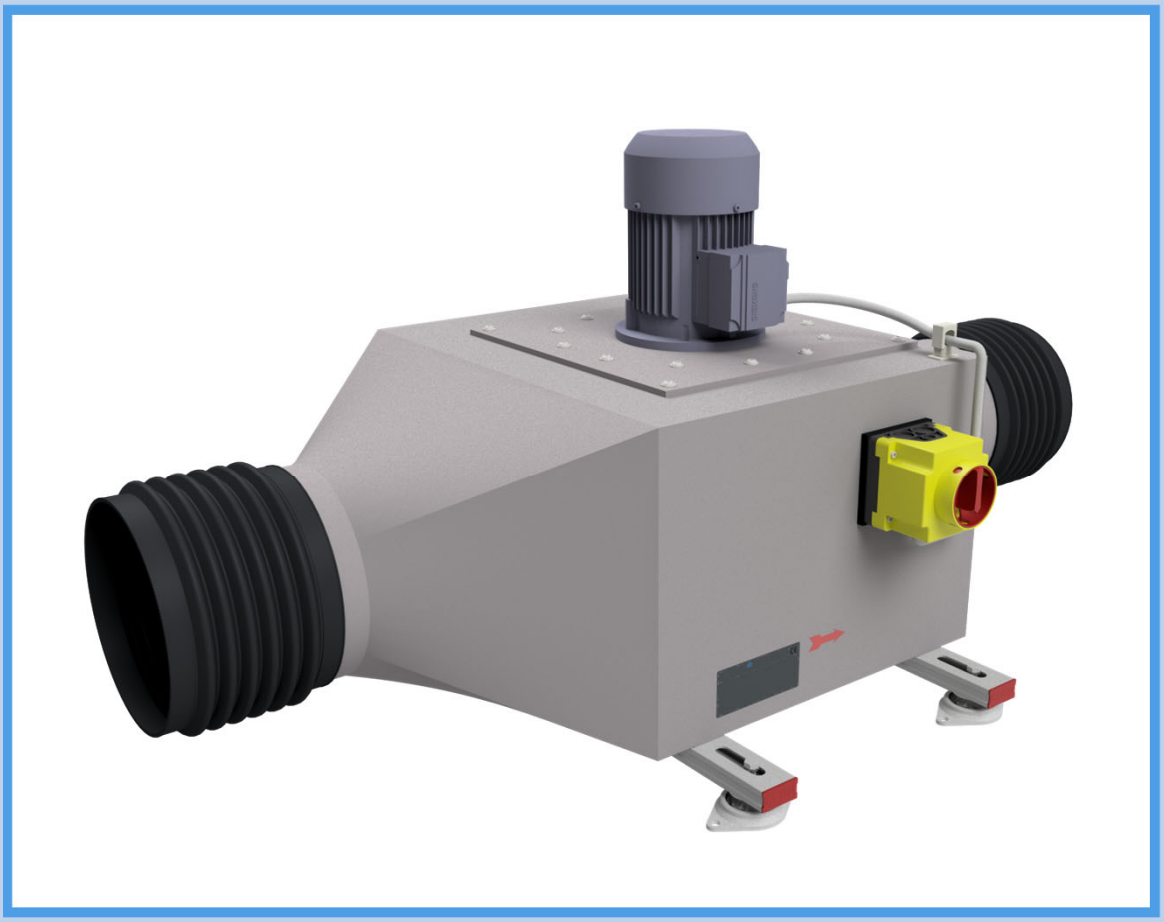
MIETZSCH

GmbH Lufttechnik Dresden

USER INFORMATION

INLINE DUCT FANS

SERIES VRK



Inline duct fans

Series VRK

Usable in ventilation engineering of
all branches of industry

High chemical resistivity by use of plastic materials
and motor arrangement outside the medium conveyed

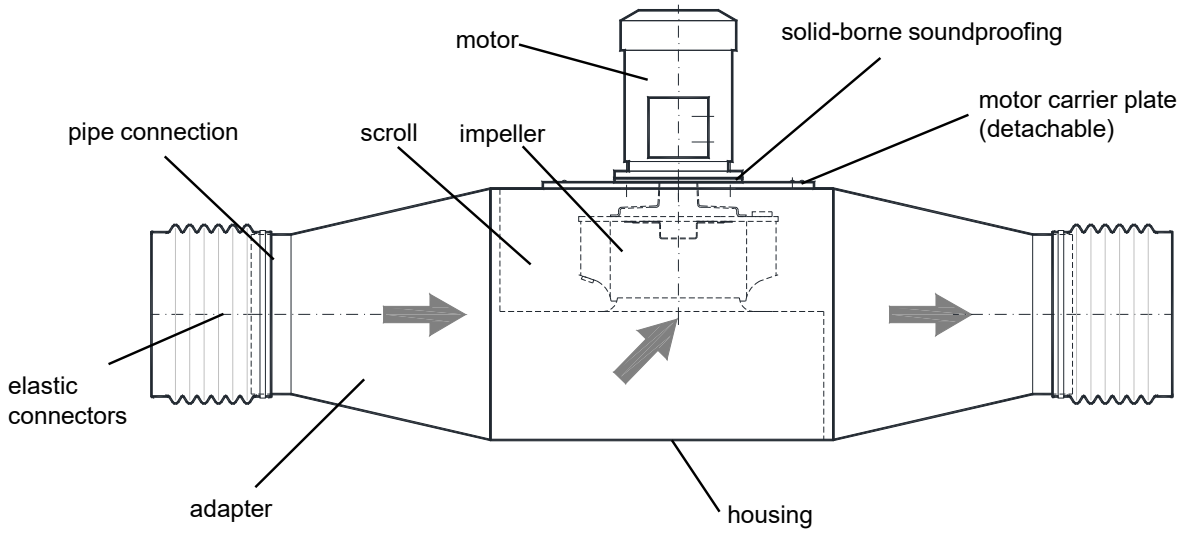
Little floor space required; universal assembly facilities

Volumetric flow	up to 17,700 m³/h
Pressure increase	up to 1,330 Pa

Stepped capacity by 9 sizes (larger versions on request)

Explosion-proof versions according to European Directive EN 2014/34/EU (ATEX)

Wide range of electrical and ventilation accessories



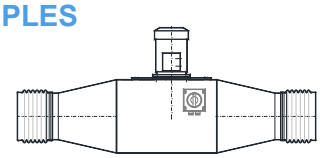
APPLICATION

Inline duct fans of type VRK are employed in all branches of industry and agriculture. They are an easily assembled alternative to conventional radial fans with complicated diversions wherever the capacity of usual axial fans is not sufficient and straight ducts are necessary mainly due to lack of space.
High resistivity to corrosion makes VRK fans suitable in particular for process exhaust systems in the chemical and pharmaceutical industries, for ventilation of laboratories, battery compartments, pickling and washing units, galvanic and agricultural facilities etc.

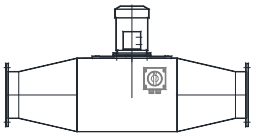
TECHNICAL DESCRIPTION

The standard version of inline duct fans consists of the impeller and channel housing with integrated scroll as major components. Adapters with pipe connection and elastic connectors are elements of the range of delivery. The motor is carried with vibration insulation outside the medium conveyed. Three-phase motors (also pole-changing or explosion-proof) and single-phase alternating current are used
The impeller with balancing quality G 6.3 according to ISO 1940 is arranged directly on the motor shaft stud. Rubber elements between the motor and motor carrier plate prevent transmission of noise and vibrations.
The impeller and housing are made of PPs (PVC, PE, PP, PVDF or electrically conductive plastic material PEX, PPs-EL on request) are made with state-of-the-art joining methods of single components. Steel components such as screws, hub, and hub connection are protected against corrosion by plastic covers, or fasteners made of corrosion- and acid-resistant steel are used.
Various connection types are available to meet a wide range of mounting requirements (see also pages 17/18):

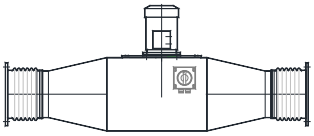
CONNECTION EXAMPLES



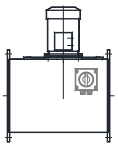
Standard version ELA
with pipe connection and elastic connectors



Version F
with flange



Version KOF / KOR
with compensator and flange / frame



Version R
with (rectangular) frames, without adapters

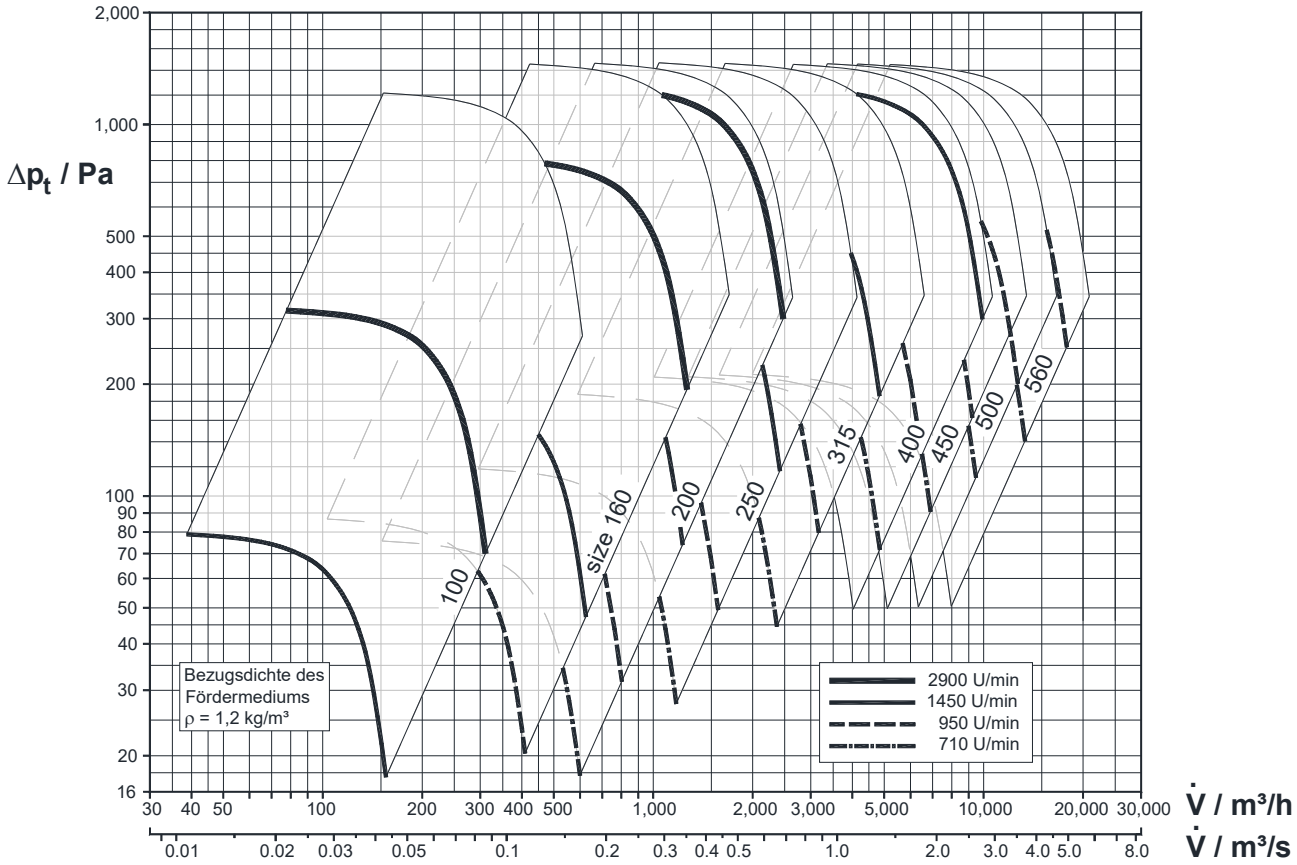
SPECIAL DESIGNS and ACCESSORIES (more information on p. 6 and p. 17/18)

Shatter protection, weather protection for motor, various connections for condensate drain, intake and discharge protection grilles

Air control parts: Pipes, ducts, bends, dampers, exhaust air hoods, etc., pipe and baffle silencers,
Electrical accessories: repair switches, motor protection switches, pole-changing switches, complete fan controls, frequency converters (also with pressure and volume flow control), air flow monitoring.

Inline duct fans of plastic materials

TYPE SURVEY – PRESELECTION



CONDITION OF USE

permissible ambient temperature: -30 °C ... 40 °C (EX motors -20 °C ... 40 °C)
permissible temperature of medium conveyed: -30 °C ... 40 °C
Higher temperatures depend on the speed rate and are possible after consultation with the manufacturers.

The applied materials have good **chemical resistance** against many substances. It should be considered, however, that evens plastic materials are attacked by certain chemicals.
Many applications in fields such as laboratories and stockrooms for chemicals, in agriculture and damp-loaded processes led to good results with "standard materials" such as PVC or PPs that can be used without any problem in most cases.
Critical applications may occur in the process-technological industry - surface refinement, pickling plants, process exhaust air in microelectronics.
For selection of suitable materials the purpose of use of the fan and the type of medium conveyed should be specified in requests or orders.
Slightly **dust-laden media** can also be conveyed but lead to increased wear.
Explosion-proof types are produced for zone 1 and zone 2 (See information series VRE).
Working range: The fans show stable operation in the entire range of the characteristic shown.

MOTOR SHAFT SEAL

The VRK radial fans are equipped as standard with a back blading formed onto the rear hub protection cap. This ensures that outside air is constantly sucked in through the minimized gap at the shaft passage if **the pressure drop on the suction side is greater than 1/3 of the total pressure drop**. It should therefore always be aimed to arrange components with large pressure losses, such as scrubbers, filters, separators, etc., upstream of the fan, i.e. on the suction side. In the **standard design GD**, a sealing ring with an axially acting flexible sealing lip is attached to the hub body.

ASSEMBLY / MAINTENANCE

The inline duct fan is preferably integrated in a horizontal pipeline. The motor can be arranged in top or bottom position. Consultation of the manufacturers is required in cases of horizontal motor axis or vertical fan arrangement.
For assembling the housing is placed on two wall or ceiling consoles. Suction and pressure lines are connected by means of elastic connectors (in range of delivery). Flange connection is optionally possible. Connected plant components must not stress the fan mechanically.
If needed, a line for condensate draining has to be connected to the relevant bore in the deepest housing position.
Motor cooling must not be impaired by adjacent components and ceilings. The distance between motor cooling air inlet and ceiling must not be **less than 50 mm**. In cases of outdoor installation especially the motor must be protected against direct weather effects such as ice, snow, and hail (weather hood is part of accessories).
The housing may be opened on its motor end for cleaning and repair. A condensate drain can be arranged in addition (see accessories p. 17/18).

EXPLOSION PROTECTION

Directive 2014/34/EU **(ATEX)** re-regulates explosion protection for non-electrical devices as of 29/03/2014. Aside from complying with design and safety regulations as per DIN EN 14986 and DIN EN ISO 80079, the fan must be assigned to the respective protection type and be marked accordingly. The manufacturer must provide proof of compliance.

Explosion hazard areas are found in the chemical industry, gasworks, coking plants, painting facilities, fuelling stations, sewage treatment plants, and laboratories, etc.

Requirements for an explosion are
- flammable substance (e.g. gas, dust)
- sufficient oxygen (air)
- source of ignition (sparks, fire, hot surfaces, electrostatic discharge)

The following measures must be implemented in areas with a potential explosion hazard:
- An explosive atmosphere is prevented from developing
- Avoidance of sources of ignition
- Measures to weaken the deleterious effects of an explosion

In many cases, an efficient and monitored ventilation system is sufficient to prevent the formation of an ignitable atmosphere and thus an explosion hazard.

The protection requirements for a fan are based on the probability of occurrence of an explosive atmosphere in the medium and/or the environment. There are three types of explosion hazard zone:

Explosion hazard	Hazard zone	Avoidance of sources of ignition	Category acc. to ATEX
Continuous or long-term	Zone 0	that are very unlikely to occur	1
Occasional	Zone 1	that are likely to occur frequently	2
Only rarely and briefly	Zone 2	During routine operation	3

Which protection is required and the additional requirements to be observed is the responsibility of the system operator or the relevant supervisory authority. This means that the customer's order must specify the protection the fan is to have.

The VRK fans are supplied for the following ignition protection types:

Zone 1: CE Ex II 2G Ex h IIB+H2 T3 Gb

Zone 2: CE Ex II 3G Ex h IIB+H2 T3 Gc

- Gc — equipment protection level Zone 2 = cat. 3G
- T3 — temperature class T3 (ignition temperature of gas > 200 °C)
- IIB+H2 — explosion group of gases IIB+H2 (IIA and H2 included, IIC not included)
- Ex h — non-electrical equipment
- 3G — category (3G = gases of zone 2)
- II — Equipment-group II (use in mining not permissible)

Use in Zone 0 is not possible as a matter of principle. Gases of explosion group IIC (except hydrogen), gases with an ignition temperature below 200°C as well as flammable dusts are also excluded.

In the rating, the internal (medium conveyed) and external (environment) areas are distinguished in general. Depending on the hazard zone, certain design variants are prescribed. Explosion protected devices (motors, switches etc.) are used and electrically conductive plastics (preferably conductive and flame retardant polypropylene --> PPsX). Basically, this results in the following ratings:

Hazard zone		MIETZSCH	Motor		Impeller/casing
internal	external	Designation	without converter	with converter	material
Zone 2	Zone 2	Z2Z2	Ex eb II, Ex ec II	Ex db (eb) II, Ex ec II	not conductive
Zone 2	none	Z2Z3	Ex eb II, Ex ec II, Standard	Ex ec II, Standard	not conductive
Zone 1	Zone 1	Z1Z1	Ex eb II	Ex db (eb) II	conductive
Zone 1	Zone 2	Z1Z2	Ex eb II	Ex db (eb) II	conductive

Special requirements for operation on the frequency converter
Motors with increased safety Ex eb II are not approved for converter operation: Pressure-resistant encapsulated Ex db eb II motors can run on the converter if they are equipped with winding protection (design TS).
If there is no EX zone on the outside and fan and installation location meet certain design requirements, standard motors may also be used which can then also be operated with a converter.

EXPLANATION OF TYPE DESIGNATION

VRK 160 / 731 W 1450 - P1 - DM - HUL - PPs

fan
radial
duct arrangement

nominal size (impeller intake diameter/mm)

impeller type
731 - curved backward

direkt drive

nominal speed rpm
(higher speed of pole-changing motors)

abbrevations for special design

- **E** = single-phase drive
- **TS** = with thermal winding protection (PTC resistor)
- **P1** = speed halving (Dahlander)
  such as 1450 P1 = 1,450/710 rpm
- **P2** = changeover to next smaller speed
  such as 1450 P2 = 1,450/950 rpm (Changeover to the next lower speed)
- **EXec** = with explosion-proof motor Ex ec II T3
- **EXeb** = with explosion-proof motor Ex eb II T3
- **EXde** = with explosion-proof motor Ex db eb IIC T4
- **ZiZo** = explosion-proof fan for zone i=inside and o=outside
  such as Z1Z2 = inside zone 1 and outside zone 2
- **GD** = gas-tight, shaft passage technically gas-tight

mounting type (for device design „mounting position horizontal“ only, see p. 07)

- **WM** = wall mounting incl. vibration isolators
- **WM+** = wall mounting incl. vibration isolators and wall bracket
- **DM** = ceiling mounting incl. vibration isolators
- **DM+** = ceiling mounting incl. vibration isolators and threaded rod

mounting position (for device design see p. 06)

- **HUL** = horizontal, motor in bottom position, operator's side: left in flow direction
- **HUR** = horizontal, motor in bottom position, operator's side: right in flow direction
- **HOL** = horizontal, motor in top position, operator's side: left in flow direction
- **HOR** = horizontal, motor in top position, operator's side: right in flow direction
- **HSL** = horizontal, horizontal motor axis, operator's side: left in flow direction
- **HSR** = horizontal, horizontal motor axis, operator's side: right in flow direction
- **V-WM** = vertical, horizontal motor axis, 2 consoles on the housing sides
- **V-WM+** = vertical, horizontal motor axis, 2 consoles on the housing sides and wall consoles

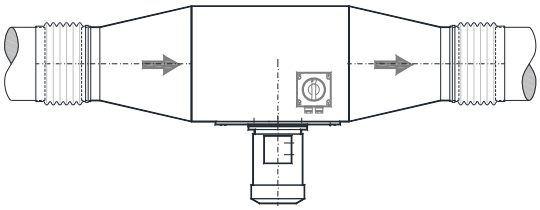
material

Mounting position and type

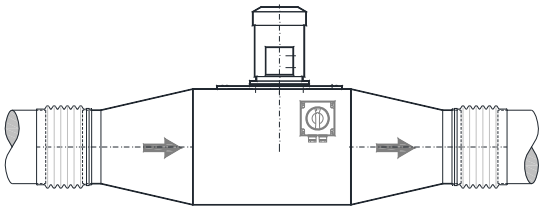
MOUNTING POSITION 2)

horizontal

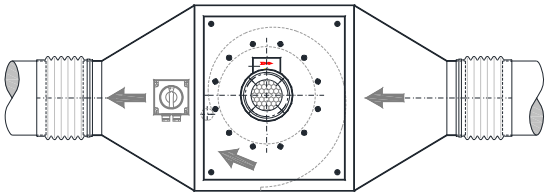
☐ **HUR** 1) motor in bottom position, operator's side right (see Fig.)
☐ **HUL** 1) motor in bottom position, operator's side left



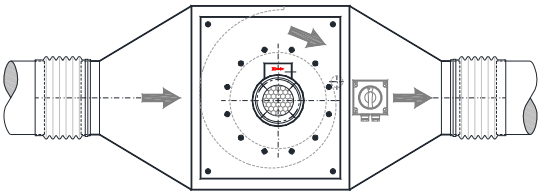
☐ **HOR** motor in top position, operator's side right (see Fig.)
☐ **HOL** motor in top position, operator's side left



☐ **HSL** horizontal motor axis, operator's side left (see Fig.)

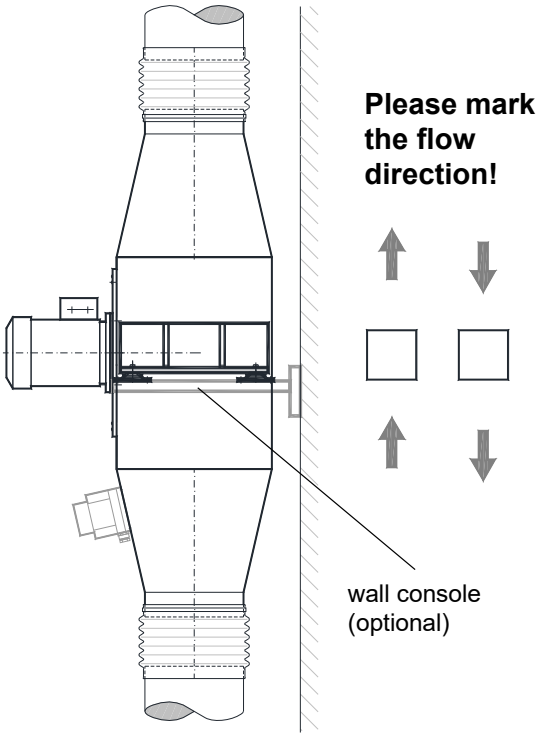


☐ **HSR** horizontal motor axis, operator's side right (see Fig.)



vertical WM - for wall mounting only (incl. vibration isolators)

☐ **V - WM**
☐ **V - WM+** incl. wall console

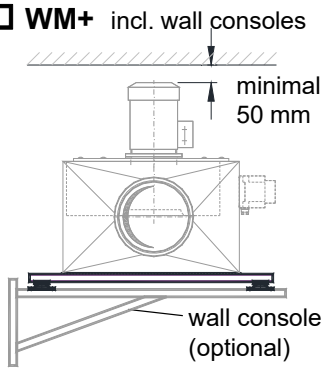


MOUNTING TYPE horizontal 2)

For all variantes „Mounting position horizontal“
(incl. Metal rails, silencing elements / vibration isolators)

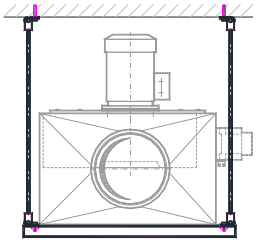
Wandmontage

☐ **WM** (on existing consoles)
☐ **WM+** incl. wall consoles

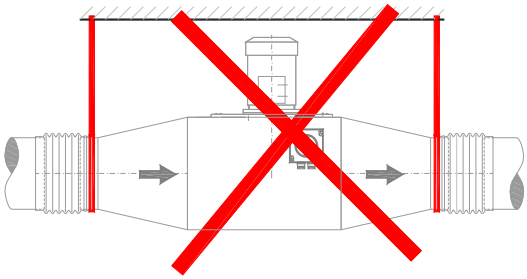


Deckenmontage

☐ **DM** (with existing threaded rods)
☐ **DM+** incl. threaded rods



Suspension is only permitted on the duct fan housing!



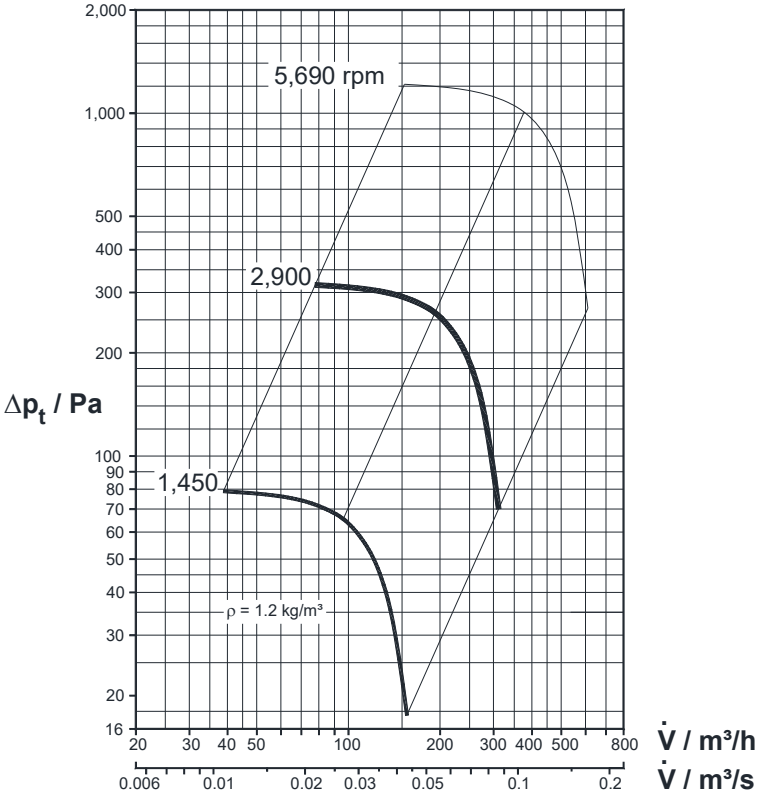
OUTDOOR INSTALLATION

☐ **yes** (with weather protection for motor)
☐ **no**

1) Condensate drain required at „motor in bottom position“
2) If a repair switch is required: Please inform us exactly of any deviating position

Inline duct fans of plastic materials
VRK 100 /731

PERFORMANCE



Working range

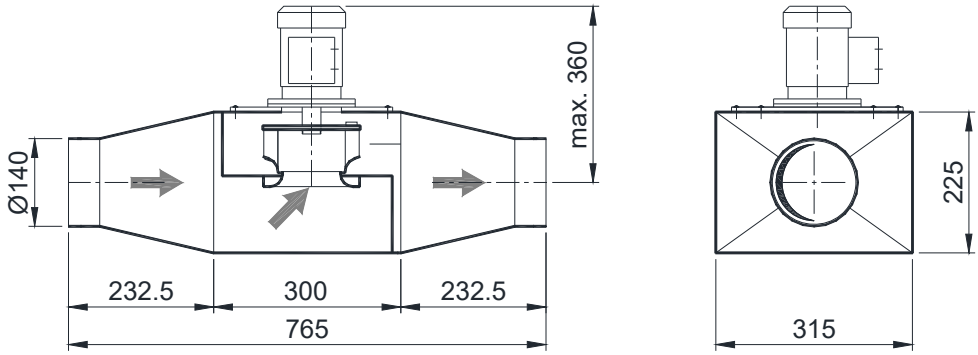
- Stable regime in entire characteristic range
- Parallel connection possible, series connection in coordination with the manufacturer
- permissible temperature range -30°C ... 40°C
  (EX-Motors -20°C ... 40°C)

Design features

- welded impeller with 8 vanes curved backward
- stable welded plastic housing
- Motor arranged outside the medium stream
- Various installation positions and mounting options
- Various housing connection types

MAIN DIMENSIONS

The main dimensions apply to the version with smooth connection on the discharge and suction side.
For other dimensions, especially for the other housing connections and accessories, see page 17/18.



MOTOR VERSIONS for standard motor 3 ~ 400 V / 50 Hz IP55

(Data for other motors, e.g. single-phase motors, pole-changing motors, Ex-motors, on request.)

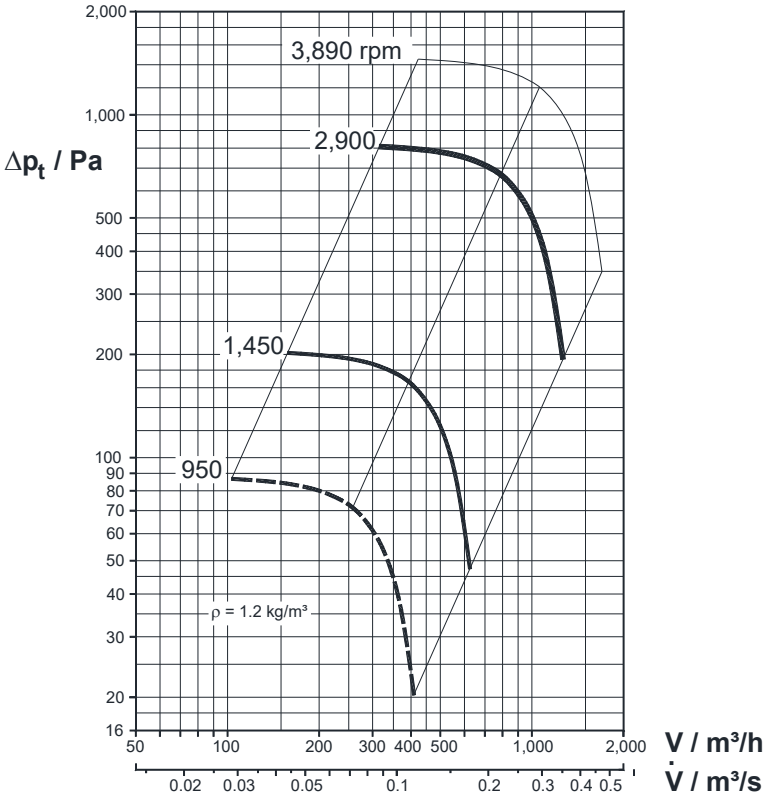
Fan type	Speed	Power require-ment	Nominal motor power	Nominal motor currant	Weight with motor	L_{A3m}	L_{WA}	Oktav level $L_{WA\text{-}Okt}$ / dB(A)							
	rpm	kW	kW	A	kg	dB(A)	dB(A)	63	125	250	500	1000	2000	4000	8000
VRK 100/731W1450	1,450	0.003	0.12	0.44	12	45	62	39	43	58	54	54	55	44	37
VRK 100/731W2900	2,900	0.03	0.18	0.55	11	51	68	52	60	62	63	61	55	46	36
VRK 100/731W2900	5690[1)]	0.20	0.25	0.69	12	66	83	61	77	78	78	76	69	60	49

[1)] - during operation with frequency converter > 50 Hz

L_{A3m} = A - evaluated noise level at a distance of 3 m
L_{WA} = A - evaluated noise level in the air duct

Inline duct fans of plastic materials
VRK 160 /731

PERFORMANCE



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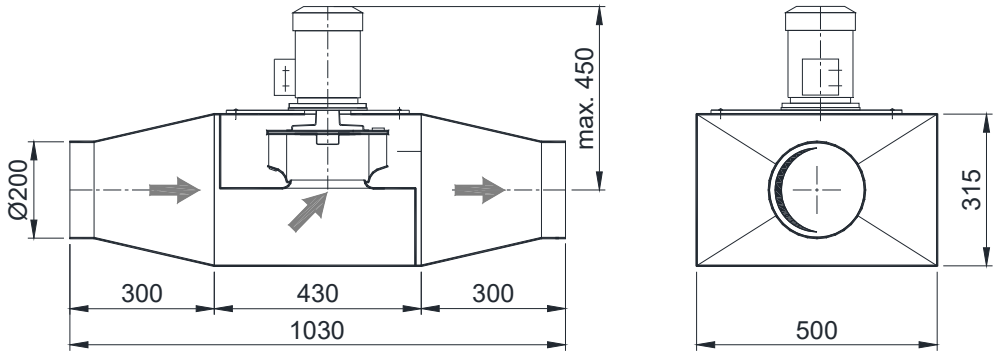

MOTOR VERSIONS for standard motor 3 ~ 400 V / 50 Hz IP55

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	rpm	kW	kW	A	kg	dB(A)	dB(A)	63	125	250	500	1000	2000	4000	8000
VRK 160/731W950	950	0.01	0.09	0.48	21	39	56	39	51	46	48	50	48	33	16
VRK 160/731W1450	1,450	0.04	0.12	0.44	22	44	62	44	57	53	55	56	53	43	26
VRK 160/731W2900	2,900	0.27	0.37	0.95	23	60	78	57	66	68	77	70	62	59	50
VRK 160/731W2900	3890[1)]	0.65	0.75	1.56	28	66	84	61	72	74	83	76	67	64	55

[1)] - during operation with frequency converter > 50 Hz

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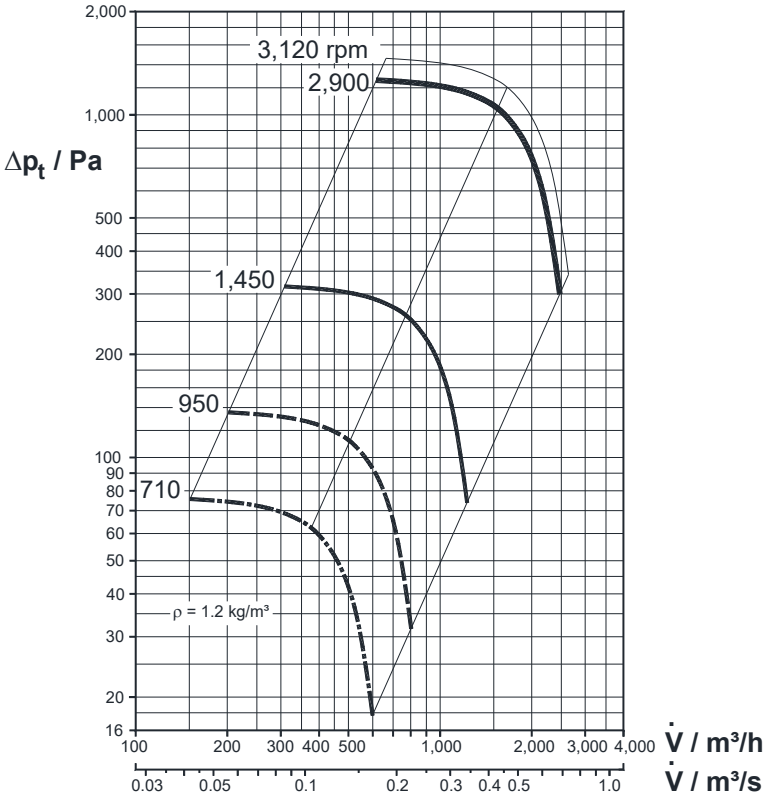
PERFORMANCE



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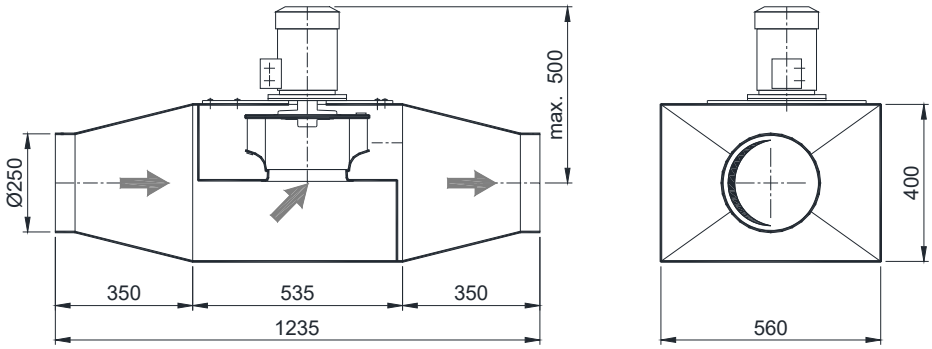

MOTOR VERSIONS for standard motor 3 ~ 400 V / 50 Hz IP55

(Data for other motors, e.g. single-phase motors, pole-changing motors, Ex-motors, on request.)

Fan type	Speed	Power require-ment	Nominal motor power	Nominal motor currant	Weight with motor	L_{A3m}	L_{WA}	Oktav level L_{WA-Okt} / dB(A)							
	rpm	kW	kW	A	kg	dB(A)	dB(A)	63	125	250	500	1000	2000	4000	8000
VRK 200/731W710	710	0.01	0.09	0.50	32	41	58	44	50	50	53	50	45	33	23
VRK 200/731W950	950	0.03	0.09	0.48	30	46	63	46	54	54	56	57	54	41	25
VRK 200/731W1450	1,450	0.10	0.18	0.62	31	51	69	52	60	61	63	62	59	50	36
VRK 200/731W2900	2,900	0.83	1.10	2.25	39	67	85	61	70	75	82	78	69	64	55
VRK 200/731W2900	3,120[1)]	1.03	1.10	2.25	39	68	87	63	72	77	84	80	71	66	57

[1)] - during operation with frequency converter > 50 Hz

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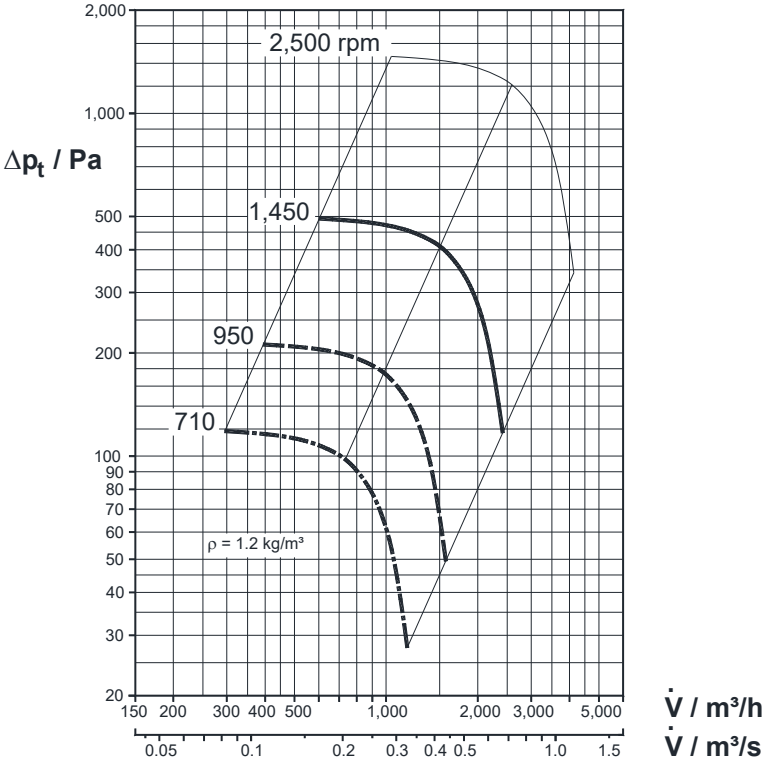
PERFORMANCE



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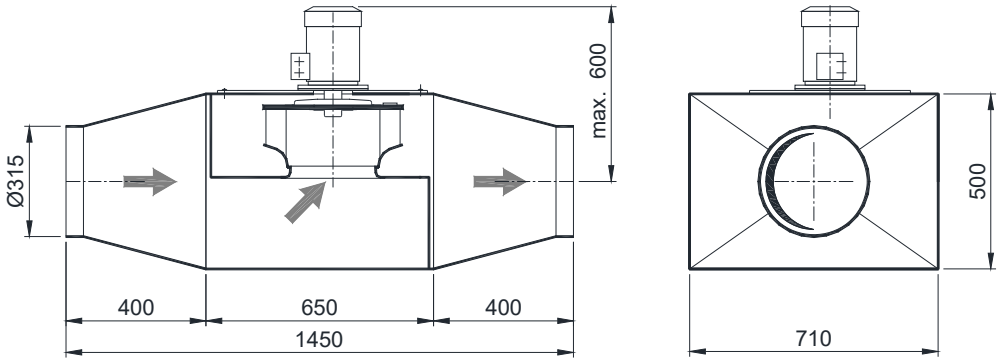


MOTOR VERSIONS for standard motor 3 ~ 400 V / 50 Hz IP55

(Data for other motors, e.g. single-phase motors, pole-changing motors, Ex-motors, on request.)

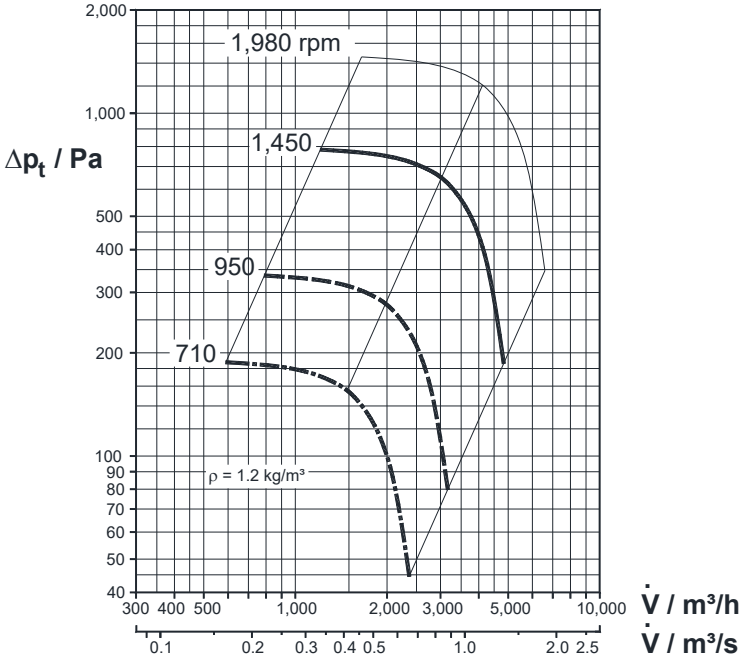
Fan type	Speed	Power require-ment	Nominal motor power	Nominal motor currant	Weight with motor	L_{A3m}	L_{WA}	Oktav level $L_{WA\text{-}Okt}$ / dB(A)							
	rpm	kW	kW	A	kg	dB(A)	dB(A)	63	125	250	500	1000	2000	4000	8000
VRK250/731W710	710	0.04	0.09	0.50	49	42	59	46	53	50	55	52	44	30	21
VRK250/731W950	950	0.09	0.18	0.68	49	47	64	50	56	56	57	60	53	46	28
VRK250/731W1450	1,450	0.31	0.37	1.02	50	55	73	59	62	68	69	66	62	56	43
VRK250/731W1450	2,500[1)]	1.60	2.20	4.45	68	67	85	71	75	80	81	77	73	67	53

[1)] - during operation with frequency converter > 50 Hz

L_{A3m} = A - evaluated noise level at a distance of 3 m
L_{WA} = A - evaluated noise level in the air duct

Inline duct fans of plastic materials
VRK 315 / 731

PERFORMANCE



Working range

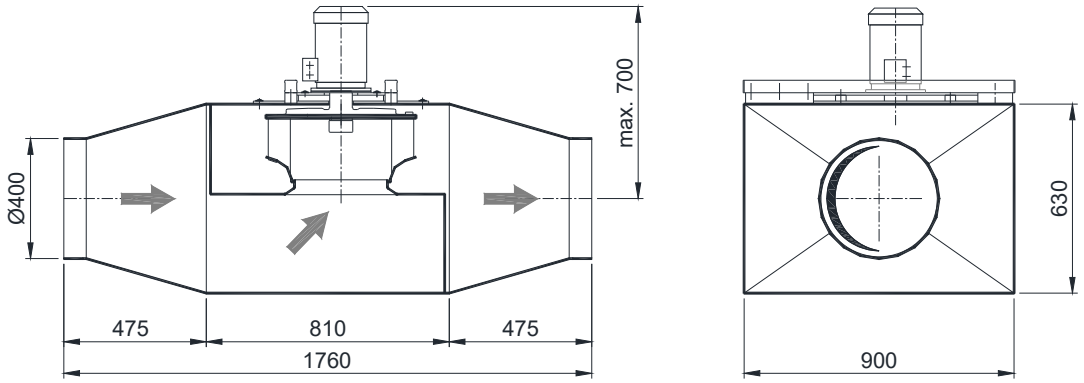
- Stable regime in entire characteristic range
- Parallel connection possible, series connection in coordination with the manufacturer
- permissible temperature range -30°C ... 40°C
  (EX-Motors -20°C ... 40°C)

Design features

- welded impeller with 8 vanes curved backward
- stable welded plastic housing
- Motor arranged outside the medium stream
- Various installation positions and mounting options
- Various housing connection types

MAIN DIMENSIONS

The main dimensions apply to the version with smooth connection on the discharge and suction side.
For other dimensions, especially for the other housing connections and accessories, see page 17/18.



MOTOR VERSIONS for standard motor 3 ~ 400 V / 50 Hz IP55

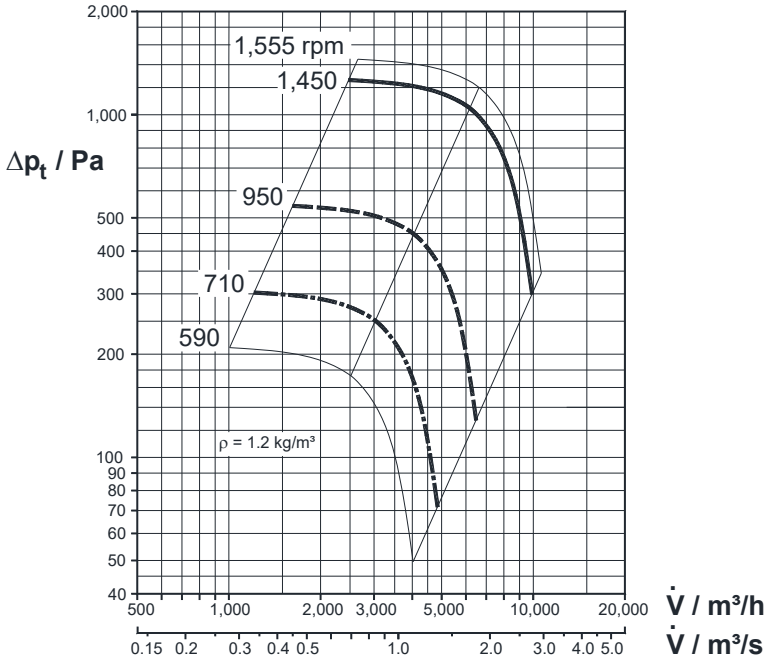
(Data for other motors, e.g. single-phase motors, pole-changing motors, Ex-motors, on request.)

Fan type	Speed	Power require-ment	Nominal motor power	Nominal motor currant	Weight with motor	L_{A3m}	L_{WA}	Oktav level $L_{WA\text{-}Okt}$ / dB(A)							
	rpm	kW	kW	A	kg	dB(A)	dB(A)	63	125	250	500	1000	2000	4000	8000
VRK 315/731W710	710	0.12	0.18	0.90	75	48	65	53	59	58	60	58	53	45	38
VRK 315/731W950	950	0.28	0.37	1.10	76	53	71	59	64	65	66	64	60	56	44
VRK 315/731W1450	1,450	0.99	1.10	2.40	83	62	80	65	69	75	74	72	67	62	51
VRK 315/731W1450	1,980[1)]	2.52	3.00	6.20	94	69	87	73	77	83	82	80	74	69	58

[1)] - during operation with frequency converter > 50 Hz

L_{A3m} = A - evaluated noise level at a distance of 3 m
L_{WA} = A - evaluated noise level in the air duct

PERFORMANCE



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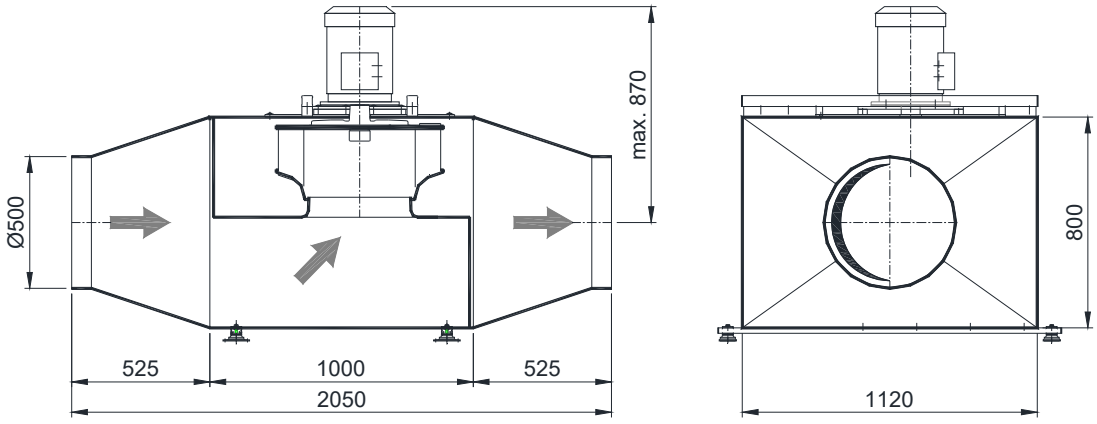


MOTOR VERSIONS for standard motor 3 ~ 400 V / 50 Hz IP55

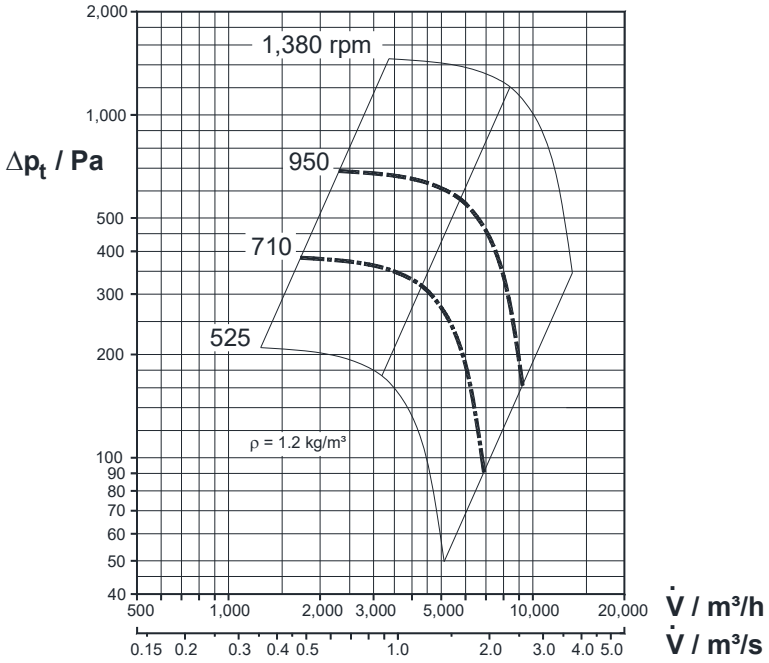
(Data for other motors, e.g. single-phase motors, pole-changing motors, Ex-motors, on request.)

Fan type	Speed	Power require-ment	Nominal motor power	Nominal motor currant	Weight with motor	L_{A3m}	L_{WA}	Oktav level $L_{WA\text{-}Okt}$ / dB(A)							
	rpm	kW	kW	A	kg	dB(A)	dB(A)	63	125	250	500	1000	2000	4000	8000
VRK 400/731W710	710	0.39	0.55	1.62	135	55	72	59	65	69	66	62	60	57	53
VRK 400/731W950	950	0.95	1.10	2.95	142	61	79	66	70	76	73	68	65	63	58
VRK 400/731W1450	1450	3.41	4.00	7.90	168	68	86	73	76	84	80	75	72	69	60
VRK 400/731W1450	1,555[1)]	4.08	5.50	10.80	185	70	88	74	78	86	82	77	74	71	62

[1)] - during operation with frequency converter > 50 Hz

L_{A3m} = A - evaluated noise level at a distance of 3 m
L_{WA} = A - evaluated noise level in the air duct

PERFORMANCE



Working range

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- Parallel connection possible, series connection in coordination with the manufacturer
- permissible temperature range -30°C ... 40°C
  (EX-Motors -20°C ... 40°C)

Design features

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MAIN DIMENSIONS

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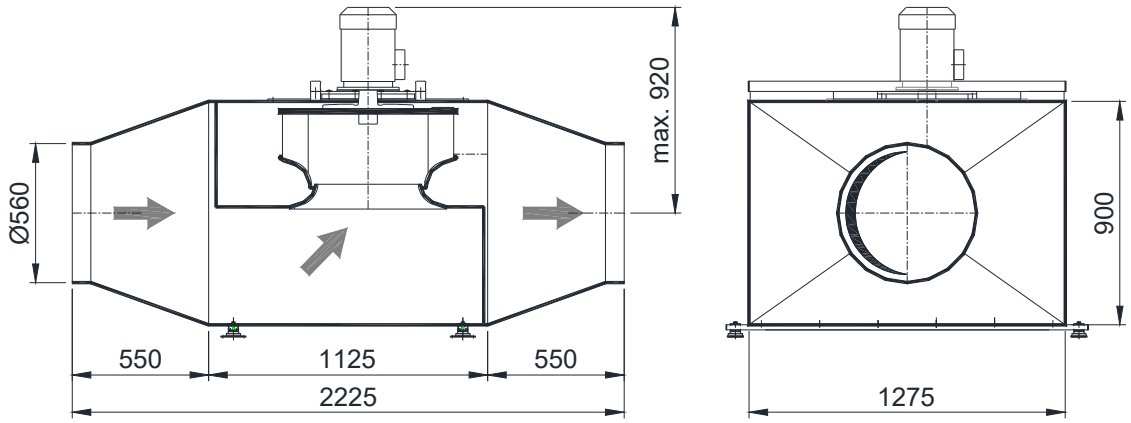


MOTOR VERSIONS for standard motor 3 ~ 400 V / 50 Hz IP55

(Data for other motors, e.g. single-phase motors, pole-changing motors, Ex-motors, on request.)

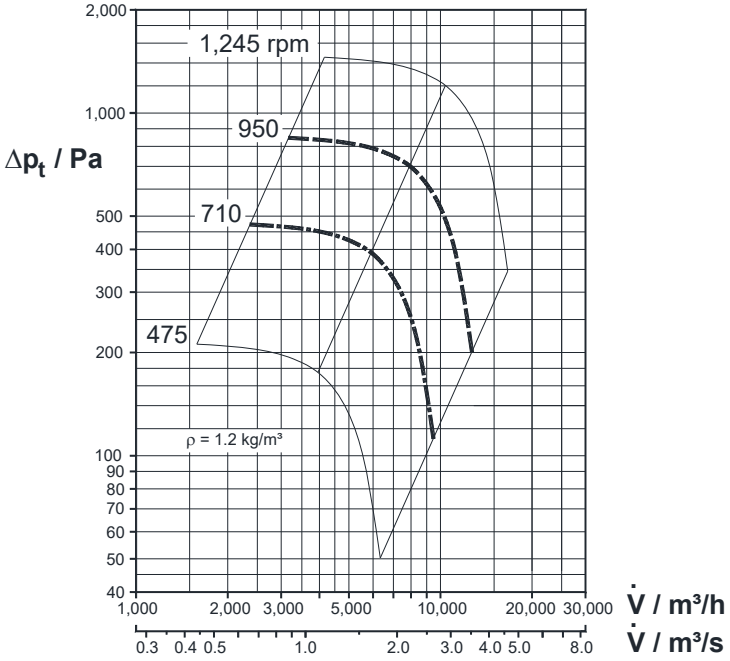
Fan type	Speed	Power require-ment	Nominal motor power	Nominal motor currant	Weight with motor	L_{A3m}	L_{WA}	Oktav level L_{WA-Okt} / dB(A)							
	rpm	kW	kW	A	kg	dB(A)	dB(A)	63	125	250	500	1000	2000	4000	8000
VRK 450/731W710	710	0.70	0.75	2.10	187	57	75	62	68	72	69	65	63	60	56
VRK 450/731W950	950	1.81	2.20	5.00	192	64	82	68	73	79	76	71	68	66	60
VRK 450/731W950	1,380[1)]	5.16	5.50	12.50	225	71	89	75	79	87	83	78	75	72	63

[1)] - during operation with frequency converter > 50 Hz

L_{A3m} = A - evaluated noise level at a distance of 3 m
L_{WA} = A - evaluated noise level in the air duct

Inline duct fans of plastic materials
VRK 500 / 731

PERFORMANCE



Working range

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- Parallel connection possible, series connection in coordination with the manufacturer
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  (EX-Motors -20°C ... 40°C)

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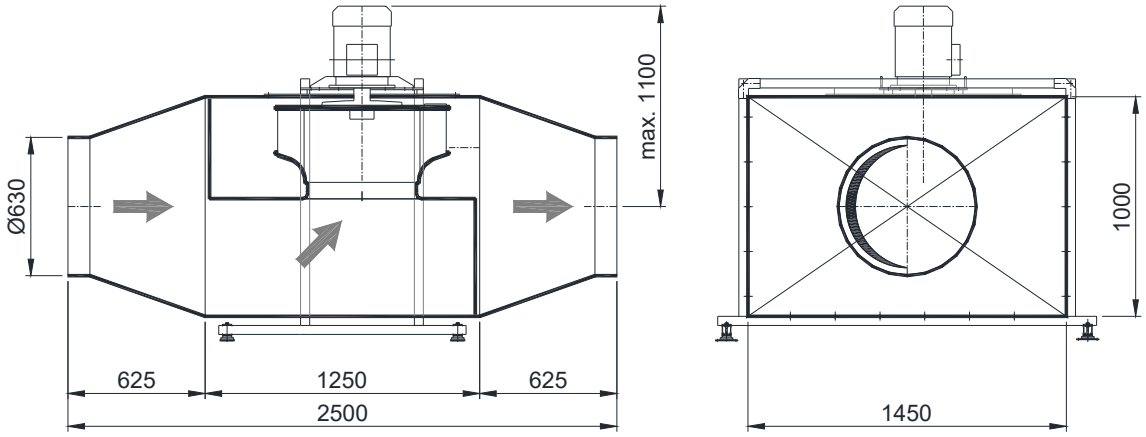


MOTOR VERSIONS for standard motor 3 ~ 400 V / 50 Hz IP55

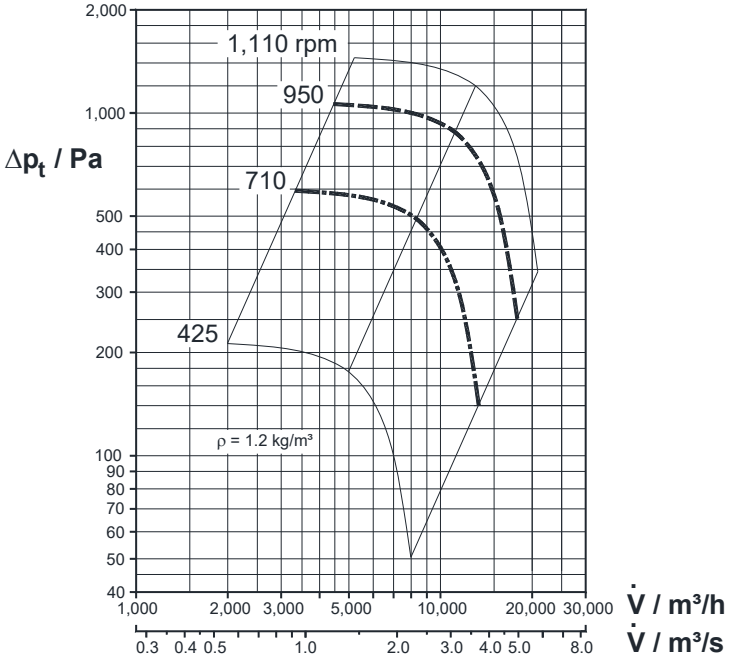
(Data for other motors, e.g. single-phase motors, pole-changing motors, Ex-motors, on request.)

Fan type	Speed	Power require-ment	Nominal motor power	Nominal motor currant	Weight with motor	L_{A3m}	L_{WA}	Oktav level $L_{WA\text{-}Okt}$ / dB(A)							
	rpm	kW	kW	A	kg	dB(A)	dB(A)	63	125	250	500	1000	2000	4000	8000
VRK 500/731W710	710	1.26	1.50	4.15	215	60	79	67	72	75	72	69	67	64	60
VRK 500/731W950	950	2.82	3.00	6.90	225	66	85	72	75	82	80	74	72	70	65
VRK 500/731W950	1,245[1)]	6.36	7.50	15.00	270	72	90	76	80	87	84	79	76	74	66

[1)] - during operation with frequency converter > 50 Hz

L_{A3m} = A - evaluated noise level at a distance of 3 m
L_{WA} = A - evaluated noise level in the air duct

PERFORMANCE



Working range

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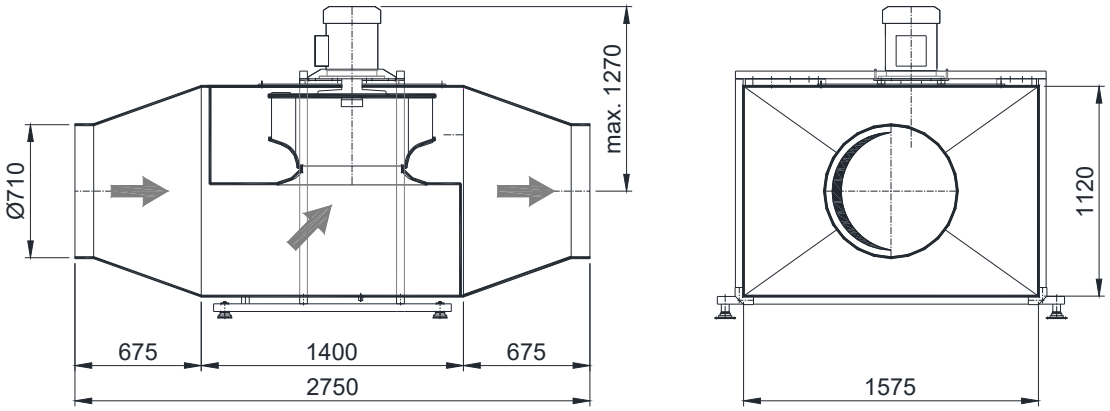


MOTOR VERSIONS for standard motor 3 ~ 400 V / 50 Hz IP55

(Data for other motors, e.g. single-phase motors, pole-changing motors, Ex-motors, on request.)

Fan type	Speed	Power require-ment	Nominal motor power	Nominal motor currant	Weight with motor	L_{A3m}	L_{WA}	Oktav level $L_{WA\text{-}Okt}$ / dB(A)							
	rpm	kW	kW	A	kg	dB(A)	dB(A)	63	125	250	500	1000	2000	4000	8000
VRK 560/731W710	710	2.10	2.20	5.30	280	63	82	68	72	78	77	71	69	67	62
VRK 560/731W950	950	5.40	5.50	12.50	305	69	88	74	78	84	83	77	75	73	68
VRK 560/731W950	1,110[1)]	7.96	11.00	22.00	360	72	91	77	81	88	86	80	78	75	69

[1)] - during operation with frequency converter > 50 Hz

L_{A3m} = A - evaluated noise level at a distance of 3 m
L_{WA} = A - evaluated noise level in the air duct

HOUSING CONNECTIONS

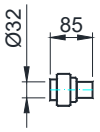
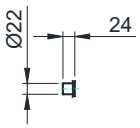
The basic model of the fan depicted under MAIN DIMENSIONS can be supplemented with a range of accessories and thus adapted optimally to the specific operating conditions. In addition to the standard range, special models and even special designs are possible on request. The variants shown in the dimension drawing therefore only cover the most frequently used casing connections and condensate drains.

The pressure and suction side connections can be supplemented with protective grids.

Condensate drain

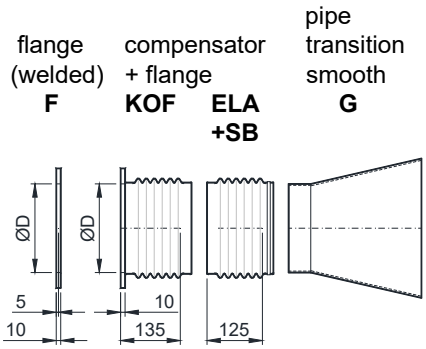
Each fan has a condensate hole with a cap at the lowest point. On request, there are different nozzles for the connection of a condensate line..

Housing material: all

Fitting **KSV**	Drain **KSS**	Hole **KSB**
		Ø14,5mm

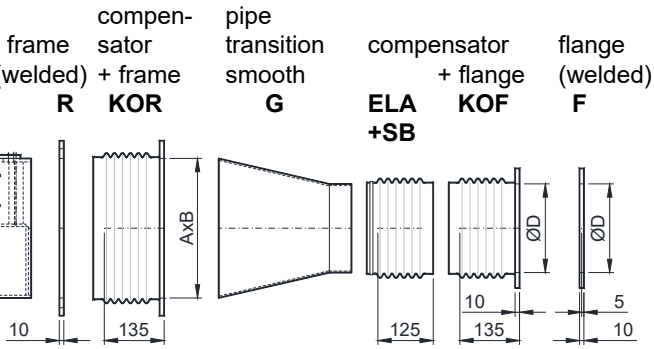
Housing connection suction side

Housing material: all



Housing connection suction side

Housing material: all

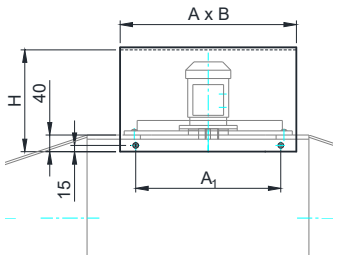


WEATHER PROTECTION WS for motor

As standard, motors with degree of protection IP 55 are used, which are protected against water jets from all directions.
For outdoor installation, additional protection against all weather conditions should always be provided.

VRK 100..250 -...-H

Mounting position horizontal
Motor on top

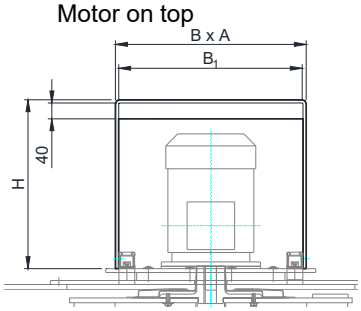


nominal size	dimensions A	A1	B	H
VRK 100	280	220	317	300 / 350*
VRK 160	360	300	502	300 / 350*
VRK 200	425	350	562	350 / 400*
VRK 250	540	465	712	350

*) applies for motors EX db eb

VRK 315 -...-H

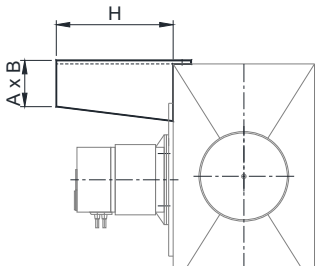
Mounting position horizontal
Motor on top



nominal size	dimensions A	B	B1	H
VRK 315	450	392	376	325
VRK 400	450	457	441	395
VRK 450	475	482	466	425
VRK 500	500	576	560	500

VRK 100..250 -...-H

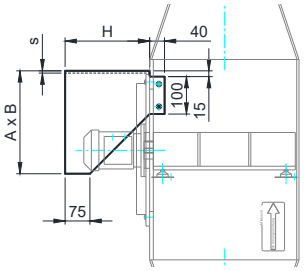
Mounting position horizontal
Motor on the side



nominal size	dimensions A	B	H
VRK 100	83	293	300
VRK 160	103	357	300
VRK 200	157	497	350
VRK 250	146	514	400

VRK 100..250 -...-V

Mounting position horizontal
Motor on the side



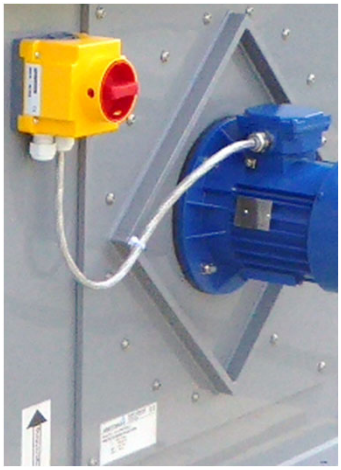
nominal size	dimensions A	B	H
VRK 100	180	317	260
VRK 160	220	502	260
VRK 200	270	562	310
VRK 250	540	712	310

SHATTER PROTECTION GUARD SPS

The VRK fans are safely dimensioned on the basis of many years of testing. An accident is almost impossible if all operating conditions are complied with.
If inadmissible operation cannot be avoided with sufficient certainty, e.g. due to caking on the impeller or the influence of foreign bodies, it is essential to use a shatter guard. In the event of impeller destruction, a PVC soft foil placed around the casing reduces the risk to the environment from splinters.

Repair switch RS

The RS switch completely disconnects the fan from the mains during maintenance and repair work. This eliminates the risk of accidents due to uncontrolled switching on. The switch is supplied loose or mounted and wired to the fan.
The switch size is determined by the motor power and the mains voltage.



Repair switch three-pole	Type	Switching capacity / kW 3(1)x230V	3x400V	3x690V
(for single-phase and three-phase motors) with auxiliary contact key-locked degree of protection IP 65	RS3-7.5	4	7.5	7.5
	RS3-15	11	15	18.5
	RS3-22	15	22	30
	RS3-45	25	45	45
	RS3-80	45	80	80

If the fan is connected via a frequency converter, the cable connection is shielded.
For pole-changing motors, 6-pole switches are used. For explosion-proof fans, switches with EX protection EX db eb IICT6 according to ATEX are used.

Motor protection switch MS

Each motor must be connected to the mains via a protective device with a reclosing lockout. The MS type circuit breakers are three-pole low-voltage switching devices and are used for single-phase and three-phase motors. They protect the motor against impermissible overload and at the same time serve for operational switching of the fan.
The switch is supplied loose or ready mounted and wired.
The setting is made to the respective rated motor current.

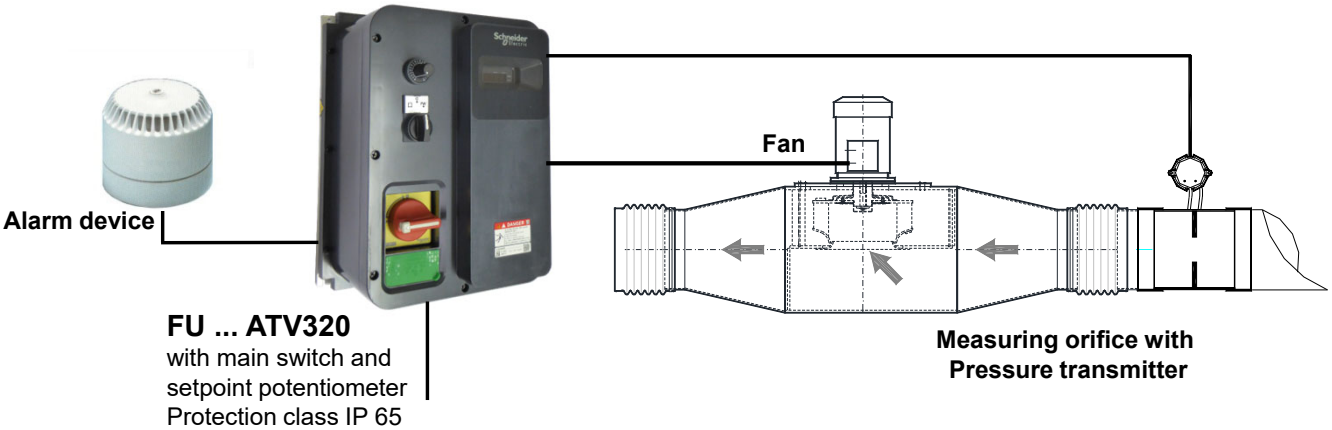
	Type	Currant range / A
Motor protection switch three-pole (for single-phase and three-phase motors) degree of protection IP 54	MS 1.0	0.6 ... 1.0
	MS 1.6	1.0 ... 1.6
	MS 2.5	1.6 ... 2.5
	MS 4.0	2.5 ... 4.0
	MS 6.3	4.0 ... 6.3
	MS 10.0	6.3 ... 10
	MS 16.0	10 ... 16
	MS 20.0	16 ... 20
	MS 25.0	20 ... 25
	MS 32.0	25 ... 32
	MS 40.0	32 ... 40

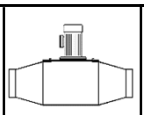
For pole-changing motors, a switch is required for each speed. For explosion-proof fans, switches with EX protection EX db eb IICT6 according to ATEX are used.

Frequency inverter FU 0.18 ... 7.5-ATV320

With the inverter FU ... ATV320, taking advantage of its numerous functions and with some additional components, many simple control tasks of fans with IEC squirrel cage motors and synchronous motors can be solved very easily.
MIETZSCH supplies individual applications on the basis of this inverter, e.g. speed adjustment by means of a built-in potentiometer, stepped operation, time switching, pressure or volume flow control and much more.
The user receives a complete system (fan, inverter, switches, signal lamps, measuring equipment, sensors, etc.), which is immediately ready for operation after making the electrical connections. All necessary settings and programming are carried out at the factory.
The product range for outputs above 7.5 kW is supplemented by the ATV650 series.

Example: Volume flow control with alarm in case of setpoint undershoot



No.	Quantity	Designition		Individual price EUR	Overall price EUR

Inline duct fan of plastic material

Mietzsch Lufttechnik - Series VRK

Object:

Impeller optionally of PVC / PPs / PPsX /PVDF, welded, with balancing quality G 6.3 according to ISO 1940 fly-mounted on motor shaft

Balancing quality and vibration level of the fan comply with ISO 14694

Welded housing with aerodynamically optimized scroll
optionally of PVC / PPs / PE / PP / PVDF / PEX / PPsX
Housing to be opened on motor end

Standard line connection by welded adapters with
ELA with pipe connection and elastic connectors

Direct drive with standard motor outside medium conveyed
Design in single-phase / three-phase / pole-changing
Winding protection: standard with therm. Winding protection PTC thermistor (TS)

Safety requirements according to VDMA 24 167

VRK _ _ _ / 731 W _ _ _ _ - _ _ - _ _ - _ _ _ - _ _ _ _

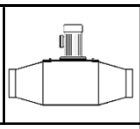
nominal size
nominal speed
special version
mounting type
mounting position
material

Volumetric flow : _____ m^3/h
Total pressure increase : _____ Pa
Temperature of medium conveyed : _____ °C
Motor power : _____ kW
Voltage / Frequency : _____ V ____ Hz
Rated motor currant : _____ A
Fan speed : _____ rpm
Sound level L_{A3m} : _____ dB(A)
Weight : _____ kg

Media / use:

Special accessories and special equipment

- Housing connection suction and pressure side:
  version **FF** with flange
  version **KOF** with compensator and flange
  version **KOR** with compensator and (rectangular) frame
  version **RR** with (rectangular) frame, without adapters
- Condensate drain: drilling with cap / neck with cap or fitting
- Weather guard for motor
- Repair switch: single / mounted, 3-poles with auxiliary contact / 6-poles with auxiliary switch
- Motor protection switch: single / mounted
- Wall console / ceiling console for assembling
- Other accessories

no.	quantity	specification		individual price EUR	Total price EUR

Inline duct fan of plastic material, explosion-proof

Mietzsch Lufttechnik - Series VRK

Object:

Permitted for EX-Categorie according to EU-guideline EN 2014/34/EU (ATEX) :

Location in relation to the fan	Category Gas area 1	Gas area 2	no EX-area
inside	II 2G Ex h IIB+H2 T3 Gb ○	II 3G Ex h IIB+H2 T3 Gc ○	no ○
outside	II 2G Ex h IIB+H2 T3 Gb ○	II 3G Ex h IIB+H2 T3 Gc ○	no ○

Impeller optionally of PVC / PPs / PVDF welded or
electrically conductive plastic (PVCX / PPsX) welded
with balancing quality G 6.3 according to ISO 1940, fly-mounted on a shaft

Balancing quality and vibration level of the fan comply with ISO 14694

Welded housing with aerodynamically optimized scroll
optionally of PVC / PPs / PE / PP / PVDF or electrically conductive plastic (PVCX / PPsX)
Housing to be opened on motor end

Standard line connection by welded adapters with
ELA with pipe connection and elastic connectors

Direct drive with **EX-motor** outside the flow conveyed
Protection: Ex ec II
Ex eb II - increased safety
Ex db eb II - flameproof enclosure

Direct drive by **standard motor** (no EX-protection) outside the flow conveyed
Design in single-phase / three-phase / pole-changing

Motor protection: no / with therm. Winding protection PTC thermistor (TS)

Safety aquipment according to VDMA 24 167

VRK _ _ _ / 731 W _ _ _ _ - _ _ - _ _ - _ _ _ - _ _ _ _

nominal size
nominal speed
special version
mounting type
mounting position
material

Volumetric flow	:	_____	m^3/h
Total pressure increase	:	_____	Pa
Temperature of medium	:	_____	°C
Ambient temperature	:	_____	°C
Motor power	:	_____	kW
Voltage / Frequency	:	_____	V ____ Hz
Rated motor currant	:	_____	A
Fan speed	:	_____	rpm
Sound level L_{A3m}	:	_____	dB(A)
Weight	:	_____	kg

Media / use:

Special accessories and special equipment
- Housing connection suction and pressure side:
  - version **FF** with flange
  - version **KOF** with compensator and flange
  - version **KOR** with compensator and (rectangular) frame
  - version **RR** with (rectangular) frame, without adapters
- Condensate drain: drilling with cap / neck with cap or fitting
- Weather guard for motor
- Repair switch: single / mounted, 3-poles with auxiliary contact, standard / explosion-proof
- Motor protection switch: single / mounted, standard / explosion-proof
- Wall console / ceiling console for assembling
- Other accessories

Our program of products and services

Roof fans
of all-plastic design, horizontally or vertically blowing out with many assembly accessories

Radial fans
of thermoplastic material and FRP, direct and belt driven
up to about 150 000 m³/h and 6 500 Pa

Special fans
duct fans, built-in devices, mobile radial fans, Venturi injectors

Explosion-proof fans
according to ATEX for zone 1 and zone 2

Air technology systems and components
pipes, ducts, fittings, flaps, gas-tight shutoff flaps, exhaust air hoods, deflector hoods, suction hoods and many more of plastic material, complete air technology systems for industry and craft, air cleaning plants, laboratory and process exhaust systems

Central ventilation systems
in housing construction, special-purpose fans, exhaust elements, controlling and regulating devices

Noise protection
rectangular and cylindrical sound attenuators, silencing casings in corrosion-proof design

Exhaust gas cleaning
droplet eliminators and moisteners, gas scrubbers for separation of gaseous dangerous substances, dust filter

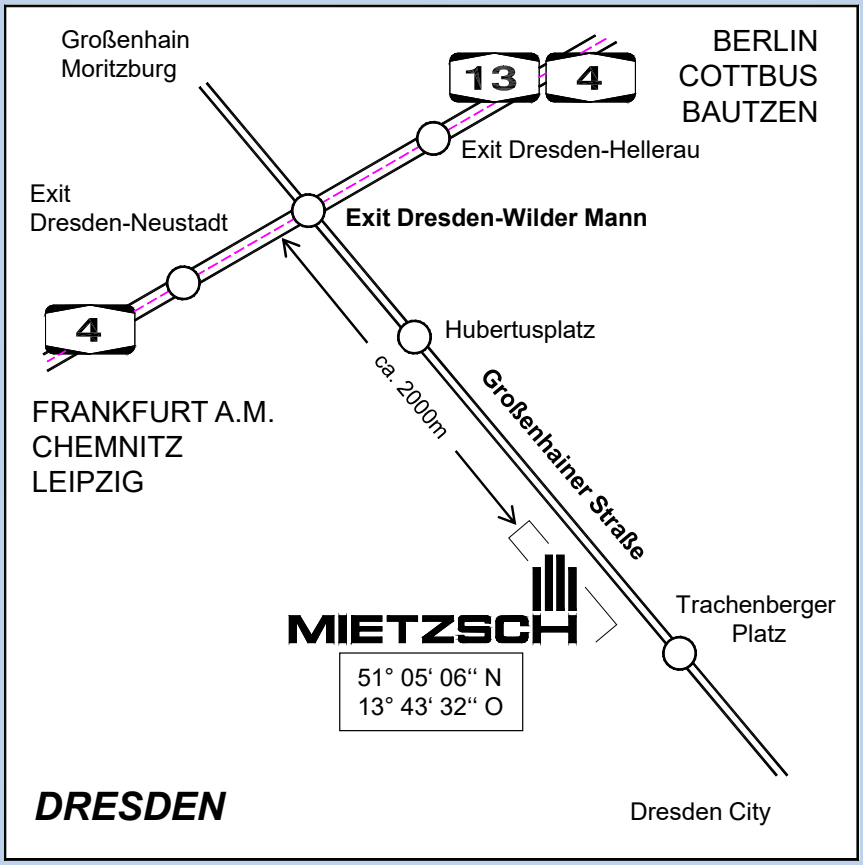
Heat exchangers
for heat recovery from moist and aggressive exhaust air

Tanks
of thermoplastic material for liquids endangering water, according to water resources regulations

Controlling and regulating elements and systems
switches, motor protection devices, speed controllers, frequency inverter, fan controls, flow supervision

Special designs
devices, linings, special components etc. of plastic material

Engineering performances
planning, calculation, and design, ventilation measurement on standardized test stands, low and high temperature test in company-own climatic test chambers



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