



AIR DISTRIBUTION

Volume flow controller VRT



▶ Trust you can build in.

Contents

1	Product overview	3
2	Product features	4
3	Product description	6
3.1	Area of application	6
3.2	Function	7
3.3	Accessories	7
3.3.1	Acoustic insulation with sheet metal jacket	7
3.3.2	SRC duct silencer	7
4	Quick dimensioning	8
5	Installation	9
5.1	Distances to disturbance points	9
6	Technical Data	10
6.1	Dimensions	10
6.1.1	SRC duct silencer	11
6.2	Weights	11
6.3	Sound power level (flow noise)	12
6.4	Sound power level (radiated noise)	14
6.5	Set point adjustment	16
6.5.1	Manual	16
6.5.2	Motorised	16
7	Specification text	18
8	Wildeboer makes it easy	19
8.1	Wildeboer Configurator	19
8.2	WiDim dimensioning software	19
8.3	Documents online	19

Product portfolio:

Areas of application for circular volume flow controllers and limiters

Description	VR1	VR1-N	VRL1	VRE1	VRup / VRpro
Functional principle	Mechanical controller	Mechanical controller	Mechanical limiter	Electronic controller	Electronic controller
Pressure difference	50 ... 1000 Pa	30 ... 600 Pa	30 ... 300 Pa	20 ... 1000 Pa	5 ... 1000 Pa
Flow rate range	50 ... 3100 m ³ /h	30 ... 2300 m ³ /h	13 ... 1060 m ³ /h	34 ... 5430 m ³ /h	42 ... 5430 m ³ /h
Nominal diameter	DN 80 ... DN 315	DN 80 ... DN 315	DN 80 ... DN 250	DN 100 ... DN 400	DN 100 ... DN 400
Flow velocity	2.1 ... 15.5 m/s	1.1 ... 12.2 m/s	0.8 ... 6 m/s	1.2 ... 12 m/s	1.5 ... 12 m/s
Control accuracy	±5 ... ±10 % of set point flow rate	approx. ±5 % of nominal flow rate*	±5 ... ±10 % of nominal flow rate	±5 ... ±15 % of set point flow rate	±5 ... ±20 % of set point flow rate
Operating temperature	-20 ... +70 °C, short-term 90 °C	-20 ... +70 °C, short-term 90 °C	+10 ... +50 °C	+5 ... +60 °C	0 ... +50 °C
Further information	In this document	LINK	LINK	LINK	LINK

* or ±10 % from set point flow rate (depending on which deviation is greater)

1 Product overview

VR1 volume flow controllers are maintenance-free, mechanically self-actuating controllers for supply air and exhaust air ducts with constant flow rates that operate without any auxiliary power supply. They are used especially at low flow velocities and variable pressures to keep the flow rate constant as per the set point value. The flow rate is set using a manual setting device with pointer, scale and locking mechanism. As an option, the VR1 can be fitted with a 24 V AC/DC or 230 V AC actuator for motorised set point adjustment for applications with variable flow rates.

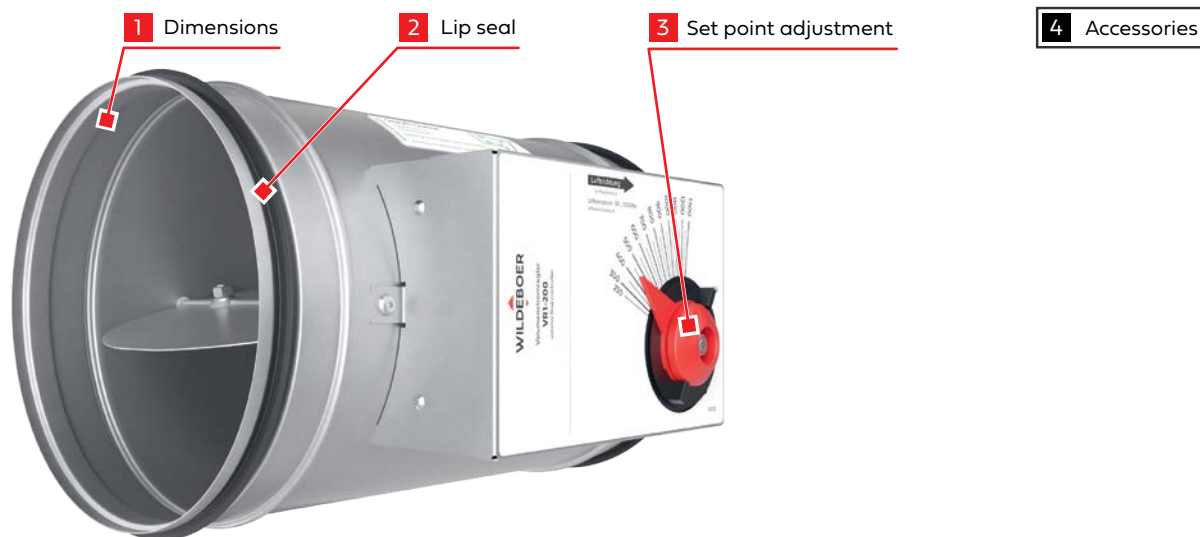


- Highest control accuracy at variable pressures
- Factory preset for the set point flow rate
- Adjustable on site
- Position-independent installation
- Maintenance-free design
- Sizes DN 80 to DN 315
- Casing tightness: Class C as per DIN EN 1751
- Volume flow range: 50 ... 3100 m³/h
- Pressure range: 50 ... 1000 Pa
- Flow velocities: 2.1 ... 15.5 m/s
- Temperature range: -20 ... +70 °C, short-term +90 °C
- Hygiene certificate:
VDI 6022-1, VDI 3803-1, DIN 1946-4, DIN EN 16798-3, SWKI VA104-01,
SWKI VA105-01, ÖNORM H6020, ÖNORM H6021
- Environment Product Declaration: EPD-WIL-20150036-ICA-EN
- Options
 - Reversible actuator with 2-point and 3-point control for setting to two flow rate set points, 230 V AC or 24 V AC/DC
 - Continuously adjustable reversible actuator for setting to any flow rate set point, 24 V AC/DC
 - Acoustic insulation with sheet metal jacket
 - SRC duct silencer in lengths: 600 mm and 900 mm
 - Lip seals at both ends

Product features

VR1 Volume Flow Controller

2 Product features



1 Dimensions

Nominal diameter [DN]						
80	100	125	160	200	250	315

2 Lip seal



For airtight connection to ventilation ducts
Optional accessories pre-assembled at the factory or for on-site installation

Product features

VR1 volume flow controller

3 Set point adjustment

Manual (basic version)



Manual setting device with setting pointer, scale and locking mechanism:

The flow rate set point values are set manually using the setting pointer within the ranges \dot{V}_{\min} to \dot{V}_{\max} . The controllers are adjusted at the factory for the entire volume flow range.

The VR1 can be preset at the factory before delivery. For this purpose, the flow rate set point values must be specified when ordering. Subsequent adjustment on site is possible.

Pre-installed at the factory before delivery

Actuator-driven (optional version)



M1:

Reversible actuator 230 V AC with 2-point and 3-point control.

The corresponding motor limit stops are positioned in order to adjust the flow rates.

Optional accessories pre-assembled at the factory or for on-site installation

M2:

Reversible actuator 24 V AC/ DC with 2-point and 3-point control.

The corresponding motor limit stops are positioned in order to adjust the flow rates.

Optional accessories pre-assembled at the factory or for on-site installation

M3:

Continuously adjustable reversible actuator 24 V AC/DC

To adjust the flow rates, a reference signal is used from 0 ... 10 V.

Optional accessories pre-assembled at the factory or for on-site installation

For details, please refer to ► [Page 16](#).

4 Accessories



Acoustic insulation with sheet metal casing to reduce the external sound radiation of the volume flow controller (radiated noise)

Optional accessories pre-assembled at the factory or for on-site installation

For details, please refer to ► [Page 7](#).



SRC duct silencer for reducing flow noise in the connected ventilation duct. Packing thickness:

50 mm mineral wool

lengths:

▪ 600 mm

▪ 900 mm

Optional accessories for on-site installation

For details, please refer to ► [Page 7](#).

Product description

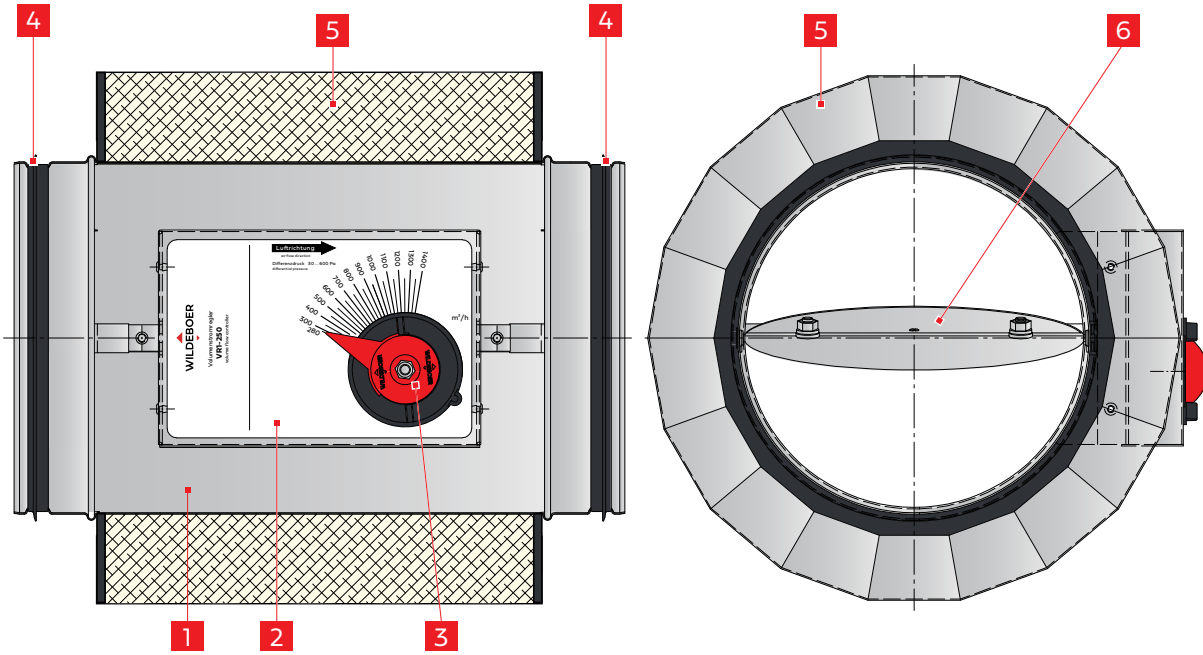
VR1 Volume Flow Controller

3 Product description

The VR1 volume flow controller is made of galvanised steel. The damper blade which controls the flow rate is centrally supported and has stainless steel bearing shafts in special bushes. The manual setting device is fitted with a setting pointer, scale and locking mechanism. Flow rate set points can be adjusted manually or by actuator within the flow rate ranges \dot{V}_{min} to \dot{V}_{max} .

The special control mechanism ensures high control accuracy, so with variable pressures, the flow rate can be kept constant over the entire pressure range.

The adjustable volume flow set points depend on the nominal diameter of the VR1.



Item	Description
1	Duct casing
2	Label with scale and air direction indicator
3	Manual setting device with setting pointer, scale and locking mechanism
4	Lip seal (optional)
5	Acoustic insulation with sheet metal jacket (optional)
6	Damper blade

Size [DN]	\dot{V}_{min} [m ³ /h]	\dot{V}_{max} [m ³ /h]
80	50	280
100	70	380
125	120	600
160	150	900
200	250	1300
250	400	2100
315	600	3100

3.1 Area of application

The VR1 volume flow controller is used in supply air and exhaust air ducts of ventilation and air conditioning systems.

Notes

- VR1 volume flow controllers are adjusted for the entire scaled application area.
- The flow rate set point is set during installation by turning the setting pointer to the desired value on the scale and locking this setting. This does not affect the control accuracy.
- Volume flow controllers that are preset at the factory can be installed directly. The flow rate set point can be changed at a later date by releasing the locking mechanism.
- The VR1 volume flow controller and the optional SRC duct silencer are supplied separately. Assembly is carried out on site.
- Installation and operating instructions for the VR1 are available on the Internet at www.wildeboer.de.

Product description

VR1 volume flow controller

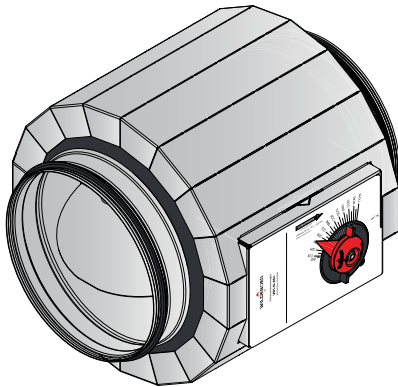
3.2 Function

The VR1 volume flow controller operates without any auxiliary power supply. The air flow in the ventilation duct generates a torque in the closing direction when it hits the damper blade. This torque is counterbalanced by the restoring torque of a blade spring so that the flow rate can be kept constant within the tolerances, even if the pressure differences change. Additional damping bellows ensures vibration-free movement of the damper blade.

3.3 Accessories

3.3.1 Acoustic insulation with sheet metal jacket

Acoustic insulation with a sheet metal jacket is supplied factory-mounted or for on-site installation.

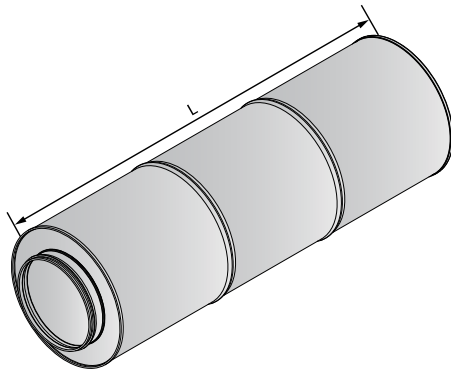


Maximum possible reduction in radiated noise as a function of the nominal diameter:

DN	Reduction
80	-18 dB
100	
125	
160	
200	
250	
315	

3.3.2 SRC duct silencer

The SRC duct silencer is supplied separately. Assembly is carried out on site along with the volume flow controller.



Maximum possible reduction in flow noise as a function of the silencer length:

DN	Outer diameter [mm]	L [mm]	
		600	900
80	200	-22 dB	-
100	200	-22 dB	-25 dB
125	225	-22 dB	-25 dB
160	260	-21 dB	-24 dB
200	300	-19 dB	-24 dB
250	355	-18 dB	-22 dB
315	415	-15 dB	-19 dB

Packing thickness: 50 mm mineral wool

4 Quick dimensioning

The quick dimensioning table shows the expected sound power level of the VR1. Intermediate values can be interpolated for a rough estimate. The exact values for different differential pressures can be taken from the Wildeboer dimensioning software WiDim. ▶ [WiDim](#)

Sound level

Size	Flow rate	Flow velocity	Differential pressure	Flow noise	Radiated noise
[DN]	\dot{V} [m ³ /h]	v [m/s]	Δp [Pa]	Sound power level L_{WA} [dB(A)]	Sound power level L_{WA} [dB(A)]
80	50	2.8	75	38.97	<20
80	160	8.8	100	51.77	37.39
80	280	15.5	150	60.12	48.45
100	70	2.5	75	39.56	<20
100	220	7.8	100	52.05	35.43
100	380	13.4	150	60.2	46.86
125	120	2.7	75	41.95	25.15
125	360	8.1	100	53.97	39.14
125	600	13.6	150	61.75	47.66
160	150	2.1	75	41.38	28.87
160	525	7.3	100	54.6	40.12
160	900	12.4	150	62.57	47.01
200	250	2.2	75	43.57	31.99
200	750	6.6	100	55.35	40.82
200	1300	11.5	150	63.37	47.74
250	400	2.3	75	45.41	29.98
250	1200	6.8	100	57.15	42.85
250	2100	11.9	150	65.22	50.6
315	600	2.1	75	46.66	32.67
315	1800	6.4	100	58.32	45.69
315	3100	11.0	150	66.2	53.41

The sound power level of the radiated noise can be further reduced by using acoustic insulation.

The mean sound pressure level in the room is:

- **26 dB** lower with acoustic insulation
- **8 dB** lower without acoustic insulation

than the sound power levels specified in the nomograms L_{WA} .

The sound pressure level can be further reduced by carrying out additional sound attenuation measures on site (suspended ceilings, high degree of room attenuation).

However, the acoustic insulation can only achieve the stated values if connected ventilation ducts are also suitably soundproofed (insulated).

The sound power level of the **flow noise** can be reduced by up to **25 dB** by using an SRC duct silencer. ▶ [Page 7](#).

Installation

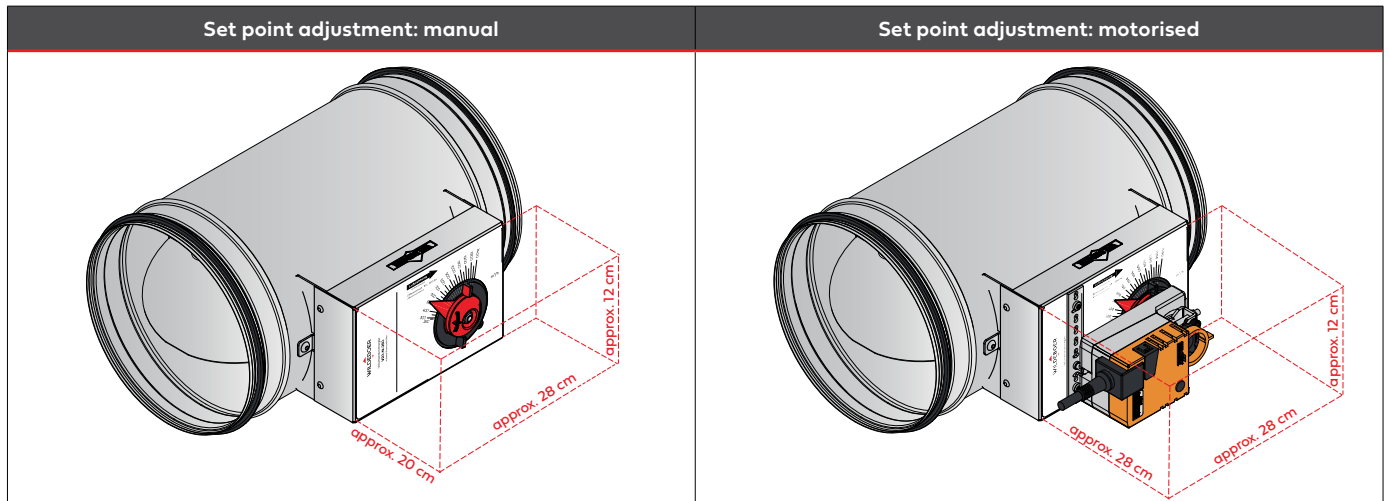
VR1 volume flow controller

5 Installation

The VR1 volume flow controller is installed regardless of the position and in the air direction indicated on the label. To ensure lasting functionality and leak tightness, stress-free installation in ventilation ducts is a prerequisite.

Space requirement

To enable the scale to be read and the commissioning and servicing work to be carried out, sufficient space should be kept free in the area of any attachments. Inspection openings of sufficient size may required so that the attachments are easily accessible.

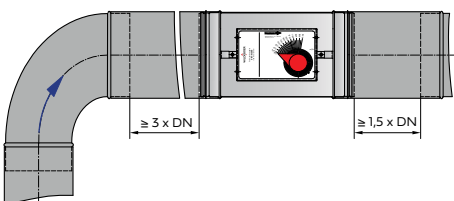


5.1 Distances to disturbance points

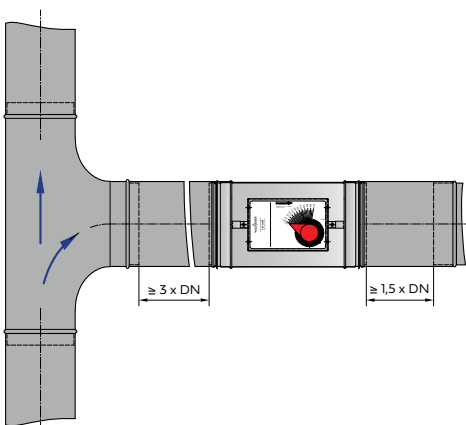
The stated control accuracy of $\Delta\dot{V}$ applies to a straight and disturbance-free inflow. Fittings such as bends, branches or changes in cross-section cause turbulence that can influence the flow rate measurement.

For the VR1 volume flow controller to work optimally, the flows must be largely free of disturbance. After flow disturbance points (e.g. bends or branches), the straight inlet and outlet sections shown as examples must be observed; longer inlet sections may be required where several disturbance points occur consecutively. Otherwise significant control deviations must be expected.

Bend connection



Branch-off from main duct



The specified control accuracy of $\Delta\dot{V}$ can only be achieved with at least 3 x DN straight flow path.

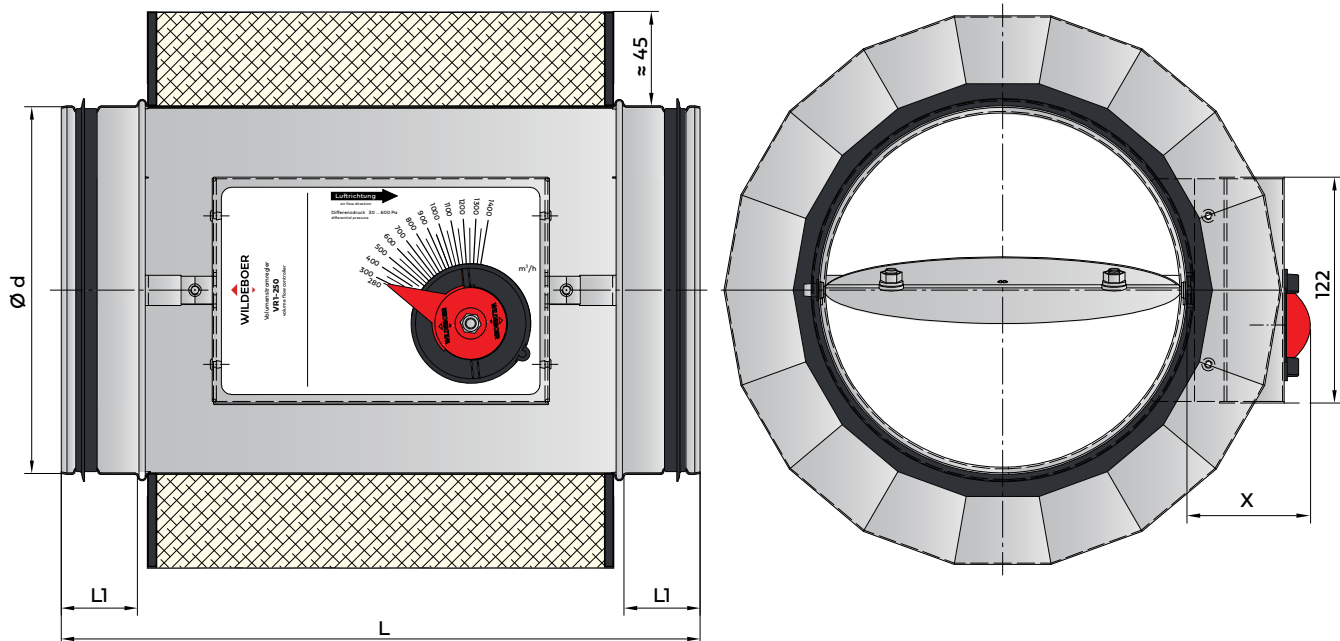
Note:

EN 1506 must be observed for the design of ventilation duct connections.

6 Technical Data

General data	
Nominal diameter	DN 80, DN 100, DN 125, DN 160, DN 200, DN 250, DN 315
Flow rate range	50 ... 3100 m ³ /h
Control range	Approx. 18 ... 100 % of nominal flow rate
Control accuracy	±5 ... ±10 % of set point flow rate
Differential pressure range	50 ... 1000 Pa
Flow velocity	2.1 ... 15.5 m/s
Operating temperature	-20 ... +70 °C, short-term +90 °C
Relative humidity	≤ 95 %, non-condensing
Casing tightness as per DIN EN 1751	Class C
Maintenance-free design	Yes
Materials	
Casing + damper blade	Galvanised steel
Bearing shafts	Stainless steel

6.1 Dimensions

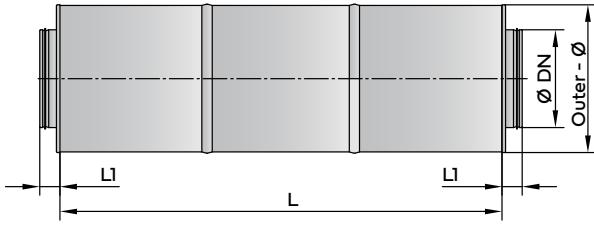


Nominal diameter [DN]	ød [mm]	L [mm]	L1 [mm]	X	A _A [m ²]
80	79	329	40	Manual: 65 mm Motorised: 130 mm	0.005
100	99	329	40		0.008
125	124	329	40		0.012
160	159	329	40		0.020
200	199	329	40		0.031
250	249	407	60		0.049
315	314	457	60		0.078

Technical Data

VR1 volume flow controller

6.1.1 SRC duct silencer



Size [DN]	Outer diam. [mm]	L [mm]		L1 [mm]
80	200	600	-	40
100	200		900	
125	225			
160	260			
200	300			
250	355			
315	415			

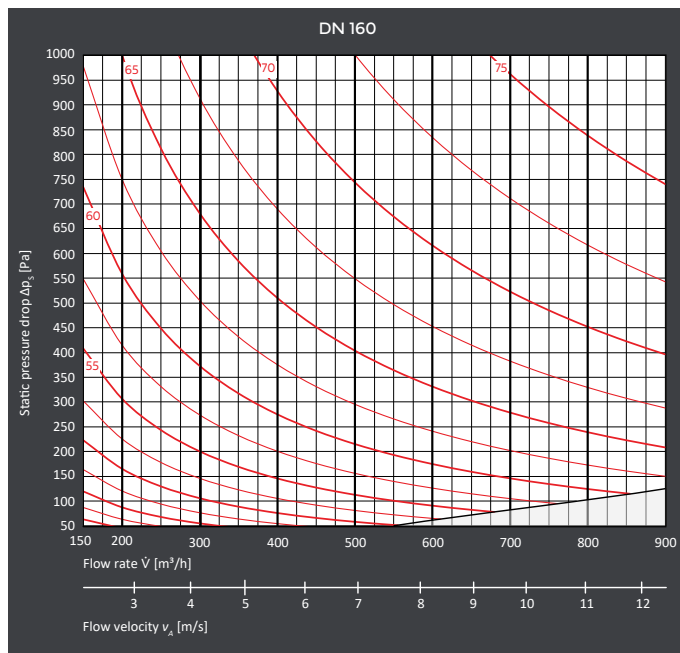
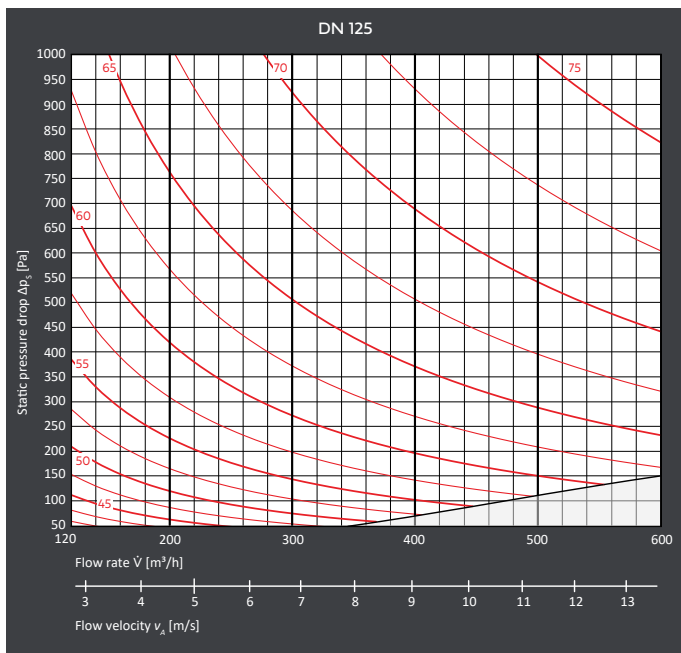
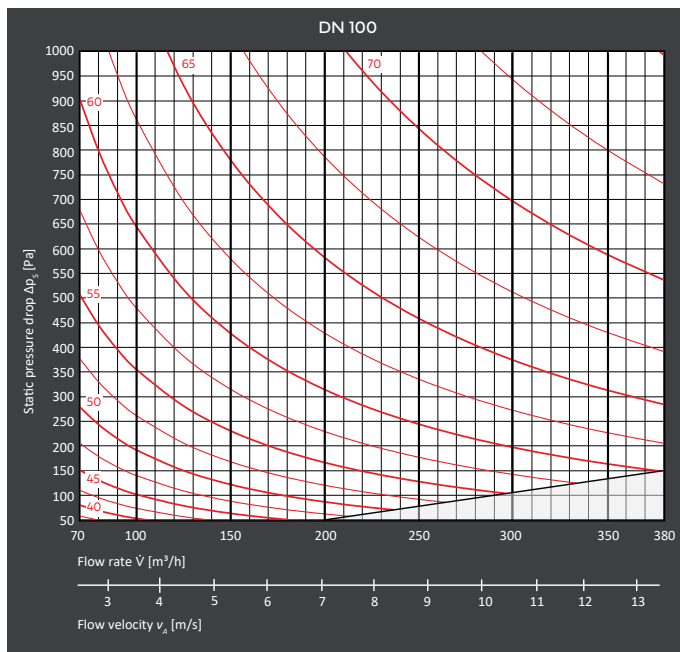
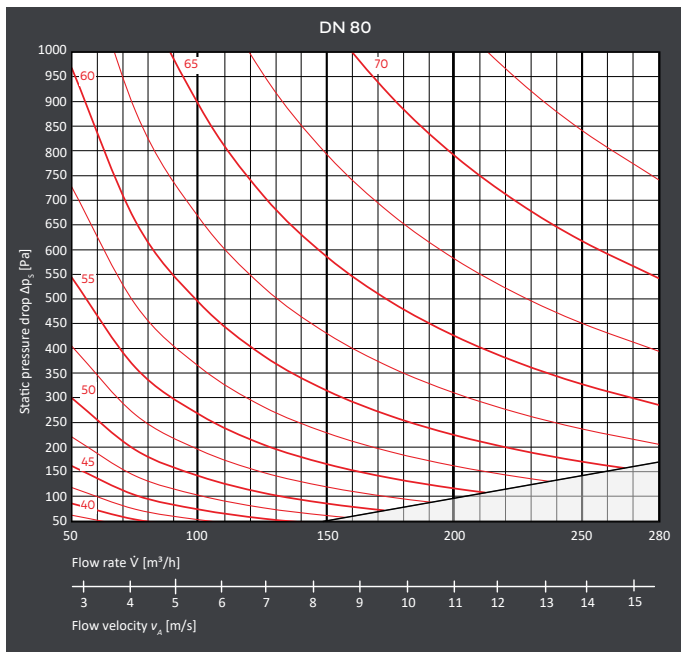
6.2 Weights

Nominal diameter [DN]	VR1 [kg]	Acoustic insulation [kg]	Lip seal [g]	SRC duct silencer [kg]	
				600 mm	900 mm
80	1.13	0.73	20	3.00	-
100	1.24	0.88	26	3.80	5.70
125	1.39	1.07	32	4.50	6.30
160	1.60	1.33	40	5.10	7.80
200	1.88	1.84	52	6.20	10.00
250	3.35	2.45	64	7.80	11.50
315	4.53	3.60	88	9.10	13.10

Actuator	Weight [g]
M1	660
M2	660
M3	630

6.3 Sound power level (flow noise)

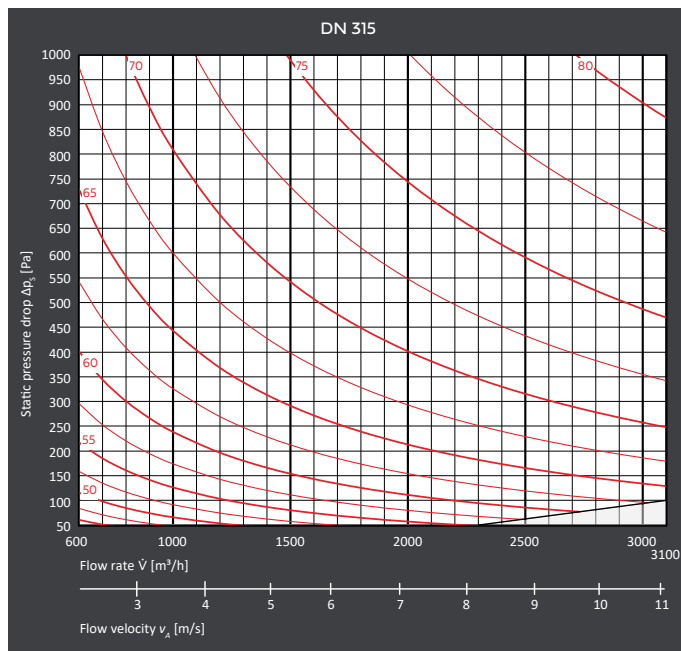
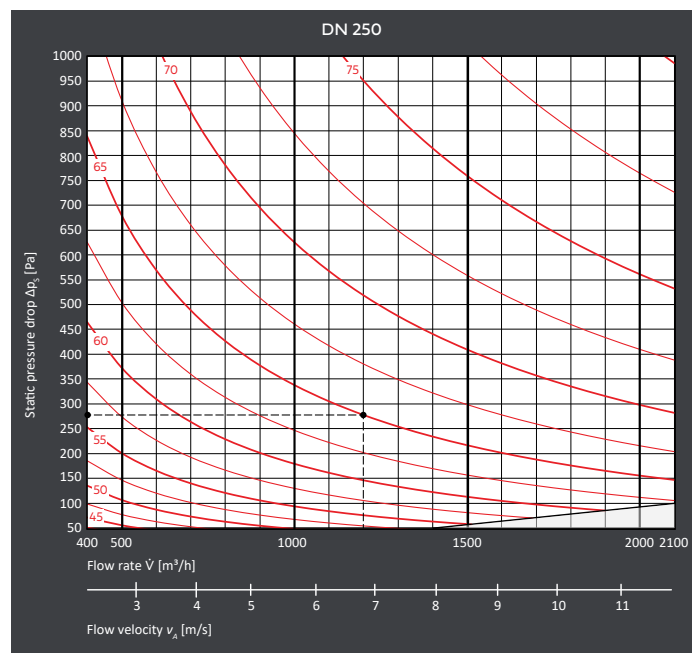
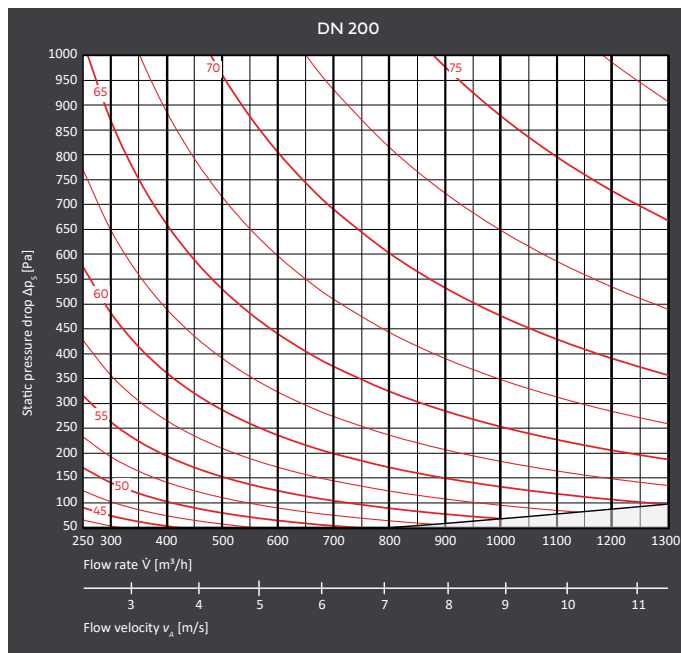
Sound power level L_{WA} [dB(A)]



Technical Data

VR1 volume flow controller

Sound power level L_{WA} [dB(A)]



Example:

Specified:	Size	DN 250
	Flow rate	$\dot{V} = 1200 \text{ m}^3/\text{h}$
	Flow velocity	$v_A = 6.79 \text{ m/s}$
	Static pressure drop	$\Delta p_s = 277 \text{ Pa}$
Result:	Flow noise	
	Sound power level	$L_{WA} = 65 \text{ dB(A)}$

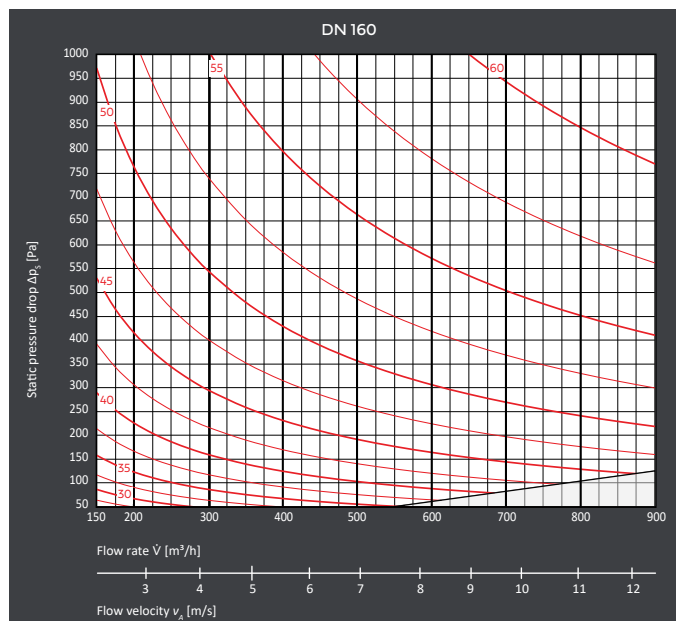
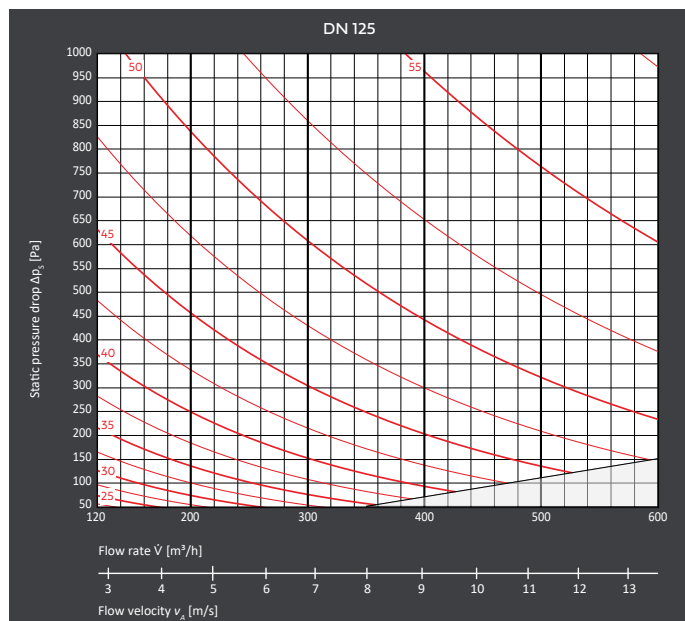
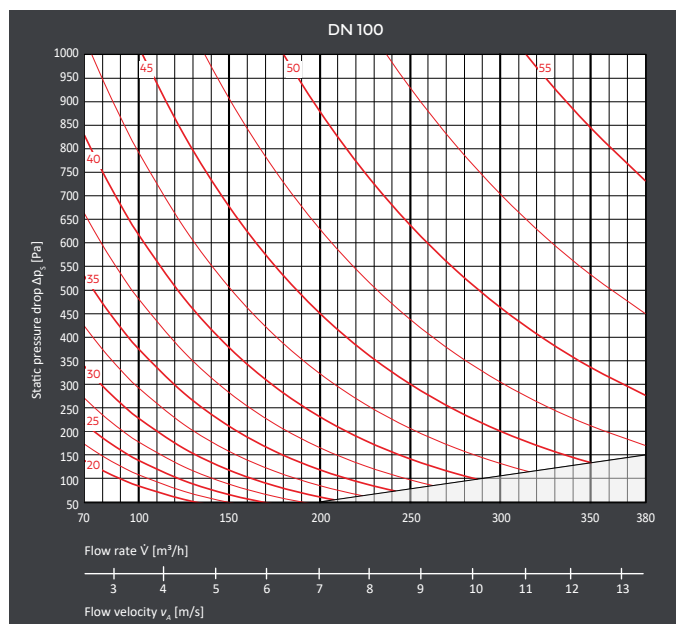
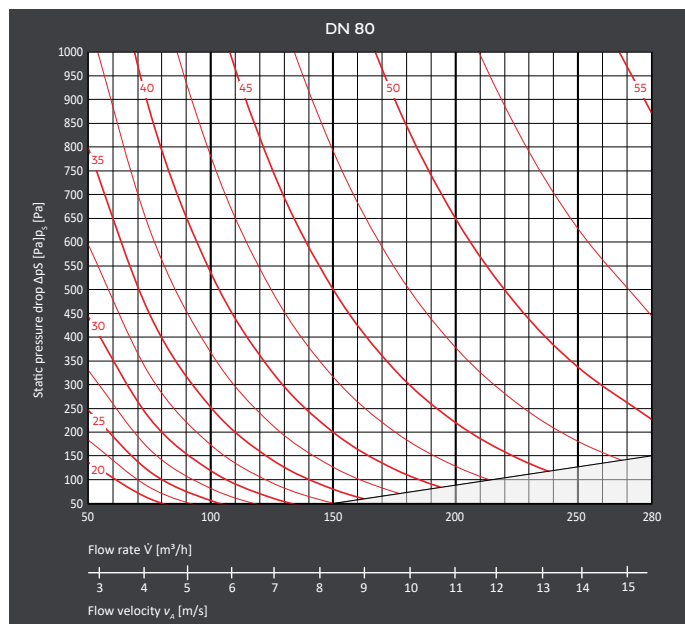
- The sound power levels of the flow noise can be further reduced by using the SRC duct silencer. Further information ▶ [Page 7](#)
- The sound power levels inside the connecting duct are calculated in the nomograms as A-weighted overall levels L_{WA} .
- Corresponding octave sound power levels L_{W-oct} for each size and for all operating points are derived from the Wildeboer dimensioning software ▶ [WiDim](#); likewise the dimensioning with additional SRC duct silencer.
- Important: The sound levels indicated in the nomograms are stated as sound power levels! They represent the sound energy introduced into the duct system. They are used for acoustic calculations, e.g. when adding sound attenuators.
- Please note: In many cases, the sound pressure levels L_p or L_{pA} are specified, which give attenuations of up to 16 dB. When comparing numerical values, always bear in mind the difference between the sound power level and sound pressure level. Furthermore, the degree of attenuation is only obtained with specific connected ducts, deflections, branches and rooms.

Nomenclature

\dot{V}	[m ³ /h]	Flow rate
A_A	[m ²]	Inflow cross-section
v_A	[m/s]	Flow velocity in A_A
Δp_s	[Pa]	Static pressure drop
Δp	[Pa]	Differential pressure
L_{WA}	[dB(A)]	A-weighted sound power level
L_{W-oct}	[dB]	Octave sound power level $L_{W-oct} = L_{WA} + \Delta L$
ΔL	[dB]	Relative sound power level to L_{WA}
f	[Hz]	Octave mid-frequency
L_p	[dB]	Sound pressure level
L_{pA}	[dB(A)]	A-weighted sound pressure level

6.4 Sound power level (radiated noise)

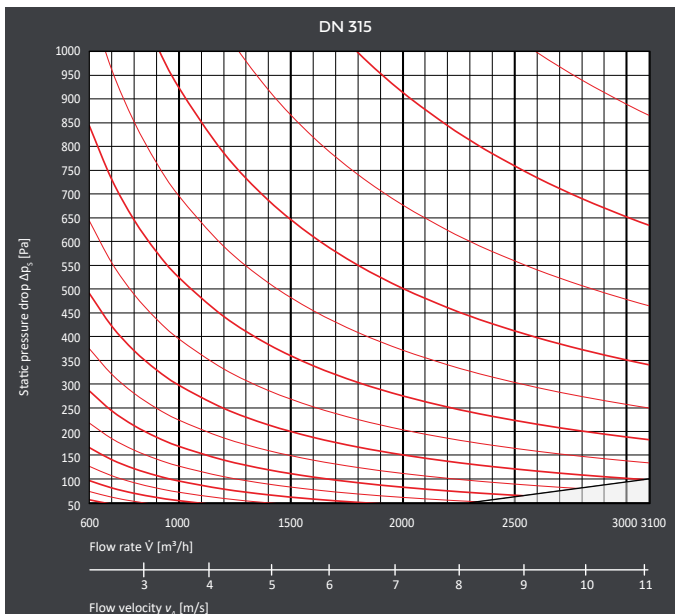
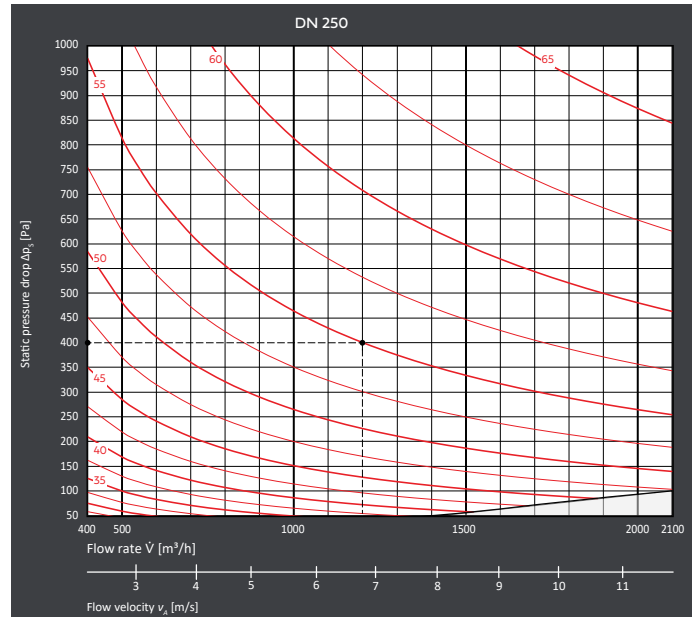
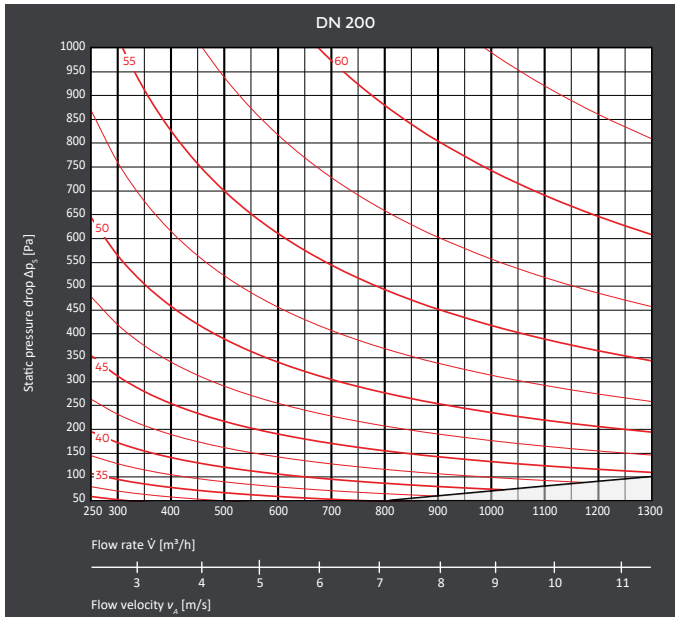
Sound power level L_{WA} [dB(A)]



Technical Data

VR1 volume flow controller

Sound power level L_{WA} [dB(A)]



Example:

Specified:	Size	DN 250
	Flow rate	$\dot{V} = 1200 \text{ m}^3/\text{h}$
	Flow velocity	$v_A = 6.79 \text{ m/s}$
	Static pressure drop	$\Delta p_s = 400 \text{ Pa}$
Result:	Radiated noise	
	Sound power level	$L_{WA} = 55 \text{ dB(A)}$

- The sound power levels of the radiated noise can be further reduced by using acoustic insulation. Further information ► [Page 7](#)
- The sound pressure level can be further reduced by carrying out additional sound attenuation measures on site (suspended ceilings, high degree of room attenuation).

Nomenclature

\dot{V}	[m³/h]	Flow rate
A_A	[m²]	Inflow cross-section
v_A	[m/s]	Flow velocity in A_A
Δp_s	[Pa]	Static pressure drop
Δp	[Pa]	Differential pressure
L_{WA}	[dB(A)]	A-weighted sound power level
L_{W-oct}	[dB]	Octave sound power level $L_{W-oct} = L_{WA} + \Delta L$
ΔL	[dB]	Relative sound power level to L_{WA}
f	[Hz]	Octave mid-frequency
L_p	[dB]	Sound pressure level
L_{pA}	[dB(A)]	A-weighted sound pressure level

6.5 Set point adjustment

6.5.1 Manual

In the basic version, VR1 volume flow controllers are designed for manual adjustment of the flow rate set point and operate without any auxiliary power supply. The volume flow set point is preselected on an adjusting device and, with variable pressures, is kept constant to a high degree of accuracy. The volume flow controllers are adjusted at the factory for the entire volume flow range.

6.5.2 Motorised

As an option, the set point adjustment can be motorised via factory-mounted electric actuators. Reversible actuators and continuously controllable reversible actuators are available for this.

Actuator and actuator size		Electrical connection				Power	Run time for 90°	Manual adjustment	
		Voltage	AC tolerance	DC tolerance	Connected load				Wires
M1	5 Nm	230 V AC	85 ... 265 V	-	3.5 VA	3 x 0.75 mm ² , 1 m long	1.5 W	< 150 s	Push-button, lockable
M2		24V AC/DC	19.2 ... 28.8 V		1.5 VA		1 W		
M3		24V AC/DC	19.2 ... 28.8 V		2 VA	4 x 0.75 mm ² , 1 m long			

Reversible actuators (M1, M2) open and close the volumetric flow controllers with 230 V AC voltage or 24 V DC or AC voltage.

The **M1** (230 V AC) and **M2** (24 V AC/DC) actuators enable 2-point and 3-point control. The corresponding motor limit stops are positioned in order to adjust the two flow rates. As delivered, the two limit stops of the actuators are set to the 0 direction of travel and the largest possible angle of rotation. The maximum angle of rotation corresponds to the largest possible flow rate set point, and the minimum is equivalent to a "cutoff" at a residual leakage that is significantly lower than the minimum flow rate. This can be extended to give 3-point control using an additional 0 circuit arrangement. When operated in this way, the actuator remains in its current position and the VR1 volume flow controller adjusts the corresponding set point.

Continuously adjustable reversible actuator (M3) with 24 V AC/DC sets the volume flow controllers to any desired position. The position is specified by means of a command signal of 0 or 2 to 10 V, position feedback via an output signal of 2 to 10 V.

The **M3** (24 V AC/DC) actuator enables continuous set point adjustment. The actuator is controlled with a setting voltage of $Y = 0 \dots 10$ V DC and moves to the position specified by the control signal; however, the operating range of the motor only starts at 2 V. The flow rate set point changes almost linearly with the setting voltage. As delivered, the actuator is set to 0 direction of travel and the adjustable mechanical limit stops are set for the largest possible angle of rotation, which means that when $Y = 10$ V, the maximum angle of rotation corresponds to the maximum volume flow set point, and at $0 \dots 2$ V the minimum angle of rotation is approached; this corresponds to a "cutoff" at a residual leakage that is significantly lower than the minimum volume flow set point. The purpose of the checkback voltage $U = 2 \dots 10$ V DC is to provide an electric indication of the volume flow set point setting and to serve as a subsequent actuating signal for other actuators.

Notes

- All the actuators are overload-proof, do not require limit switches, and stop automatically at the limit stop.
- In the event of a power failure or interruption, the current actuator position is retained.
- The direction of travel of all the adjusting actuators can be reversed via a pushbutton on the motor.

Technical Data

VR1 volume flow controller

Presetting

Depending on the nominal diameter, the flow rate set point can be preset at the factory in the following increments.

Nominal diameter [DN]	Flow rate set point _{min}	Flow rate set point _{max}	Increments
80	50	280	10
100	70	380	10
125	120	600	20
160	150	900	25
200	250	1300	50
250	400	2100	100
315	600	3100	100

Electrical connection

M1: 2- point control	M1: 3- point control	M1: Direction of travel
M2: 2- point control	M2: 3- point control	M2: Direction of travel
M3: Continuous control	M3: Direction of travel	

7 Specification text

Maintenance-free, circular volume flow controller for position-independent installation in circular ventilation ducts for supply and exhaust air in ventilation and air conditioning systems. Casing and control mechanism made of galvanized sheet steel, with acoustic insulation, with lip seals. With centrally supported damper blade for volume flow control, with stainless steel bearing shaft in special bushes. Adjustment device with rotary pointer, scale and locking device for the volume flow set point, can be adjusted manually or by actuator. Volume flow controller designed as mechanical controller for constant volume flows without any auxiliary power supply. With special control mechanism for a high degree of control accuracy throughout the entire control range. The volume flow set point must be infinitely adjustable throughout the control range. With variable pressures between 50 and 1000 Pa, the volume flow must be kept constant with a deviation of roughly $\pm 5\%$ to $\pm 10\%$. Casing tightness class C as per DIN EN 1751. Certificate as proof of compliance with the hygiene requirements as per VDI 6022-1, VDI 3803-1, DIN 1946-4, DIN EN 16798-3, SWKI VA104-01, SWKI VA105-01, ÖNORM H6020 and ÖNORM H6021. With Environmental Product Declaration as per ISO 14025 and EN 15804.

..... pcs.

Volume flow: m³/h

Pressure drop: Pa

Maximum sound power level

Flow noise dB(A)
including SRC duct silencer

Radiated noise dB(A)

Manufacturer: WILDEBOER

Type: VR1

Size:

Complete with fixings deliver:

install:

..... pc. SRC 600 / 900 duct silencer

deliver:

install:

Delete text not printed in bold as required!

You can find this tender text on the website www.ausschreiben.de ▶ ausschreiben.de.

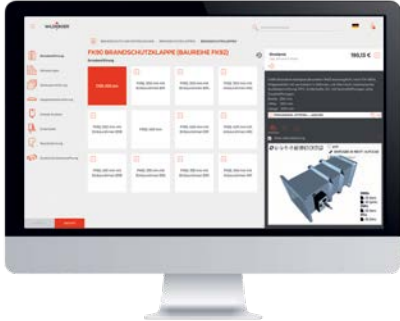
Or you can use the specification text customised for your product selection in the Wildeboer Configurator ▶ [Wildeboer Configurator](#).

Wildeboer makes it easy

VR1 volume flow controller

8 Wildeboer makes it easy

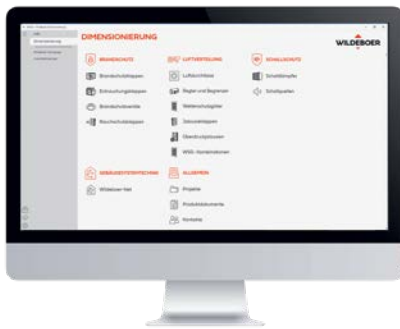
8.1 Wildeboer Configurator



- Quick, intuitive configuration of Wildeboer products
- Easy calculation of operating point data for the configured product
- 3D display of the product and download in various formats
- Download of data sheets, specification texts and version keys
- Login area with individual price display option



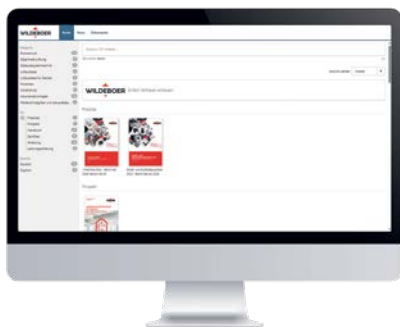
8.2 WiDim dimensioning software



- Functional, modern and intuitive dimensioning of Wildeboer products
- Conveniently collect operating point data, 3D product views, suitable accessories and current revision documents in a single project
- Project can be output in various formats
- A GAEB interface and an interface based on VDI 3805 facilitate a continuous planning process



8.3 Documents online



- Paperless and environmentally friendly online access to Wildeboer documents
- All documents in one central location and always up to date
- Supporting interactive formats and content



Always there for you

Locations & contact

WILDEBOER

Factory - Administration
+49 4951 950-0
info@wildeboer.de
www.wildeboer.de

Weener

Hamburg

Utrecht

Hanover

Berlin

Cologne

Frankfurt

Leipzig

Stuttgart

Ulm

Munich

WILDEBOER

Utrecht office
+31 30 767 0150
info@utrecht.wildeboer.eu
www.wildeboer.de/nl

WILDEBOER

Leipzig office
+49 34444 310-0
info@leipzig.wildeboer.de
www.wildeboer.de

WILDEBOER

Ulm office
+49 7392 9692-0
info@ulm.wildeboer.de
www.wildeboer.de



Find out more at
www.wildeboer.de/downloads

