

# MIETZSCH

GmbH Lufttechnik Dresden

**USER INFORMATION**

## **ROOF FANS**

### **VRV – EC SERIES**

**with electronically commutated (EC) motor  
vertical outlet**



# Roof fans made of plastic materials

## Series VRV - EC with vertical outlet

Application in the exhaust technology of all industrial sectors

High chemical resistance through use of plastics and encapsulated motors

Electronically commutated motor (EC motor with integrated EC controller)

Low noise emission

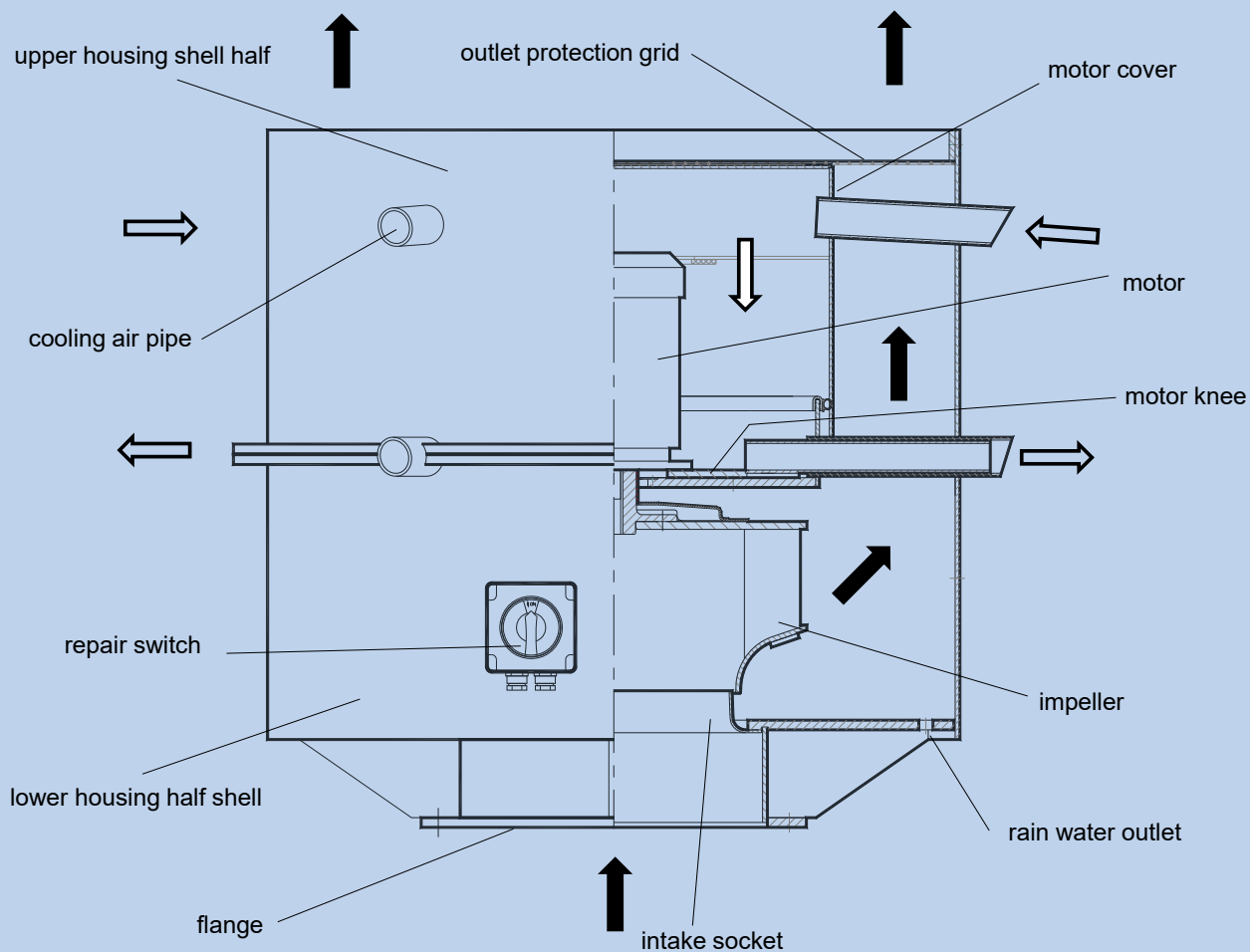
Volumetric flow rate up to 4,600 m<sup>3</sup>/h

Pressure increase up to 490 Pa

Capacity gradation by 5 sizes

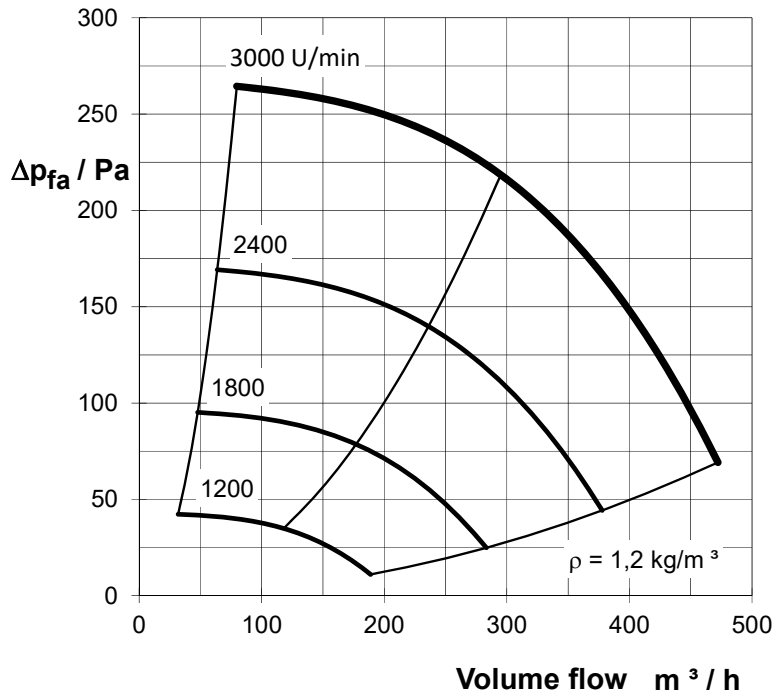
Installation accessories such as roof bases, noise absorption bases etc.

Wide range of electrical accessories



We reserve the right to change the technical data in this brochure without notice.  
The data becomes binding only after written confirmation from the manufacturer.

### PERFORMANCE



### Working range

- Stable regime in entire characteristic range
- Parallel connection possible
- 100 % control by in motor integrated EC controller
- Permissible temperature  $-25^\circ\text{C} \dots 40^\circ\text{C}$

### Design features

- welded impeller with 8 vanes curved backward
- welded casing
- various mounting options via flange
- Motor is located outside the air flow
- Repair switch with auxiliary contact, installed on the fan

### DESIGNS

#### VRV100/731-EC

#### Standard design

Operation with maximum speed, with external signal 0 ... 10 V or via external potentiometer POT10K  
I/O switch

#### VRV100/731-EC-DS

#### Speed rate setting

Speed control with potentiometer, installed on the fan,  
I/O switch

#### VRV100/731-EC-ZS

#### Time control

Control device for base and demand ventilation  
Clock timer with daily and weekly program  
Changeover MANUAL/AUTOMATIC

#### VRV100/731-EC-DR

#### Pressure control

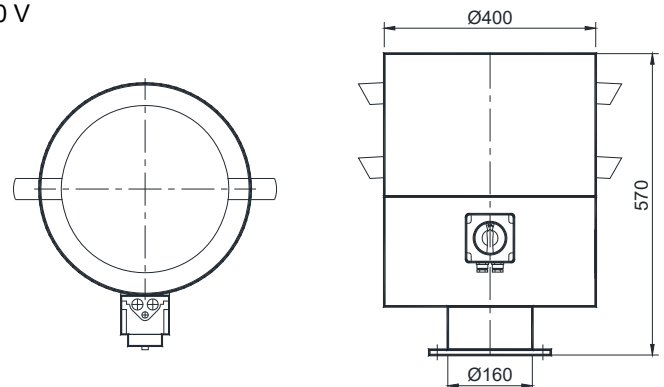
With pressure measuring probe, pressure transmitter and pressure controller  
External control of a second rated value,  
Start/Stop switch, Manual/Normal operation

#### VRV100/731-EC-VR

#### Volume flow control

For orifice plate (separate), with pressure transmitter and volume flow controller  
External control of a second rated value,  
Start/Stop switch, Manual/Normal operation

### PRINCIPAL DIMENSIONS



### MOTOR / MOTOR PROTECTION

- Drive by electronically commutated external rotor motor (EC controller integrated in EC motor)
- Motor protection integrated to motor (fault signal relay, open in case of fault (normally closed), max. 2A - 250V AC)
- Input 0 ... 10 V DC
- Voltage source 10 V, maximum 50 mA (for potentiometer)
- EMC emitted interference according to IEC 61000-6-3 (residential area)

### PERFORMANCE DATA

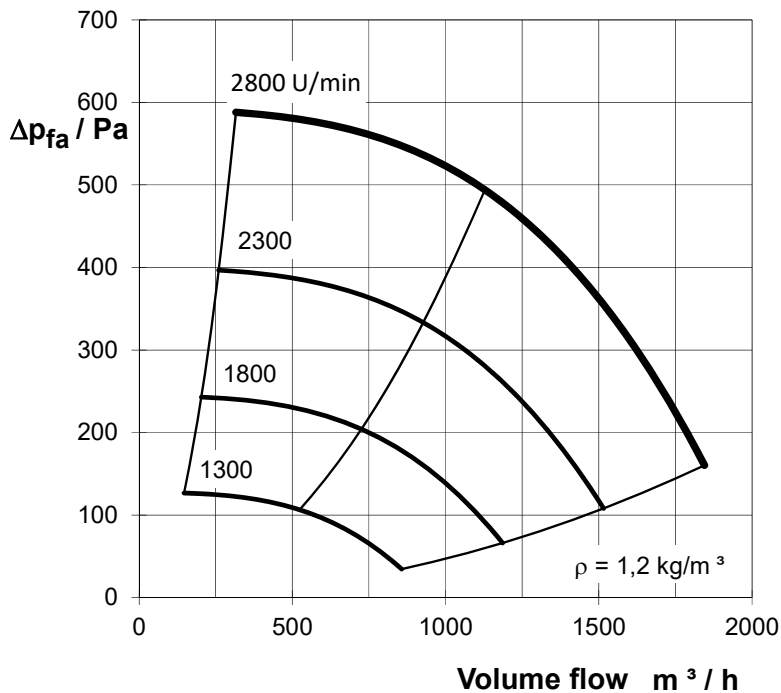
fan type	motor type	speed rpm	nominal current A	electrical power kW	weight kg	$L_{A3m}$ dB(A)	$L_{WA}$ dB(A)	$L_{WA-Okt}$ / dB(A)								
								63	125	250	500	1000	2000	4000	8000	
VRV 100/731 W3000-EC	EC-Motor rated voltage 1~230 V/50 Hz IP 54	1200				44	61	43	53	57	55	54	47	36	23	
		1800				44	62	40	52	57	56	55	49	40	27	
		2400					46	64	43	51	58	60	56	53	44	32
		3000	1.49	0.043	12.0	50	67	45	53	61	64	60	57	49	38	

$L_{A3m}$  = A - weighted sound pressure level at distance of 3 m from fan center

$L_{WA}$  = A - weighted sound power level in duct

$L_{WA-Okt}$  = A - weighted octave-band sound power level in duct

### PERFORMANCE



### Working range

- Stable regime in entire characteristic range
- Parallel connection possible
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- Permissible temperature  $-25^\circ\text{C} \dots 40^\circ\text{C}$

### Design features

- welded impeller with 8 vanes curved backward
- welded casing
- various mounting options via flange
- Motor is located outside the air flow
- Repair switch with auxiliary contact, installed on the fan

### DESIGNS

#### VRV160/731-EC

#### Standard design

Operation with maximum speed, with external signal 0 ... 10 V or via external potentiometer POT10K  
I/O switch

#### VRV160/731-EC-DS

#### Speed rate setting

Speed control with potentiometer, installed on the fan,  
I/O switch

#### VRV160/731-EC-ZS

#### Time control

Control device for base and demand ventilation  
Clock timer with daily and weekly program  
Changeover MANUAL/AUTOMATIC

#### VRV160/731-EC-DR

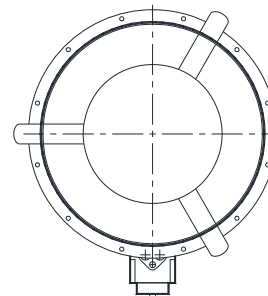
#### Pressure control

With pressure measuring probe, pressure transmitter and pressure controller  
External control of a second rated value,  
Start/Stop switch, Manual/Normal operation

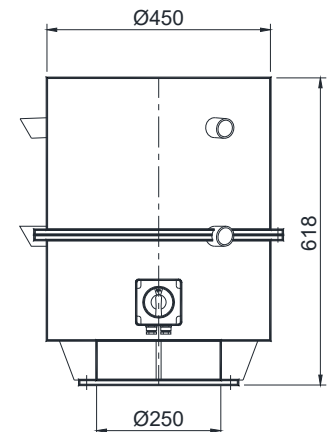
#### VRV160/731-EC-VR

#### Volume flow control

For orifice plate (separate), with pressure transmitter and volume flow controller  
External control of a second rated value,  
Start/Stop switch, Manual/Normal operation



### PRINCIPAL DIMENSIONS



### MOTOR / MOTOR PROTECTION

- Drive by electronically commutated external rotor motor (EC controller integrated in EC motor)
- Motor protection integrated to motor (fault signal relay, open in case of fault (normally closed), max. 2A - 250V AC)
- Input 0 ... 10 V DC
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### PERFORMANCE DATA

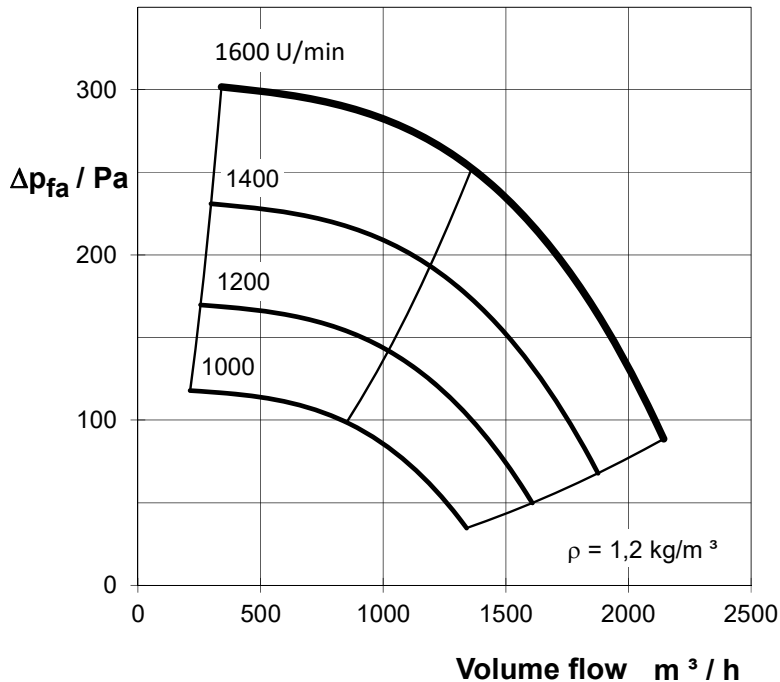
fan type	motor type	speed rpm	nominal current A	electrical power kW	weight kg	$L_{A3m}$ dB(A)	$L_{WA}$ dB(A)	$L_{WA-Okt}$ / dB(A)								
								63	125	250	500	1000	2000	4000	8000	
VRV 160/731 W2800-EC	EC-Motor rated voltage 1~230 V/50 Hz IP 54	1300				42	60	44	48	56	53	53	46	37	24	
		1800				49	67	49	54	62	60	61	55	46	34	
		2300					55	72	53	62	64	69	64	62	54	42
		2800	1.76	0.365	18.0	59	76	56	66	67	73	69	67	59	48	

$L_{A3m}$  = A - weighted sound pressure level at distance of 3 m from fan center

$L_{WA}$  = A - weighted sound power level in duct

$L_{WA-Okt}$  = A - weighted octave-band sound power level in duct

### PERFORMANCE



### Working range

- Stable regime in entire characteristic range
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- 100 % control by in motor integrated EC controller
- Permissible temperature -25°C ... 40°C

### Design features

- welded impeller with 8 vanes curved backward
- welded casing
- various mounting options via flange
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### DESIGNS

#### VRV200/731-EC

#### Standard design

Operation with maximum speed, with external signal 0 ... 10 V or via external potentiometer POT10K  
I/O switch

#### VRV200/731-EC-DS

#### Speed rate setting

Speed control with potentiometer, installed on the fan,  
I/O switch

#### VRV200/731-EC-ZS

#### Time control

Control device for base and demand ventilation  
Clock timer with daily and weekly program  
Changeover MANUAL/AUTOMATIC

#### VRV200/731-EC-DR

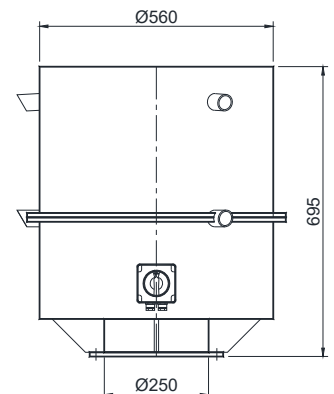
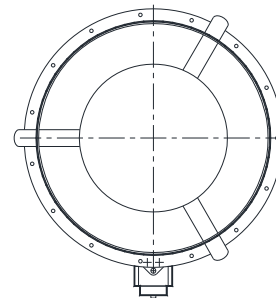
#### Pressure control

With pressure measuring probe, pressure transmitter and pressure controller  
External control of a second rated value,  
Start/Stop switch, Manual/Normal operation

#### VRV200/731-EC-VR

#### Volume flow control

For orifice plate (separate), with pressure transmitter and volume flow controller  
External control of a second rated value,  
Start/Stop switch, Manual/Normal operation



### PRINCIPAL DIMENSIONS

### MOTOR / MOTOR PROTECTION

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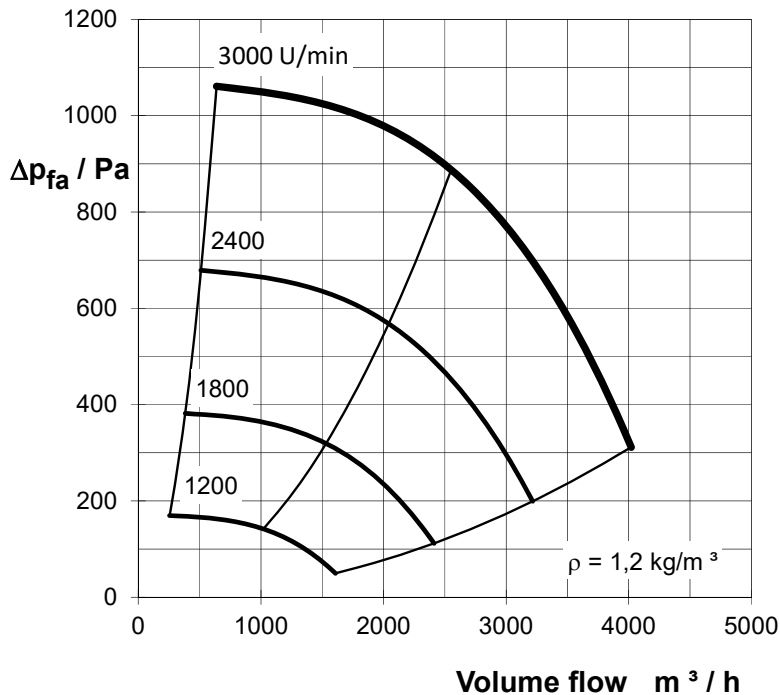
fan type	motor type	speed rpm	nominal current A	electrical power kW	weight kg	$L_{A3m}$ dB(A)	$L_{WA}$ dB(A)	$L_{WA-Okt}$ / dB(A)							
								63	125	250	500	1000	2000	4000	8000
VRV 200/731 W1600-EC	<b>EC-Motor</b>	1000				43	61	46	53	56	54	54	49	43	35
	rated voltage	1200				46	64	50	54	58	59	55	52	46	38
	1~230 V/50 Hz	1400				48	66	53	56	61	61	57	54	48	40
	IP 54	1600	1.08	0.218	24.0	51	68	55	58	63	63	59	57	51	43

$L_{A3m}$  = A - weighted sound pressure level at distance of 3 m from fan center

$L_{WA}$  = A - weighted sound power level in duct

$L_{WA-Okt}$  = A - weighted octave-band sound power level in duct

### PERFORMANCE



### Working range

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### DESIGNS

#### VRV200/731-EC

#### Standard design

Operation with maximum speed, with external signal 0 ... 10 V or via external potentiometer POT10K  
I/O switch

#### VRV200/731-EC-DS

#### Speed rate setting

Speed control with potentiometer, installed on the fan,  
I/O switch

#### VRV200/731-EC-ZS

#### Time control

Control device for base and demand ventilation  
Clock timer with daily and weekly program  
Changeover MANUAL/AUTOMATIC

#### VRV200/731-EC-DR

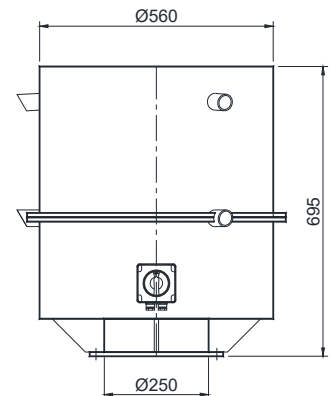
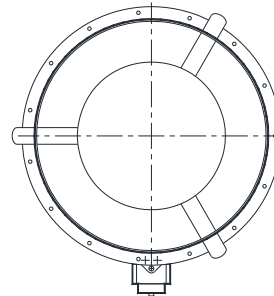
#### Pressure control

With pressure measuring probe, pressure transmitter and pressure controller  
External control of a second rated value,  
Start/Stop switch, Manual/Normal operation

#### VRV200/731-EC-VR

#### Volume flow control

For orifice plate (separate), with pressure transmitter and volume flow controller  
External control of a second rated value,  
Start/Stop switch, Manual/Normal operation



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### MOTOR / MOTOR PROTECTION

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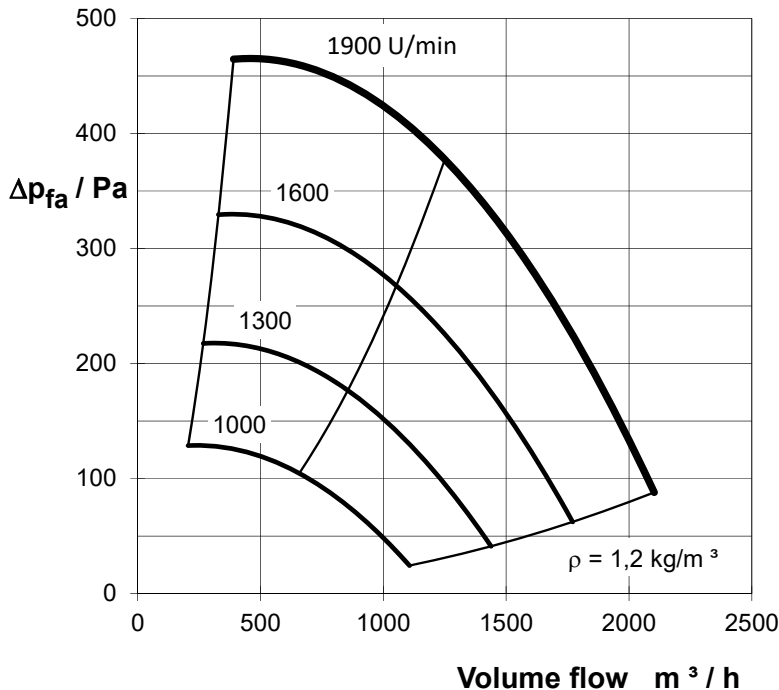
fan type	motor type	speed rpm	nominal current A	electrical power kW	weight kg	$L_{A3m}$ dB(A)	$L_{WA}$ dB(A)	$L_{WA-Okt}$ / dB(A)							
								63	125	250	500	1000	2000	4000	8000
VRV 200/731 W3000-EC	<b>EC-Motor</b>	1200				46	64	50	54	58	59	55	52	46	38
	rated voltage	1800				53	70	56	60	65	65	61	59	53	45
	3~400 V/50 Hz	2400				59	77	61	69	70	72	70	64	60	52
	IP 54	3000	2.20	1.340	27.0	65	82	65	74	75	78	76	70	66	58

$L_{A3m}$  = A - weighted sound pressure level at distance of 3 m from fan center

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### PERFORMANCE



### Working range

- Stable regime in entire characteristic range
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### Design features

- Impeller of PP, glass fibre-reinforced, with vanes curved backward
- welded casing
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- Motor is located outside the air flow
- Repair switch with auxiliary contact, installed on the fan

### DESIGNS

#### VRV200/732-EC

#### Standard design

Operation with maximum speed, with external signal 0 ... 10 V or via external potentiometer POT10K I/O switch

#### VRV200/732-EC-DS

#### Speed rate setting

Speed control with potentiometer, installed on the fan, I/O switch

#### VRV200/732-EC-ZS

#### Time control

Control device for base and demand ventilation  
Clock timer with daily and weekly program  
Changeover MANUAL/AUTOMATIC

#### VRV200/732-EC-DR

#### Pressure control

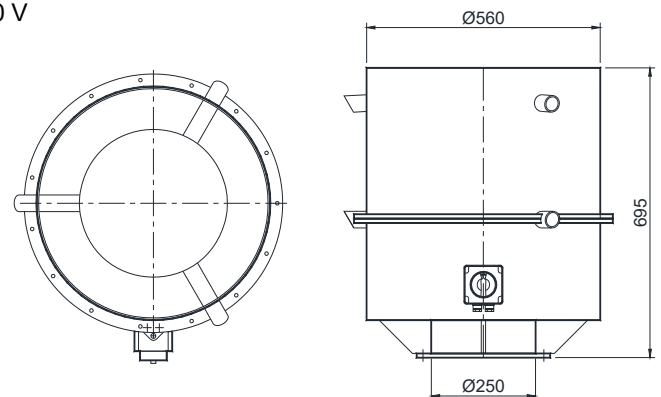
With pressure measuring probe, pressure transmitter and pressure controller  
External control of a second rated value,  
Start/Stop switch, Manual/Normal operation

#### VRV200/732-EC-VR

#### Volume flow control

For orifice plate (separate), with pressure transmitter and volume flow controller  
External control of a second rated value,  
Start/Stop switch, Manual/Normal operation

### PRINCIPAL DIMENSIONS



### MOTOR / MOTOR PROTECTION

- Drive by electronically commutated external rotor motor (EC controller integrated in EC motor)
- Motor protection integrated to motor (fault signal relay, open in case of fault (normally closed), max. 2A - 250V AC)
- Input 0 ... 10 V DC
- Voltage source 10 V, maximum 50 mA (for potentiometer)
- EMC emitted interference according to IEC 61000-6-3 (residential area)

### PERFORMANCE DATA

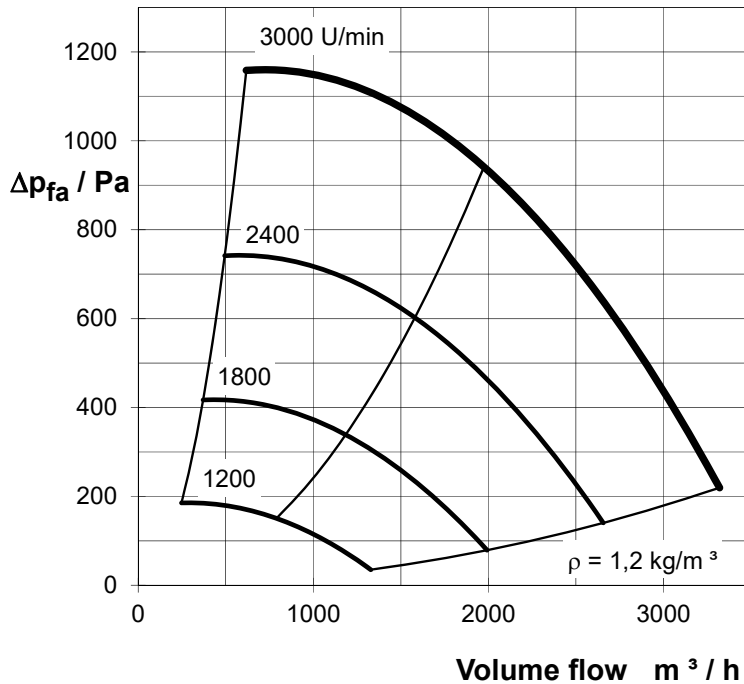
fan type	motor type	speed rpm	nominal current A	electrical power kW	weight kg	$L_{A3m}$ dB(A)	$L_{WA}$ dB(A)	$L_{WA-Okt}$ / dB(A)								
								63	125	250	500	1000	2000	4000	8000	
VRV 200/732 W1900-EC	EC-Motor rated voltage 1~230 V/50 Hz IP 54	1000				41	59	38	50	55	52	50	44	36	25	
		1300				45	62	39	48	57	59	53	48	40	30	
		1600					48	65	41	51	60	62	57	52	45	34
		1900	1.19	0.249	25.0	51	69	44	53	63	66	60	56	49	39	

$L_{A3m}$  = A - weighted sound pressure level at distance of 3 m from fan center

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### PERFORMANCE



### Working range

- Stable regime in entire characteristic range
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### Design features

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- welded casing
- various mounting options via flange
- Motor is located outside the air flow
- Repair switch with auxiliary contact, installed on the fan

### DESIGNS

#### VRV200/732-EC

#### Standard design

Operation with maximum speed, with external signal 0 ... 10 V or via external potentiometer POT10K I/O switch

#### VRV200/732-EC-DS

#### Speed rate setting

Speed control with potentiometer, installed on the fan, I/O switch

#### VRV200/732-EC-ZS

#### Time control

Control device for base and demand ventilation  
Clock timer with daily and weekly program  
Changeover MANUAL/AUTOMATIC

#### VRV200/732-EC-DR

#### Pressure control

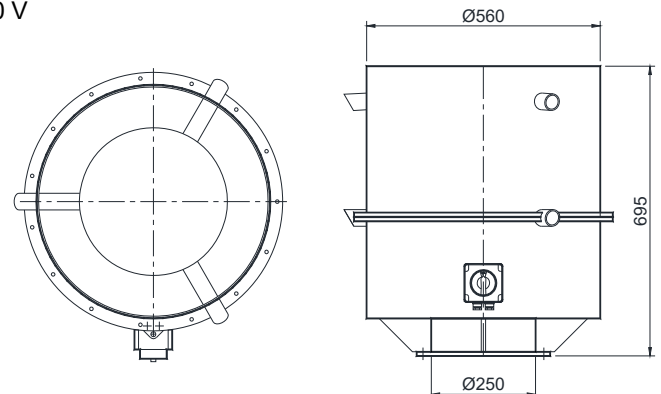
With pressure measuring probe, pressure transmitter and pressure controller  
External control of a second rated value,  
Start/Stop switch, Manual/Normal operation

#### VRV200/732-EC-VR

#### Volume flow control

For orifice plate (separate), with pressure transmitter and volume flow controller  
External control of a second rated value,  
Start/Stop switch, Manual/Normal operation

### PRINCIPAL DIMENSIONS



### MOTOR / MOTOR PROTECTION

- Drive by electronically commutated external rotor motor (EC controller integrated in EC motor)
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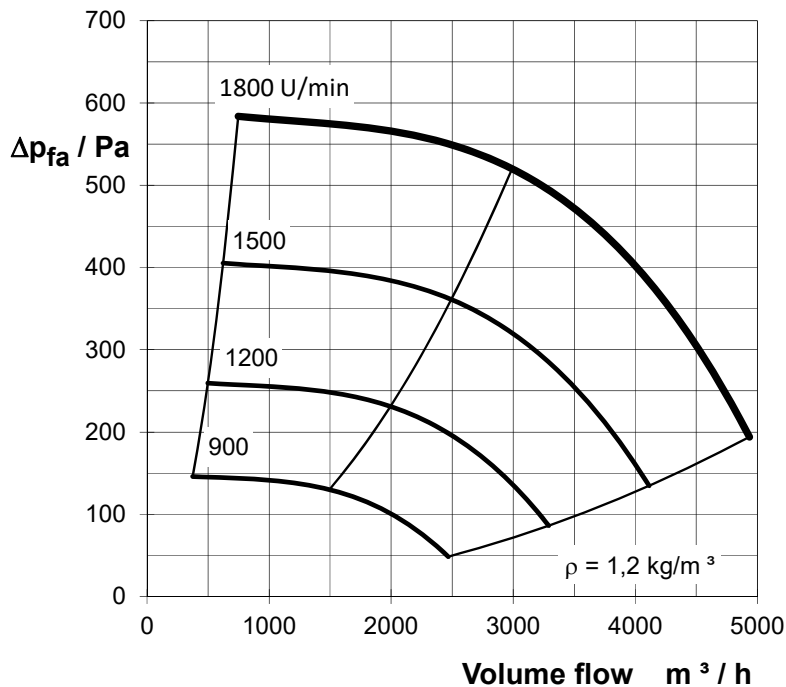
fan type	motor type	speed rpm	nominal current A	electrical power kW	weight kg	$L_{A3m}$ dB(A)	$L_{WA}$ dB(A)	$L_{WA-Okt}$ / dB(A)							
								63	125	250	500	1000	2000	4000	8000
VRV 200/732 W3000-EC	EC-Motor	1200				44	61	39	47	56	58	52	47	39	28
	rated voltage	1800				50	67	43	52	62	64	59	55	48	38
	1~230 V/50 Hz	2400				57	74	48	58	64	71	70	62	56	46
	IP 54	3000	5.14	0.977	29.0	62	80	52	62	69	76	76	68	62	53

$L_{A3m}$  = A - weighted sound pressure level at distance of 3 m from fan center

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### Working range

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### Design features

- welded impeller with 8 vanes curved backward
- welded casing
- various mounting options via flange
- Motor is located outside the air flow
- Repair switch with auxiliary contact, installed on the fan

### DESIGNS

#### VRV250/731-EC

#### Standard design

Operation with maximum speed, with external signal 0 ... 10 V or via external potentiometer POT10K I/O switch

#### VRV250/731-EC-DS

#### Speed rate setting

Speed control with potentiometer, installed on the fan, I/O switch

#### VRV250/731-EC-ZS

#### Time control

Control device for base and demand ventilation  
Clock timer with daily and weekly program  
Changeover MANUAL/AUTOMATIC

#### VRV250/731-EC-DR

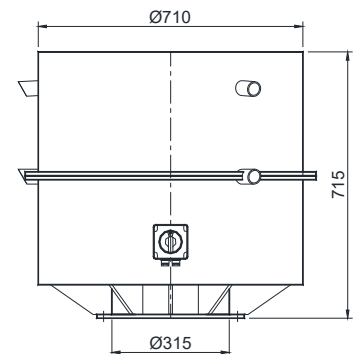
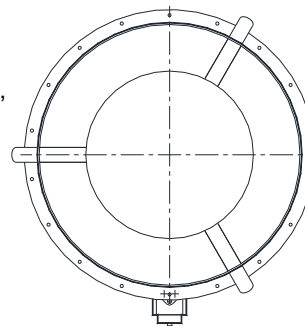
#### Pressure control

With pressure measuring probe, pressure transmitter and pressure controller  
External control of a second rated value,  
Start/Stop switch, Manual/Normal operation

#### VRV250/731-EC-VR

#### Volume flow control

For orifice plate (separate), with pressure transmitter and volume flow controller  
External control of a second rated value,  
Start/Stop switch, Manual/Normal operation



### PRINCIPAL DIMENSIONS

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### PERFORMANCE DATA

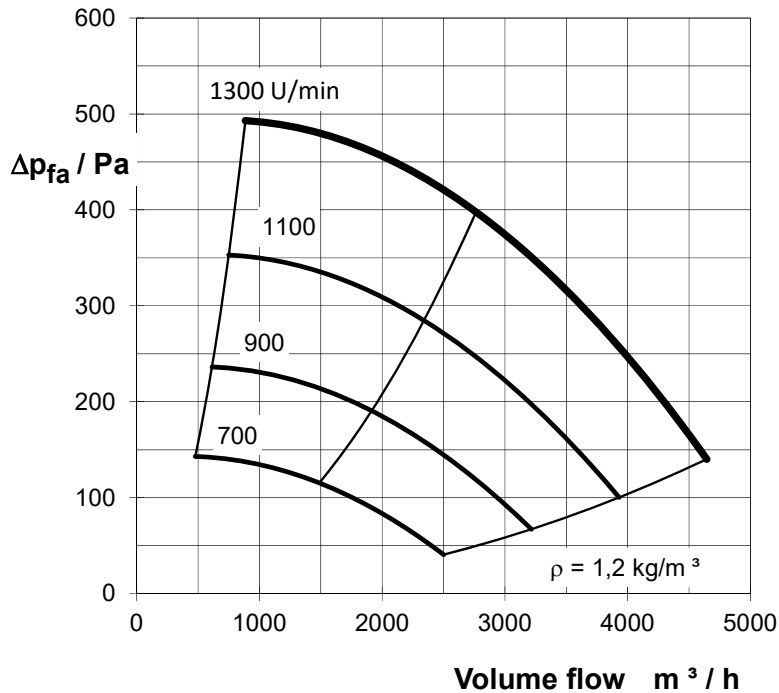
fan type	motor type	speed rpm	nominal current A	electrical power kW	weight kg	$L_{A3m}$ dB(A)	$L_{WA}$ dB(A)	$L_{WA-Okt}$ / dB(A)							
								63	125	250	500	1000	2000	4000	8000
VRV 250/731 W1800-EC	<b>EC-Motor</b>	900				46	63	47	56	58	58	54	51	44	35
	rated voltage	1200				51	69	55	58	64	64	61	55	50	41
	3~400 V/50 Hz	1500				56	73	59	62	68	68	66	59	55	46
	IP 54	1800	1.83	0.883	38.0	60	77	62	66	72	72	70	63	59	50

$L_{A3m}$  = A - weighted sound pressure level at distance of 3 m from fan center

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- various mounting options via flange
- Motor is located outside the air flow
- Repair switch with auxiliary contact, installed on the fan

### DESIGNS

#### VRV315/712-EC

#### Standard design

Operation with maximum speed, with external signal 0 ... 10 V or via external potentiometer POT10K I/O switch

#### VRV315/712-EC-DS

#### Speed rate setting

Speed control with potentiometer, installed on the fan, I/O switch

#### VRV315/712-EC-ZS

#### Time control

Control device for base and demand ventilation  
Clock timer with daily and weekly program  
Changeover MANUAL/AUTOMATIC

#### VRV315/712-EC-DR

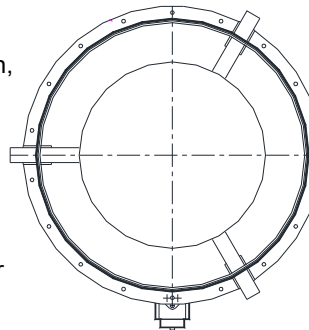
#### Pressure control

With pressure measuring probe, pressure transmitter and pressure controller  
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Start/Stop switch, Manual/Normal operation

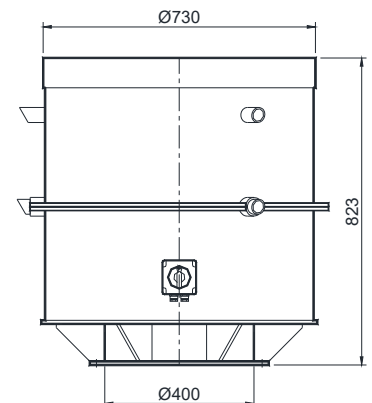
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#### Volume flow control

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External control of a second rated value,  
Start/Stop switch, Manual/Normal operation



### PRINCIPAL DIMENSIONS



### MOTOR / MOTOR PROTECTION

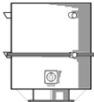
- Drive by electronically commutated external rotor motor (EC controller integrated in EC motor)
- Motor protection integrated to motor (fault signal relay, open in case of fault (normally closed), max. 2A - 250V AC)
- Input 0 ... 10 V DC
- Voltage source 10 V, maximum 50 mA (for potentiometer)
- EMC emitted interference according to IEC 61000-6-3 (residential area)

### PERFORMANCE DATA

fan type	motor type	speed rpm	nominal current A	electrical power kW	weight kg	$L_{A3m}$ dB(A)	$L_{WA}$ dB(A)
VRV 315/712 W1300-EC	<b>EC-Motor</b>	700				48	65
	rated voltage	900				50	68
	3~400 V/50 Hz	1100				54	72
	IP 54	1300	1.56	0.628	38.0	58	75

$L_{A3m}$  = A - weighted sound pressure level at distance of 3 m from fan center

$L_{WA}$  = A - weighted sound power level in duct

No.	Qty.	Item		Unit price €	Total price €
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**Roof fan of plastic material - vertical outlet**

Mietzsch Lufttechnik - VRV – EC series

Object:

radial impeller with vanes curved backward of PPs (PPsX) or glass fibre-reinforced PP, balancing quality G 6.3 according to ISO 1940, fly-mounted on motor shaft

balancing quality and vibration speed of the fans correspond to ISO 14694

split conical housing with vertical inlet and outlet, made of PPs (PE, PPsX), intake nozzle shaped aerodynamically

fastening with assembly plate MPL or sound-absorbing base SDS with flange

Direct drive with EC motor with integrated EC controller, motor outside of the flow

Motor protection is integrated into the motor

(fault signal relay, open in case of fault (normally closed), max. 2A-250VAC)

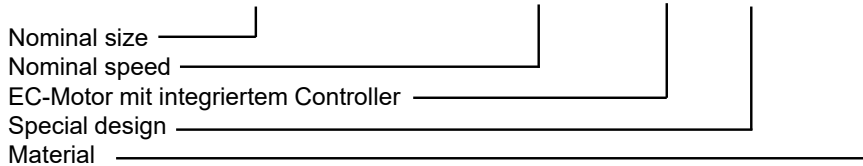
Input 0-10VDC, power source 10V max. 10 mA (for potentiometer > 1kΩ)

EMV fault signal as per EN 61000-6-4 (industrial sector)

repair switch fastened on fan : three-pole with auxiliary contact / six-pole with auxiliary contact optional: connection box

safety requirements according to VDMA 24 167

**VRV \_\_\_ / 731 W \_\_\_ - EC - - - - -**



- volumetric flow : \_\_\_\_\_ m<sup>3</sup>/h
- pressure increase free outlet : \_\_\_\_\_ Pa
- temperature of medium conveyed : \_\_\_\_\_ °C
- motor power : \_\_\_\_\_ kW
- voltage / frequency : \_\_\_\_\_ V \_\_\_\_\_ Hz
- nominal current : \_\_\_\_\_ A
- fan speed : \_\_\_\_\_ rpm
- noise level L<sub>A3m</sub> : \_\_\_\_\_ dB(A)
- weight : \_\_\_\_\_ kg

**Medium conveyed / purpose:**

**Accessories and special equipment <sup>1)</sup>**

- ◆ Assembly plate MPL - VRV
- ◆ Assembly plate MPL-VRV with non-return flap
- ◆ Sound-absorbing base SDS - VRV
- ◆ Outlet silencer ASD
- ◆ Other elements

<sup>1)</sup> delete as applicable

## 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 m<sup>3</sup>/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

