min^{-1}	Lpi, dB in octave bands f, Hz								LpA, dBA
		63	125	250	500	1000	2000	4000	8000	
VR100-45-5-02	1810	90	92	96	95	92	91	85	76	97
	2030	95	97	101	100	97	96	90	81	102
	2285	97	99	103	102	99	98	92	83	104
	2575	102	104	108	107	104	103	97	88	109
VR100-45-6.3-02	1615	96	98	102	101	98	97	91	82	103
	1810	101	103	107	106	103	102	96	87	108
	2040	102	104	108	107	104	103	97	88	109
VR100-45-8-01	1450	110	114	115	112	108	106	99	92	116
	1615	110	114	115	112	108	106	99	92	116
	1810	111	115	116	113	109	107	100	93	117

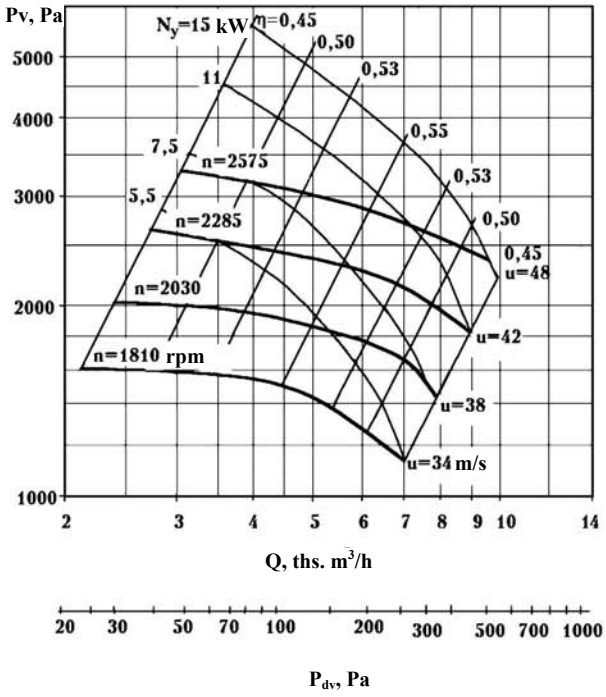
Acoustic characteristics measured from the side of discharge under nominal operation conditions of fan. Levels of sound powerat the side of intake are 3 dB below the levels indicated in the table.

On the borders of the working area of aerodynamic characteristic levels of sound power are 3 dB higher than the level of sound power corresponding to the nominal operation conditions of the fan.

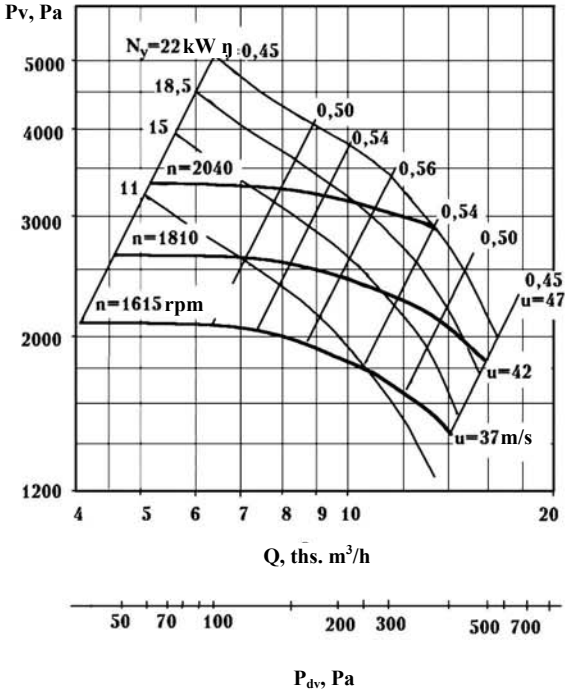
VR-100-45 **RADIAL FANS**

AERODYNAMIC CHARACTERISTICS

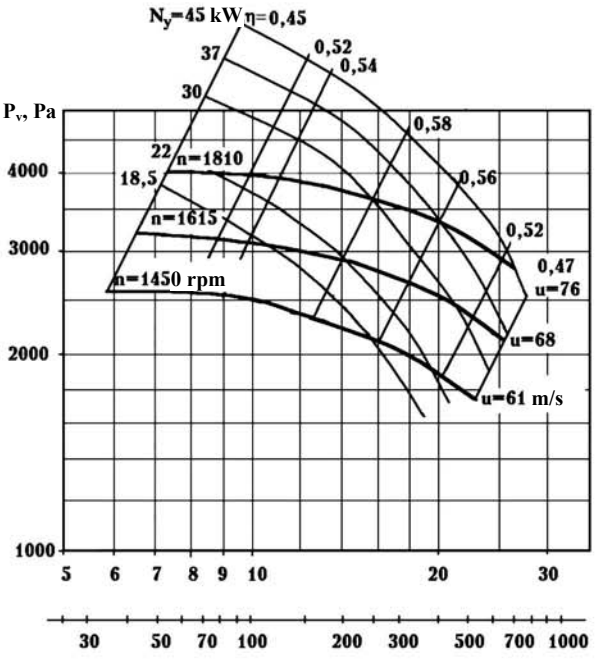
VR-100-45-5



VR-100-45-6.3

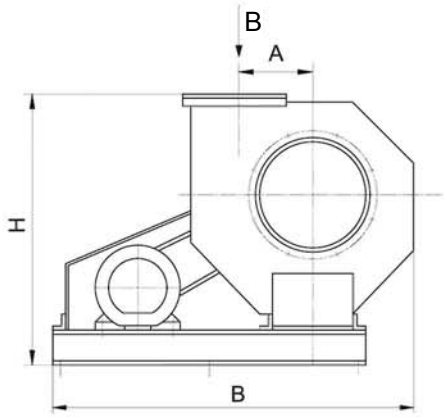


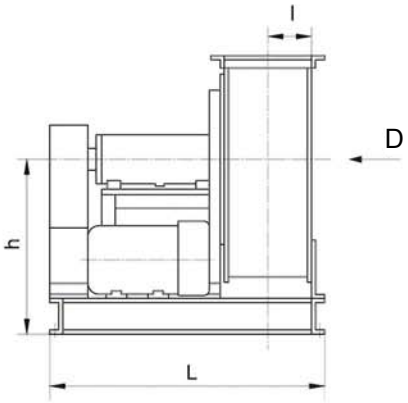
VR-100-45-8



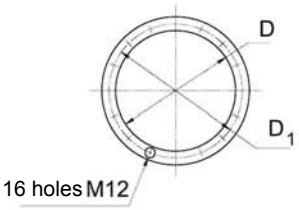
VR-100-45 **RADIAL FANS**

OVERALL AND FITTING DIMENSIONS

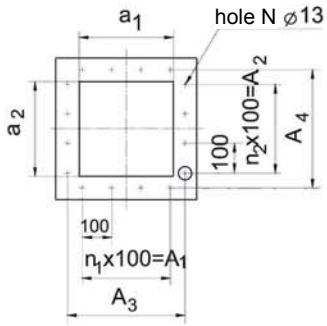




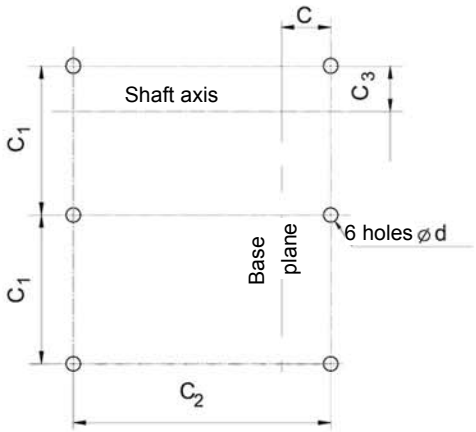
D



B

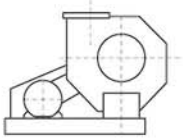


Fixing holes for fan

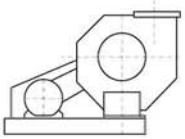


FAN CASE POSITIONS

Right turning
R0°



Left turning
L0°



Fan	Dimensions, mm																								
	h	l	L_{max}	A	H	B R0°	B L0°	D	D_1	d	d_1	a_1	a_2	A_1	A_2	A_3	A_4	C	C_1	C_2	C_3	n	n_1	n_2
VR 100-45-5-02	550	155	1100	250	877	1260	1360	350	390	15	12	300	300	200	200	342	342	185	550	1060	233	12	2	2
VR 100-45-6.3-02	740	195	1200	316	1142	1600	1726	440	500	18	12	380	380	300	300	430	430	220	700	1160	275	16	3	3
VR 100-45-8-01	798	245	1340	400	1308	1876	2026	560	610	18	12	480	480	400	400	530	530	271	780	1300	262	20	4	4

VKRM **ROOF MOUNTED FANS**



GENERAL INFORMATION

- Low pressure
- Single-inlet
- Backward curved blades
- Number of blades – 13
- VKRM-6.3; VKRM-8 and VKRM-12.5 are available with valves and pallets; VKRM-4; VKRM-5 – with pallets

PURPOSE

- Exhaust ventilation systems at industrial and public buildings.
- Roof mounted.
- Are meant for operations without air ducts.

In case of optimum operations, when capacity exceeds the minimum, the fan may operate with air ducts.

AVAILABLE VARIANTS

TU 4861-046-00270366-99

- General purpose made of carbon steel

OPERATING CONDITIONS

Temperature of the environment from minus 40 °C to plus 40 °C (for tropical climate from minus 10 °C to plus 45 °C). Moderate and tropical climate, 1st category of placement.

TECHNICAL PARAMETERS

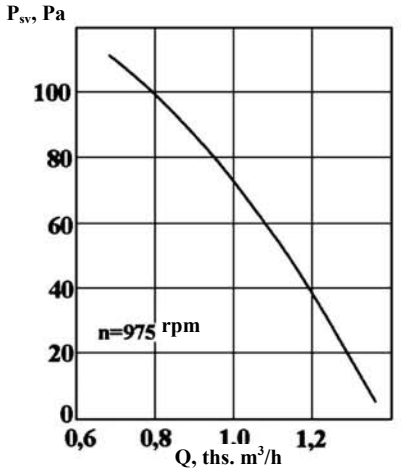
- General purpose made of galvanized or carbon steel

Fan size	*Structural variant*	*Engine*		*Frequency of working wheel rotation, min^{-1}*	*Parameters in the working zone*		*Weight of fan of no more than, kg*	*Vibration isolators*	
		Size	*Power, kW*		*Capacity, ths. m^3/h*	*Static pressure, Pa*		*Type*	*Number*
VKRM-3.15-01	1	DVV50-V6-380	0,04	975	0,7-1,4	110-0	15	-	-
VKRM-4-01	1	AIR71A6	0,37	915	1,4-3,3	160-0	75,4	-	-
VKRM-5-03	1	AIR80A6	0,75	915	2,8-6,5	250-0	90	-	-
VKRM-6.3-03	1	AIR100L6	2,2	950	6,0-13,5	430-0	134	-	-
VKRM-8-02	1	AIR112MV8	3,0	700	9,4-22,0	430-0	244	D041	4
VKRM-12.5-02	1	5A160M16	4,0	370	11,0-35,0	270-0	600	D043	4
		5A160M12	5,5	470	14,0-45,0	430-0	600	D043	4

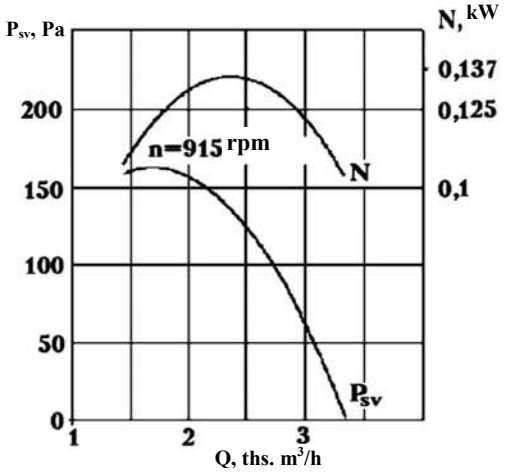
VKRM **ROOF MOUNTED FANS**

AERODYNAMIC CHARACTERISTICS

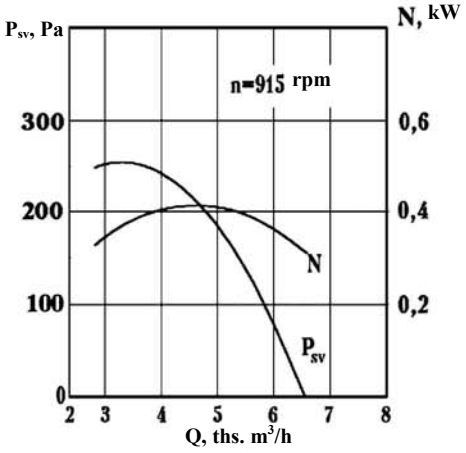
VKRM-3.15-01



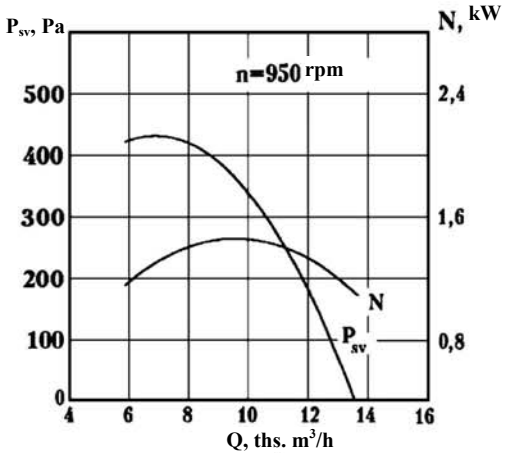
VKRM-4-01



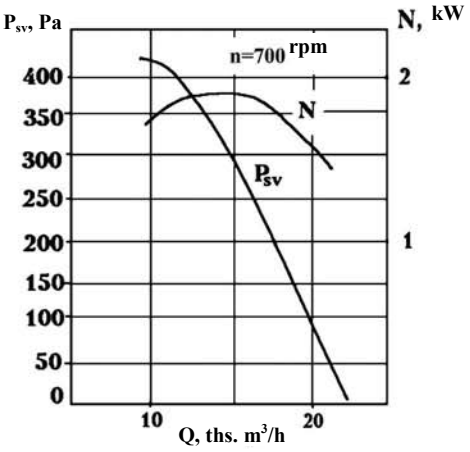
VKRM-5-03



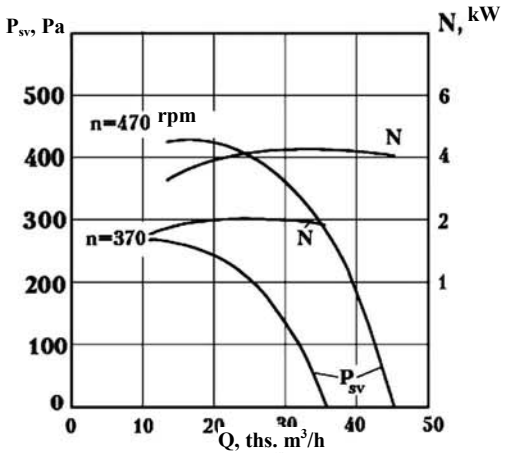
VKRM-6.3-03



VKRM-8-02



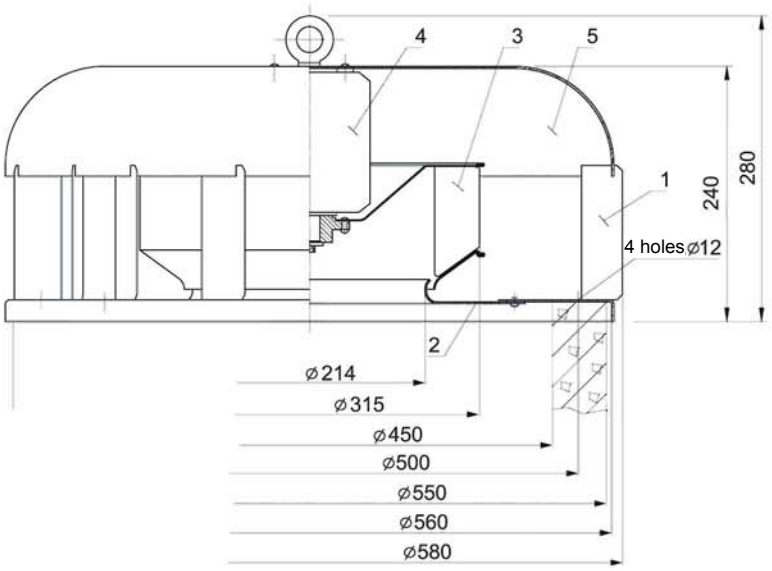
VKRM-12.5-02



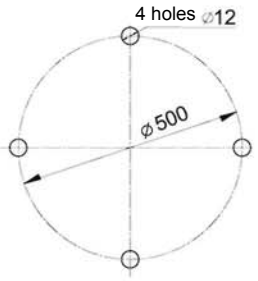
VKRM **ROOF MOUNTED FANS**

OVERALL AND FITTING DIMENSIONS

VKRM-3.15-01

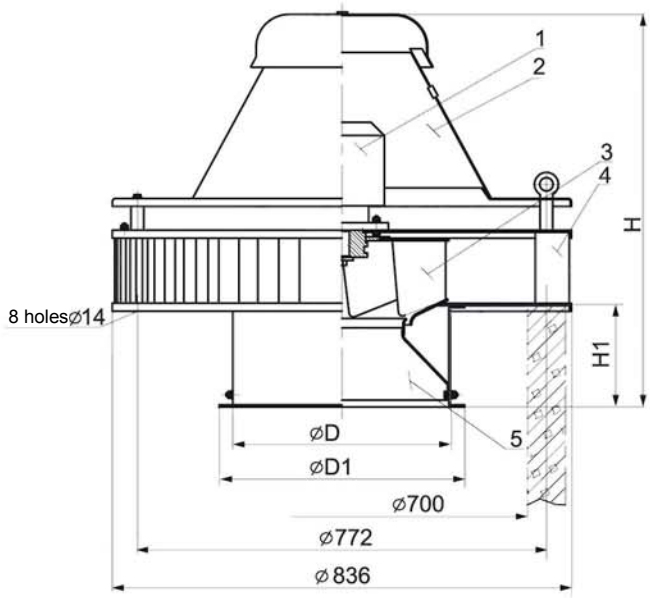


Fixing holes for fan

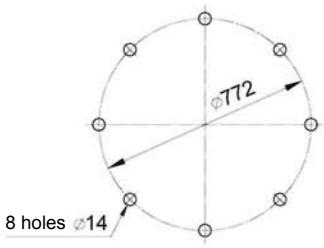


1 – case; 2 – collector
3 – working wheel; 4 – engine
5 – housing

VKRM-4-01; 5-03; 6.3-03



Fixing holes for fan



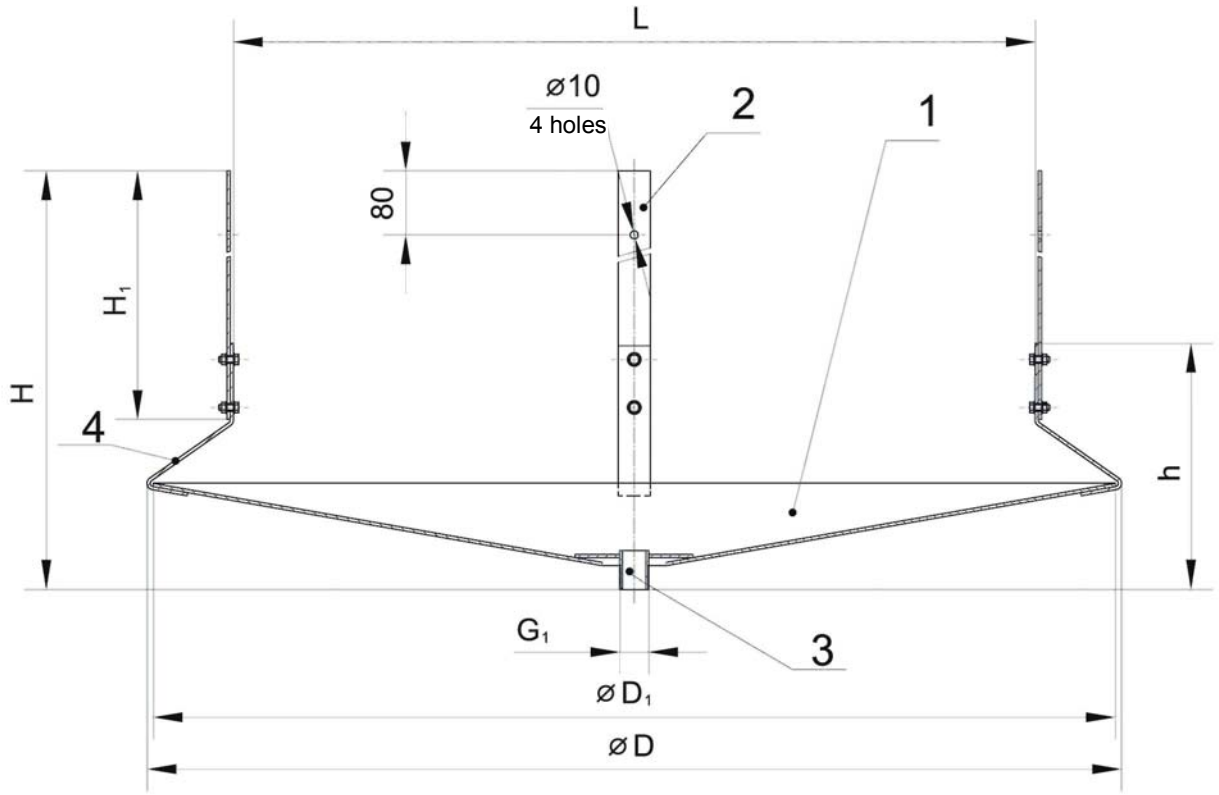
1 – electric engine, 2 – housing,
3 – working wheel, 4 – base,
5 – collector

Fan	Dimensions, mm			
	H1	H	D	D1
VKRM-4-01	200	745	403	460
VKRM-5-03	227	795	510	560
VKRM-6.3-03	293	920	640	690

VKRM **ROOF MOUNTED FANS**

VKRM4; VKRM-5; VKRM-5.3; VKRM-8; VKRM-12.5

OVERALL AND FITTING DIMENSIONS



1 – Cone; 2 – Draught; 3 – Nozzle; 4 – Arm

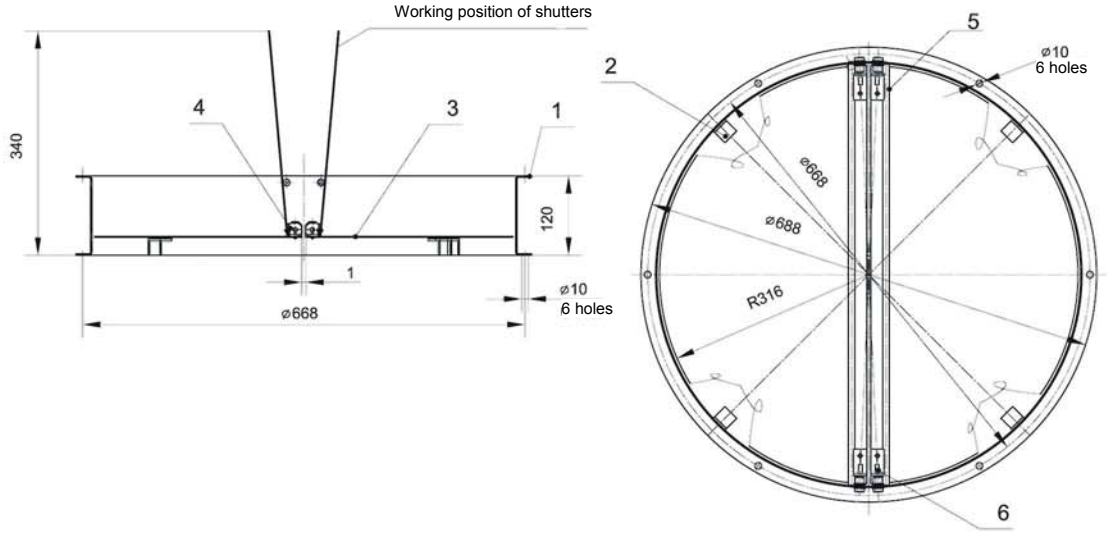
Fan size	*Dimensions, mm*						*Weight, kg*
	D	*D₁*	*H*	*H₁*	*L*	*h*	
VKRM-4; VKRM-5; VKRM-6.3	920	900	1117	1000	700	272	11,6
VKRM-8	1220	1200	1445	1230	1000	305	16,8
VKRM-12.5	1670	1650	1720	1460	1450	350	26

VKRM **ROOF MOUNTED FANS**

VKRM-63; VKRM-8; VKRM-12.5 VALVES

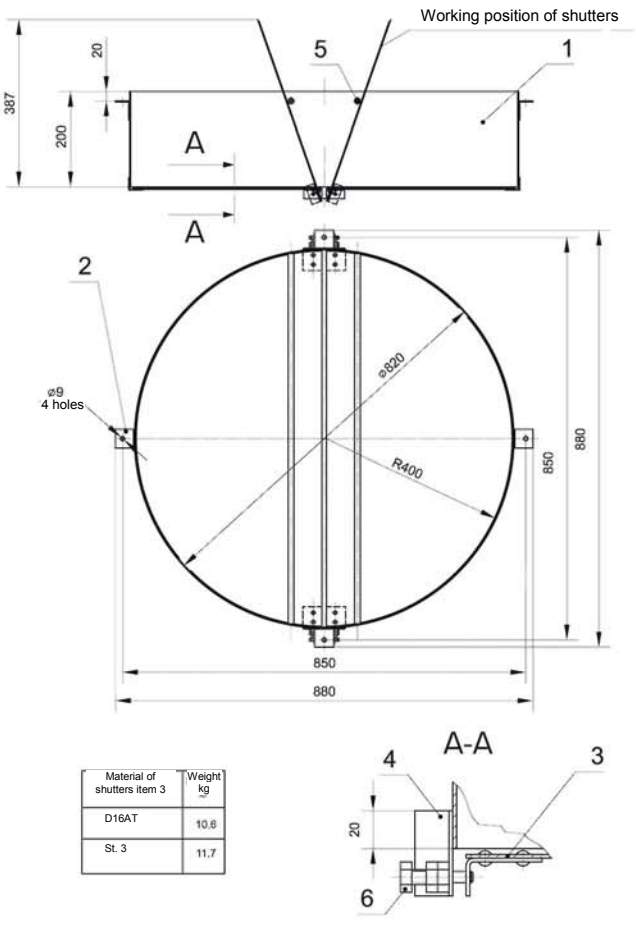
OVERALL AND FITTING DIMENSIONS

VKRM-6.3



1 – Cylinder; 2 – Bracket; 3 – Shutter; 4 – Arm; 5 – Support; 6 – Axis

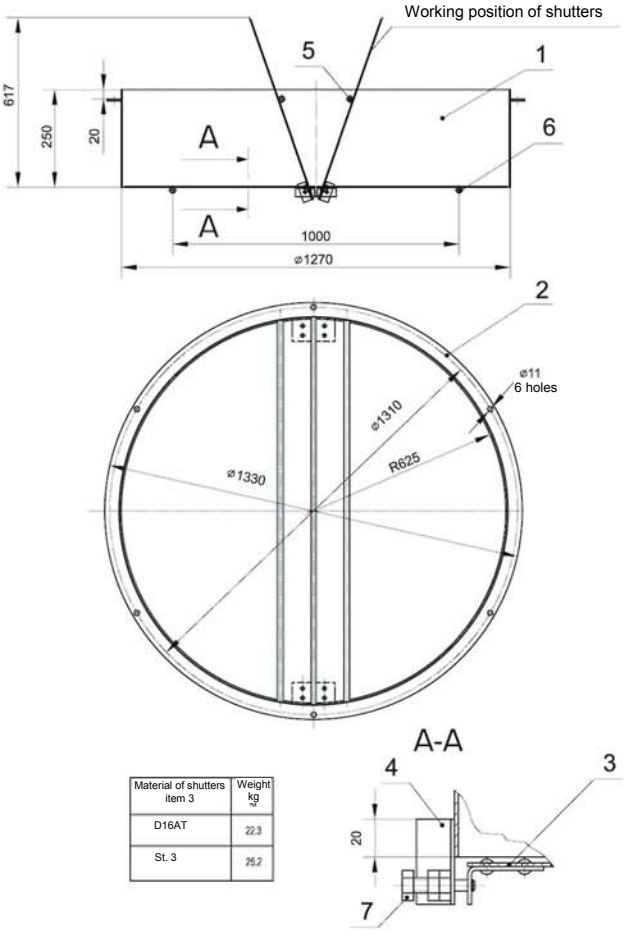
VKRM-8



Material of shutters item 3	Weight kg
D16AT	10.6
St. 3	11.7

1 – Cylinder; 2 – Bracket; 3 – Shutter; 4 – Arm; 5 – Support; 6 – Axis

VKRM-12.5



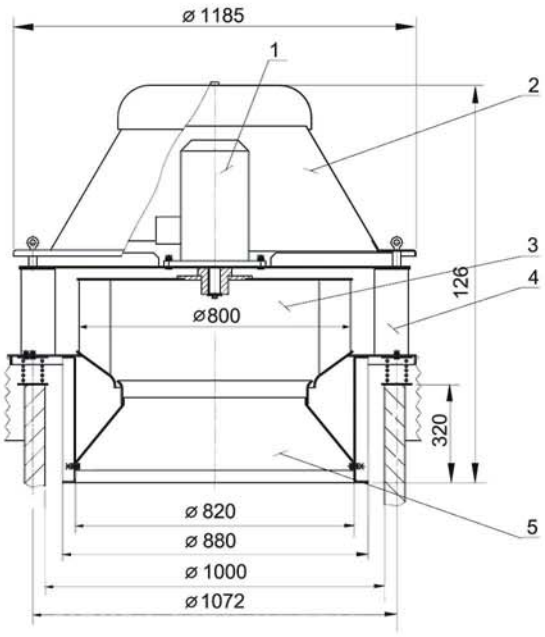
Material of shutters item 3	Weight kg
D16AT	22.3
St. 3	25.2

1 – Cylinder; 2 – Bracket; 3 – Shutter; 4 – Arm; 5 – Support; 6 – Axis

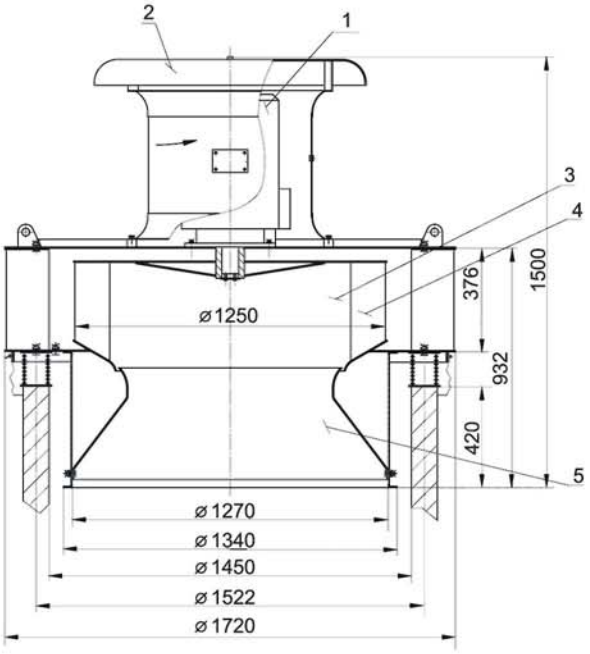
VKRM **ROOF MOUNTED FANS**

OVERALL AND FITTING DIMENSIONS

VKRM-8-02

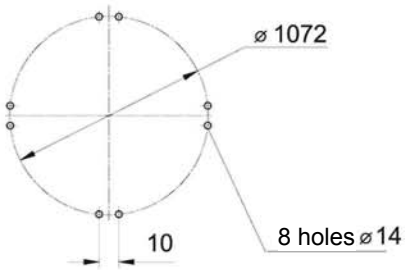


VKRM-12.5-02

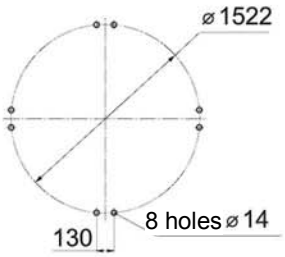


1 – electric engine; 2 – housing; 3 – working wheel; 4 – base; 5 – collector

Layout of fixing holes for fan



Layout of fixing holes for fan



ACOUSTIC CHARACTERISTICS

Fan	p, min^{-1}	Lpi, dB in octave bands f, Hz								LpA, dBA
		63	125	250	500	1000	2000	4000	8000	
VKRM-3.15	975	67	70	71	68	64	62	52	45	70
VKRM-4-01	915	69	74	76	81	74	68	57	50	80
VKRM-5-03	915	73	81	83	84	80	75	65	56	85
VKRM-6.3-03	950	76	83	87	92	87	80	72	64	92
VKRM-8-02	700	88	93	89	90	87	81	73	69	92
VKRM-12.5-02	370	85	89	90	87	81	73	69	60	88
VKRM-12.5-02	470	92	95	96	93	87	79	74	66	94

Acoustic characteristics measured from the side of discharge under nominal operation conditions of fan. Levels of sound powerat the side of intake are 3 dB below the levels indicated in the table.

On the borders of the working area of aerodynamic characteristic levels of sound power are 3 dB higher than the level of sound power corresponding to the nominal operation conditions of the fan.

Installation of roof mounted fans on sleeves

Installation of roof mounted fans (VKRM…) on reinforced concrete sleeves

1. The section shows structures of reinforced concrete sleeves for installation of VKRM roof mounted smoke removal fans.
2. Section consists of 2 parts:

- ♦ installation of roof mounted smoke removal fans on high reinforced concrete sleeves. Structure is used for roofs of combustible materials.
- ♦ installation of roof mounted smoke removal fans on short reinforced concrete sleeves. Structure is used for roof protection layer of non-combustible materials.

3. Structure of reinforced concrete sleeves is designed for installation at the construction site (at the place of equipment installation).
4. Sections show variant of sleeve installation on pavement in form of monolithic reinforced concrete plates. The need for reinforcement of pavement plate at the place of sleeve installation shall be defined in certain design.
5. Structure of reinforced concrete sleeves is designed taking into account applicable design loads, including wind for the 1st zone.

Work performance

1. All metal details and welded seams shall be cleaned, coated and paited with corrosion-resistant compound for 2 times.
2. External surfaces of reinforced concrete sleeves shall be coated and painted with weather resistant paints. It is possible to use penetrating compounds increasing frost resistance and density of concrete (XYPEX).
3. Installation of reinforced concrete sleeves shall be on M200 cement-sand mortar. Seam width – 20 mm.
4. In winter period, works shall be according to applicable construction norms.
5. Welds shall be with E42A electrodes. Seam width shall be no more than the minimum width of details welded.

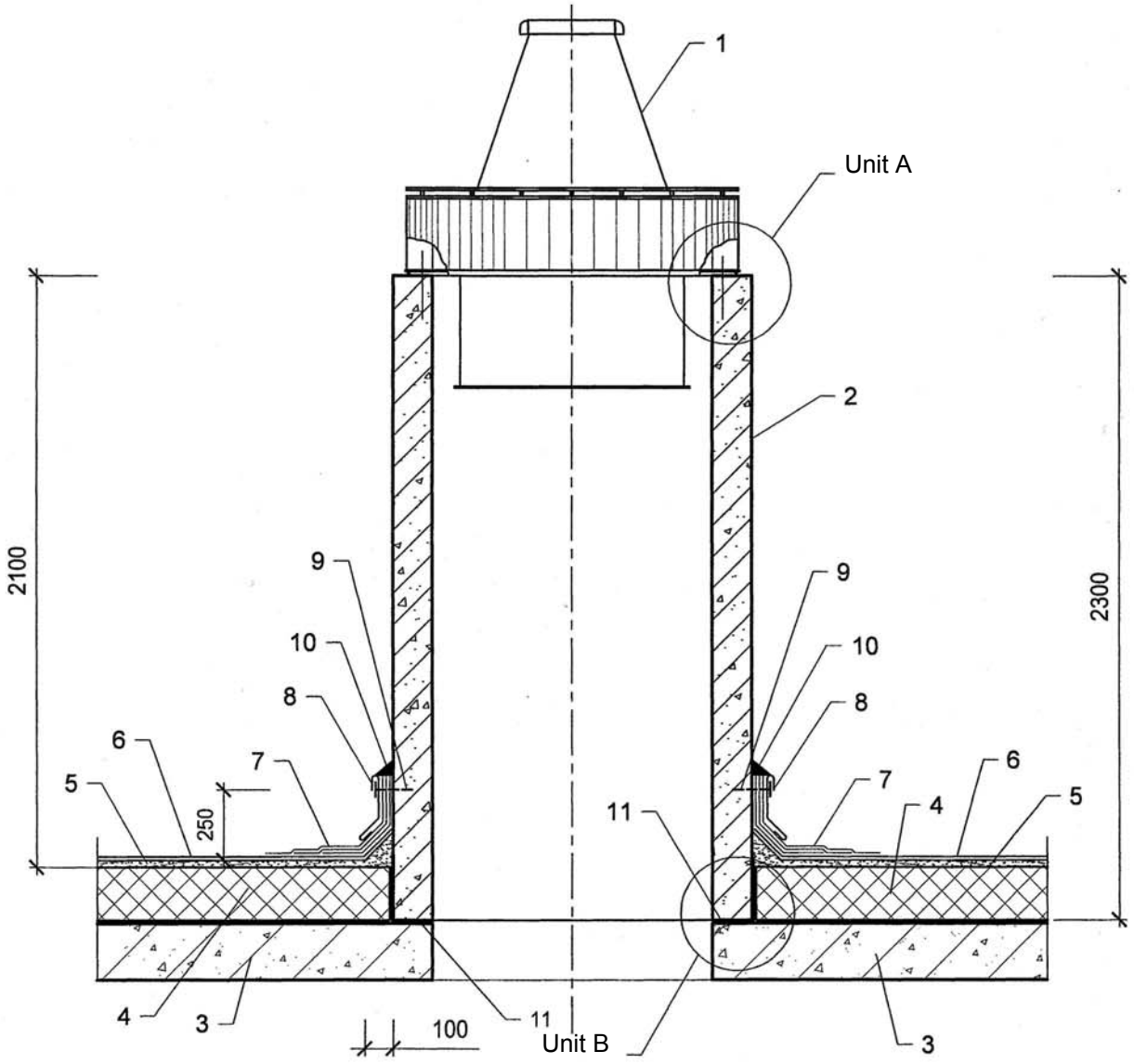
Installation of roof mounted fans on sleeves

STRUCTURE OF REINFORCED CONCRETE SLEEVES

1. Reinforced concrete sleeves are of monolithic concrete class V25; W6; F200. Maximum filler fraction size – 20 mm.
2. Width of sleeve wall is 120 mm. Height of reinforced concrete sleeve – 2,300 mm (high sleeve); height of short reinforced concrete sleeve – 940 mm.
3. Reinforcement of reinforced concrete sleeves shall be by installation in the formwork of inventory welded mesh. Mesh shall be installed at the outer edge of the sleeve, according to design scheme.
4. Installation position of mesh in formwork shall be ensured by installation of fixing rods. Spacing and layout of fixing rods shall be defiend on sight.
5. For possible installation of metal pallet, there are 4 holes of 014 mm in the walls of reinforced concrete sleeves (200 mm from the top of the sleeve). It is possible to use the same holes for installation of reinforced concrete sleeve in designed position.
6. For anchoring of reinforced concrete sleeves to pavement plate, the structure provides for installation of embedded parts. Anchoring shall be with the use of HILTI anchor screws.
7. If the bearing layer of the roof is made of prefabricated reinforced concrete plates, straight-through installation of sleeves with installation of cap screws of reinforcing rods in seams between plates shall be reasonable.
8. MD-1 and MD-2 fittings shall be installed in the upper part of sleeves. Structure of embedded parts is provided for each grade of reinforced concrete sleeve. Fittings shall be fixed to sleeves by welding before installation of equipment.
9. Depending on fan size in section, 3 types of steel sleeves are available: STB-1; STB-2 and STB-3.
10. Roof mounted fans shall be fixed to fittings with M12 screws precision C. Length of the screws shall be specified on sight. Screws shall be installed in holes of fittings before welding of the latter to embedded parts of sleeves.
11. Prior to installation of fans the gap between fittings and top of sleeves shall be closed with M 150 cement-sand mortar. On top of reinforced concrete sleeve it is also necessary to provide a mortar slope.
12. After installation of equipment the gap between fan and top of the sleeve shall be covered with building sealant.
13. Structure of short sleeves is similar to that of high ones.
14. The sections contain specifications for main building materials for each grade of reinforced concrete sleeve.

Installation of roof mounted fans on sleeves

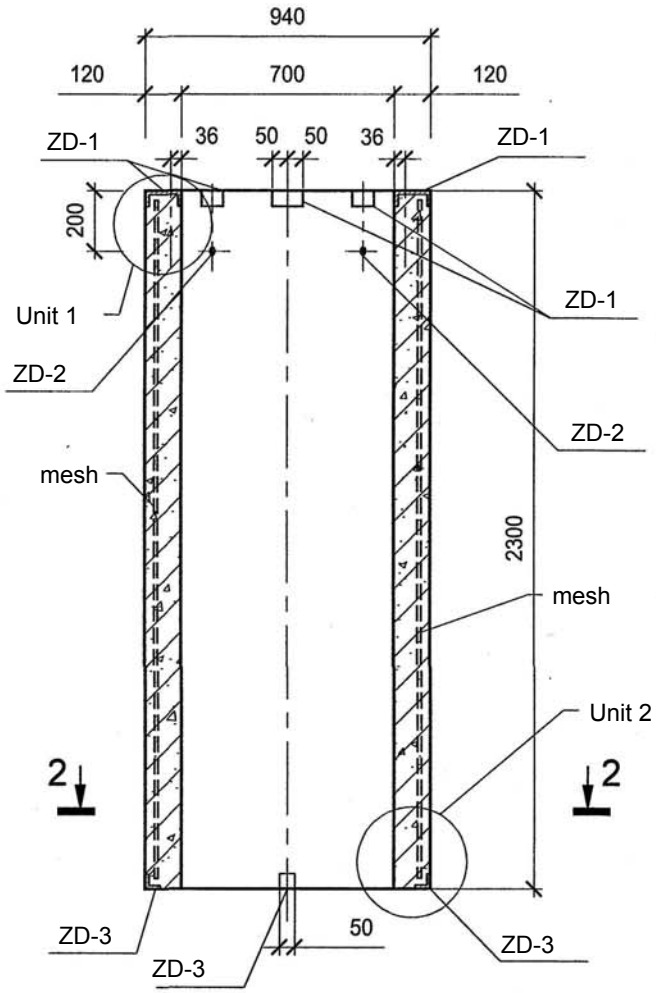
UNIT FOR INSTALLATION OF ROOF MOUNTED FANS ON HIGH REINFORCED CONCRETE SLEEVES STB... S 1:25



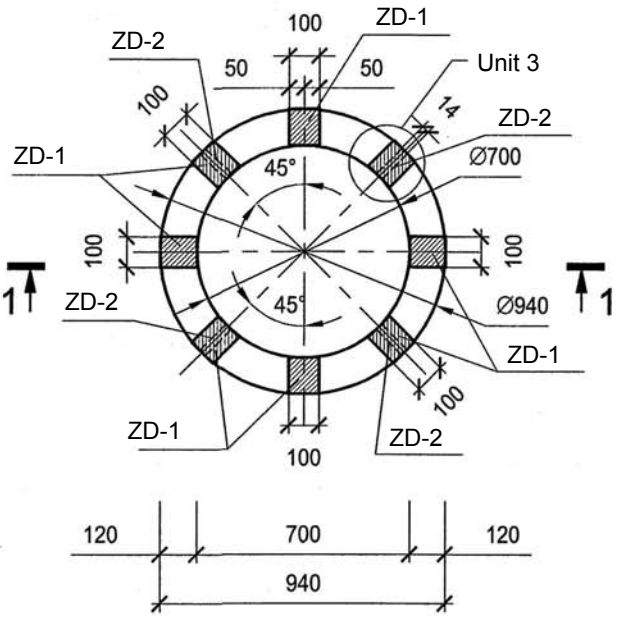
No.	Name
1	Roof mounted fan for smoke removal typea VKRM ...;
2	STB ... reinforced concrete sleeve;
3	Reinforced concrete plate pavement;
4	Fireproof insulation (mineral wool plate);
5	Slope underlayment of M150 cement-sand mortar;
6	Main water-proof roof covering of rolled melting materials;
7	Additional layers of roof covering, according to design;
8	Apron of galvanized roofing steel;
9	Anchor of galvanized steel, spacing 300 mm;
10	Thiocol or polyurethane sealant;
11	M200 cement-sand mortar.

Installation of roof mounted fans on sleeves

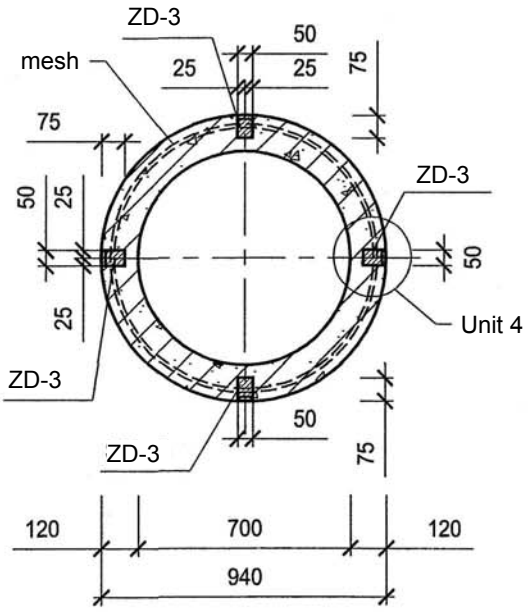
STB-1 REINFORCED CONCRETE SLEEVE. SECTION 1-1. S 1:25



STB-1 REINFORCED CONCRETE SLEEVE. TOP VIEW. S 1:25



STB-1 REINFORCED CONCRETE SLEEVE. SECTION 2-2. S 1:25

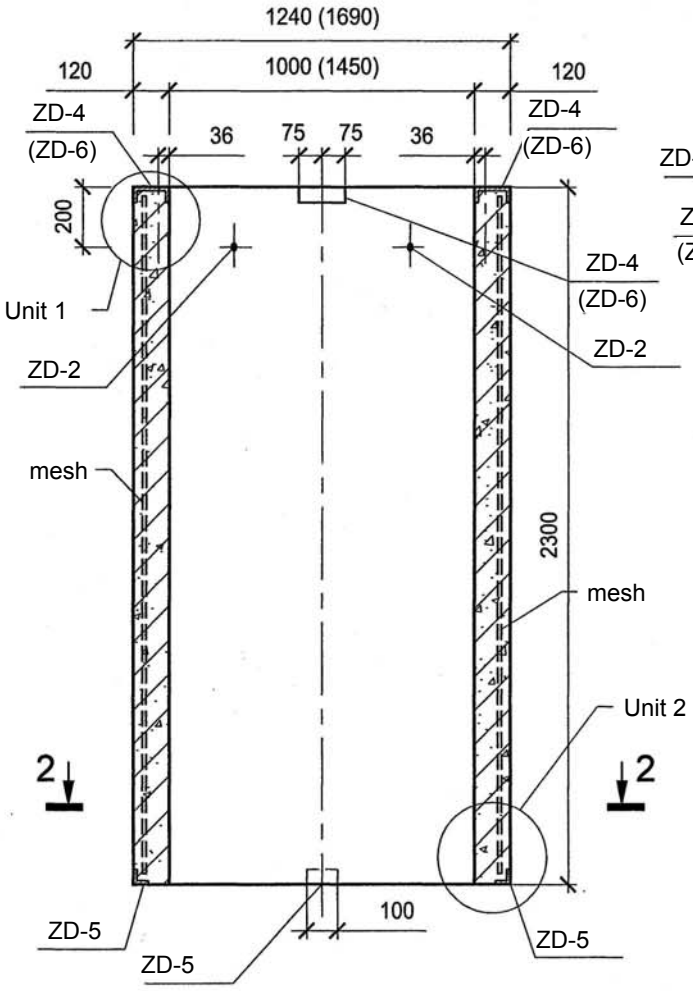


NOTES:

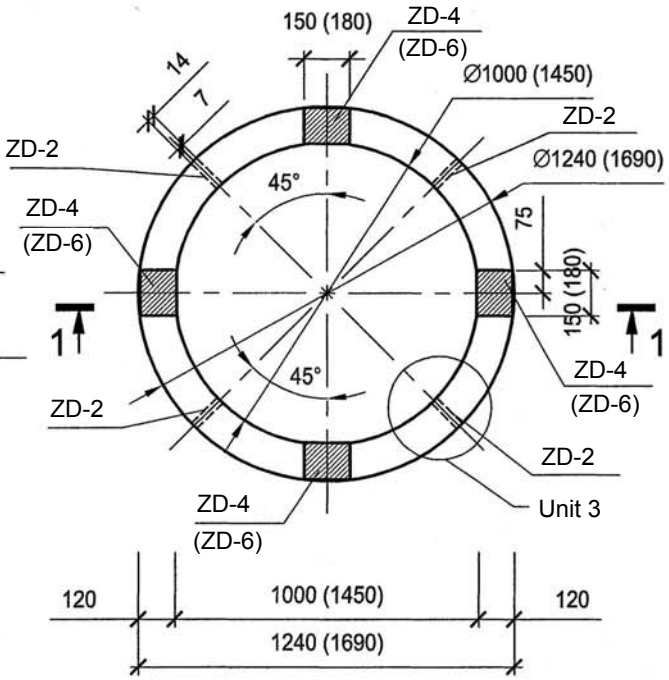
1. The sheet shows the structure of STB-1 reinforced concrete sleeve for VKRM-5; 6.3-2 DU roof mounted fans.
2. Embedded parts ZD-1 – for fixing of fan on reinforced concretesleeve; ZD-2 – for fixing of metal pallet (if necessary), as well as for installation of reinforced concrete sleeve; ZD-3 – for fixing of reinforced concrete sleeve on pavement plates.
3. Reinforcement of reinforced concrete sleeve shall be with 08 A-N1/100/100 welded mesh at the external edge (30 mm from the edge of the sleeve). Meshes shall overlap with crossover of 400 mm.

Installation of roof mounted fans on sleeves

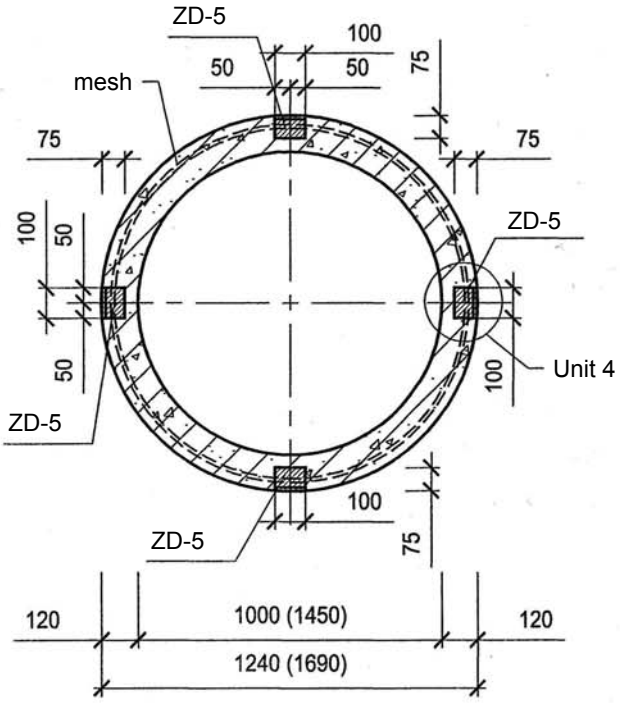
STB-2 AND STB-3 REINFORCED CONCRETE SLEEVE. SECTION 1-1. S 1:25



STB-2 AND STB-3 REINFORCED CONCRETE SLEEVE. TOP VIEW. S 1:25



STB-2 AND STB-3 REINFORCED CONCRETE SLEEVE. SECTION 2-2. S 1:25



NOTES:

1. The sheet shows the structure of STB-2 reinforced concrete sleeve – for VKRM-8-2 DU-01; 02 roof mounted fans and STB-3 reinforced concrete sleeve for VKRM-12.5-2 DU roof mounted fans.

2. Dimensions in brackets – for STB-3 reinforced concrete sleeve.

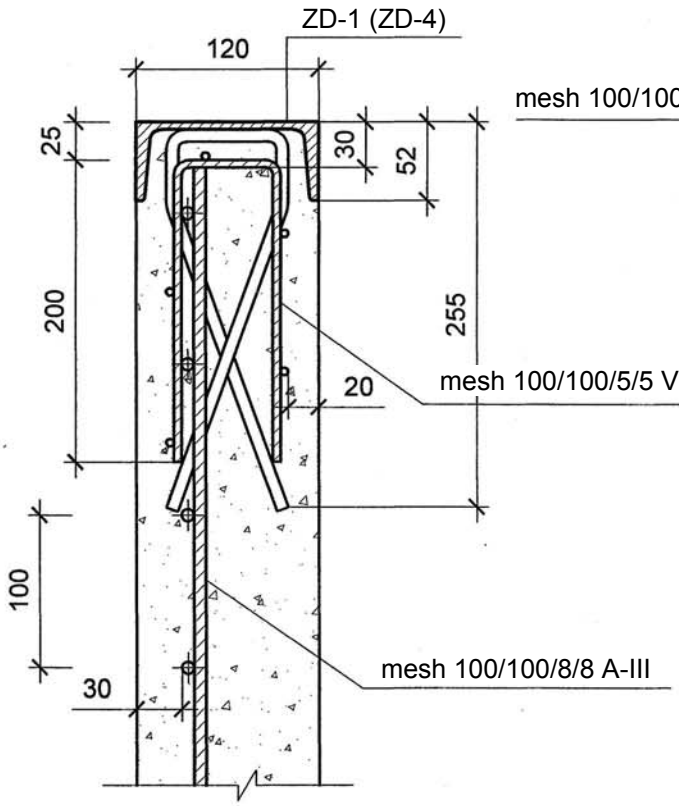
3. Embedded parts ZD-4 and ZD-6 – for fixing of fans on reinforced concrete sleeve; ZD-2 – for fixing of metal pallet (if necessary), as well as for installation of reinforced concrete sleeve; ZD-5 – for fixing of reinforced concrete sleeve on pavement plates.

4. Reinforcement reinforced concrete sleeves shall be with 08 A-III/100/100 welded mesh at the external edge (30 mm from the edge of the sleeve). Meshes shall overlap with crossover of 400 mm.

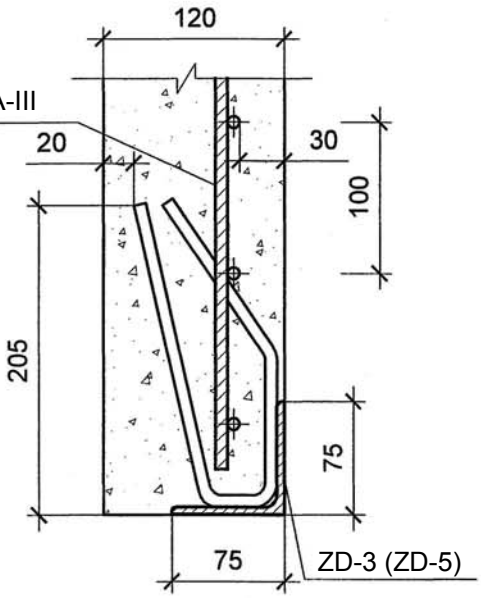
5. Grades in brackets are for embedded parts for STB-3.

Installation of roof mounted fans on sleeves

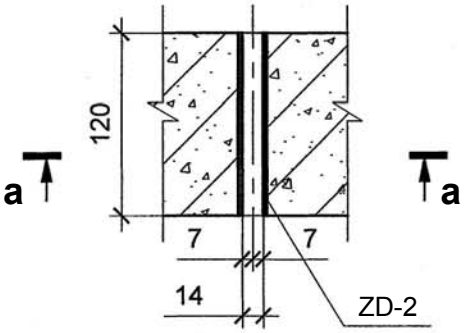
UNIT1.
INSTALLATION ZD-1 (ZD-4). S 1:5



UNIT 2.
INSTALLATION ZD-3 (ZD-5). S 1:5

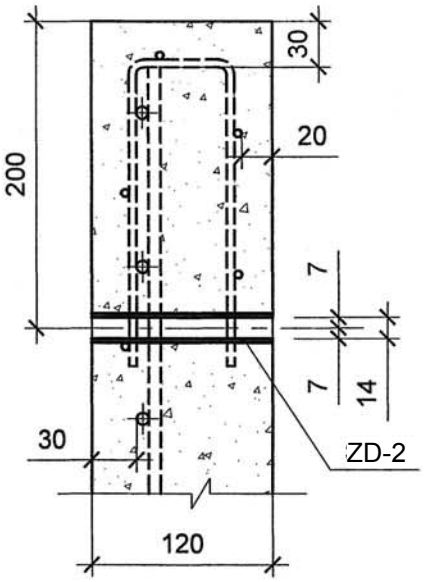


UNIT 3.
INSTALLATION ZD-2. S 1:5

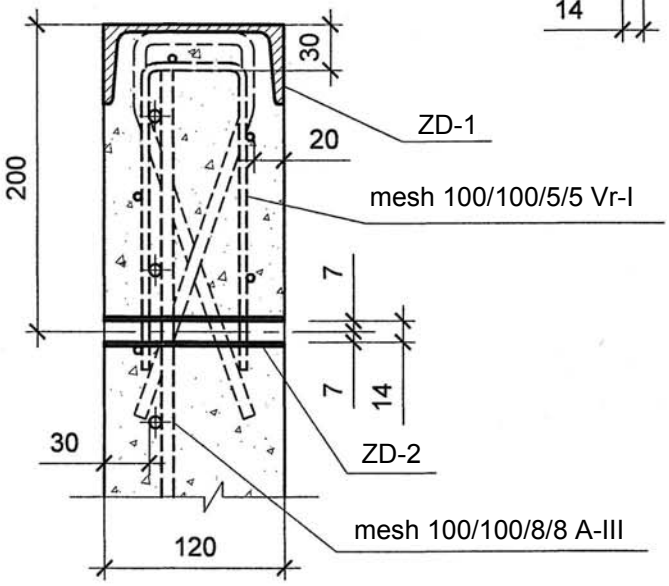


SECTION a-a. INSTALLATION ZD-2. S 1:5

STB-2 AND STB-3



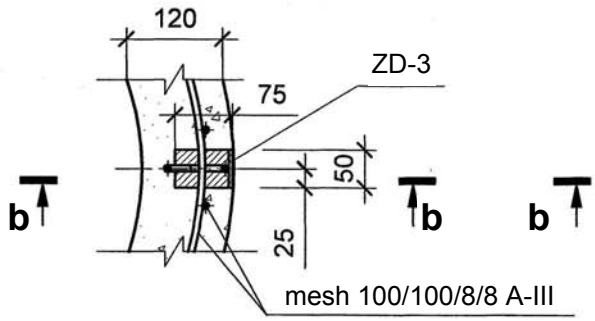
STB-1



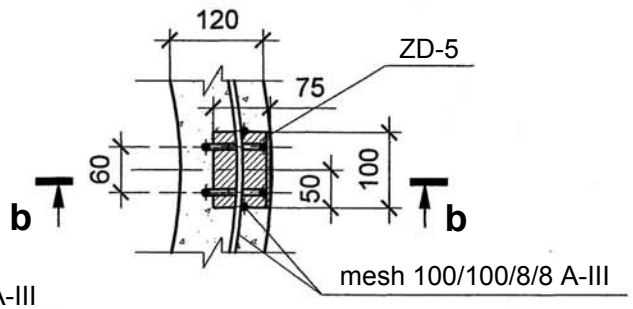
Installation of roof mounted fans on sleeves

UNIT 4. INSTALLATION ZD-3 (ZD-5). S 1:10

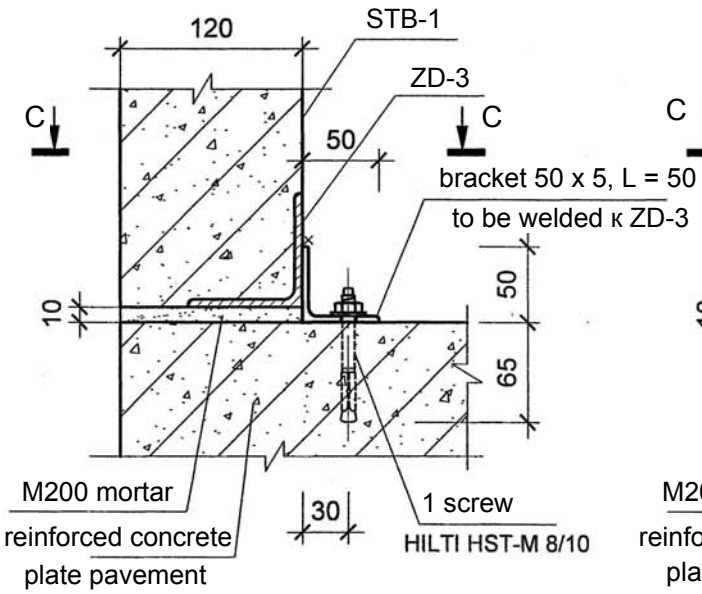
STB-1



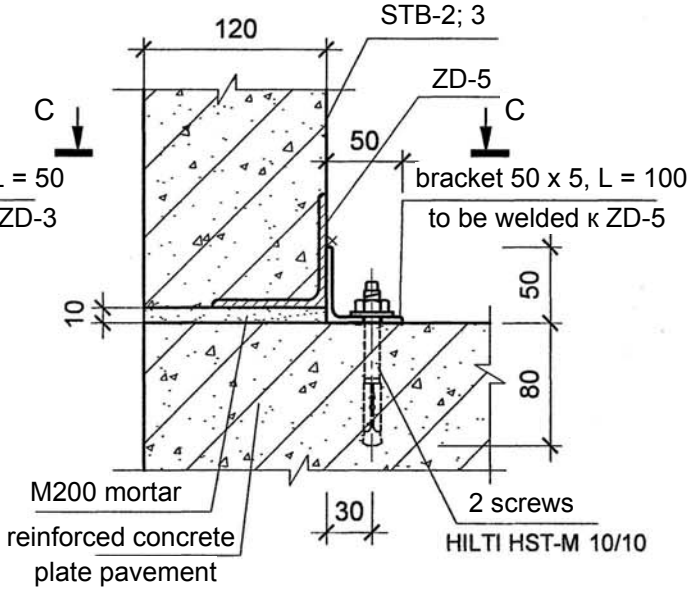
STB-2 AND STB-3



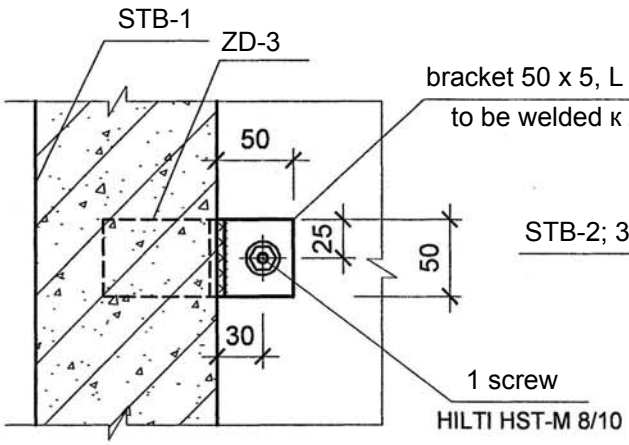
UNIT B.
STB-1. S 1:5



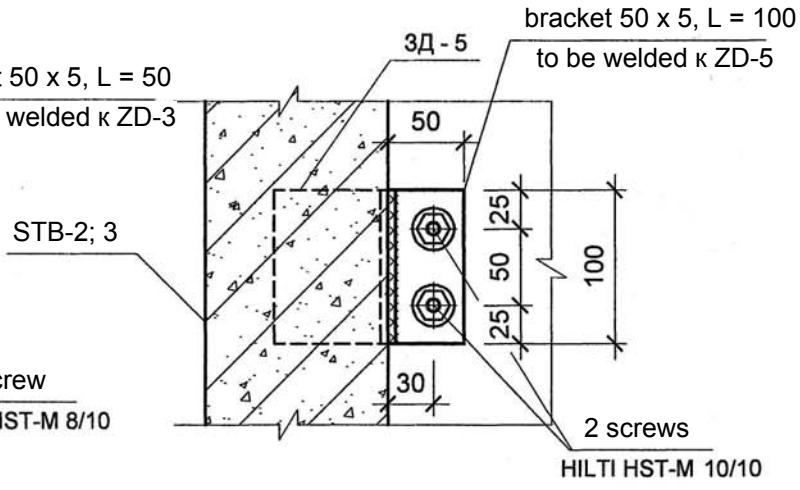
UNIT B.
STB-2 AND STB-3. S 1:5



SECTION c-c.
STB-1. S 1:5

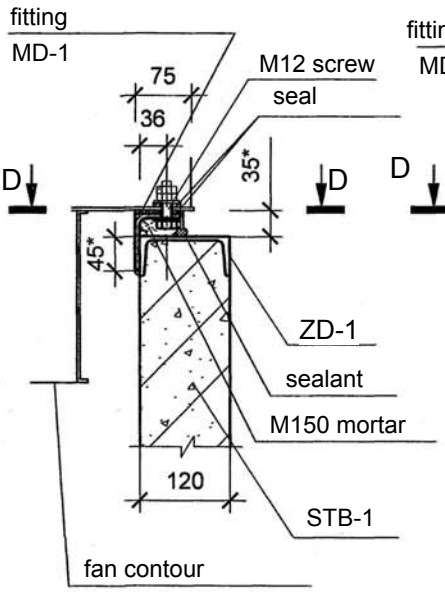


SECTION c-c.
STB-2 AND STB-3. S 1:5

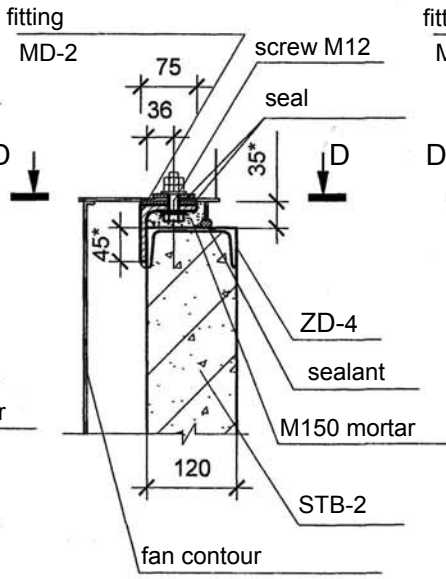


Installation of roof mounted fans on sleeves

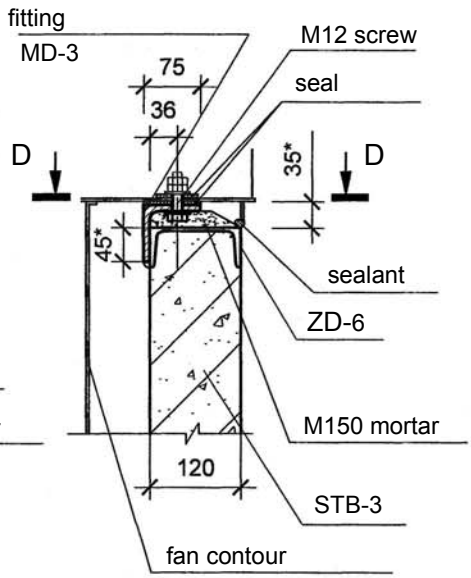
UNIT A.
STB-1. S 1:10



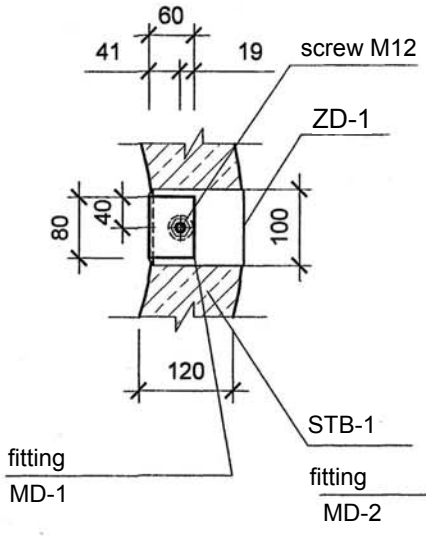
UNIT A.
STB-2. S 1:10



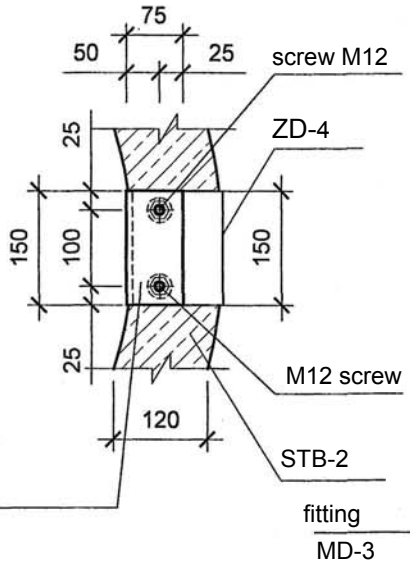
UNIT A.
STB-3. S 1:10



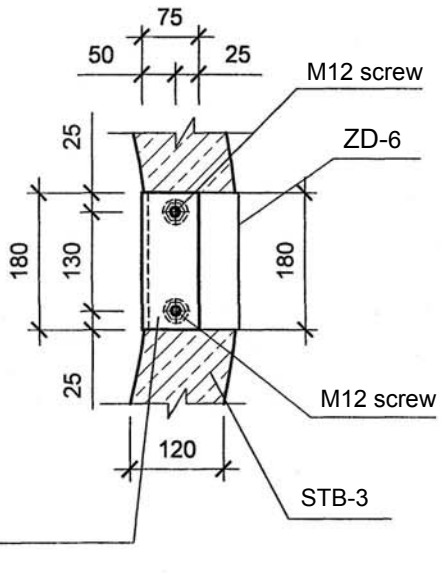
SECTION d-d.
STB-1. S 1:10



SECTION d-d.
STB-2. S 1:10



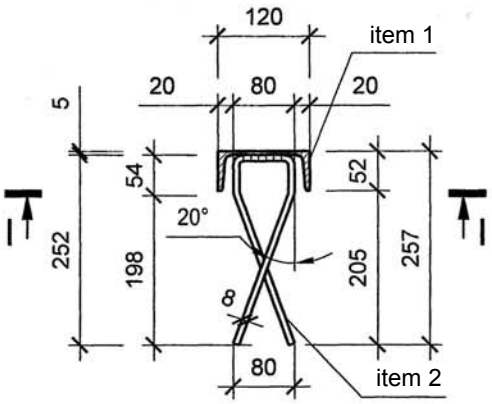
SECTION d-d.
STB-3. S 1:10



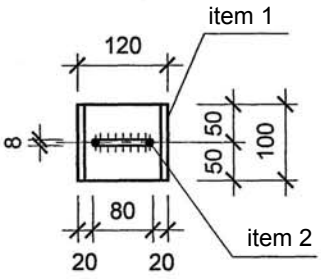
** sign indicate items, which shall be defined before installation of equipment.*

Installation of roof mounted fans on sleeves

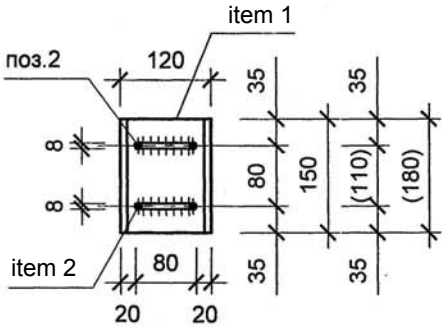
EMBEDDED PARTS ZD-1;
ZD-4 AND ZD-6.
GENERAL VIEW. S 1:10



SECTION I-I. M 1:10.
ZD-1

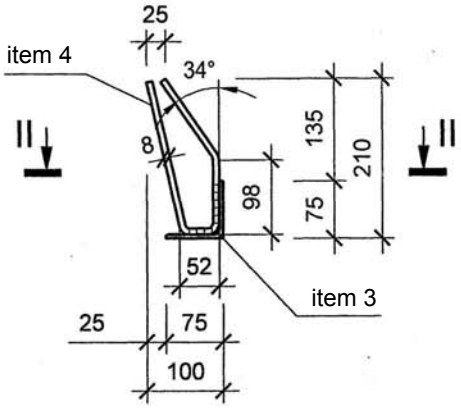


SECTION I-I. M 1:10.
ZD-4 AND ZD-6

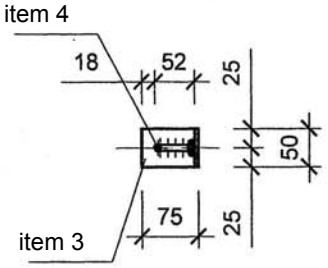


Dimensions in brackets are for ZD-6

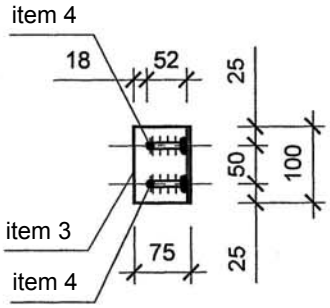
EMBEDDED PARTS
ZD-3 and ZD-5.
GENERAL VIEW. S 1:10



SECTION II-II. S 1:10.
ZD-3



SECTION II-II. S 1:10.
ZD-5



Grade	No.	Section	Number	Item length, mm	Weight, kg	
					items	grades
ZD-1	1	channel section No. 12	1	100	1,04	1,33
	2	bracket Ø 8 A-III	1	700	0,28	
ZD-2	1	pipe D23, t = 1.5 mm	1	120	0,095	0,095
ZD-3	1	bracket 75 x 5	1	50	0,29	0,54
	2	bracket Ø 8 A-III	1	600	0,24	
ZD-4	1	channel section No. 12	1	150	1,56	2,14
	2	bracket Ø 8 A-III	2	700	0,28	
ZD-5	1	bracket 75 x 5	1	100	0,58	1,07
	2	bracket Ø 8 A-III	2	600	0,24	
ZD-6	1	channel section No. 12	1	180	1,872	2,45
	2	bracket Ø 8 A-III	2	700	0,28	

Installation of roof mounted fans on sleeves

MATERIALS SPECIFICATION

No.	Name	Number	Unit weight, kg	Note total weight, kg
	REINFORCED CONCRETE SLEEVE STB-1			
1	Concrete V25; F150; W6, cubic m	0,72		
2	Embedded part ZD-1	8	1,33	10,64
3	Embedded part ZD-2	4	0,095	0,38
4	Embedded part ZD-3	4	0,54	2,16
5	Mesh 100/100/8/8 A-III, sq m	8,2	8,12	66,58
6	Mesh 100/100/5/5 Vr-1, sq m	1,65	3,26	5,38
7	Screw HILTI HST-M 8/10	4		
8	Screw; nut; washer M12*	8/16/8		
9	M150 cement-sand mortar, cubic m	0,006		
10	M200 cement-sand mortar, cubic m	0,004		
11	Building sealant, running m	3		
12	Fitting MD-1	8	0,46	3,68
	REINFORCED CONCRETE SLEEVE STB-2			
1	Concrete V25; F150; W6, cubic m	0,98		
2	Embedded part ZD-4	4	2,14	8,56
3	Embedded part ZD-2	4	0,095	0,38
4	Embedded part ZD-5	4	1,07	4,28
5	Mesh 100/100/8/8 A-III, sq m	10,4	8,12	84,45
6	Mesh 100/100/5/5 Vr-1, sq m	2,1	3,26	6,85
7	Screw HILTI HST-M 10/10	8		
8	Screw; nut; washer M12*	8/16/8		
9	M150 cement-sand mortar, cubic m	0,007		
10	M200 cement-sand mortar, cubic m	0,004		
11	Building sealant, running m	4		
12	Fitting MD-2	4	1,35	5,4
	REINFORCED CONCRETE SLEEVE STB-3			
1	Concrete V25; F150; W6, cubic m	1,37		
2	Embedded part ZD-6	4	2,45	9,8
3	Embedded part ZD-2	4	0,095	0,38
4	Embedded part ZD-5	4	1,07	4,28
5	Mesh 100/100/8/8 A-III, sq m	13,7	8,12	111,2
6	Mesh 100/100/5/5 Vr-1, sq m	2,8	3,26	0
7	Screw HILTI HST-M 10/10	8		
8	Screw; nut; washer M12*	8/16/8		
9	M150 cement-sand mortar, cubic m	0,01		
10	M200 cement-sand mortar, cubic m	0,006		
11	Building sealant, running m	5,5		
12	Fitting MD-3	4	1,62	6,48

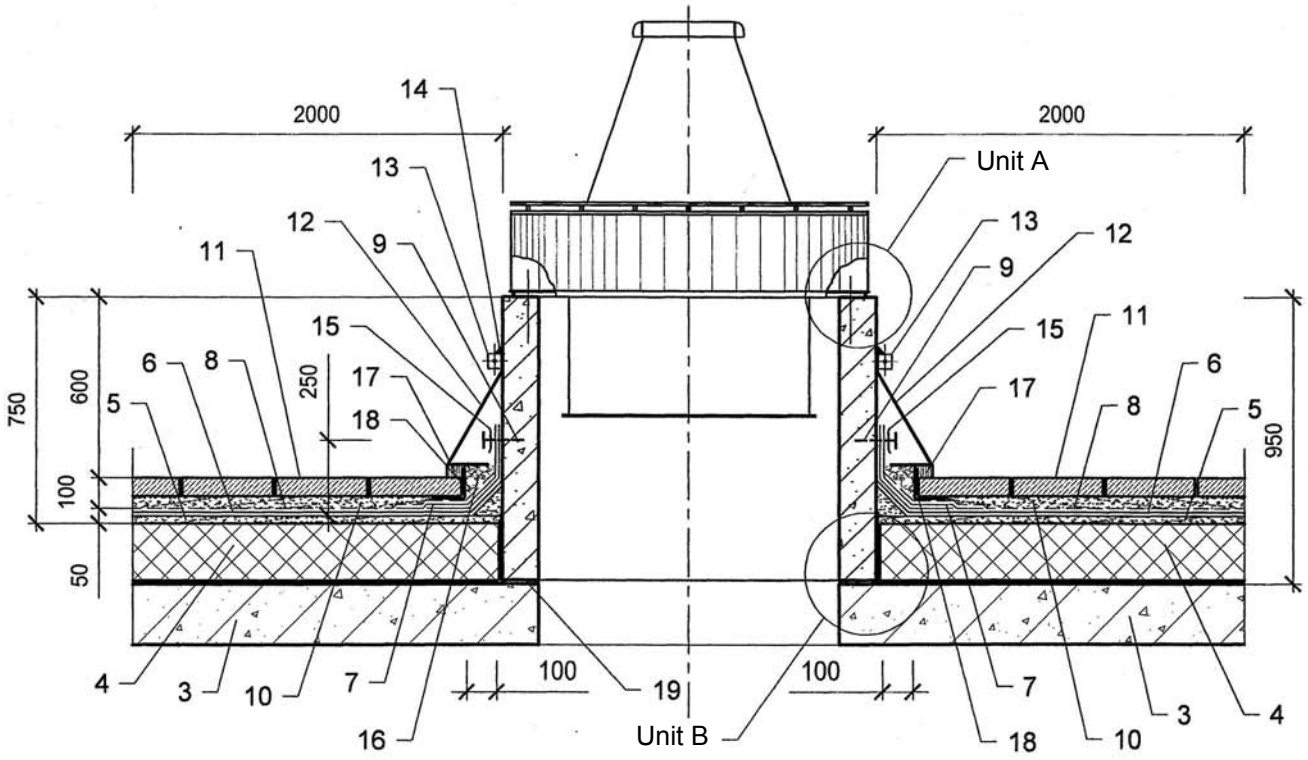
Specifications show the amount of main materials for manufacturing and installation of reinforced concrete sleeves STB-1; 2 and 3.
** Length of M12 screws shall be defined at the place of installation.*

SPECIFICATION OF FITTINGS

Grade	No.	Section	Number	Item length, mm	Weight, kg	
					items	grades
MD-1		Bracket 75 x 5	1	80	0,46	0,46
MD-2		Bracket 75 x 8	1	150	1,35	1,35
MD-3		Bracket 75 x 8	1	180	1,62	1,62

Installation of roof mounted fans on sleeves

UNIT FOR INSTALLATION OF ROOF MOUNTED FANS ON LOW STBk REINFORCED CONCRETE SLEEVES... S 1:25



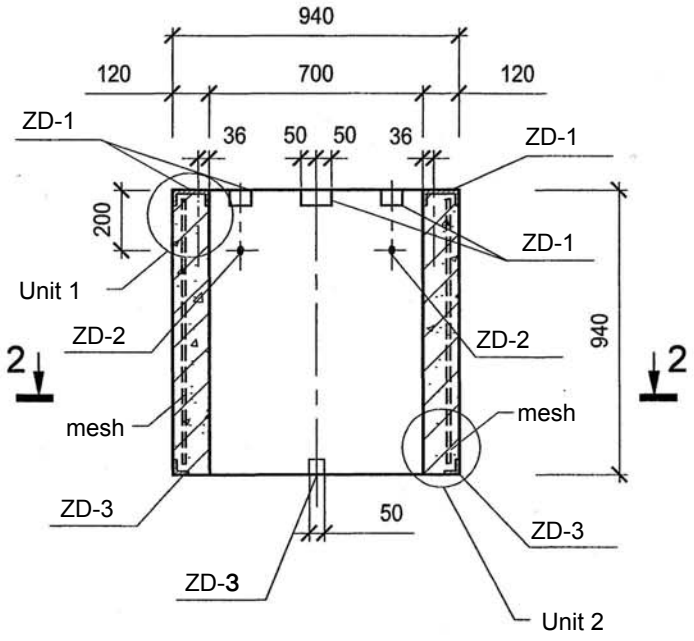
No.	Name
1	Roof mounted fan for smoke removal typea VKRM...;
2	STBk reinforced concrete sleeve...;
3	Reinforced concrete plate pavement;
4	Fireproof insulation (mineral wool plate);
5	Slope underlayment of M150 cement-sand mortar;
6	Main water-proof roof covering of rolled melting materials;
7	Additional layers of roof covering, according to design;
8	Cement-sand M150 mortar;
9	Anchor of galvanized steel, spacing 200 mm;
10	Additional roofing layer, dry installation; at the places of joining to reinforced concrete sleeve put on asphalt joint filler;
11	Concrete plates on mortar, joints shall be floated with sand mixture;
12	Skirt of galvanized roofing steel;
13	Clamp;
14	Thiocol or polyurethane sealant;
15	Pressure rod of galvanized roofing steel;
16	Gravel;
17	Asphalt joint filler;
18	Metal frame made of angle 100 x 8, to be installed on asphalt joint filler;
19	M200 cement-sand mortar.

NOTES:

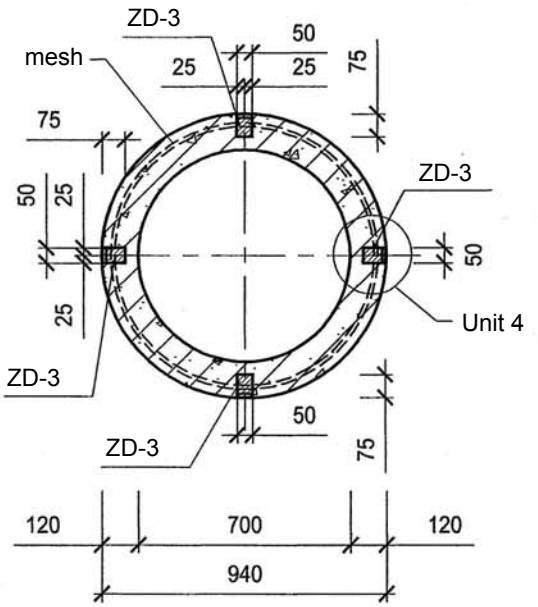
1. *This unit is developed for installation of roof mounted fans for smoke removal on low STBk reinforced concrete sleeves-… Within 2 m from the edge of fan holes (reinforced concrete sleeve) there shall be roof protection of non-combustible materials.*

Installation of roof mounted fans on sleeves

REINFORCED CONCRETE SLEEVE STBk-1.
SECTION 1-1. S 1:25



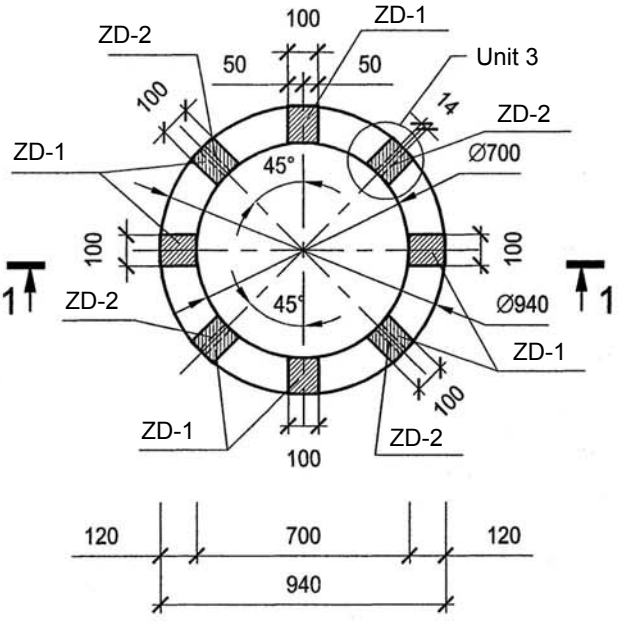
REINFORCED CONCRETE SLEEVE STBk-1.
SECTION 2-2. S 1:25



NOTES:

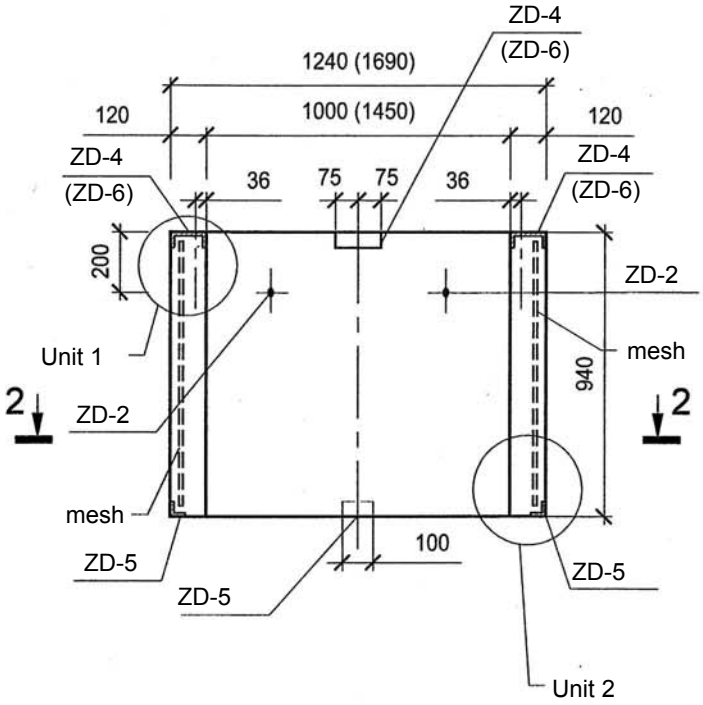
1. The sheet shows the structure of reinforced concrete sleeve STBk-1 – for roof mounted fans VKRM-5; 6.3-2 DU.
2. Embedded parts ZD-1 – for fixing of fan on reinforced concrete sleeve; ZD-2 – for fixing of metal pallet (if necessary), as well as for installation of reinforced concrete sleeve; ZD-3 – for fixing of reinforced concrete sleeve on pavement plates.
3. Reinforcement of reinforced concrete sleeve shall be with 1 welded mesh 08 A-III/100/100 at the external edge (30 mm from the edge of the sleeve). Meshes shall overlap with crossover of 400 mm.

REINFORCED CONCRETE SLEEVE STBk-1.
TOP VIEW. S 1:25

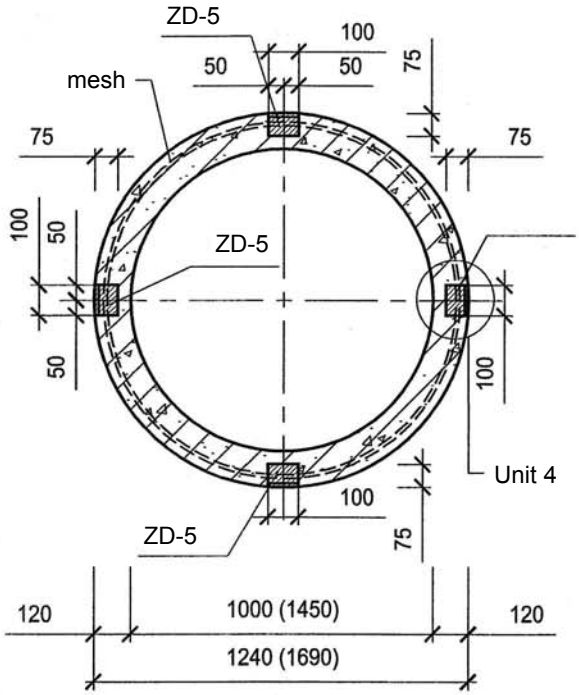


Installation of roof mounted fans on sleeves

REINFORCED CONCRETE SLEEVE STBk-2 AND STBk-3. SECTION 1-1.S 1:25



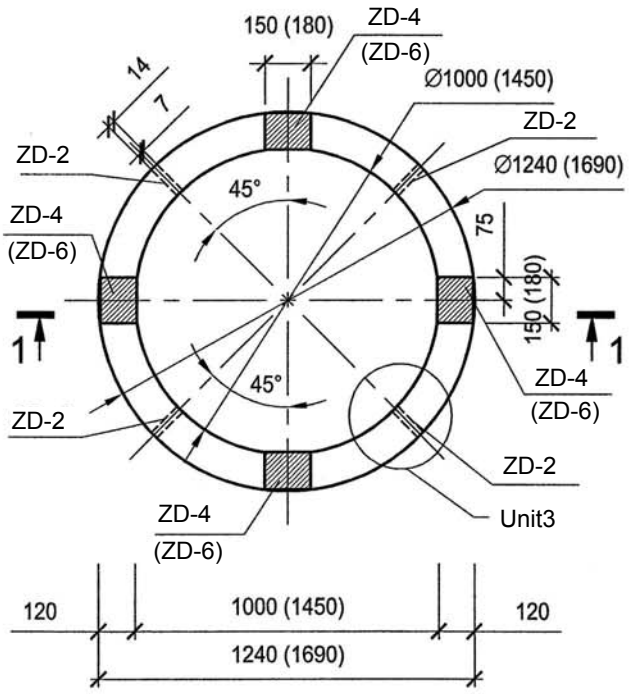
REINFORCED CONCRETE SLEEVE STBk-2 AND STBk-3. SECTION 2-2. S 1:25



NOTES:

1. The sheet shows the structure of reinforced concrete sleeve STB-2k
- for roof mounted fans VKRM-8-2DU-01; 02
and of reinforced concrete sleeve STB-3k for roof mounted fans VKRM-12.5-2DU.
2. Dimensions in brackets – for of reinforced concrete sleeve STB-3k.
3. Embedded parts ZD-4 and ZD-6-for fixing fans on reinforced concrete sleeve; ZD-2 – for fixing of metal pallet (if necessary), as well as for installation of reinforced concrete sleeve; ZD-5 – for fixing of reinforced concrete sleeve on pavement plates.
4. Reinforcement reinforced concrete sleeves shall be with 1 welded mesh 08 A-III/100/100 at the external edge (30 mm from the edge of the sleeve). Meshes shall overlap with crossover of 400 mm.
5. Grades in brackets are for embedded parts for STB-3k.

REINFORCED CONCRETE SLEEVE STBk-2 AND STBk-3. TOP VIEW. S 1:25



Installation of roof mounted fans on sleeves

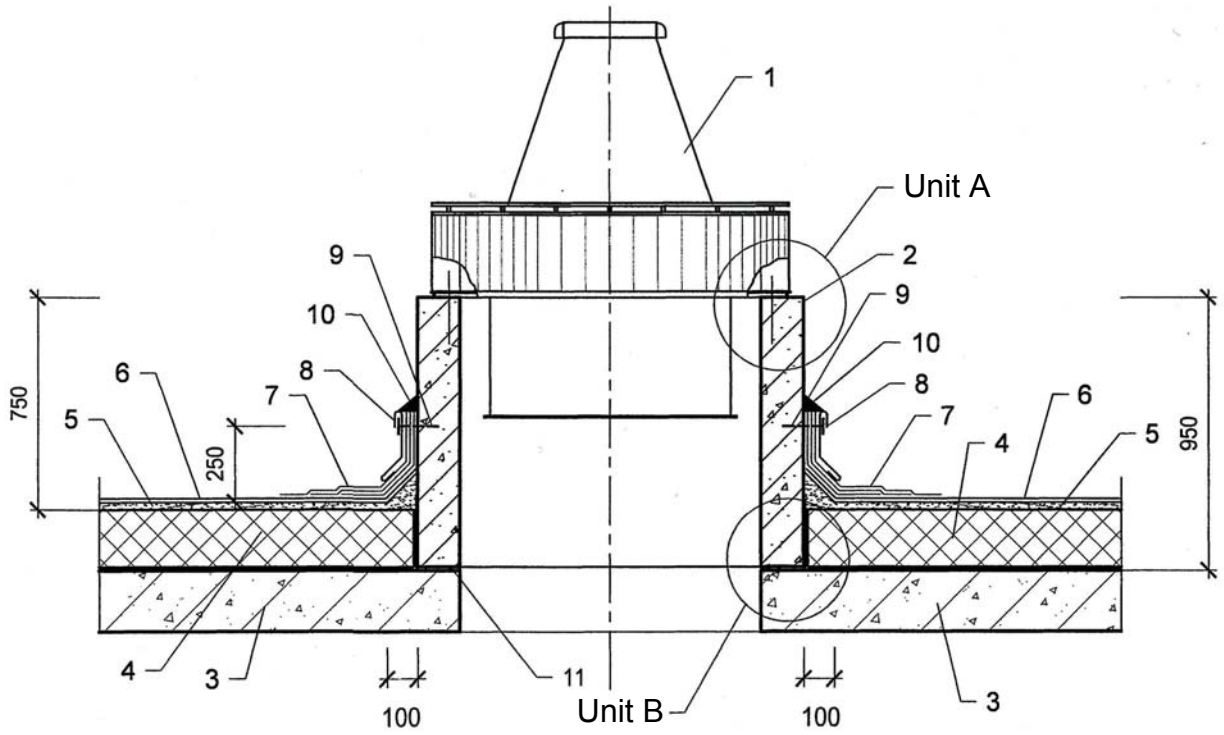
MATERIALS SPECIFICATION

No.	Name	Number	Unit weight, kg	Note total weight, kg
	REINFORCED CONCRETE SLEEVE STBk-1			
1	Concrete V25; F150; W6, cubic m	0,3		
2	Embedded part ZD-1	8	1,33	10,64
3	Embedded part ZD-2	4	0,095	0,38
4	Embedded part ZD-3	4	0,54	2,16
5	Mesh 100/100/8/8 A-III, sq m	3,35	8,12	27,2
6	Mesh 100/100/5/5 Vr-1, sq m	1,65	3,26	5,38
7	Screw HILTI HST-M 8/10	4		
8	Screw; nut; washer N112*	8/16/8		
9	M150 cement-sand mortar, cubic m	0,006		
10	M200 cement-sand mortar, cubic m	0,004		
11	Building sealant, running m	3		
12	Fitting MD-1	8	0,46	3,68
	REINFORCED CONCRETE SLEEVE STBk-2			
1	Concrete V25; F150; W6, cubic m	0,4		
2	Embedded part ZD-4	4	2,14	8,56
3	Embedded part ZD-2	4	0,095	0,38
4	Embedded part ZD-5	4	1,07	4,28
5	Mesh 100/100/8/8 A-III, sq m	4,25	8,12	34,51
6	Mesh 100/100/5/5 Vr-1, sq m	2,1	3,26	6,85
7	Screw HILTI HST-M 10/10	8		
8	Screw; nut; washer M12*	8/16/8		
9	M150 cement-sand mortar, cubic m	0,007		
10	M200 cement-sand mortar, cubic m	0,004		
11	Building sealant, running m	4		
12	Fitting MD-2	4	1,35	5,4
	REINFORCED CONCRETE SLEEVE STBk-3			
1	Concrete V25; F150; W6, cubic m	0,56		
2	Embedded part ZD-6	4	2,45	9,8
3	Embedded part ZD-2	4	0,095	0,38
4	Embedded part ZD-5	4	1,07	4,28
5	Mesh 100/100/8/8 A-III, sq m	5,6	8,12	45,47
6	Mesh 100/100/5/5 Vr-1, sq m	2,8	3,26	0
7	Screw HILTI HST-M 10/10	8		
8	Screw; nut; washer M12*	8/16/8		
9	M150 cement-sand mortar, cubic m	0,01		
10	M200 cement-sand mortar, cubic m	0,006		
11	Building sealant, running m	5,5		
12	Fitting MD-3	4	1,62	6,48

Specifications show the amount of main materials for manufacturing and installation of reinforced concrete sleeves STB-1; 2 and 3.
** Length of M12 screws shall be defined at the place of installation.*

Installation of roof mounted fans on sleeves

UNIT FOR INSTALLATION OF ROOF MOUNTED FANS ON LOW STBk REINFORCED CONCRETE SLEEVES... S 1:25



No.	Name
1	Roof mounted VKRM fan... for exhaust ventilation systems;
2	STBk reinforced concrete sleeve...;
3	Reinforced concrete plate pavement;
4	Fireproof insulation (mineral wool plate);
5	Slope underlayment of M150 cement-sand mortar;
6	Main water-proof roof covering of rolled melting materials;
7	Additional layers of roof covering, according to design;
8	Apron of galvanized roofing steel;
9	Anchor of galvanized steel, spacing 300 mm;
10	Thiocol or polyurethane sealant;
11	M200 cement-sand mortar.

NOTES:

1. *This unit is developed for installation of roof mounted fans for exhaust ventilation systems on low reinforced concrete sleeves typea STBk-…*
2. *Unit is not meant for installation of roof mounted smoke removal fans.*

Installation of roof mounted fans (VKRM...) on brick sleeves

1. The section shows structures of brick sleeves for installation of VKRM roof mounted smoke removal fans.

Installation of roof mounted fans on sleeves

2. Section consists of 2 parts:

- installation of roof mounted smoke removal fans on high brick sleeve. Structure is used for roofs of combustible materials.
- installation of roof mounted smoke removal fans on short brick sleeve. Structure is used for roof protection layer of non-combustible materials within 2 m from the edge of the sleeve.

3. Structure of brick sleeves is designed for installation at the construction site (at the place of equipment installation).
4. Sections show variant of sleeve installation on pavement in form of monolithic reinforced concrete board. The need for reinforcement of pavement plate at the place of sleeve installation shall be defined in certain design.
5. Structure of brick sleeves is designed taking into account applicable design loads, including wind for the 1st zone.

Drawings of sleeves for installation of roof mounted fans

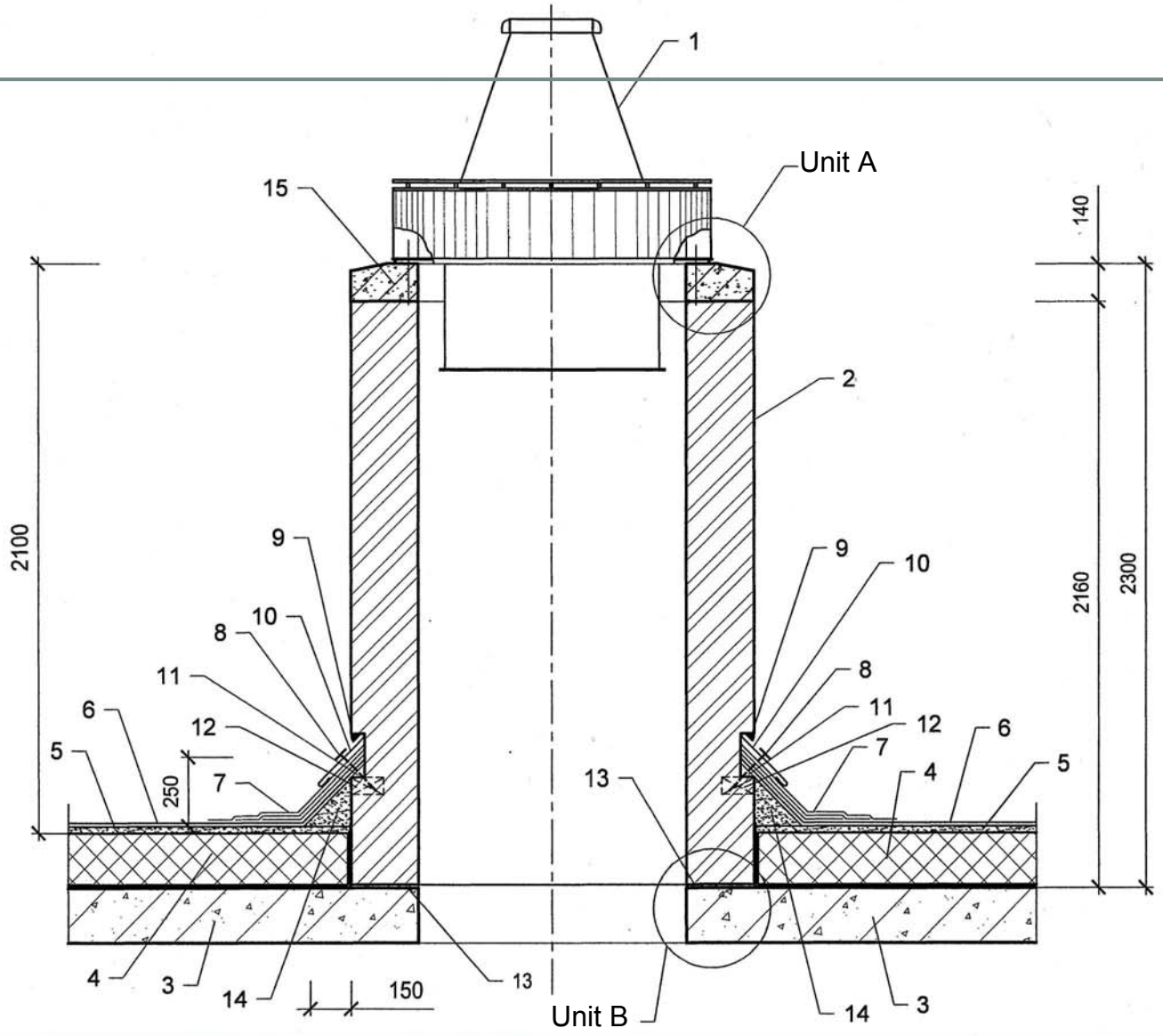
Installation of roof mounted fans on sleeves

STRUCTURE OF BRICK SLEEVES

1. Brick sleeves are made of ceramic brick M125 on M100 mortar.
2. Width of sleeve wall is 250 mm. Height of brick sleeve – 2,300 mm (high sleeve); height of short brick sleeve – 940 mm. Structure of brick sleeves is rectangular in plan. Reinforced concrete plate – lid of the sleeve is provisioned for installation of fans. There is a hole in the plate for the installation dimension of fans.
3. Lid of the sleeve is designed in form of 160 mm wide monolithic reinforced concrete plates. The plate is produced of monolithic concrete V25; W6; F200. Reinforced concrete plates are reinforced by installation of demountable welded mesh in formworks. Mesh shall be installed in the lower part of the plate and put upwards at the edges. Width of protective concrete layer – at least 15 mm.
4. For anchoring of reinforced concrete lid of the sleeve, embedded parts shall be installed in brickwork (along the brickwork).
5. For possible installation of metal pallet, in the walls of brick sleeves (200 mm from the top of the sleeve) there are 4 holes of 014 mm.
6. For anchoring of brick sleeves to the pavement slab, they use rod anchors. Anchors are installed in pre-drilled hole with polymer mortar.
7. Internal surfaces of brick sleeve walls shall be troweled with 1:3 cement and sand mortar:3. Troweling shall be along the brickwork.
8. Installation of embedded parts in reinforced concrete plate of brick sleeves is provisioned for fixing of fittings MD-1; MD-2 and MD-3. Structure of embedded parts is provided for each grade of the sleeve. Fittings are attached to embedded parts with welding before installation of equipment.
9. Depending on fan dimensions, 3 types of brick sleeves are developed in the section: STK-1; STK-2 and STK-3.
10. For joining of roof covering, there is a provision for bearing-out masonry on perimeter and installation of anticepted wooden plugs in brick walls of sleeves.
11. Roof mounted fans shall be fixed to fittings with M12 screws precision B. Length of the screws shall be specified on sight. Screws shall be installed in holes of fittings before welding of the latter to embedded elements of sleeves.
12. Prior to installation of fans the gap between fittings and top of sleeves shall be closed with M 150 cement-sand mortar. It is also necessary to provide a mortar slope at the top of the sleeve.
13. After installation of equipment, the gap between fan and top of the sleeve shall be covered with building sealant.
14. Structure of short brick sleeves is similar to that of high ones.
15. The sections contain specifications for main building materials for each grade of brick sleeve.
16. See also p.106 for work instructions.

Installation of roof mounted fans on sleeves

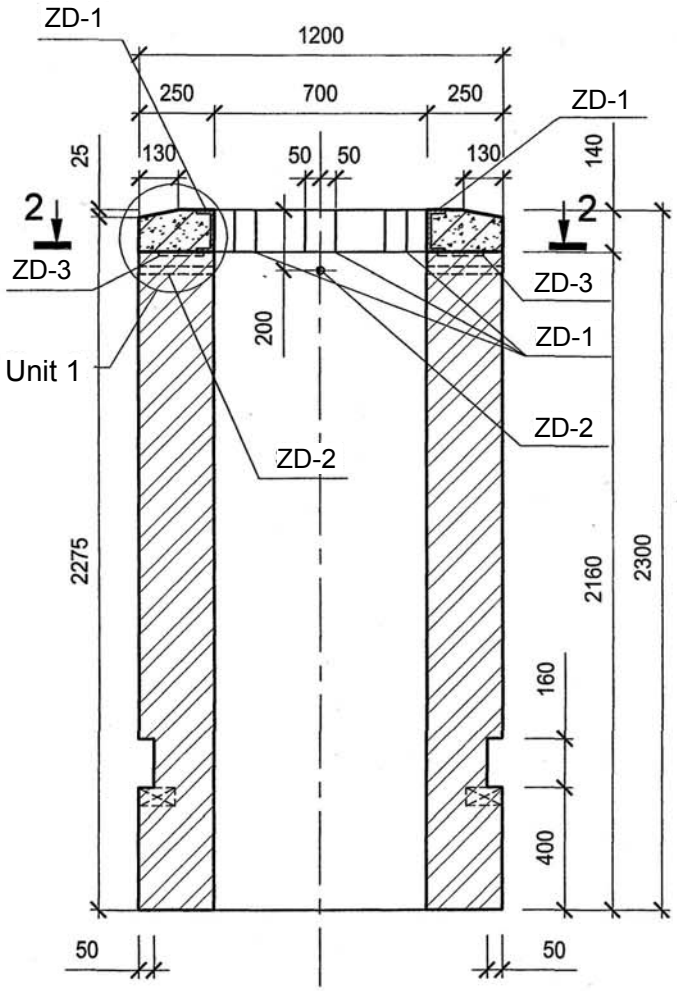
UNIT FOR INSTALLATION OF ROOF MOUNTED FANS ON HIGH BRICK SLEEVES STK... S 1:25



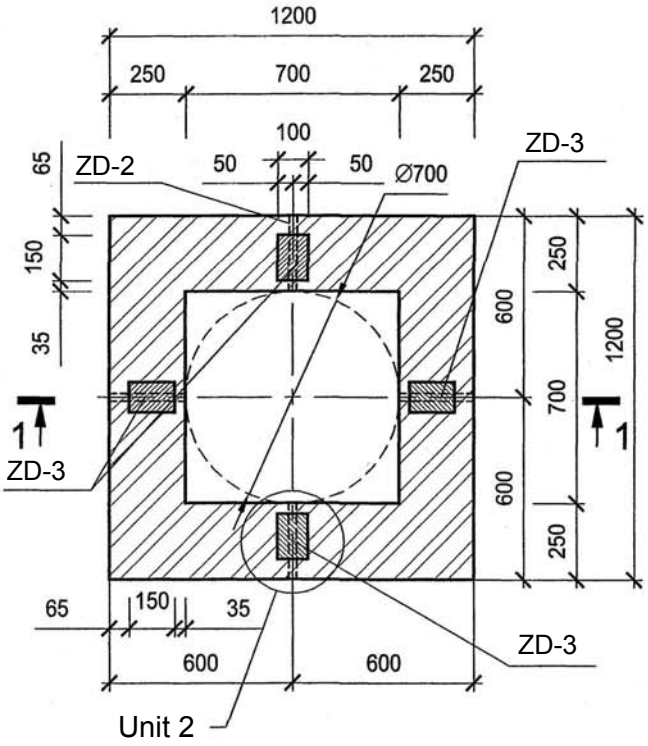
No.	Name
1	Roof mounted fan for smoke removal typea VKRM...
2	Brick sleeve typea STK...
3	Reinforced concrete plate pavement
4	Fireproof insulation (mineral wool plate)
5	Slope underlayment of M150 cement-sand mortar
6	Main water-proof roof covering of rolled melting materials
7	Additional layers of roof covering, according to design
8	Galvanized nail, spacing 300 mm
9	Thiocol or polyurethane sealant
10	Apron of galvanized roofing steel
11	Wooden anticepted block 50 x 50/2
12	Wooden anticepted plug 120 x 120 x 60, spacing 900 mm, to be installed along brickwork
13	M200 cement-sand mortar
14	Inclining upstand of M150 cement-sand mortar
15	Reinforced concrete plate of the sleeve flooring

Installation of roof mounted fans on sleeves

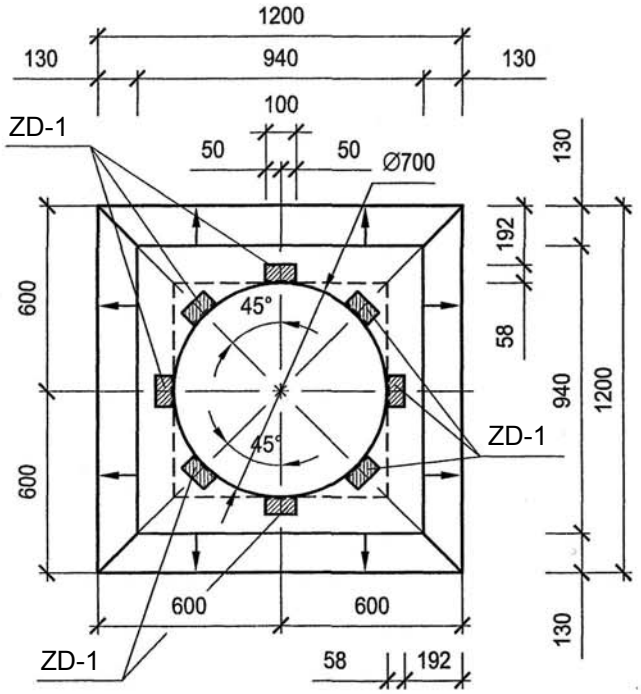
REINFORCED CONCRETE SLEEVE STK-1.
SECTION 1-1. S 1:25



REINFORCED CONCRETE SLEEVE STK-1.
SECTION 2-2. S 1:25



REINFORCED CONCRETE SLEEVE STK-1.
TOP VIEW. REINFORCED CONCRETE
PLATE P-1. S 1:25

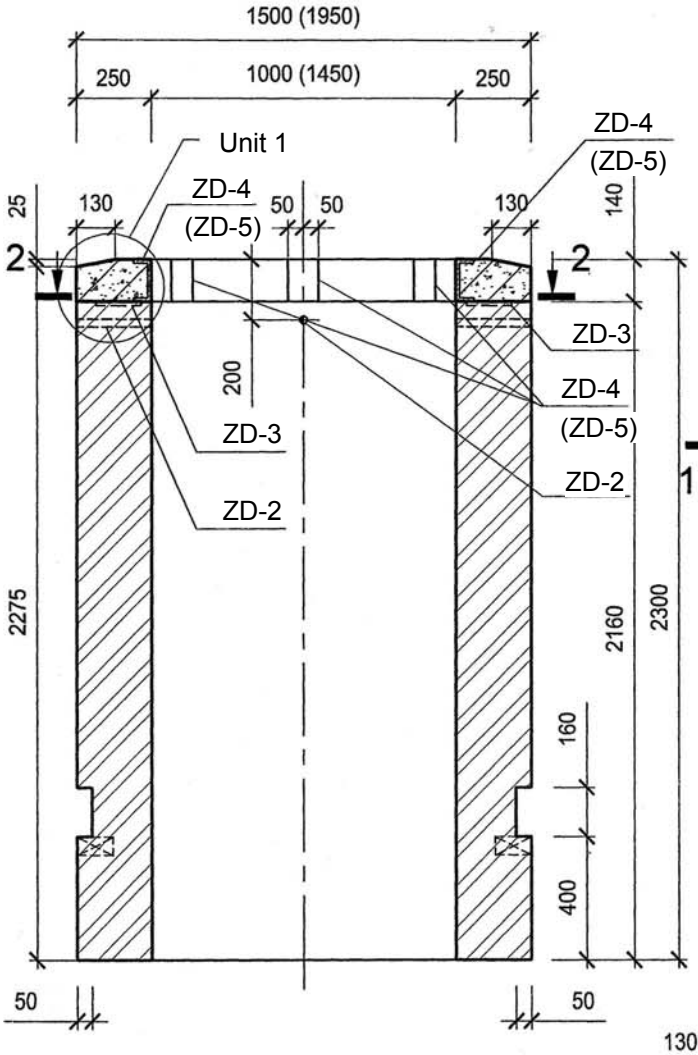


NOTES:

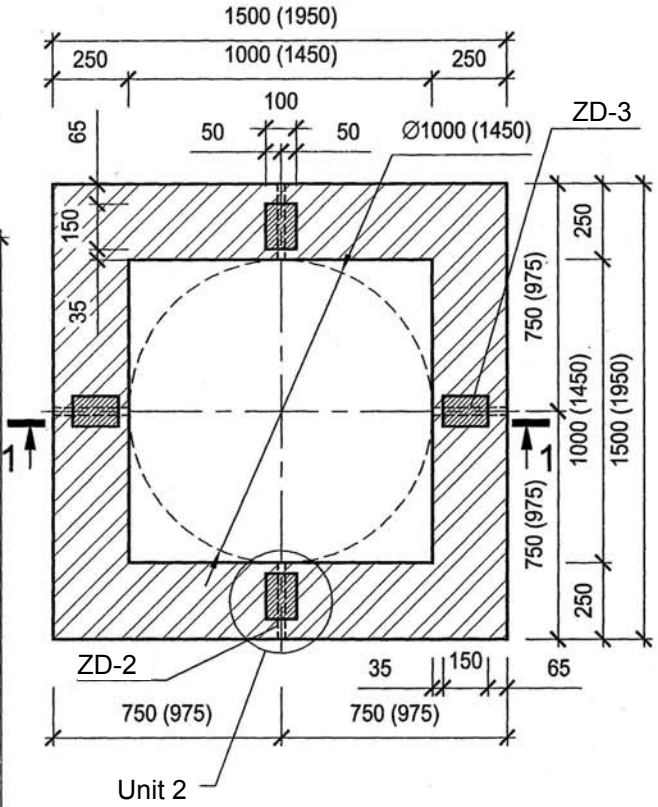
1. The sheet shows the structure of brick sleeve STK-1 – for roof mounted fans VKRM-5; 6.3-2 DU.
2. Embedded parts ZD-1 – for fixing of fan on brick sleeve; ZD-2 – for fixing of metal pallet (if necessary), ZD-3 – for fixing reinforced concrete floor plates P-1 to brick sleeve.
3. Reinforced concrete floor plates P-1 of the sleeve are reinforced with 1 mesh at the lower level: Ø 8A-III/100/100.

Installation of roof mounted fans on sleeves

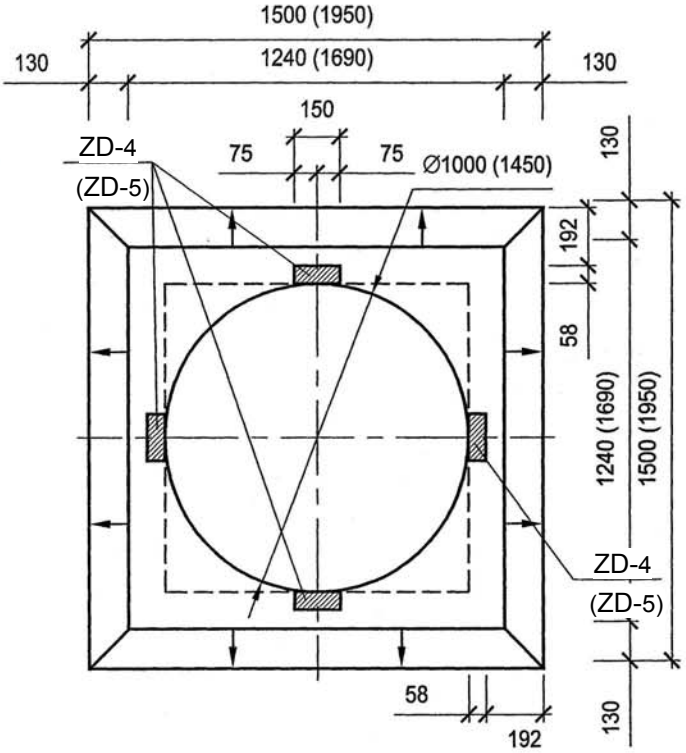
BRICK SLEEVE STK-2 AND STK-3.
SECTION 1-1. S 1:25



BRICK SLEEVE STK-2 AND STK-3.
SECTION 2-2. S 1:25



BRICK SLEEVE STK-2 and STK-3.
TOP VIEW.
REINFORCED CONCRETE PLATES P-2
AND P-3. S 1:25

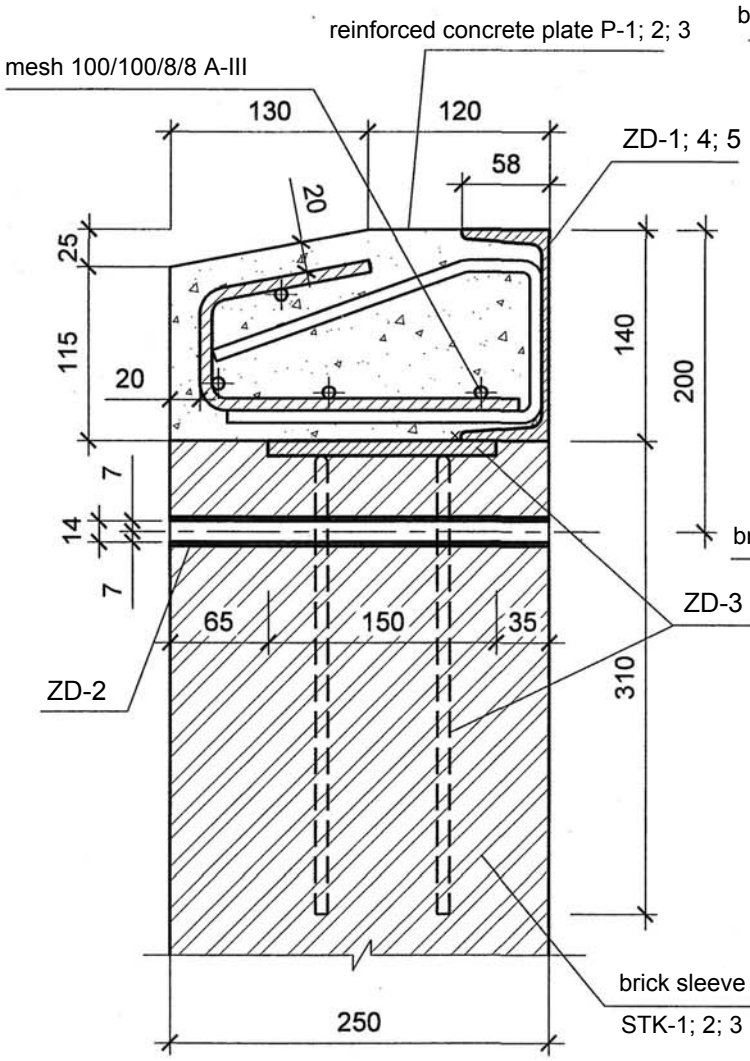


NOTES:

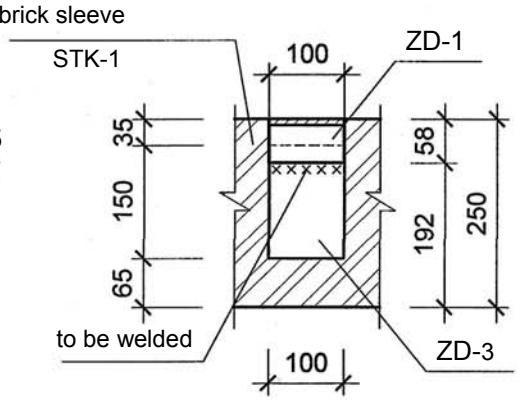
1. The sheet shows the structure of brick sleeve STK-2 – for roof mounted fans VKRM-8-2 DU-01; 02 and brick sleeve STK-3 for roof mounted fans VKRM-12.5-2DU.
2. Dimensions in brackets – for of brick sleeve STK-3.
3. Embedded parts ZD-4 and ZD-5 – for fan fixing on reinforced concrete sleeve; ZD-3 – for fixing of reinforced concrete floor plates P-2 and P-3 to brick sleeve.
4. Reinforcement of reinforced concrete floor plates P-2 and P-3 of sleeves is with 1 mesh at the lower level: 08 A-III/100/100.
5. Grades in in brackets are for embedded parts for STK-3.

Installation of roof mounted fans on sleeves

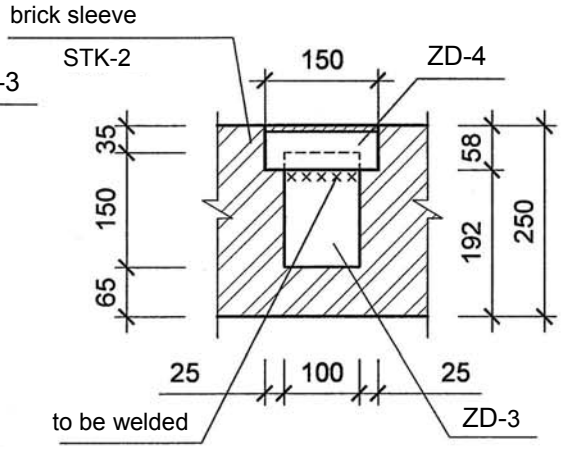
UNIT 1. STK-1; 2; 3. S 1:5



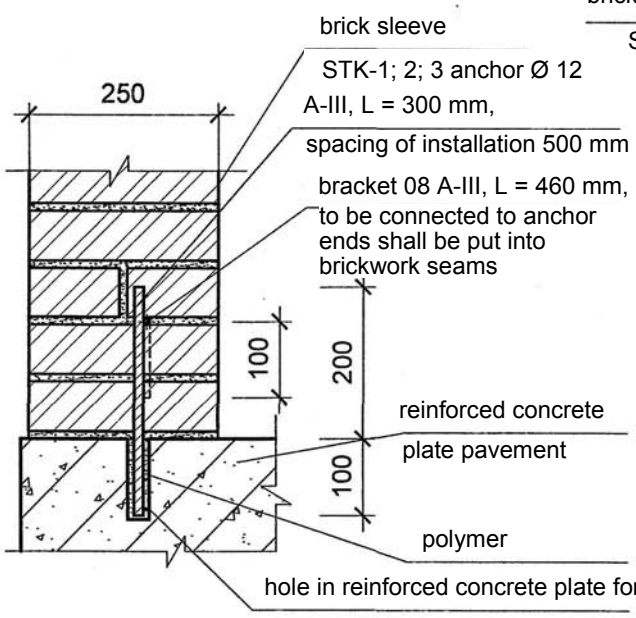
UNIT 2. STK-1. S 1:10



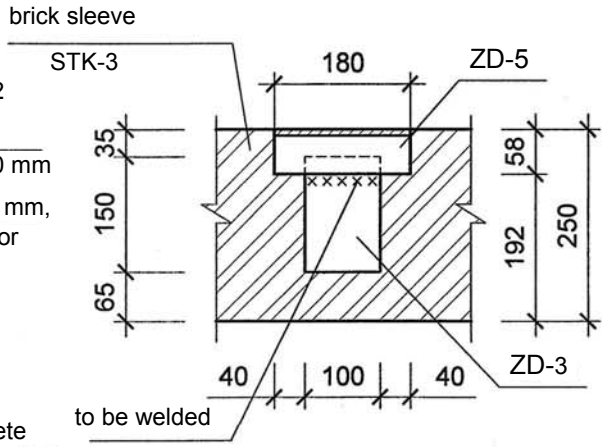
UNIT 2. STK – 2. S 1:10.



UNIT B. STK-1; 2; 3. S 1:5

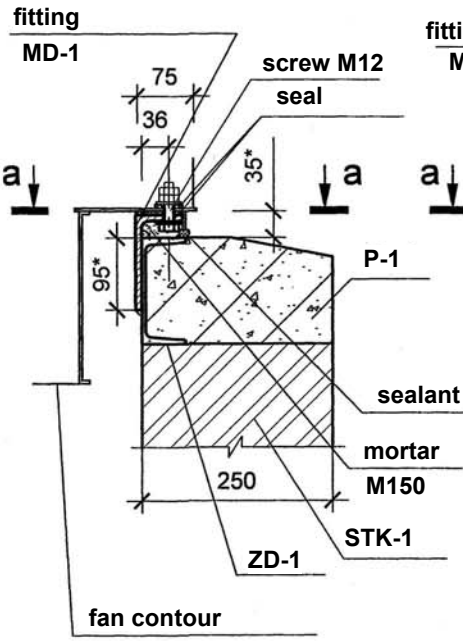


UNIT 2. STK-3. S 1:10

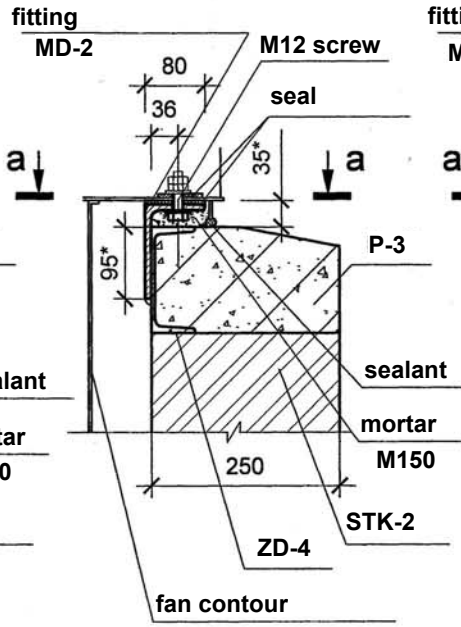


Installation of roof mounted fans on sleeves

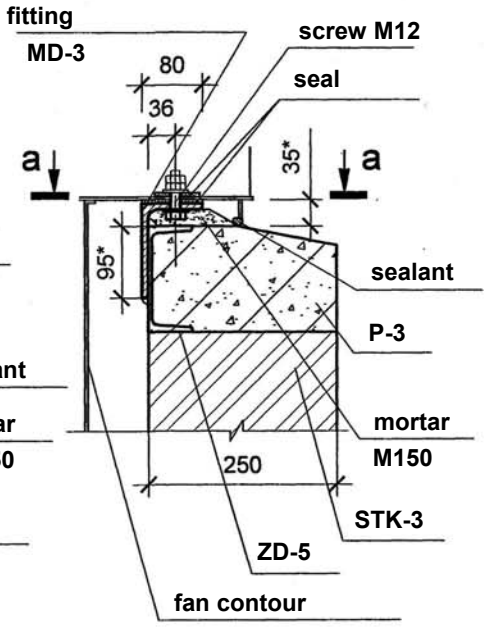
UNIT A.
STK-1. S 1:10



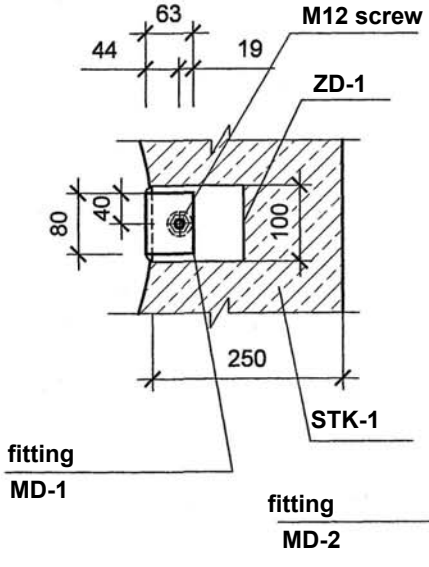
UNIT A.
STK-2. S 1:10



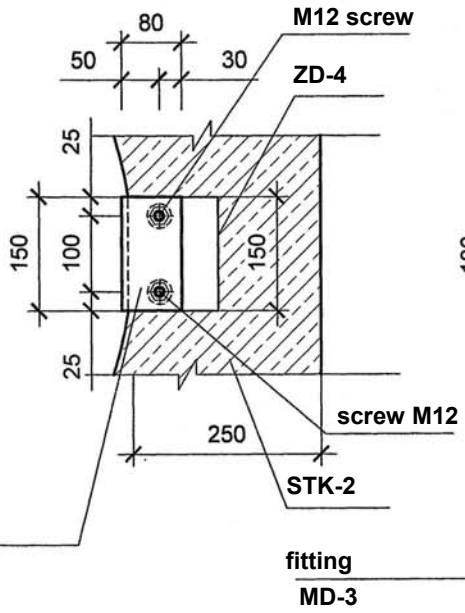
UNIT A.
STK-3. S 1:10



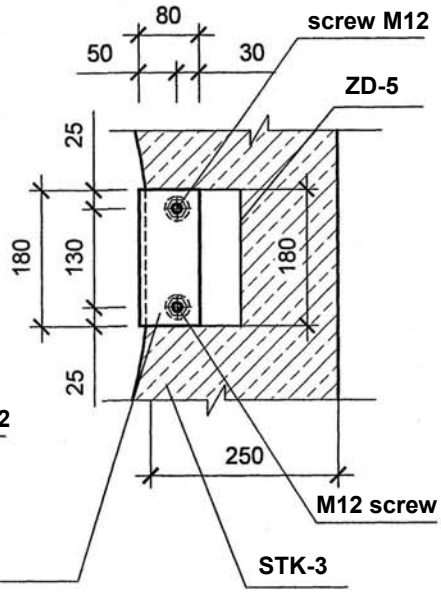
SECTION c-c.
STK-1. S 1:10



SECTION c-c.
STK-2. S 1:10



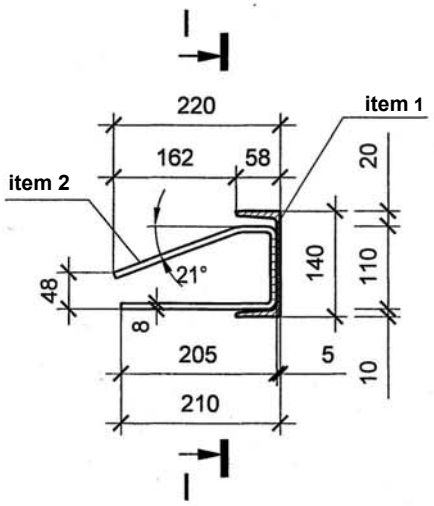
SECTION c-c.
STK-3. S 1:10



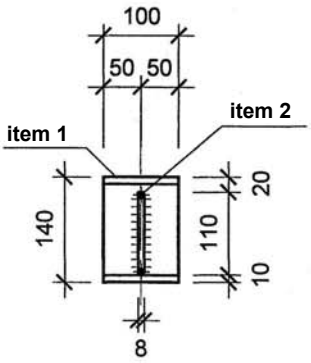
** sign indicate items, which shall be defined before installation of equipment.*

Installation of roof mounted fans on sleeves

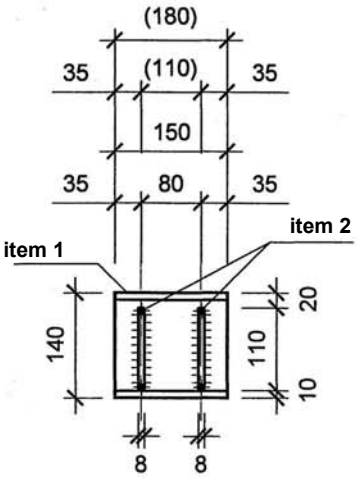
EMBEDDED PARTS ZD-1;
ZD-4 and ZD-5.
GENERAL VIEW. S 1:10



SECTION I-I. M 1:10.
ZD-1

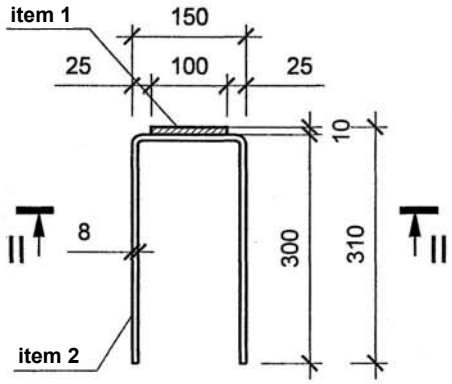


SECTION I-I. M 1:10.
ZD-4 and ZD-5

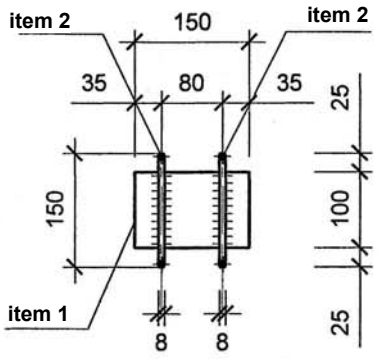


Dimensions in brackets are for ZD-5

EMBEDDED PART ZD-3.
GENERAL VIEW. S 1:10



SECTION II-II. S 1:10



Grade	No.	Section	Number	Item length, mm	Weight, kg	
					items	grades
ZD-1	1	channel section No. 14	1	100	1,23	1,46
	2	bracket Ø 8A-III	1	540	0,22	
ZD-2	1	pipe D23, t = 1.5 mm	1	250	0,198	0,198
ZD-3	1	stripe 10 x 100	1	150	1,18	1,84
	2	bracket Ø 8A-III	2	800	0,32	
ZD-4	1	channel section No. 14	1	150	1,85	2,31
	2	bracket Ø 8A-III	2	540	0,22	
ZD-5	1	channel section No. 14	1	180	2,214	2,68
	2	bracket Ø 8A-III	2	540	0,22	

Installation of roof mounted fans on sleeves

MATERIALS SPECIFICATION

No.	Name	Num-ber	Unit weight, kg	Note total weight, kg
	BRICK SLEËVE STK-1			
1	Clay whole brick masonry M125 on mortar M10, cubic m	2,05		
2	Embedded part ZD-1	8	1,46	11,68
3	Embedded part ZD-2	4	0,198	0,79
4	Embedded part ZD-3	4	1,84	7,36
5	Mesh 100/100/8/8 A-III, sq m	2	8,12	16,24
6	Anchor Ø 12 A-III, L = 300 mm	7	0,27	1,89
7	Bracket Ø 8 A-III, L = 460 mm	7	0,184	1,29
8	Concrete V25; F200; W6, cubic m	0,15		
9	Screw; nut; washer M12*	8/16/8		
10	M150 cement-sand mortar, cubic m	0,006		
11	M200 cement-sand mortar, cubic m	0,01		
12	Building sealant, running m	3		
13	Fitting MD-1	8	0,88	7,04
	BRICK SLEËVE STK-2			
1	Clay whole brick masonry M125 on mortar M10, cubic m	2,7		
2	Embedded part ZD-4	4	2,31	9,24
3	Embedded part ZD-2	4	0,198	0,79
4	Embedded part ZD-3	4	1,84	7,36
5	Mesh 100/100/8/8 A-III, sq m	2,8	8,12	22,74
6	Anchor Ø 12 A-III, L = 300 mm	10	0,27	2,7
7	Bracket Ø 8 A-III, L = 460 mm	10	0,184	1,84
8	Concrete V25; F200; W6, cubic m	0,21		
9	Screw; nut; washer M12*	8/16/8		
10	M150 cement-sand mortar, cubic m	0,007		
11	M200 cement-sand mortar, cubic m	0,013		
12	Building sealant, running m	4		
13	Fitting MD-2	4	1,88	7,52
	BRICK SLEËVE STK-3			
1	Clay whole brick masonry M125 on mortar M10, cubic m	3,67		
2	Embedded part ZD-5	4	2,68	10,72
3	Embedded part ZD-2	4	0,198	0,79
4	Embedded part ZD-3	4	1,84	7,36
5	Mesh 100/100/8/8 A-III, sq m	4,1	8,12	33,29
6	Anchor Ø 8 A-III, L = 300 mm	13	0,27	3,51
7	Bracket Ø 8 A-III, L = 460 mm	13	0,184	2,39
8	Concrete V25; F200; W6, cubic m	0,3		
9	Screw; nut; washer M12*	8/16/8		
10	M150 cement-sand mortar, cubic m	0,01		
11	M200 cement-sand mortar, cubic m	0,017		
12	Building sealant, running m	5,5		
13	Fitting MD-3	4	2,25	9

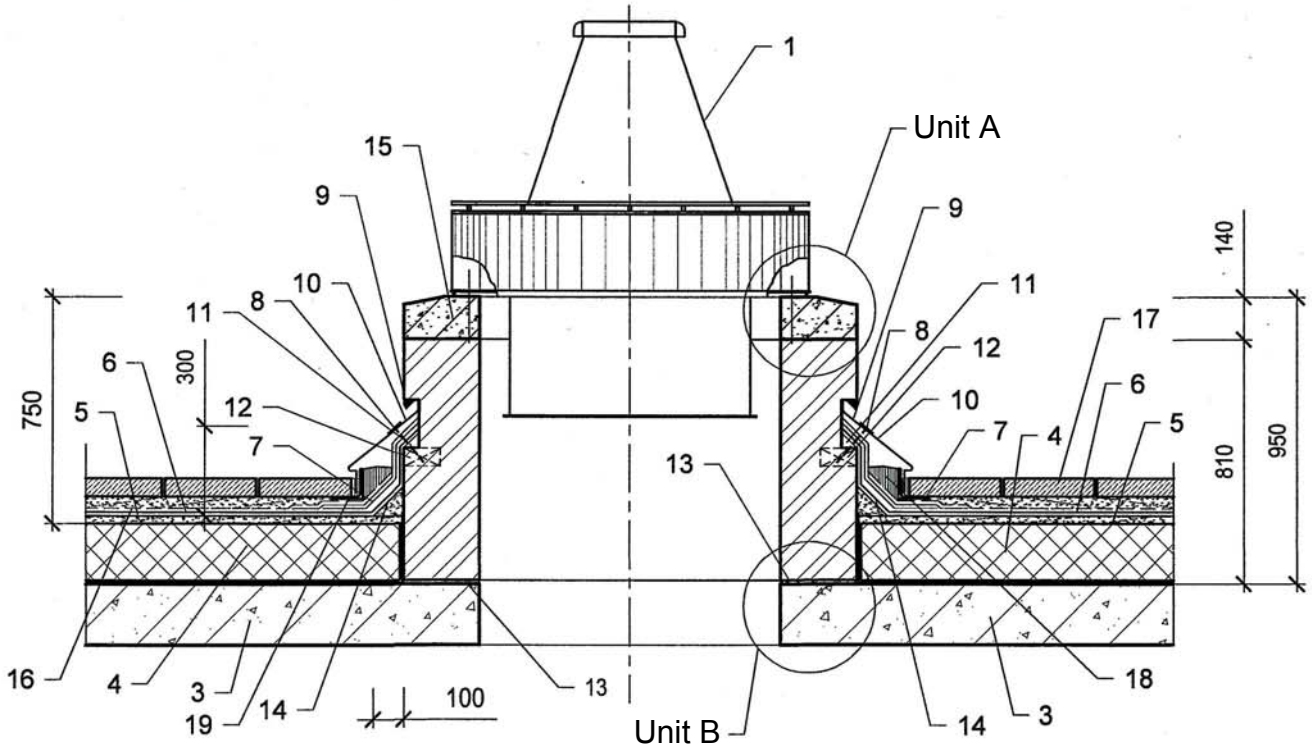
SPECIFICATION OF FITTINGS

Grade	No.	Section	Number	Item length, mm	Weight, kg	
					items	grades
MD-1		Bracket 125 x 80 x 7	1	80	0,88	0,88
MD-2		Bracket 125 x 80 x 8	1	150	1,88	1,88
MD-3		Bracket 125 x 80 x 8	1	180	2,25	2,25

Specifications show the amount of main materials for manufacturing and installation of reinforced concrete sleeves STB-1; 2 and 3.
** Length of M12 screws shall be defined at the place of installation.*

Installation of roof mounted fans on sleeves

UNIT FOR INSTALLATION OF ROOF MOUNTED FANS ON LOW STKk BRICK SLEEVES... S 1:25



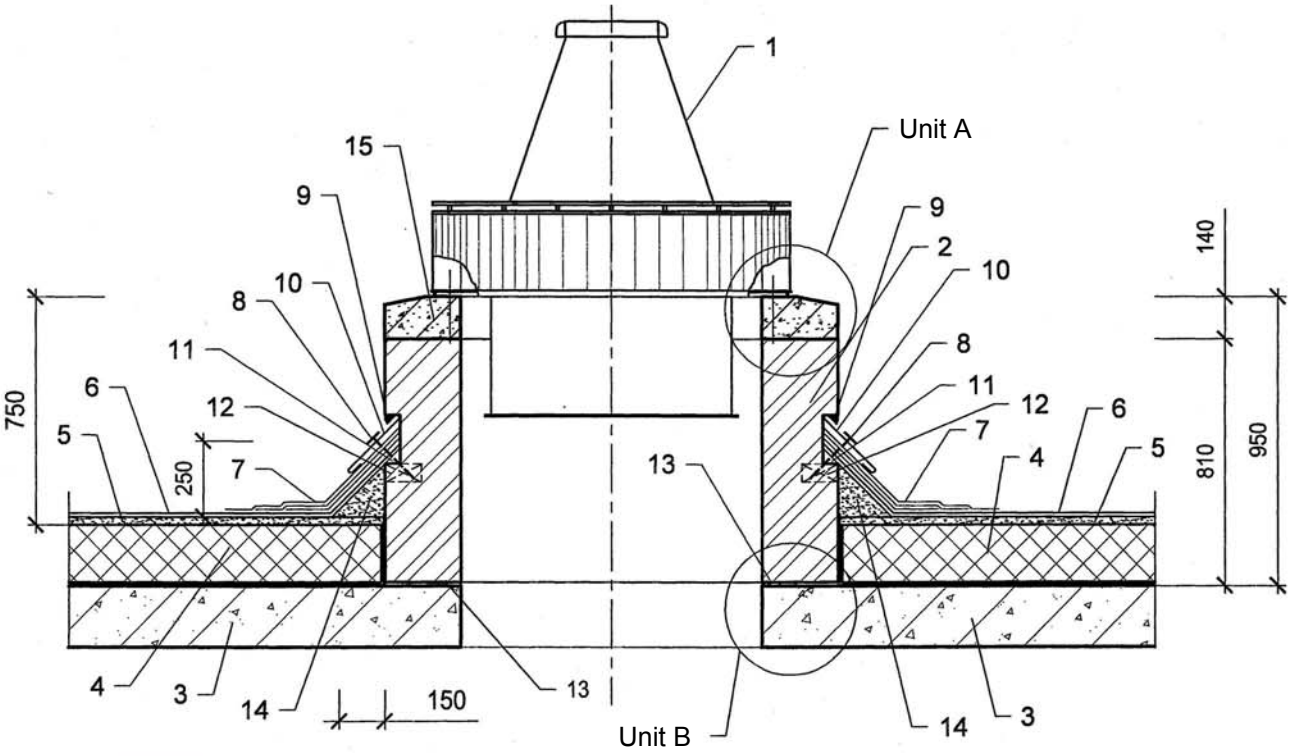
No.	Name
1	Roof mounted fan for smoke removal typea VKRM...;
2	STKk brick sleeve...;
3	Reinforced concrete plate pavement;
4	Fireproof insulation (mineral wool plate);
5	Slope underlayment of M150 cement-sand mortar;
6	Main water-proof roof covering of rolled melting materials;
7	Additional layers of roof covering, according to design;
8	Galvanized nail, spacing 300 mm
9	Thiocol or polyurethane sealant;
10	Apron of galvanized roofing steel, reinforced with strip steel nails, width 4 mm; nail spacing 300 mm. Nails shall be welded to the frame and fixed to the block with nails. Apron shall be put under concrete plate. Seam between plate and apron shall be closed with asphalt joint filler;
11	Wooden anticepted block 50 x 50/2;
12	Wooden anticepted plug 120 x 120 x 60, spacing 900 mm, to be installed along brickwork;
13	M200 cement-sand mortar;
14	Inclining upstand of M150 cement-sand mortar;
15	Reinforced concrete plate of the sleeve flooring;
16	Additional roofing layer, dry installation at the places of joining to reinforced concrete sleeve put on asphalt joint filler;
17	Concrete plates on mortar, joints shall be floated with sand mixture;
18	Asphalt joint filler;
19	Metal frame made of angle 100 x 8, to be installed on asphalt joint filler.

NOTES:

1. *This unit is developed for installation of roof mounted fans for smoke removal on low STKk-… brick sleeves Within 2 m from the edge of fan holes (or brick sleeve) there shall be roof protection of non-combustible materials.*

Installation of roof mounted fans on sleeves

UNIT FOR INSTALLATION OF ROOF MOUNTED FANS ON LOW STKk BRICK SLEEVES... S 1:25



No.	Name
1	Roof mounted VKRM fan... for exhaust ventilation systems;
2	STKk brick sleeve...;
3	Reinforced concrete plate pavement;
4	Fireproof insulation (mineral wool plate);
5	Slope underlayment of M150 cement-sand mortar;
6	Main water-proof roof covering of rolled melting materials;
7	Additional layers of roof covering, according to design;
8	Galvanized nail, spacing 300 mm
9	Thiocol or polyurethane sealant;
10	Apron of galvanized roofing steel;
11	Wooden anticepted block 50 x 50/2;
12	Wooden anticepted plug 120 x 120 x 60, spacing 900 mm, to be installed along brickwork;
13	M200 cement-sand mortar;
14	Inclining upstand of M150 cement-sand mortar;
15	Reinforced concrete plate of the sleeve flooring.

NOTES:

1. *This unit is developed for installation of roof mounted fans for exhaust ventilation systems on low brick sleeves STKk-…*
2. *Unit is not meant for installation of roof mounted smoke removal fans.*

Installation of roof mounted fans on sleeves

Installation of roof mounted fans (VKRM…) on steel sleeves

1. The section shows structures of steel sleeves for installation of VKRM roof mounted smoke removal fans.
2. Section consists of 2 parts:

- ♦ installation of roof mounted smoke removal fans on high steel sleeves. Structure is used for roofs of combustible materials.
- ♦ installation of roof mounted smoke removal fans on short steel sleeves. Structure is used for roof protection layer of non-combustible materials within 2 m from the edge of the sleeve.

3. Structure of steel sleeves is designed for installation at construction site (at the place of equipment installation).
4. Sections show variant of sleeve installation on pavement in form of monolithic reinforced concrete plates. The need for reinforcement of pavement plate at the place of sleeve installation shall be defined in certain design.
5. Structure of reinforced concrete sleeves is designed taking into account applicable design loads, including wind for the 1st zone.

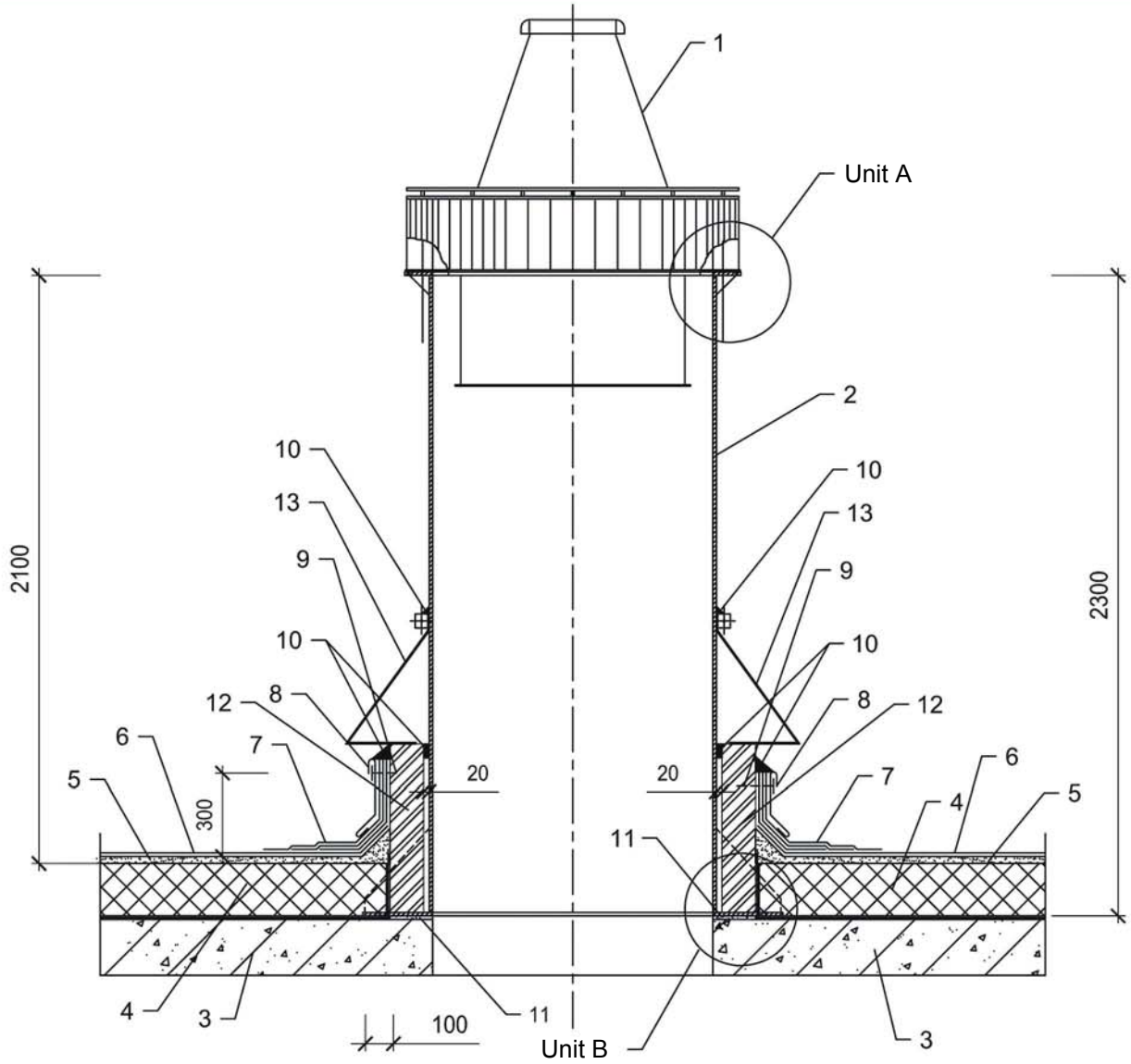
Installation of roof mounted fans on sleeves

STRUCTURE OF STEEL SLEEVES

1. Steel sleeves are made of longitudinal electric-welded pipes under GOST 10704 – 91. Outer diameter and width of pipe walls are selected on the basis of installation dimensions of fans.
2. Wall width of sleeves is 10 and 12 mm. Height of steel sleeve – 2,300 mm (high sleeve); height of short reinforced concrete sleeve – 940 mm.
3. Lower and uppoer support plates are made of sheet steel, width 10 mm. All joints of steel sleeve structure are welded with E42A electrodes. Minimum seam width – 6 mm.
4. Steel grade – S285.
5. There are enforcement ribs in lower and upper support plates of the structure.
6. For possible installation of metal pallet, in the walls of steel sleeves (200 mm from the top of the sleeve) there are 4 holes of 014 mm. It is possible to use the same holes for installation of the sleeve in designed position.
7. To anchor steel sleeves to pavement plate there are holes in the lower support plate of sleeves. Anchoring is with the usr of HILTI anchor screws.
8. If the bearing layer of the roof is made of prefabricated reinforced concrete plates, straight-through installation of sleeves with installation of cap screws of reinforcing rods in seams between plates shall be reasonable.
9. MD-1 and MD-2 fittings shall be installed in the upper part of sleeves. Fittings shall be fixed to sleeves by welding before installation of equipment.
10. Depending on fan size in section, 3 types of steel sleeves are available: STS-1; STS-2 and STS-3.
11. Installation of steel sleeves shall be on M200 cement-sand mortar. Seam width – 10 mm.
12. Roof mounted fans shall be fixed to fittings with M12 screws precision C. Length of the screws shall be specified on sight. Screws shall be installed in holes in the upper support plate of sleeves and put in holes in fittings. During installation of fittings on steel sleeve it is necessary to observe alignment of holes.
13. Prior to installation of fans the gap between fittings and top of sleeves shall be closed with M 150 cement-sand mortar. On top of reinforced concrete sleeve it is also necessary to provide a mortar slope.
14. After installation of equipment the gap between fan and top of the sleeve shall be covered with building sealant.
15. Structure of short steel sleeves is similar to that of high ones.
16. The sections contain specifications for main building materials for each grade of steel sleeve.
17. For work instructions also see page106.

Installation of roof mounted fans on sleeves

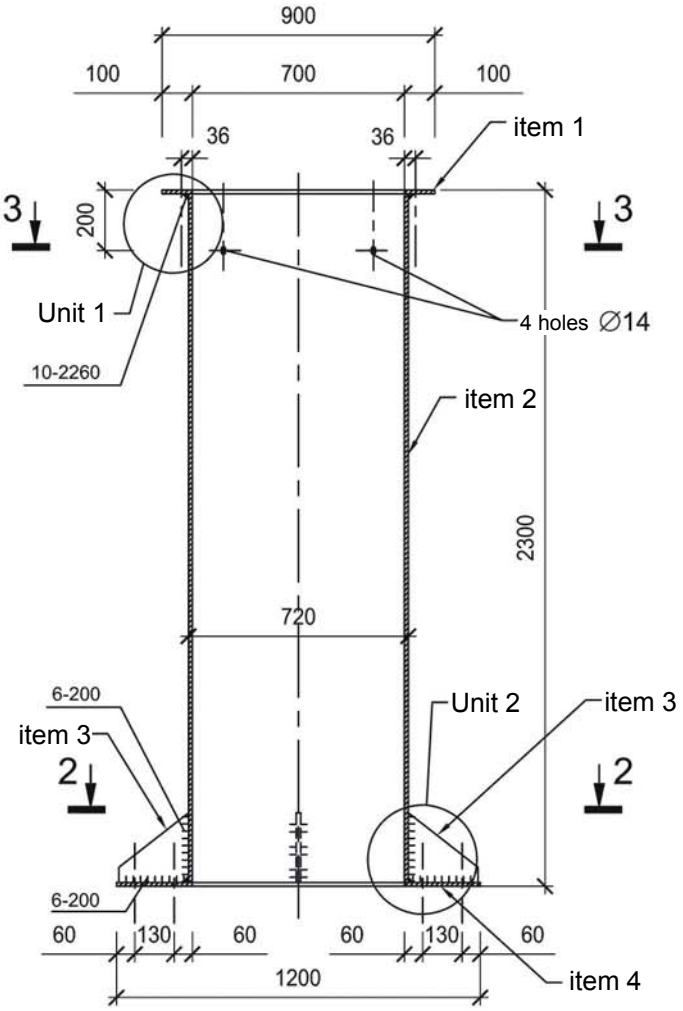
UNIT FOR INSTALLATION OF ROOF MOUNTED FANS ON HIGH STS STEEL SLEEVES. S 1:25



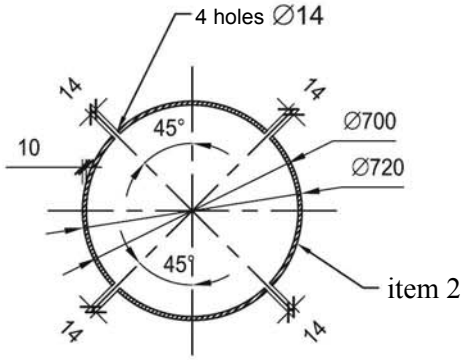
No.	Name
1	VKRM... roof mounted fan for smoke removal
2	STS steel sleeve
3	Reinforced concrete plate pavement
4	Fireproof insulation (mineral wool plate)
5	Slope underlayment of M150 cement-sand mortar
6	Main water-proof roof covering of rolled melting materials
7	Additional layers of roof covering, according to design
8	Apron of galvanized roofing steel
9	Anchor of galvanized steel, spacing 300 mm
10	Thiocol or polyurethane sealant
11	M200 cement-sand mortar
12	Ceramic whole brick masonry M125 on M100 mortar; width 120 mm, height – 600 mm, on perimeter of the sleeve
13	Skirt of galvanized roofing steel and clamp

Installation of roof mounted fans on sleeves

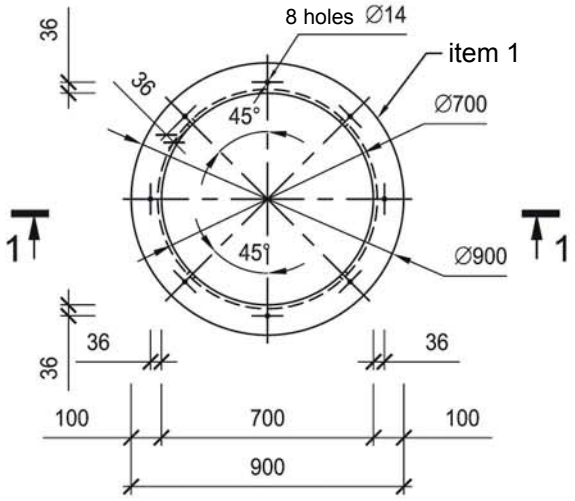
STS-1 STEEL SLEEVE. SECTION 1-1. S 1:25



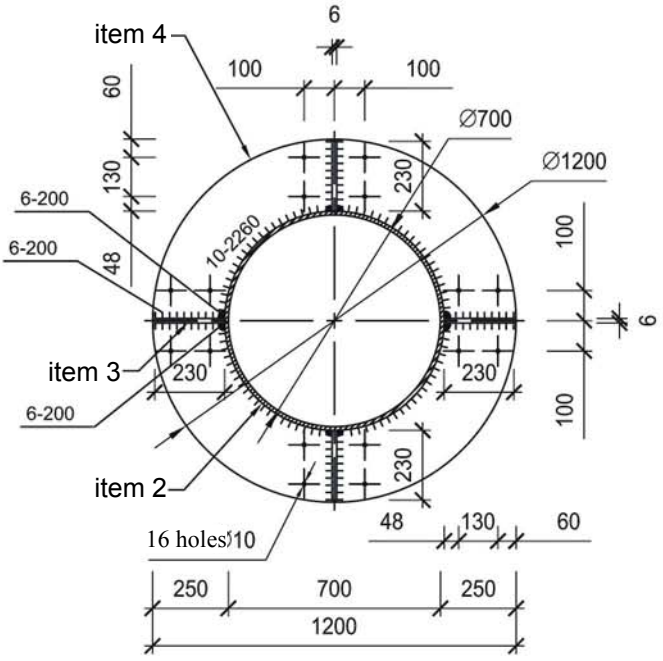
SECTION 3-3. S 1:25



STS-1 STEEL SLEEVE.
TOP VIEW. S 1:25



STS-1 STEEL SLEEVE.
SECTION 2-2. S 1:25



LEGEND

6-200 – weld seam, first figure -seam leg height, the second figure – seam length; mm

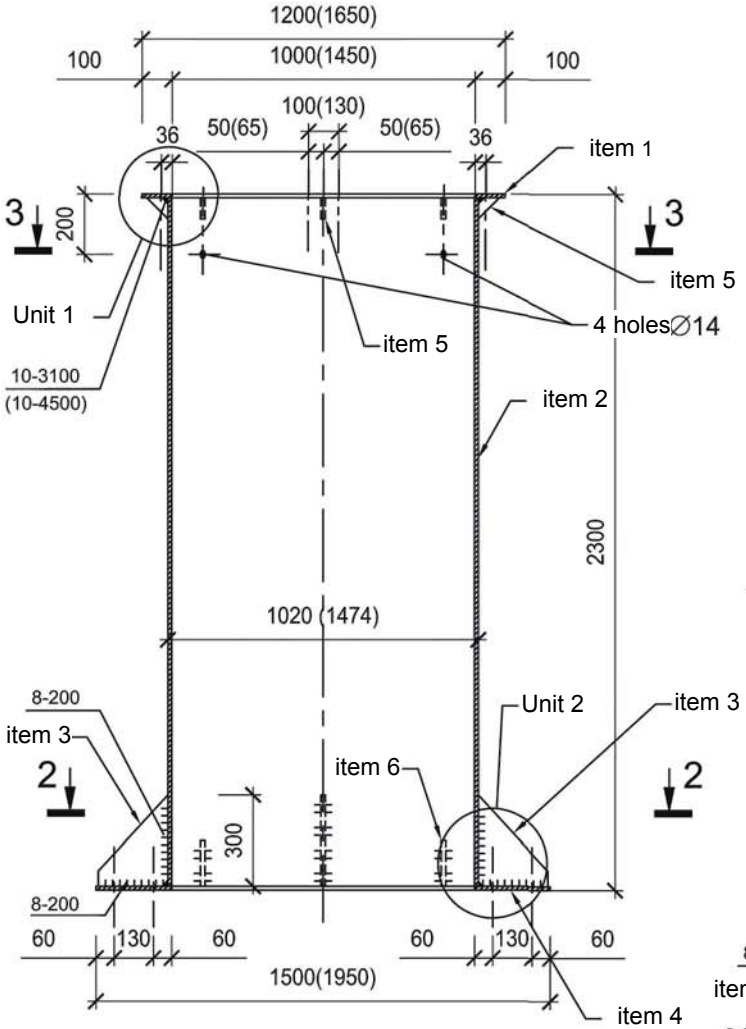
NOTES:

1. The sheet shows the structure of STS – 1 steel sleeve – for VKRM-5; 6.3-2 DU roof mounted fans.
2. For materials specification see page 141.

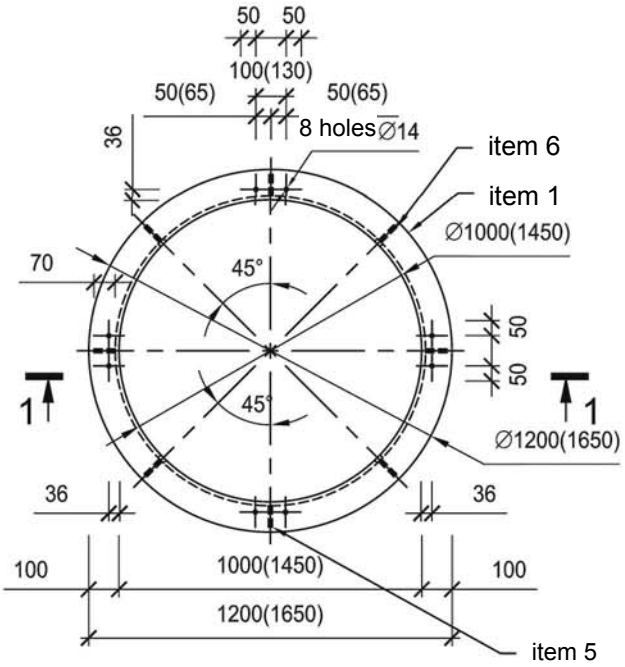
Installation of roof mounted fans on sleeves

STRUCTURE OF STS-2 AND STS-3 STEEL SLEEVES

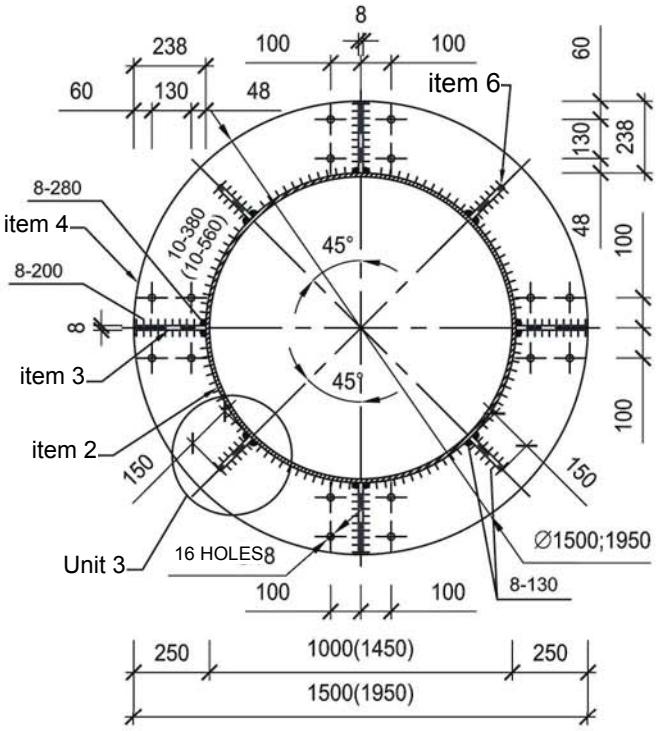
STS-2 AND STS-3 STEEL SLEEVES.
SECTION 1-1. S 1:25



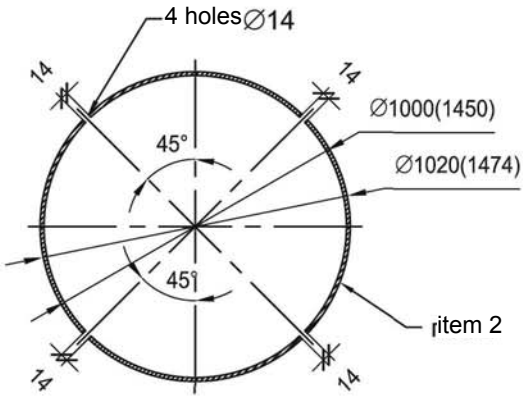
STS-2 AND STS-3 STEEL SLEEVES.
TOP VIEW. S 1:25



STS-2 AND STS-3 STEEL SLEEVES.
SECTION 2-2. S 1:25



SECTION 3-3. S 1:25



LEGEND

8-200 – weld seam, first figure -seam leg height, the second figure – seam length; mm

NOTES:

1. The sheet shows the structure of STS-2 steel sleeve – for VKRM-8-2 DU-01; 02 roof mounted fans and STS-3 steel sleeve for VKRM-12.5-2 DU roof mounted fans.

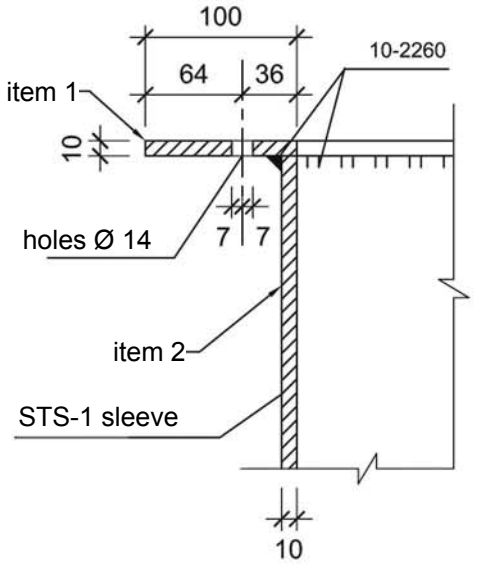
2. For materials specification see page141.

3. Dimensions and marking in brackets – for steel sleeve STS-3.

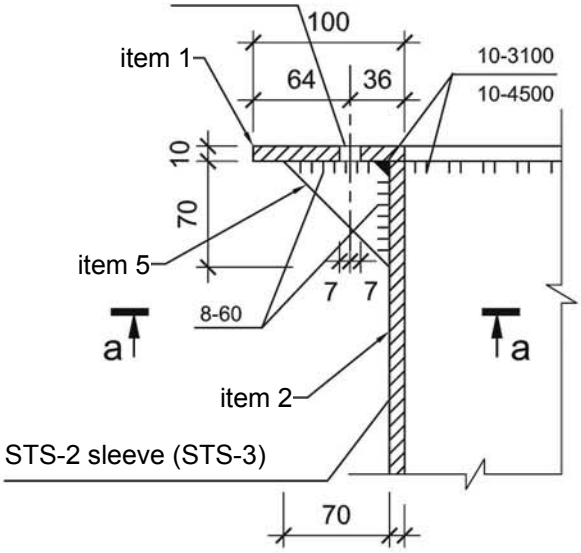
Installation of roof mounted fans on sleeves

Structure of STS steel sleeves. Unit 1

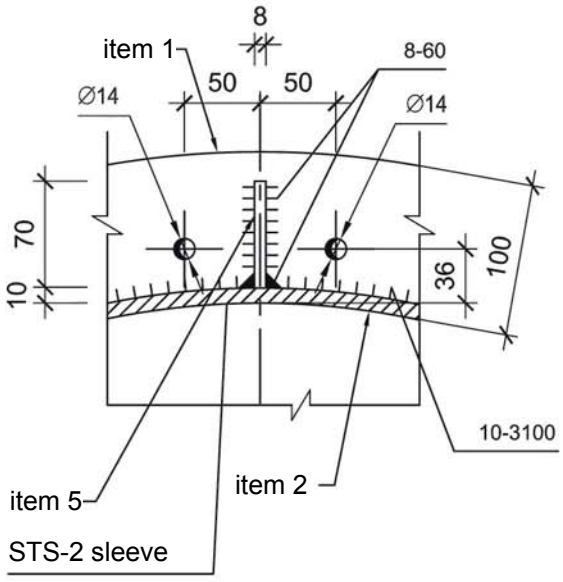
UNIT 1.
STS-1. S 1:5



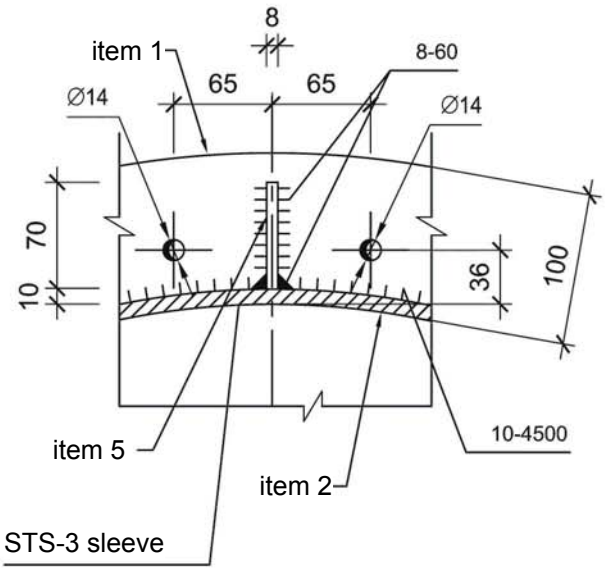
UNIT 1.
STS-2 AND STS-3. S 1:5



UNIT 1.
STS-2 SECTION a-a. S 1:5



UNIT1.
STS-3 SECTION a-a. S 1:5



LEGEND

8-200 – weld seam, first figure – seam leg height, the second figure – seam length; mm

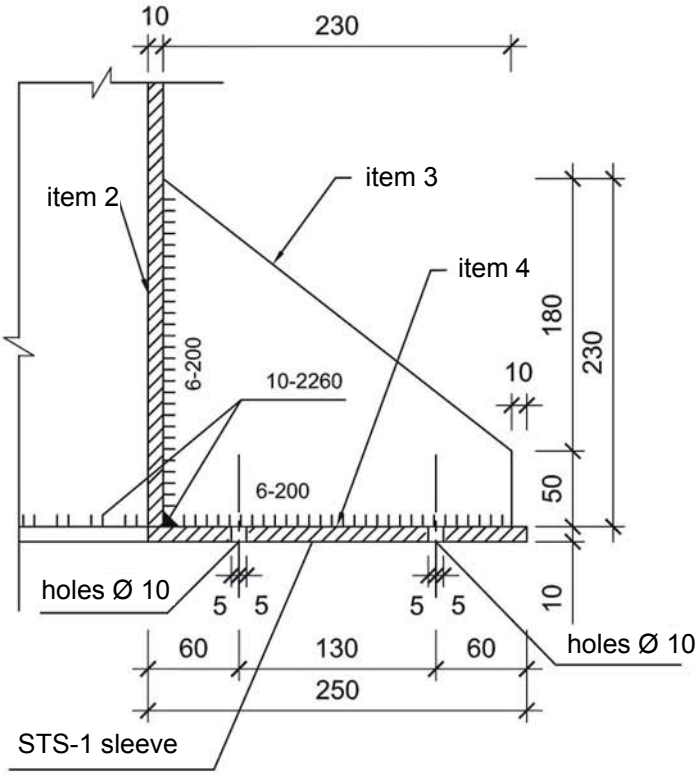
NOTES:

1. Dimensions and marking in brackets – for of reinforced concrete sleeve STS-3.

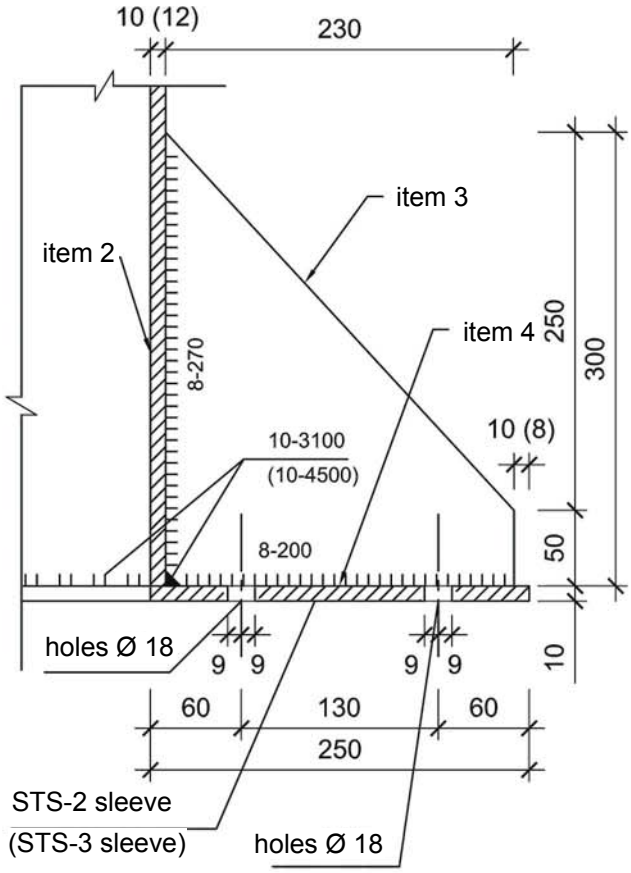
Installation of roof mounted fans on sleeves

Structure of STS steel sleeves. Nodes 2 and 3

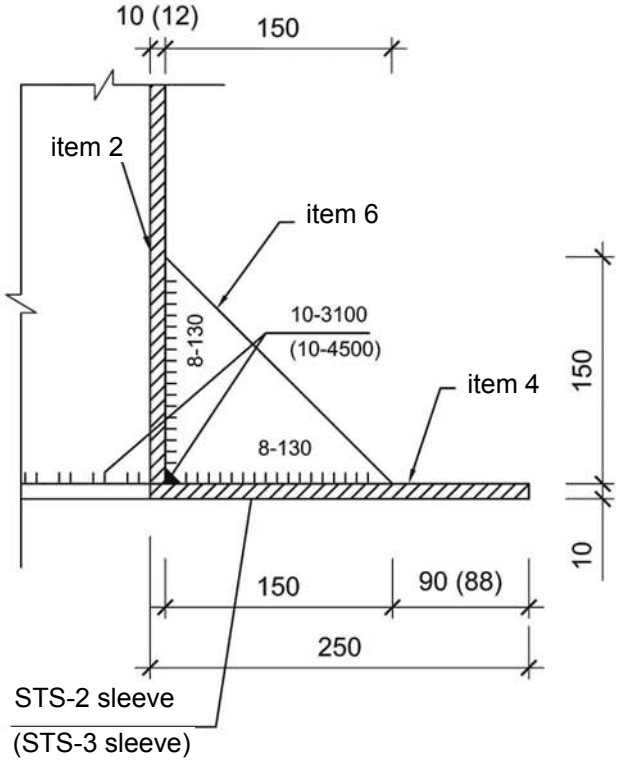
UNIT 2.
STS-1. S 1:5



UNIT 2.
STS-2 AND STS-3. S 1:5



UNIT 3.
STS-2 AND STS-3. S 1:5



LEGEND

8-200 – weld seam, first figure – seam leg height, the second figure – seam length; mm

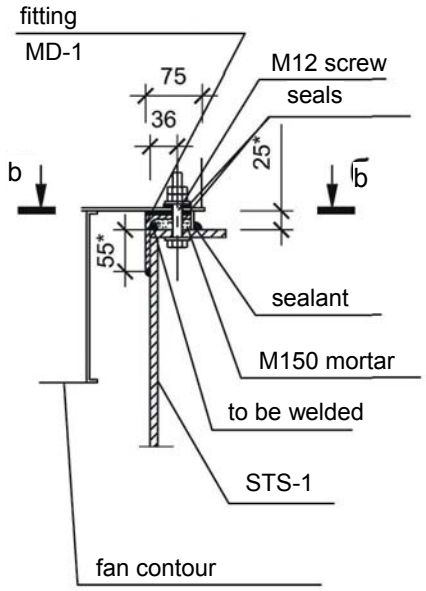
NOTES:

1. Dimensions and marking in brackets – for STS-3 steel sleeve.

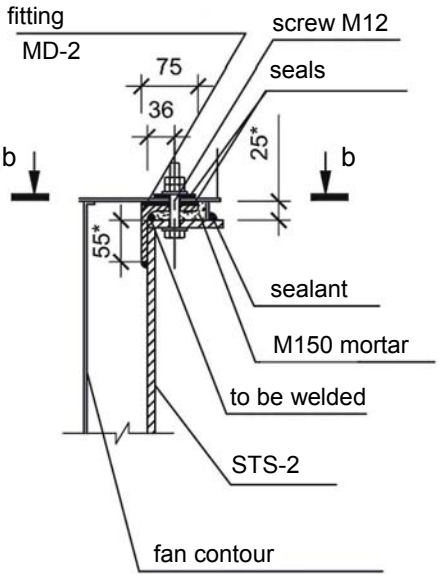
Installation of roof mounted fans on sleeves

Structure of STS steel sleeves. Unit A

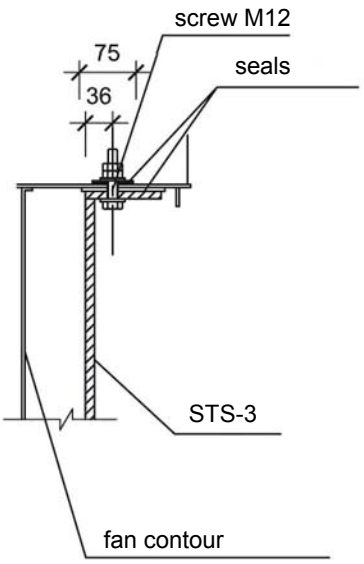
STS-1. S 1:10



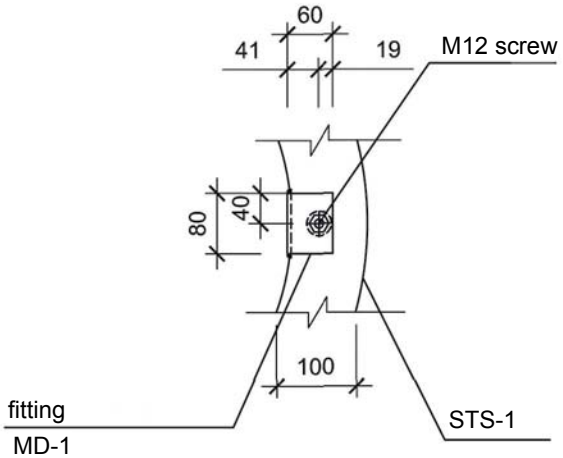
STS-2. S 1:10



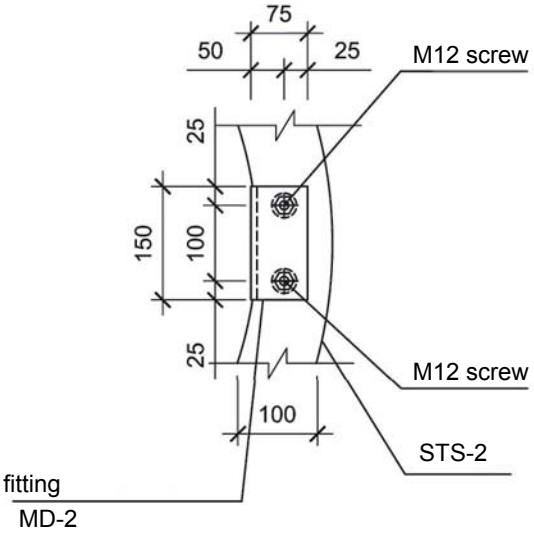
STS-3. S 1:10



SECTION b-b.
STS-1. S 1:10



SECTION b-b.
STS-2. S 1:10

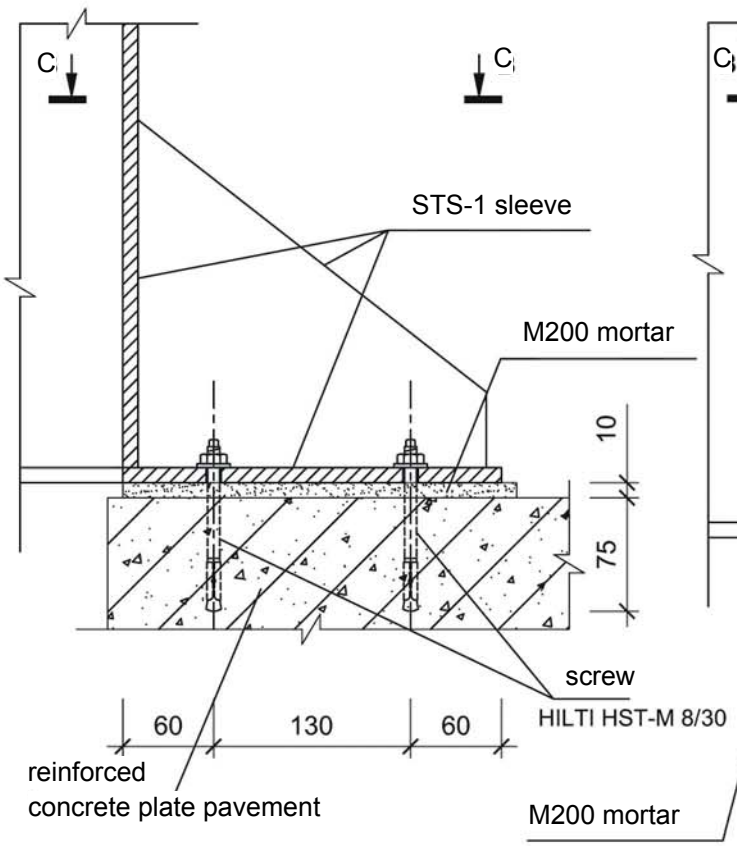


** sign marks the items, which shall be defined on sight before installation of equipment.*

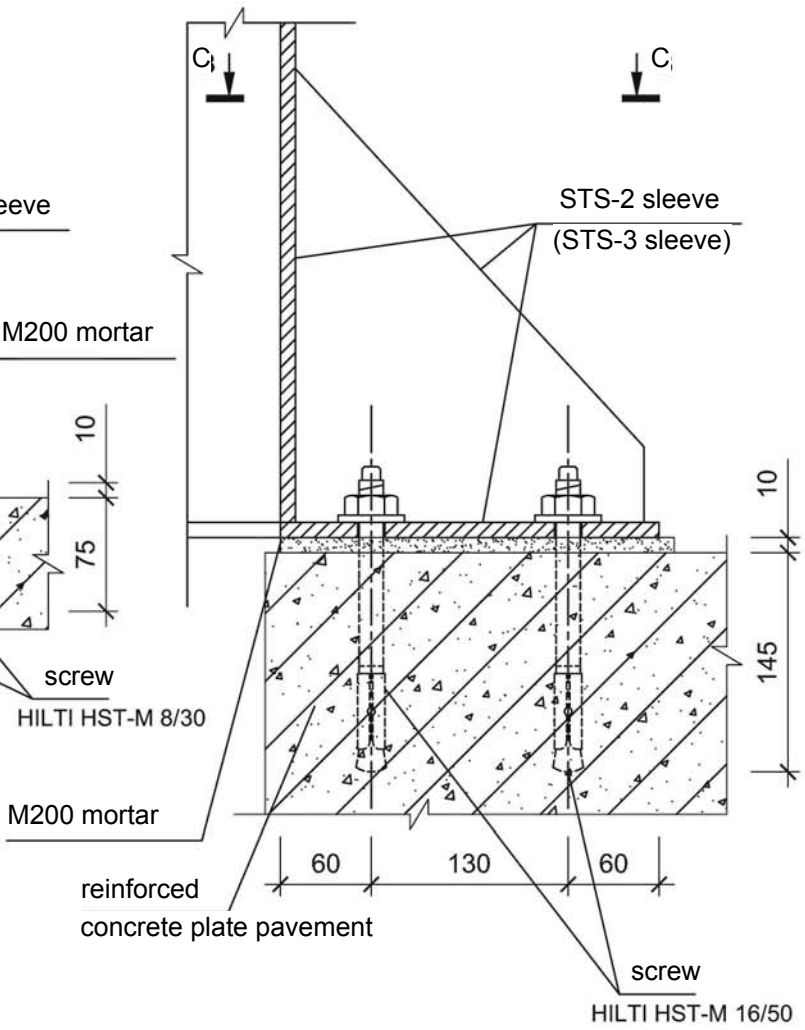
Installation of roof mounted fans on sleeves

Structure of STS steel sleeves. Unit B

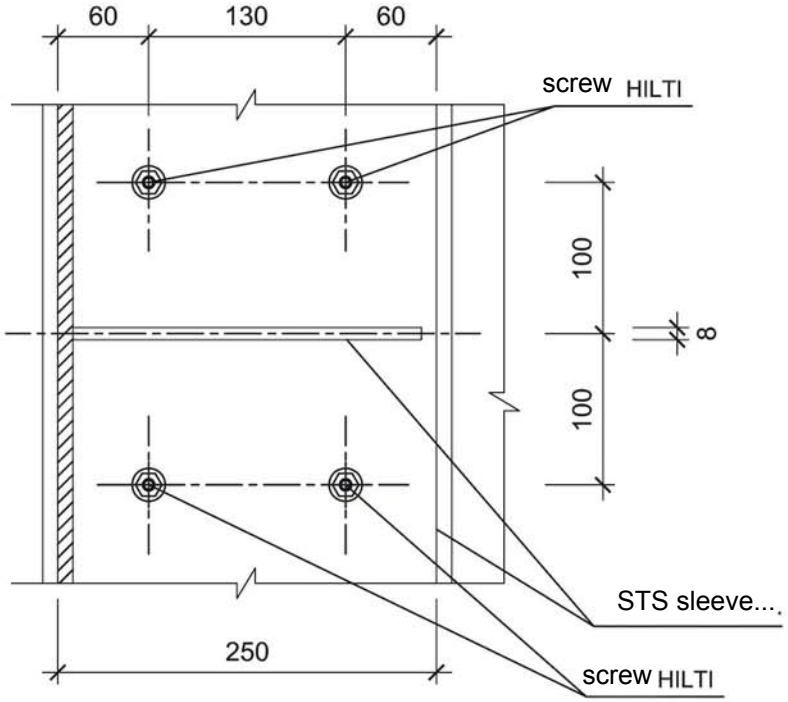
UNIT B. STS-1. S 1:5



UNIT B. STS-2 AND STS-3. S 1:5



SECTION c-c.
STS-1; 2 AND 3. S 1:5



NOTES:

1. Dimensions and marking in brackets – for STS-3 steel sleeve.

Installation of roof mounted fans on sleeves

MATERIALS SPECIFICATION

No.	Name	Number	Unit weight, kg	Note total weight, kg
	STEEL SLEEVE STS-1			
1	Sheet, width 10, D = 900 mm	1	19,63	19,63
2	Pipe 720 x 10, L = 2,280 mm	1	399,23	399,23
3	Edge, sheet 230 x 6, L = 230 mm	4	1,52	6,08
4	Sheet, width 10, D = 1,200 mm	1	58,88	58,88
5	Screw HILTI HST-M 8/30	16		
6	Screw; nut; washer M12*	8/16/8		
7	M150 cement-sand mortar, cubic m	0,004		
8	M200 cement-sand mortar, cubic m	0,012		
9	Building sealant, running m	3,0		
10	Fitting MD-1	8	0,46	3,68
	STEEL SLEEVE STS-2			
1	Sheet, width 10, D = 1,200 mm	1	27,16	27,16
2	Pipe 1,020 x 10, L – 2,280 mm	1	567,95	567,95
3	Edge, sheet 230 x 8, L = 300 mm	4	2,51	10,04
4	Sheet, width 10, D = 1,500 mm	1	77,09	77,09
5	Edge, sheet 70 x 8, L = 70 mm	8	0,15	1,20
6	Edge, sheet 150 x 8, L = 150 mm	4	0,71	2,84
7	Screw HILTI HST-M 16/50	16		
8	Screw; nut; washer M12*	8/16/8		
9	M150 cement-sand mortar, cubic m	0,004		
10	M200 cement-sand mortar, cubic m	0,014		
11	Building sealant, running m	4,0		
12	Fitting MD-2	4	1,35	5,40
	STEEL SLEEVE STS-3			
1	Sheet, width 10, D = 1,650 mm	1	38,47	38,47
2	Pipe 1424 x 12, L = 2,280 mm**	1	1106,2	1106,2
3	Edge, sheet 230 x 8, L = 300 mm	4	2,51	10,04
4	Sheet, width 10, D = 1,950 mm	1	105,19	105,19
5	Edge, sheet 70 x 8, L = 70 mm	8	0,15	1,20
6	Edge, sheet 150 x 8, L = 150 mm	4	0,71	2,84
7	Screw HILTI HST-M 16/50	16		
8	Screw; nut; washer M12*	8/16/8		
9	M150 cement-sand mortar, cubic m	0,006		
10	M200 cement-sand mortar, cubic m	0,02		
11	Building sealant, running m	5,5		

SPECIFICATION OF FITTINGS

Grade	Item	Section	Number	Item length, mm	Weight, kg	
					items	grades
MD-1		Bracket 75 x 5	1	80	0,46	0,46
MD-2		Bracket 75 x 8	1	150	1,35	1,35

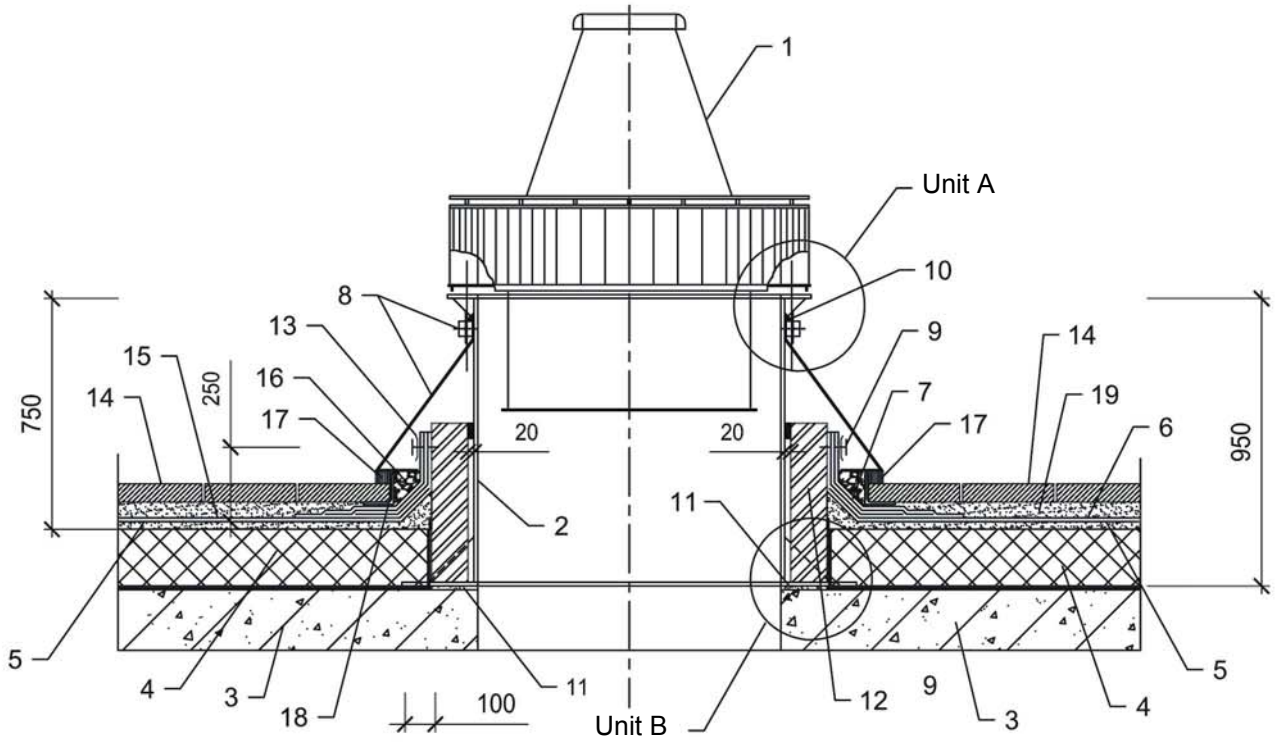
Specifications show the amount of main materials for manufacturing and installation of steel sleeves STS-1; 2 and 3.

** Length of M12 screws shall be defined at the place of installation.*

*** Pipe shall be made of a sheet.*

Installation of roof mounted fans on sleeves

UNIT FOR INSTALLATION OF ROOF MOUNTED FANS ON SHORT STEEL SLEEVES STS. S 1:25



No.	Name
1	Roof mounted fan for smoke removal typea VKRM...
2	Steel STSk sleeve
3	Reinforced concrete plate pavement
4	Fireproof insulation (mineral wool plate)
5	Slope underlayment of M150 cement-sand mortar
6	Main water-proof roof covering of rolled melting materials
7	Additional layers of roof covering, according to design
8	Skirt of galvanized roofing steel and clamp
9	Anchor of galvanized steel, spacing 300 mm
10	Thiocol or polyurethane sealant
11	M200 cement-sand mortar
12	Ceramic whole brick masonry M125 on M100 mortar; width 120 mm, height – 525 mm, on perimeter of the sleeve
13	Pressure rod of galvanized roofing steel
14	Concrete plates on mortar, joints shall be floated with sand mixture
15	Additional roofing layer, dry installation; at the places of joining to reinforced concrete sleeve put on asphalt joint filler
16	Gravel
17	Asphalt joint filler
18	Metal frame made of angle 100 x 8, to be installed on asphalt joint filler
19	Cement-sand M150 mortar

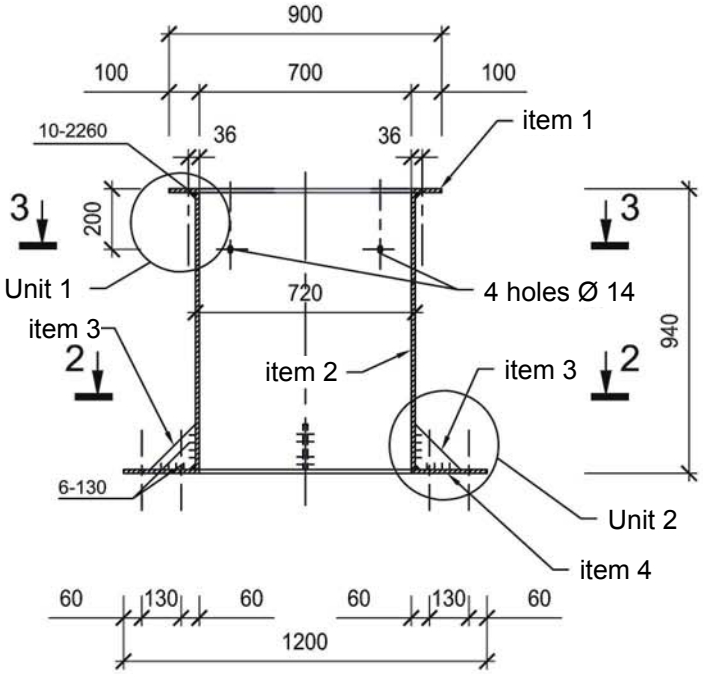
NOTES:

1. *This unit is developed for installation of roof mounted fans for smoke removal on STSk-... short steel sleeves. Within 2 m from the edge of fan holes (reinforced concrete sleeve) there shall be roof protection of non-combustible materials.*

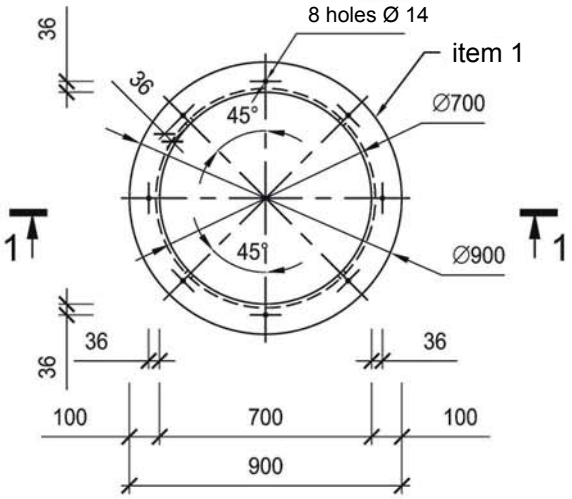
Installation of roof mounted fans on sleeves

Structure of STSk-1 steel sleeve

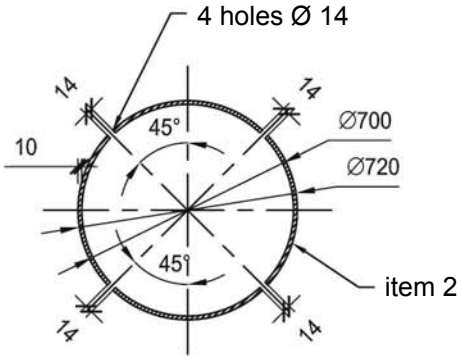
STSk-1 STEEL SLEEVE.
SECTION 1-1. S 1:25



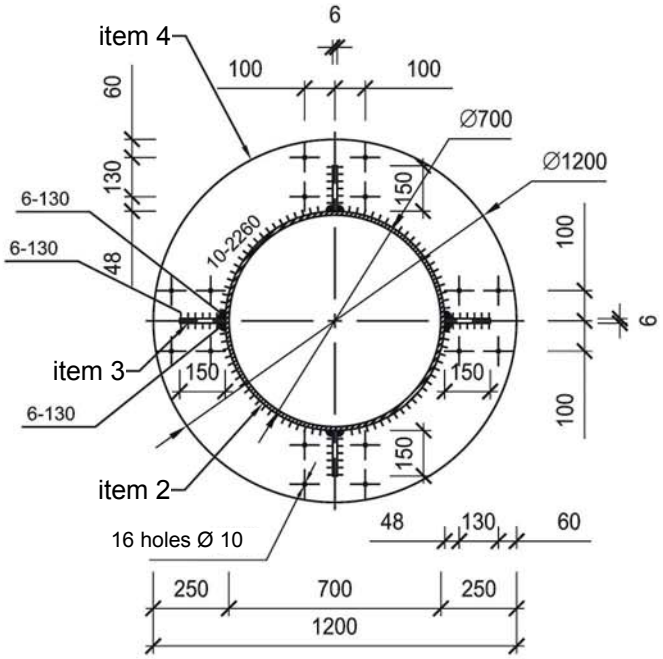
STSk-1 STEEL SLEEVE.
TOP VIEW. S 1:25



SECTION 3-3. S 1:25



STSk-1 STEEL SLEEVE.
SECTION 2-2. S 1:25



LEGEND

6-130 – weld seam, first figure – seam leg height, the second figure – seam length; mm

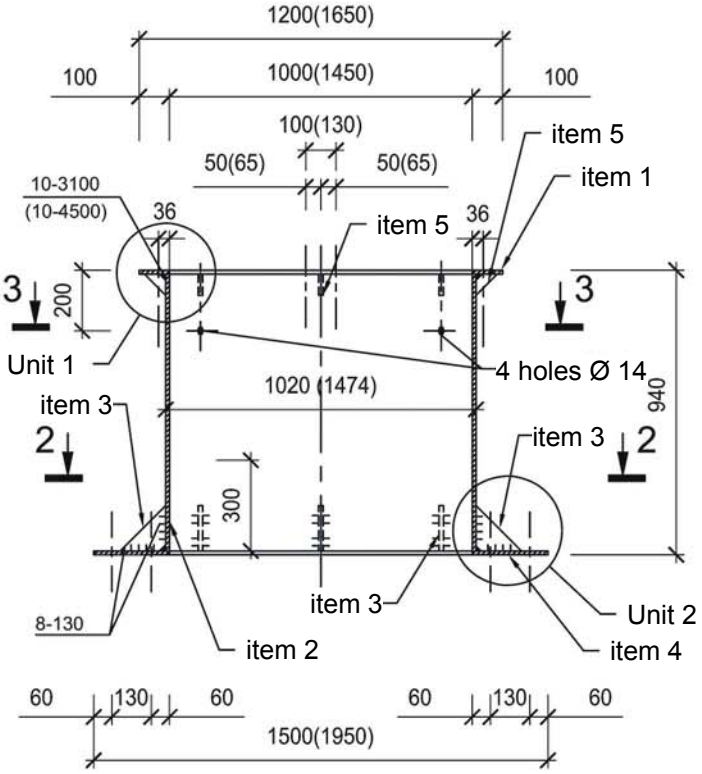
NOTES:

1. The sheet shows the structure of STSk-1 steel sleeve – for VKRM-5; 6.3-2 DU roof mounted fans.
2. For materials specification see page 145.

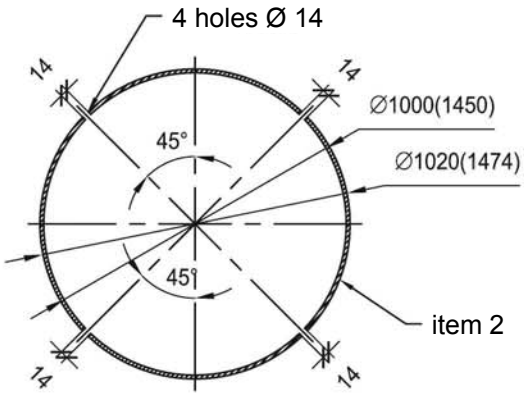
Installation of roof mounted fans on sleeves

Structure of STSk-2 and STSk-3 steel sleeves

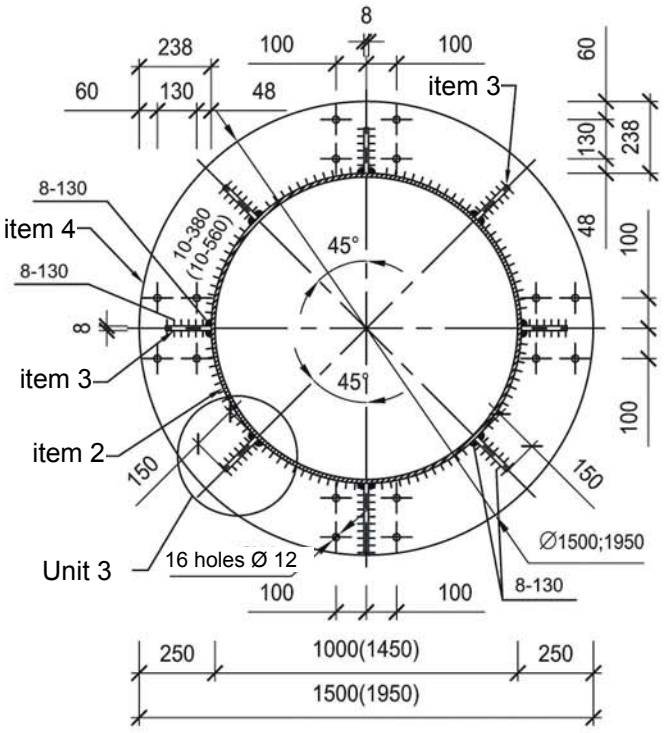
STEEL SLEEVES STSk-2 and STSk-3.
SECTION 1-1. S 1:25



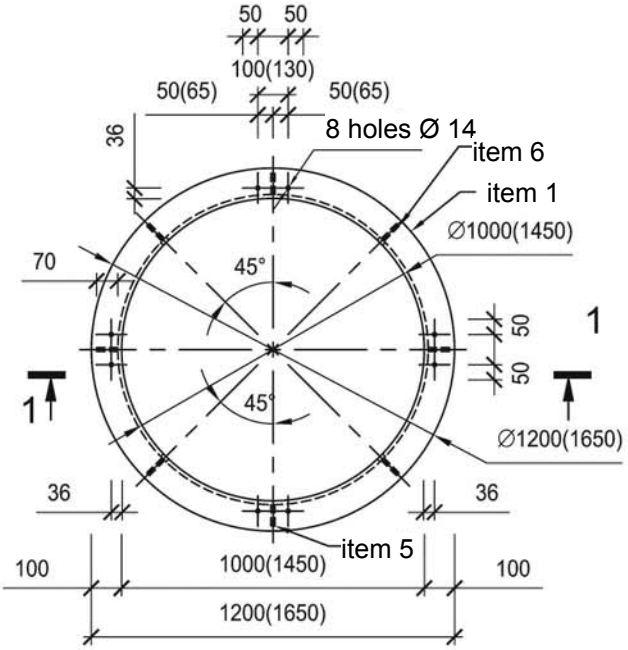
SECTION 3-3. S 1:25



STSk-2 AND STSk-3 STEEL
SLEEVES. SECTION 2-2. S 1:25



STEEL SLEEVES STSk-2 and STSk-3.
TOP VIEW. S 1:25



LEGEND

8-130 – weld seam, first figure – height of seam leg; second figure – seam length; mm

NOTES:

1. The sheet shows the structure of STSk-2 steel sleeve – for VKRM-8-2 DU-01; 02 roof mounted fans and STSk-3 steel sleeve for VKRM-12.5-2DU roof mounted fans.
2. For materials specification see page 145.
3. Dimensions and marking in brackets – for steel sleeve STSk-3.

Installation of roof mounted fans on sleeves

MATERIALS SPECIFICATION

No.	Name	Number	Unit weight, kg	Note total weight, kg
	STEEL SLEEVE STSk-1			
1	Sheet, width 10, D = 900 mm	1	19,63	19,63
2	Pipe 720 x 10, L = 920 mm	1	161,1	161,1
3	Edge, sheet 150 x 6, L = 150 mm	4	0,53	2,12
4	Sheet, width 10, D = 1,200 mm	1	58,88	58,88
5	Screw HILTI HST-M 8/30	16		
6	Screw; nut; washer M12*	8/16/8		
7	M150 cement-sand mortar, cubic m	0,004		
8	M200 cement-sand mortar, cubic m	0,012		
9	Building sealant, running m	3,0		
10	Fitting MD-1	8	0,46	3,68
	STEEL SLEEVE STSk-2			
1	Sheet, width 10, D = 1,200 mm	1	27,16	27,16
2	Pipe 1,020 x 10, L = 920 mm	1	229,17	229,17
3	Edge, sheet 150 x 8, L = 150 mm	8	0,71	5,68
4	Sheet, width 10, D = 1,500 mm	1	77,09	77,09
5	Edge, sheet 70 x 8, L = 70 mm	8	0,15	1,20
6	Screw HILTI HST-M 10/50	16		
7	Screw; nut; washer M12*	8/16/8		
8	M150 cement-sand mortar, cubic m	0,004		
9	M200 cement-sand mortar, cubic m	0,014		
10	Building sealant, running m	4,0		
11	Fitting MD-2	4	1,35	5,40
	STEEL SLEEVE STSk-3			
1	Sheet, width 10, D = 1,650 mm	1	38,47	38,47
2	Pipe 1424 x 10, L = 920 mm**	1	320,16	320,16
3	Edge, sheet 150 x 8, L = 150 mm	8	0,71	5,68
4	Sheet, width 10, D = 1,950 mm	1	105,19	105,19
5	Edge, sheet 70 x 8, L = 70 mm	8	0,15	1,20
6	Screw HILTI HST-M 10/50	16		
7	Screw; nut; washer M12*	8/16/8		
8	M150 cement-sand mortar, cubic m	0,006		
9	M200 cement-sand mortar, cubic m	0,02		
10	Building sealant, running m	5,5		

SPECIFICATION OF FITTINGS

Grade	No.	Section	Number	Item length, mm	Weight, kg	
					items	grades
MD-1		Bracket 75 x 5	1	80	0,46	0,46
MD-2		Bracket 75 x 8	1	150	1,35	1,35

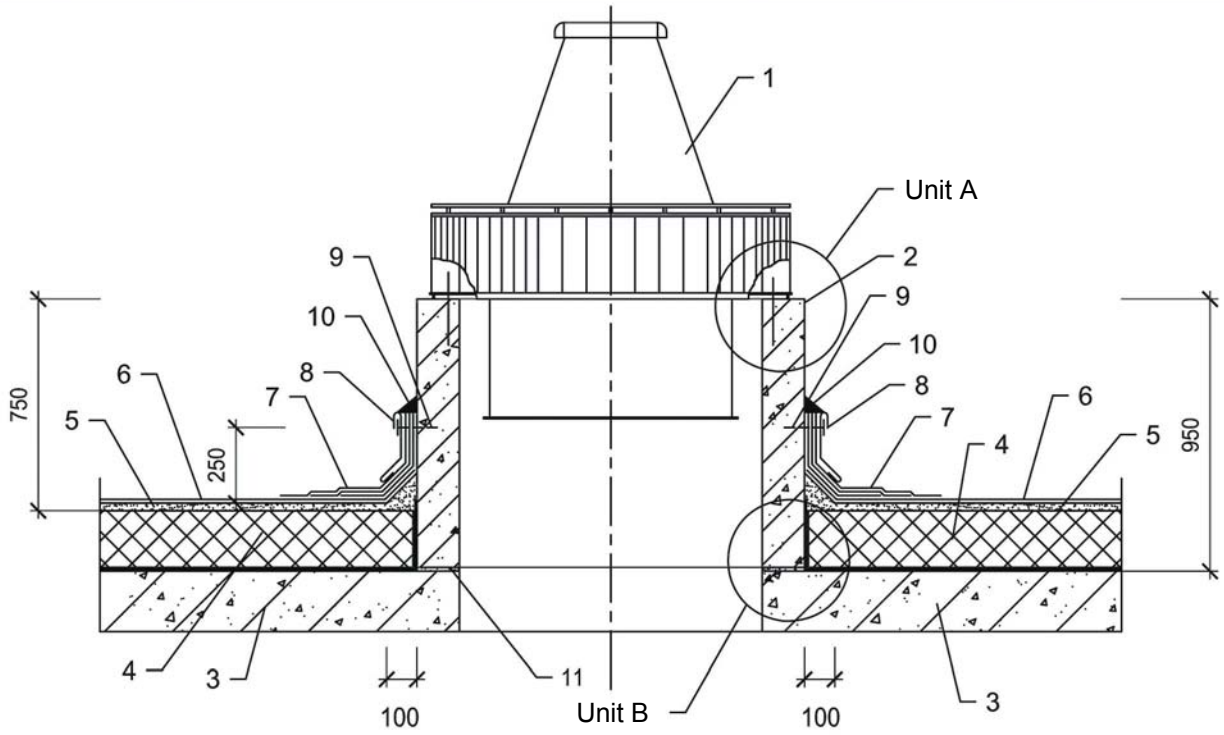
Specifications show the amount of main materials for manufacturing and installation of steel sleeves STSk-1; 2 and 3.

* *Length of M12 screws shall be defined at the place of installation.*

** *The pipe shall be made of a sheet*

Installation of roof mounted fans on sleeves

UNIT FOR INSTALLATION OF ROOF MOUNTED FANS ON SHORT REINFORCED CONCRETE SLEEVES STBk. S 1:25



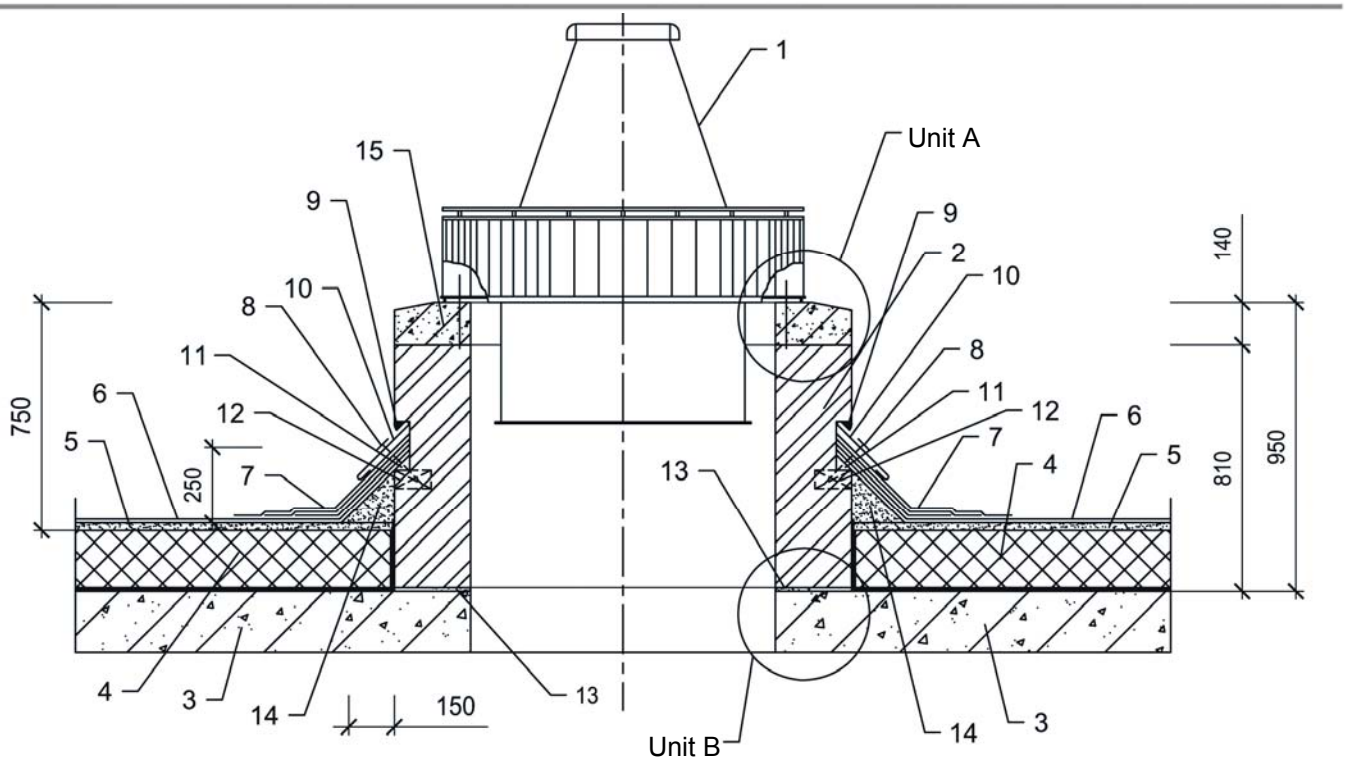
No.	Name
1	Roof mounted VKRM fan... for exhaust ventilation systems;
2	STBk reinforced concrete sleeve;
3	Reinforced concrete plate pavement;
4	Fireproof insulation (mineral wool plate);
5	Slope underlayment of M150 cement-sand mortar;
6	Main water-proof roof covering of rolled melting materials;
7	Additional layers of roof covering, according to design;
8	Apron of galvanized roofing steel;
9	Anchor of galvanized steel, spacing 300 mm;
10	Thiocol or polyurethane sealant;
11	M200 cement-sand mortar.

NOTES:

1. *This unit is developed for installation of roof mounted fans for exhaust ventilation systems (VKRM type without vibration isolator) on short STBk reinforced concrete sleeves.*
2. *Unit is not meant for installation of roof mounted smoke removal fans.*

Installation of roof mounted fans on sleeves

UNIT FOR INSTALLATION OF ROOF MOUNTED FANS ON SHORT BRICK SLEEVES STKk. S 1:25



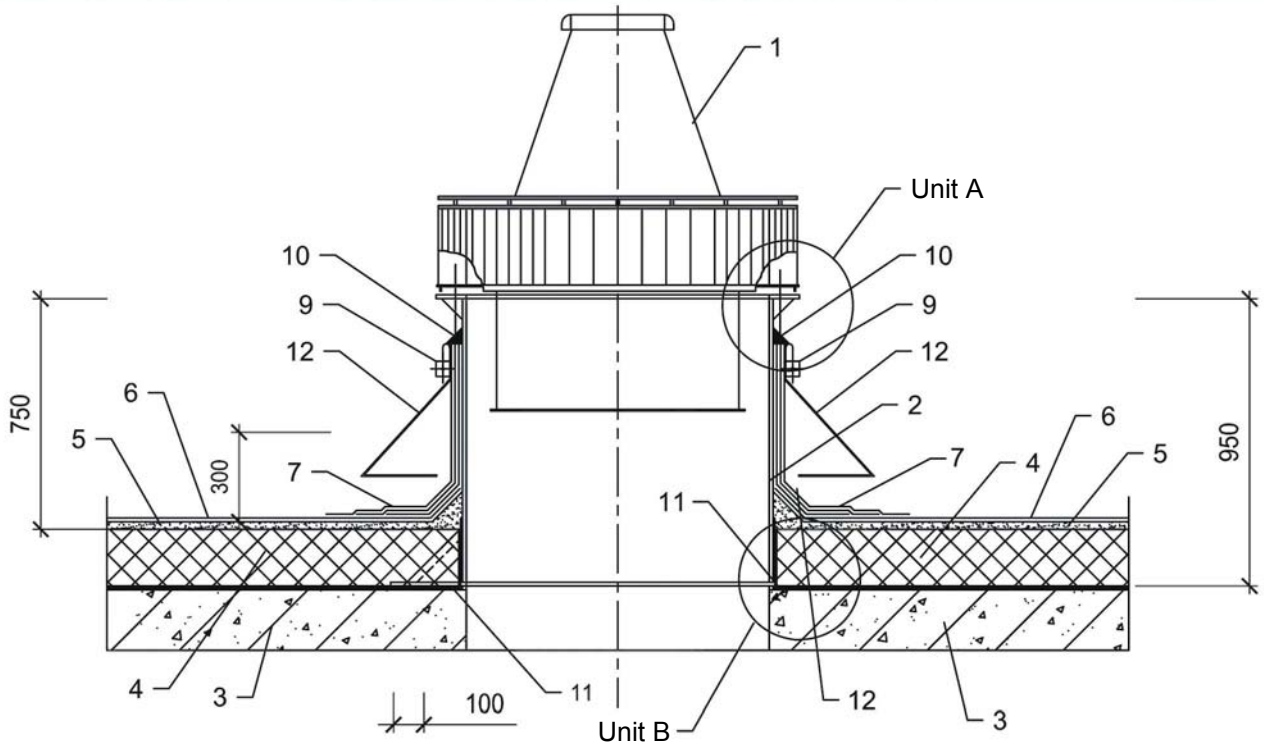
No.	Name
1.	Roof mounted VKRM fan ... for exhaust ventilation systems;
2.	STKk brick sleeve;
3.	Reinforced concrete plate pavement;
4.	Fireproof insulation (mineral wool plate);
5.	Slope underlayment of M150 cement-sand mortar;
6.	Main water-proof roof covering of rolled melting materials;
7.	Additional layers of roof covering, according to design;
8.	Galvanized nail, spacing 300 mm
9.	Thiocol or polyurethane sealant;
10.	Apron of galvanized roofing steel;
11.	Wooden anticepted block 50 x 50/2;
12.	Wooden anticepted plug 120 x 120 x 60, spacing 900 mm, to be installed along brickwork;
13.	M200 cement-sand mortar;
14.	Inclining upstand of M150 cement-sand mortar;
15.	Reinforced concrete plate of the sleeve flooring.

NOTES:

1. *This unit is developed for installation of roof mounted fans for exhaust ventilation systems (VKRM type without vibration isolators) on short STKk brick sleeves.*
2. *Unit is not meant for installation of roof mounted fans.*

Installation of roof mounted fans on sleeves

UNIT FOR INSTALLATION OF ROOF MOUNTED FANS ON SHORT STEEL SLEEVES STSk. S 1:25

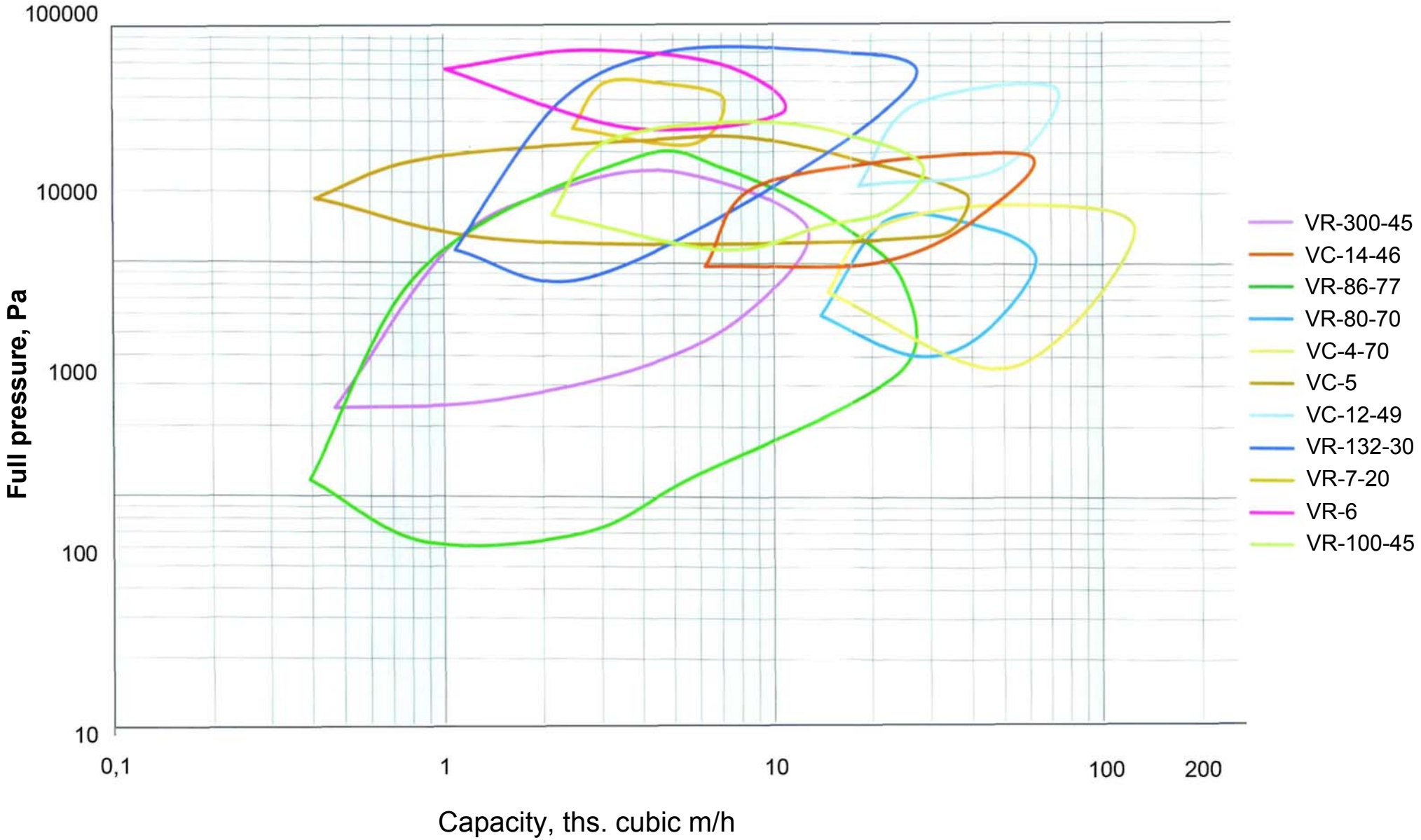


No.	Name
1	Roof mounted VKRM fan... for exhaust ventilation systems
2	Steel STSk sleeve
3	Reinforced concrete plate pavement
4	Fireproof insulation (mineral wool plate)
5	Slope underlayment of M150 cement-sand mortar
6	Main water-proof roof covering of rolled melting materials
7	Additional layers of roof covering, according to design
8	Apron of galvanized roofing steel
9	Clamp
10	Thiocol or polyurethane sealant
11	M200 cement-sand mortar
12	Skirt of galvanized roofing steel

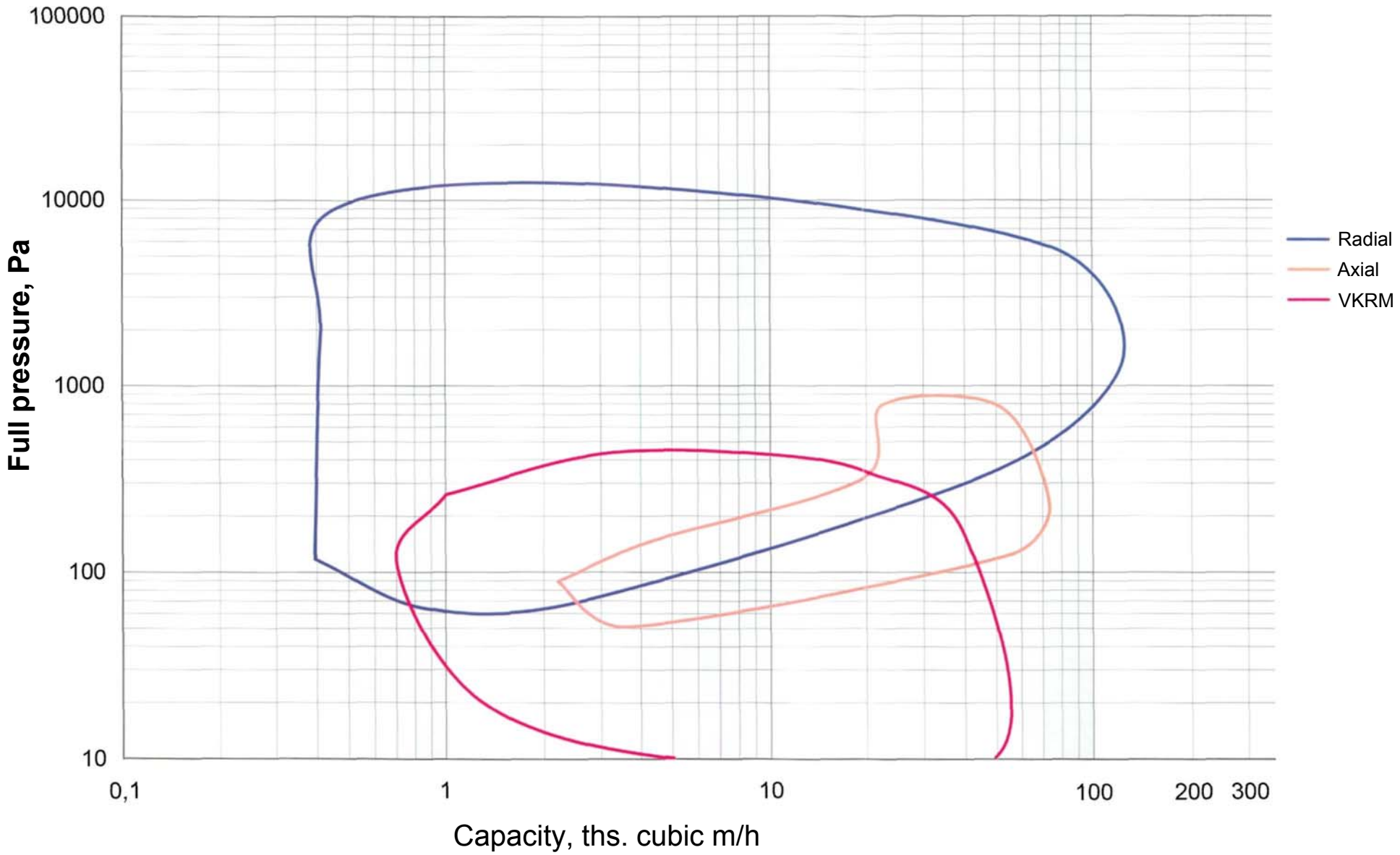
NOTES:

1. *This unit is developed for installation of roof mounted fans for exhaust ventilation systems on short steel STSk sleeves.*
2. *Unit is not meant for installation of roof mounted smoke removal fans.*

Working areas of radial fans

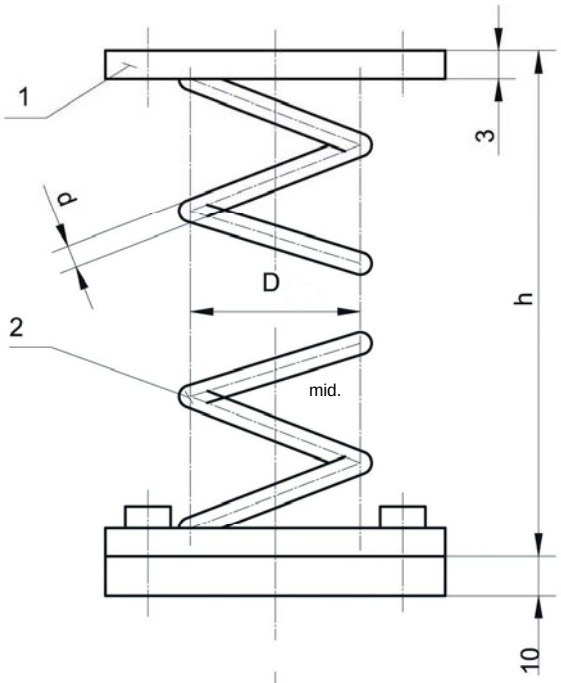


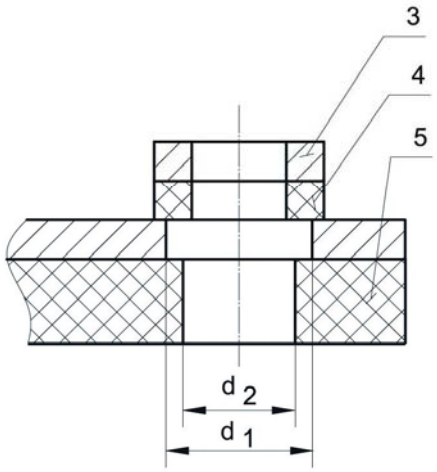
Working areas of radial, axial, roof mounted fans

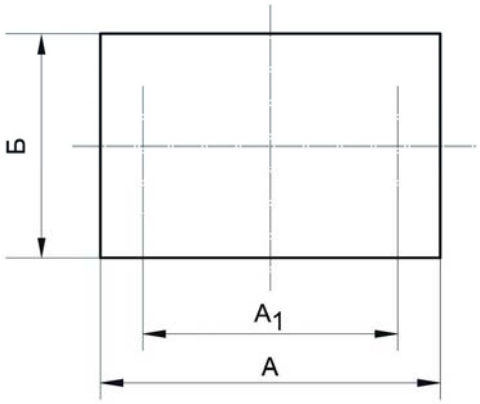


VIBRATION ISOLATORS

OVERALL AND FITTING DIMENSIONS







1 - rod

2 - spring

3 - steel washer

4 - rubber washer

5 - rubber seal

TECHNICAL PARAMETERS

Designation	Load P, H		Vertical stiffness, N/cm	Height in free state	Spring compression under load, mm		Number of working turns	Dimensions, mm							Weight, kg
	Working P_w	Maximum (P_{max})			P_w	P_{max}		A	A_1	Б	D_{cp}	d	d_1	d_2	
DO 38	122	152	45	72	27	33,7		100	70	60	30	3	12	8,5	0,3
DO 39	219	273	61	92,5	36	45		110	80	70	40	4	12	8,5	0,4
DO 40	339	424	81	113	41,7	52		130	100	90	50	5	12	8,9	1
DO 41	540	674	124	129	43,4	54	5,6	130	100	90	54	6	14	10,5	1
DO 42	942	1177	165	170	57,2	72		150	120	110	72	8	14	10,5	1,8
DO 43	1648	2060	294,3	192	56	70		160	130	120	80	10	14	10,5	2,4
DO 44	2384	2979	357	226	66,5	83		180	150	140	96	12	14	10,5	3,65
DO 45	3728	4660	441,5	281	84,5	106		220	180	170	120	15	16	12,5	6,45

Note: *Deformation (spring compression) under load, different from that indicated in the table, changes in proportion to the load*

Total number of spring turns for vibration isolators of all types is 6.5

For DO 38, DO 39 vibration isolators S = 2 mm, for other vibration isolators S = 3 mm, S1 is 5 and 10 mm respectively.

In rubber seals $d_1 = d_2 + 3.5$ mm in all cases.

RULES FORMALISATION OF ORDERS FOR MOVEN FANS

Information on the customer:

Company _____

Type of activity _____

_____

Full name _____

Position _____

Phone _____

Fax _____

Legal address _____

_____

Mailing address _____

_____

Payer _____

BIC _____ INN _____

Settl. acc. _____

Corr. acc. _____

Bank _____

Consignee _____

Payment and shipping details of the buyer _____

Station of destination _____

Terms of shipping _____

Fan index	*Structural variant*	*Engine*		*Working wheel*		*Case turning angle*	*Direction of rotation*	*Num-ber*
		kW	*rpm*	*rpm*	*other*			

Information on products ordered:

Please send the completed form by fax to (495) 741-09-90
or by mail to: 111141, Moscow, Plekhanova Street, 17, bld. 1

CATALOGUE OF PRODUCTS

GENERAL AND SPECIAL PURPOSE VALVES

Moscow, 111141, Plekhanova Street, 17
phone: **+7(495) 741-09-99**
fax: **+7(495) 741-09-90**
E-mail: **sales@moven.ru**
Internet: **www.moven.ru**