

OPTIMA-R-FC...BM

VAV Controller, Belimo Modbus Modular

Handbook



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Description

OPTIMA-R-FC...BM is a variable air volume controller with or without an insulation. The product is intended to control the flow volume of supply or return air. The product is installed into circular ducts of 80 mm up to 630 mm in diameter. The product is ideal for all applications, where a variable air flow volume in ventilation, cooling or heating is required (offices, hotel rooms, meeting rooms, health care premisses, residentials, etc.)

Highlights

- Damper tightness class 4 according to EN 1751
- Casing tightness class C according to EN 1751
- High measurement/control accuracy of 5 %
- Air volume range of 36 m³/h to 12344 m³/h
- Operating range of pressure drop up to 1000 Pa
- Actuators with quick transition or safety positioning function available
- Insulated version OPTIMA-RI-FC...BM with external insulation for sound reduction

Types of Product

- **OPTIMA-R-FC...BM:** Non-insulated VAV controller
- **OPTIMA-RI-FC...BM:** Insulated VAV controller

Type of Controller

- **BM:** Modbus-RTU or BACnet MS/TP switchable port for communication of all variables, analog setpoint and feedback signals DC 0 (2)V ... 10 V applicable

Types of Actuators

- **S:** Standard actuator
- **Q:** Actuator with short transition time
- **QE:** Actuator with short transition time and electric safety function
- **F:** Actuator with mechanical safety function – spring return

List of Accessories

- **ZTH-EU:** Handheld Tool
- **ZIP-BT-NFC:** Communication Port Bluetooth/NFC

Design

OPTIMA-R-FC...BM is manufactured from galvanized steel sheet. The product consists of a casing, a duct connection with a rubber gasket, a damper blade with a rubber gasket and a modular VAV control device. OPTIMA-RI-FC...BM is equipped by an insulation for sound reduction. The insulation is a 19 mm thick closed cell foam mat, protected by galvanized steel sheet. The modular VAV control device consists of an aluminium measurement probe, polyurethane measurement impulse tubes, an air flow transmitter, a modular control unit and an actuator. The measurement probe is a special design cross. It is a multi-point averaging flow sensor for accurate air flow readings. The measurement impulse tubes connect the measurement probe with the air flow transmitter.

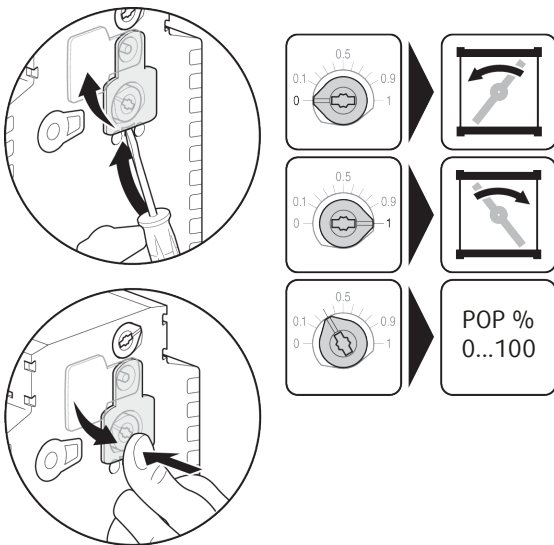
Actuators

- **S**: Standard actuator
- **Q**: Actuator with short transition time
- **QE**: Actuator with short transition time and electric safety function

The default manufacturer setting of the actuator safety function is **closing after power supply interruption**.

Upon request the manufacturer setting can be changed to **opening after power supply interruption**. Adjustment of intermediate final safety position (0% ... 100% opening) is possible.

The possibility to change the safety function on site is available.



- **F**: Actuator with mechanical safety function – spring return

The default manufacturer setting of the actuator safety function is **closing after power supply interruption**.

Upon request the manufacturer setting can be changed to **opening after power supply interruption**.

DN	T _{max} (Nm)	OPTIMA-R-FC...BM-S/Q/QE/F			
		S	Q	QE	F
80	4	LM24A-VST	LMQ24A-VST	NKQ24A-VST	LF24A-VST
100	4				
125	4				
140	4				
160	4				
180	4				
200	4				
225	4				
250	4				
280	4				
315	4				
355	5				
400	5	NM24A-VST	NMQ24A-VST	-	NF24A-VST
500	8		SMQ24A-VST	-	
630	10				

	∠	⌚	⌚⊗	P _r (VA)	P (W)
LM24A-VST	90°	⌚/⌚120 s	-	4	2,5
NM24A-VST	90°	⌚/⌚120 s	-	6	3,5
LMQ24A-VST	90°	⌚/⌚2,5 s	-	25	14,5
NMQ24A-VST	90°	⌚/⌚4 s	-	25	14,5
SMQ24A-VST	90°	⌚/⌚7 s	-	28	16,5
NKQ24A-VST	90°	⌚/⌚4 s	⌚4 s	24	12,5
LF24A-VST	90°	⌚/⌚120 s	⌚<20 s	7	4
NF24A-VST	90°	⌚/⌚120 s	⌚<20 s	10	6,5

Legend

∠

Positioning angle

⌚

Transition time

⌚⊗

Transition time without power supply (safety function)

P_r (VA)

Power rating (actuator + controller VRU...)

P (W)

Power consumption in operation (actuator + controller VRU...)

Noise and thermal insulation material for OPTIMA-RI-FC...BM

Base	NBR/PVC
Cellular Structure	Closed
Colour	Black
Density	80 kg/m ³
Water Absorption	2 % < 5 %
Resistance	Air+ U.V.-Good
Thermal Conductivity (t. + 40 °C)	< 0,039 W/m K
	Class 1 (DM 26/06/84)
	UL 94-HF1
Fire Resistance	Class 0 - BS 476 part6-7 UK
	NF certificate n.38 (until mm.32) France
	B-s3,d0 (EN 13501-1) Euroclass
Marine and Shipbuilding	MED B - MED D - DNV type approval
Steam Diffusion	MU > 7.000
Noise Reduction (DIN 4109)	Up to 30 dB
Ecological Compatibility	NO CFC - HCFC, asbest free

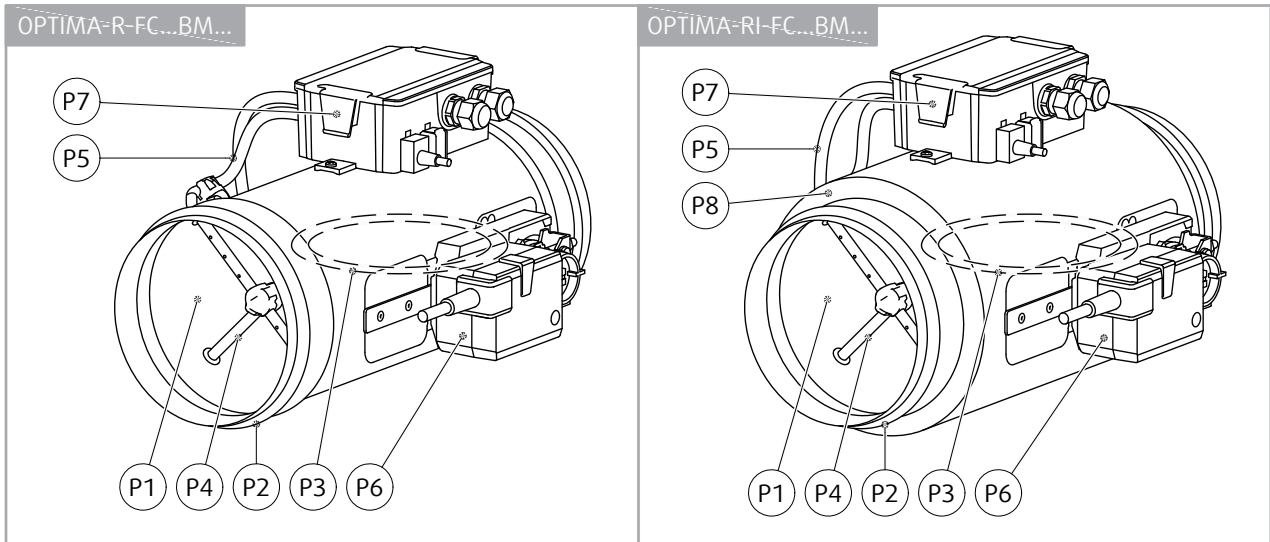
Controls

The VAV controllers are equipped by OEM control module and actuator from Belimo. The control units are factory calibrated as standard to the air volume control range $V_{\min} \dots V_{\max}$. The dimension table shows this standard setting. Upon request the control range $V_{\min} \dots V_{\max}$ can be adjusted to customized settings prior to dispatch. The air volumes can also be re-adjusted on site with ZTH-EU hand held service tool. If specific air values for V_{\min} and V_{\max} would be required, this must be indicated prior to order of the units for adequate calibration in the factory.

Modular Control/Actuator Unit Functionality Description

Compact Control/Actuator Unit	Analog Input	BUS Communication	Parameters Setup	Hard Wired Override	Feedback Signal	Feedback Values	Main BUS Com. Variables	Power Supply
BM-S BM-Q BM-QE BM-F	DC 0 V (2 V) ... 10 V	Modbus-RTU BACnet MS/TP	ZTH-EU ZIP-BT-NFC	OPEN, CLOSE, V_{min} , V_{max}	Modbus-RTU BACnet MS/TP DC 0(2) V ... 10 V	Actual volume, Damper angle, Dynamic pressure	Read/write : Setpoint, V_{min} , V_{max} , OPEN, CLOSE Read: Actual volume, damper angle, actual pressure, serial number, fault/alarm messages	AC/DC 24 V

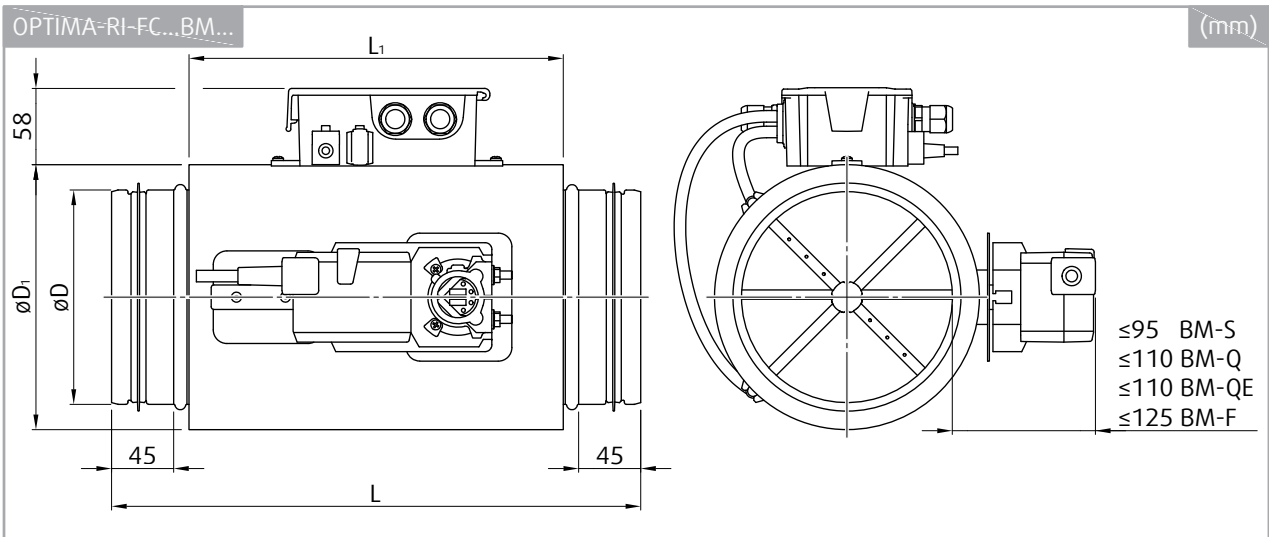
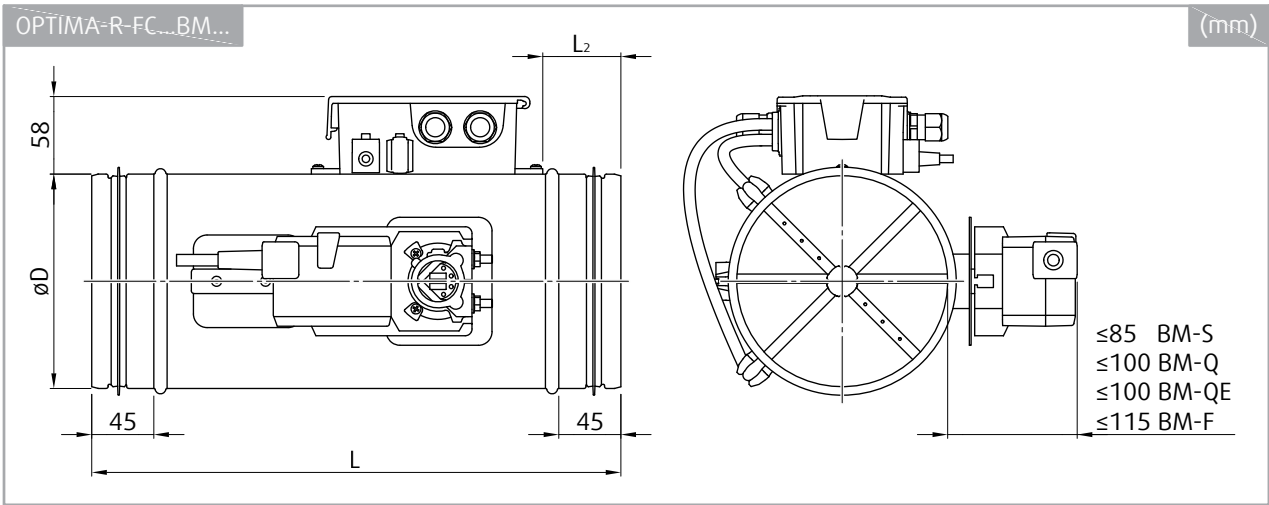
Product Parts



Legend

- P1** Casing
- P2** Duct connection with gasket
- P3** Damper blade with gasket
- P4** Measurement probe
- P5** Measurement impulse tubes
- P6** Modular control/actuator unit
- P7** Air flow transmitter
- P8** Insulation

Dimensions & Weights



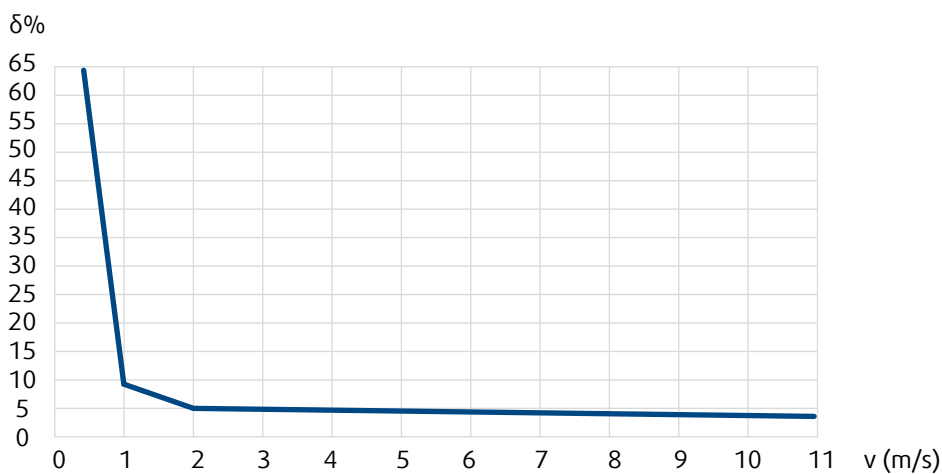
DN	V_{\min} @ 2 m/s *		V_{\max} @ 9 m/s *		V_{nom} @ 11 m/s *		$\varnothing D$	L	$\varnothing D_1$	L_1	m (R)	m (RI)
	m ³ /h	l/s	m ³ /h	l/s	m ³ /h	l/s						
80	36	10	163	45	199	55	DN-2	290	117	180	1,2	1,6
100	57	16	254	71	311	86			137		1,4	1,8
125	88	24	398	111	486	135	DN-2,5	390	162	280	1,6	2,4
140	111	31	499	139	610	169			177		1,8	2,7
160	145	40	651	181	796	221			197		2,0	3,0
180	183	51	824	229	1008	280			217		2,2	3,3
200	226	63	1018	283	1244	346		490	237	380	2,8	4,4
225	286	79	1288	358	1575	438			262		3,5	5,3
250	353	98	1590	442	1944	540		287	4,2	6,2		
280	443	123	1995	554	2438	677		590	317	480	5,0	7,7
315	561	156	2525	701	3086	857			352		5,6	8,6
355	713	198	3207	891	3920	1089			392		6,4	9,8
400	905	251	4072	1131	4976	1382	437		8,0		11,7	
500	1414	393	6362	1767	7775	2160	DN-3	790	537	680	12,7	19,2
630	2244	623	10100	2806	12344	3429			667		17,6	26,8

NOTES:

* Standard factory air volume setting if not indicated upon order.

The V_{\min} can be adjusted from 0 m³/h to V_{nom} value from the table above.

The V_{\max} can be adjusted from 20 % to 100 % of the V_{nom} value from the table above.



Typical max. absolute control deviation δ from actual air flow dependent on the air flow velocity v in the duct

Ordering Codes

OPTIMA-R-FC...BM

Non-insulated VAV Controller

OPTIMA-R-FC

Nominal Size

DN

OEM Belimo, Communication Type

BM Switchable: Modbus-RTU or BACnet MS/TP or MP-Bus or analog setpoint/feedback DC 0 (2) V ... 10 V

Actuator Type

S Standard actuator

Q Actuator with short transition time

QE Actuator with short transition time and electric safety function (only for sizes \leq DN 400)

F Actuator with mechanical safety function – spring return

OPTIMA-RI-FC...BM

Insulated VAV Controller

OPTIMA-RI-FC

Nominal Size

DN

OEM Belimo, Communication Type

BM Switchable: Modbus-RTU or BACnet MS/TP or MP-Bus or analog setpoint/feedback DC 0 (2) V ... 10 V

Actuator Type

S Standard actuator

Q Actuator with short transition time

QE Actuator with short transition time and electric safety function (only for sizes \leq DN 400)

F Actuator with mechanical safety function – spring return

Example of the Ordering Code

OPTIMA-RI-FC-125-BM-F

Insulated VAV controller, nominal size 125, with spring return safety function actuator.

NOTES:

Standard setup of the control module is Modbus communication.

Standard setup of the V_{\min} and V_{\max} is indicated in the Dimensions and Weights table. It can be changed upon request, if requested as a note to the order.

Accessories

ZTH-EU

Handheld Tool



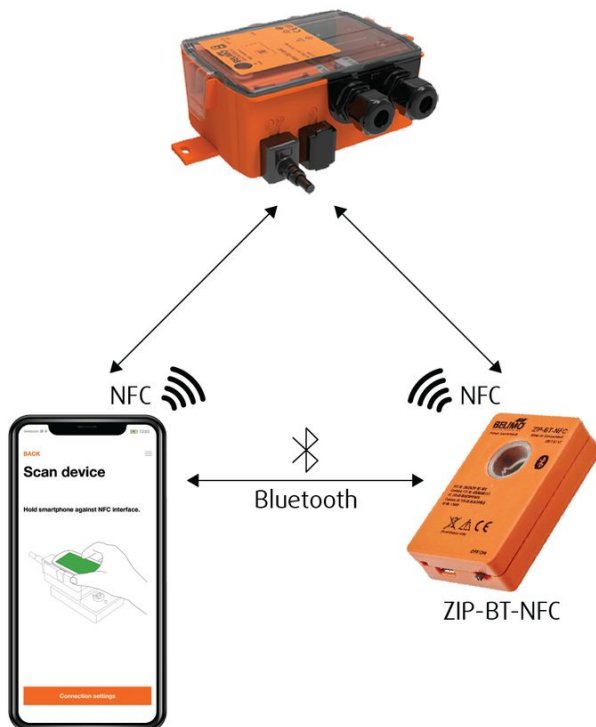
ZTH-EU is a handheld tool for VAV controllers and communicative actuators. The product enables the customer to change the configuration of the VAV controllers.

ZIP-BT-NFC

Communication Port Bluetooth/NFC



ZIP-BT-NFC is a wireless interface connecting the smartphone with configuration app Belimo Assistant via Bluetooth to the VAV controller VRU... with NFC communication protocol.



Configuration with ZTH-EU or by Belimo Assistant app via NFC or via Bluetooth through ZIP BT NFC

Parametrisation

			Tool		Authorisation
Parameter/Function	Unit/Value	Function/Description/ (Area)	Assistant App	ZTH-EU	Expert/OEM
VAV Unit/Air Duct Pressure Control Butterfly Valve - Manufacturer Parameters (OEM Values - Not Variable)					
OSN Actuator	xxxxx-xxxxx-xxx-xxx	Actuator series number	r	-	
Rotation Direction	CCW/CW	Actuator direction of rotation setting	r/w	-	E
Range of rotation	Adapted/programmed	Actuator adapted/programmed 30°...95°	r/w	-	E
Power on behaviour	No action/synch. / adaption	Actuator power on behaviour	r/w	-	E
Parametrisation - Project-specific Settings					
Position	Text string	Plant designation (64 Z./ZTH 16 Z.)	r/w	r	
Max	m ³ /h l/s cfm (PC-tool/ ZTH %) % (position)	Operating volumetric flow 0% ... 100% V _{nom} Damper position (pos. ctrl.) 0% ... 100%	r/w	r/w	
Min	m ³ /h l/s cfm (PC-tool/ ZTH %) % (position)	Operating volumetric flow 0% ... 100% V _{nom} Damper position (pos. ctrl.) 0% ... 100%	r/w	r/w	
Altitude compensation	ON/OFF	Switch function ON/OFF	r/w	-	E
Altitude of installation	0 m	Compensated Δp and volumetric flow values to set the altitude of installation (above sea level)	r/w	-	E
Function	VAV-CAV/position control	Control function	r/w	-	E
Room pressure cascade	ON/OFF	VAV: secondary circuit room pressure cascade	r/w	-	E
Setpoint	Analogue/bus	Analogue and hybrid mode/bus	r/w	-	E
Setpoint offset	0	VAV: ±5% compensation ABL unit	r/w	-	E
Reference signal Y	2 V ... 10 V/0 V ... 10 V/ adjustable	Setting for VAV control	r/w	-	E
Feedback type	Volumetric flow/Δp/ position	VAV: volume/Δp/damper position Pressure: Δp/damper position	r/w	-	E
Feedback U	2 V ... 10 V/0 V ... 10 V/ adjustable	Setting U signal	r/w	-	E

Bus parameter

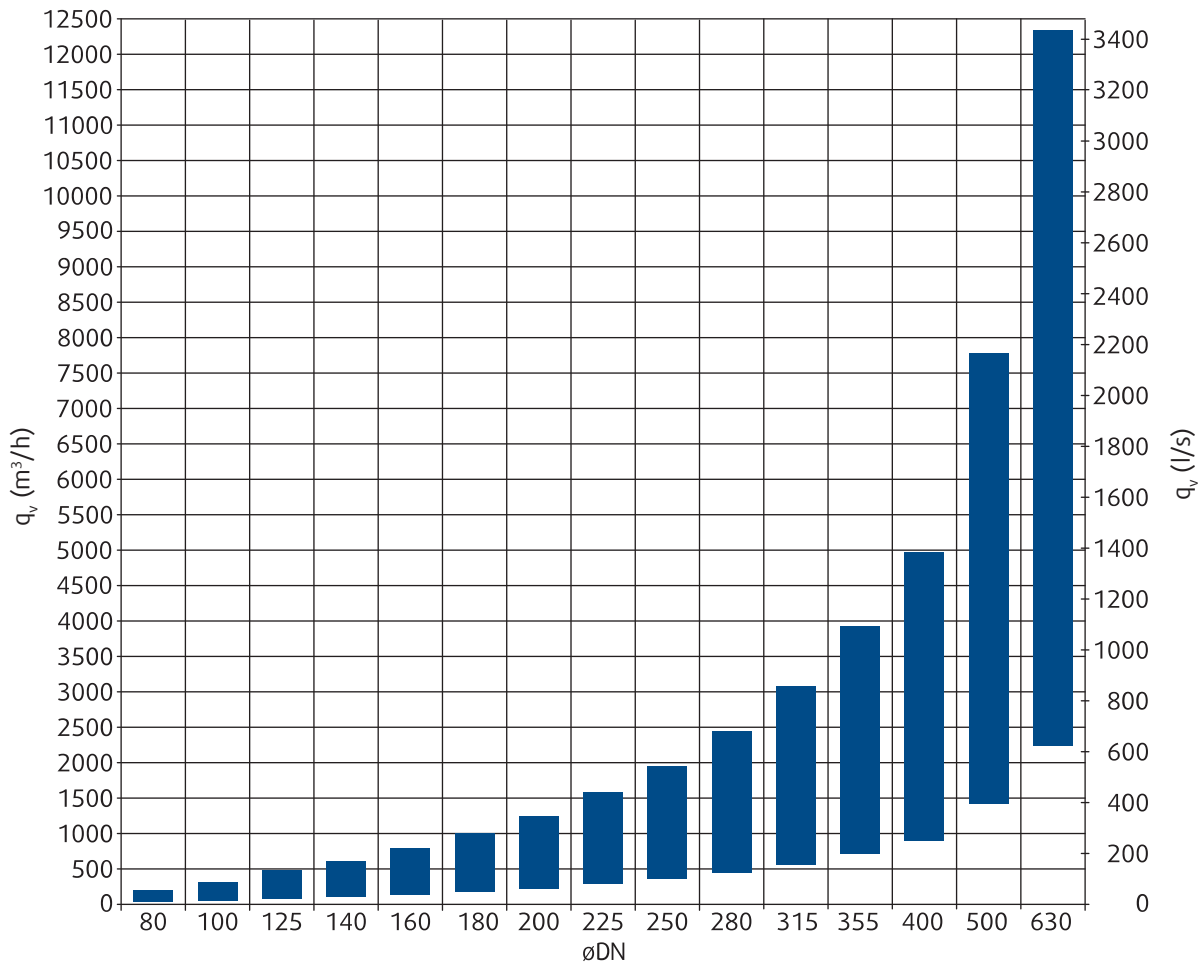
			Tool		Authorisation
Parameter/Function	Unit/Value	Function/Description/ (Area)	Assistant App	ZTH-EU	Expert/OEM
Parametrisation – Communication					
Bus protocol	BACnet MS/TP / Modbus / MP		r/w	–	E
Bus protocol	BACnet MS/TP				
MAC address	0...127		r/w	–	E
Baudrate	9600 / ... / 115200		r/w	–	E
Terminating resistor	OFF/ON		r/w	–	E
Instance number	1...4194304		r/w	–	E
Device name	VAV universal	(32 Z.)	r/w	–	E
Max master	1...127		r/w	–	E
Bus protocol	Modbus RTU				
Address	1...247		r/w	–	E
Baudrate	9600 / ... / 115200		r/w	–	E
Terminating resistor	OFF/ON		r/w	–	E
Parity	1-8-N-2/...E-1/...-0-1/...- N-1		r/w	–	E
Bus protocol	Modbus RTU				
MP address	PP/MP1...8	PP (MP off)/MP1...8	r/w	–	E
Bus fail position	0	0% ... 100% (min...max)	r/w	–	E
Compatibility mode	Default/VRP-M	Default: Belimo MP datapool device VRP-M: VRP-M replacement in existing MP system	r/w	–	E

Legend**X** Application supports function**r** Tool: read**w** Tool: write

– Tool: Does not support parameter

E Only visible in Expert Mode Authorisations - functionally relevant settings are only accessible via the Expert Level of the Belimo Assistant App.

Quick Selection



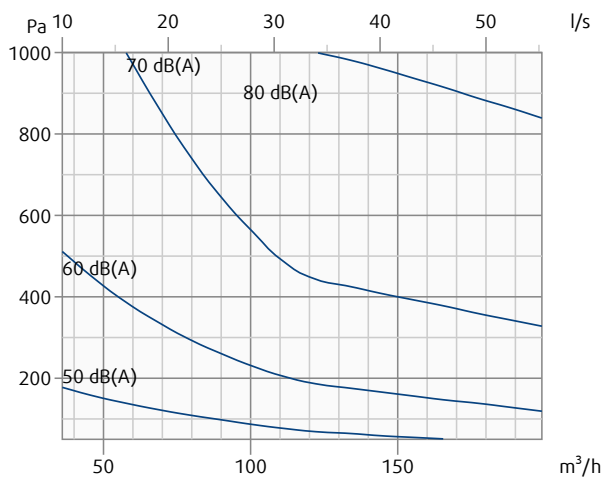
Technical Parameters

Legend

- p_s (Pa) Pressure drop
- q_v (m³/h or l/s) Air flow volume
- L_{WA} (dB(A)) A-weighted total radiated sound power level
- L_w (dB) Non weighted total sound power level

OPTIMA-R-FC-80-BM-F

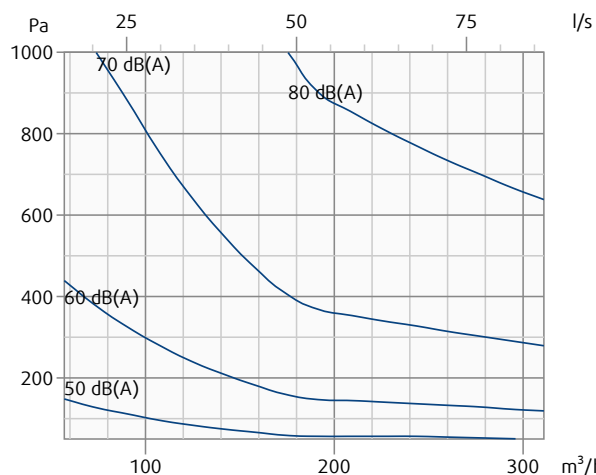
Pressure drop & A-weighted sound power level in dB(A)



	q_v	p_s	L_{WA}	L_w	L_w							
	m ³ /h	Pa	dB		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
OPTIMA-R(I)-FC-80-BM...	36	100	45,2	50,4	43,0	44,2	43,2	43,8	41,3	35,0	27,8	23,7
		250	53,1	55,5	44,5	45,1	47,7	49,9	49,7	44,5	40,8	36,6
		500	59,8	60,9	45,7	45,7	51,1	54,8	56,1	51,8	50,8	46,5
		750	64,0	64,6	46,5	46,1	53,1	57,7	59,8	56,2	56,7	52,4
		1000	67,2	67,5	47,1	46,4	54,6	59,8	62,5	59,2	60,9	56,5
OPTIMA-R(I)-FC-80-BM...	118	100	53,3	61,6	54,5	57,4	55,9	51,4	46,3	43,4	39,2	34,2
		250	63,1	67,3	55,3	60,0	61,4	61,9	58,5	53,5	49,3	45,0
		500	71,3	73,8	55,9	61,9	65,9	70,0	67,6	61,2	57,0	53,1
		750	76,3	78,2	56,2	63,1	68,7	74,8	73,0	65,8	61,4	57,9
		1000	79,8	81,5	56,4	63,9	70,7	78,2	76,8	69,1	64,6	61,3
OPTIMA-R(I)-FC-80-BM...	199	100	58,3	64,9	57,5	60,1	58,8	56,4	50,6	50,8	47,0	45,1
		250	67,2	71,4	59,5	63,4	66,0	66,1	61,6	58,7	54,7	52,4
		500	74,4	77,5	61,0	66,0	71,4	73,5	69,8	64,7	60,6	57,8
		750	78,8	81,4	61,9	67,6	74,7	78,0	74,7	68,3	64,0	61,1
		1000	81,9	84,4	62,5	68,7	77,0	81,1	78,1	70,9	66,5	63,3

OPTIMA-R-FC-100-BM-F

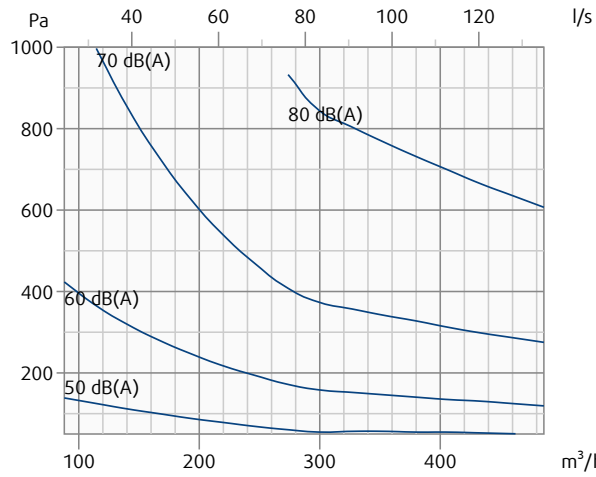
Pressure drop & A-weighted sound power level in dB(A)



	q_v	p_s	L_{WA}	L_W	L_W						
	m³/h	Pa	dB		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
57	100	46,8	55,3	48,8	52,4	46,1	44,5	42,8	36,2	28,4	23,6
	250	54,7	58,7	48,5	52,1	52,0	52,2	51,1	45,6	41,2	36,4
	500	61,3	63,5	48,4	51,9	56,5	58,2	57,4	52,8	50,9	46,1
	750	65,4	66,9	48,3	51,9	59,3	61,7	61,0	57,1	56,6	51,8
	1000	68,3	69,6	48,2	51,8	61,2	64,3	63,6	60,1	60,6	55,9
184	100	55,9	63,9	56,8	60,3	56,8	54,3	50,0	46,5	40,5	35,1
	250	65,6	71,0	60,1	65,2	65,7	64,6	60,6	55,3	50,3	46,1
	500	73,2	77,4	62,6	68,9	72,4	72,4	68,7	62,2	57,8	54,5
	750	77,7	81,4	64,1	71,1	76,4	77,0	73,5	66,3	62,2	59,4
	1000	80,9	84,4	65,2	72,6	79,3	80,2	76,9	69,3	65,3	62,9
311	100	58,0	60,7	47,9	53,1	50,7	56,1	52,4	51,0	47,3	46,0
	250	68,7	71,7	56,5	63,2	63,8	67,7	63,8	60,3	55,5	53,9
	500	77,0	80,3	63,0	70,9	73,7	76,4	72,4	67,4	61,9	59,9
	750	82,0	85,4	66,9	75,4	79,5	81,6	77,5	71,5	65,6	63,4
	1000	85,6	89,1	69,7	78,6	83,6	85,3	81,1	74,5	68,3	65,9

OPTIMA-R-FC-125-BM-F

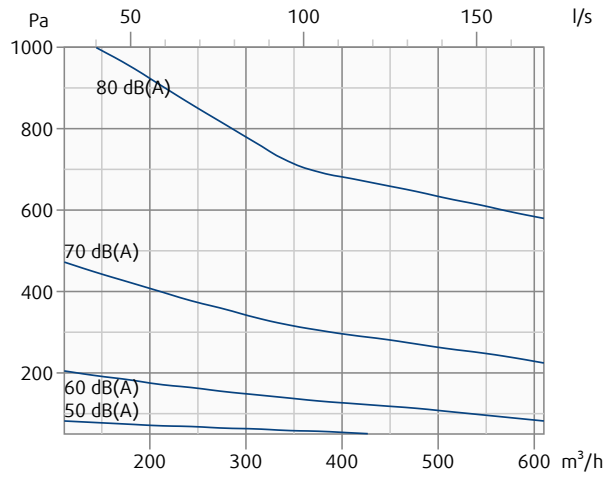
Pressure drop & A-weighted sound power level in dB(A)



	q_v	p_s	L_{WA}	L_W	L_W							
	m³/h	Pa	dB		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
OPTIMA-R(0)-FC-125-BM...	88	100	47,2	55,6	49,1	52,5	46,1	46,2	42,0	36,7	28,6	23,6
		250	55,2	59,7	51,3	53,1	52,5	54,2	49,8	46,2	40,8	36,6
		500	61,6	64,5	53,0	53,8	57,4	60,2	55,8	53,5	50,1	46,5
		750	65,5	67,8	54,0	54,3	60,3	63,8	59,2	57,8	55,6	52,3
		1000	68,4	70,3	54,7	54,8	62,4	66,3	61,7	60,8	59,5	56,4
OPTIMA-R(0)-FC-125-BM...	287	100	55,1	67,7	63,1	64,5	58,5	52,7	47,7	40,8	35,0	28,5
		250	65,0	72,3	64,1	67,7	66,9	64,2	59,1	52,7	47,2	42,3
		500	73,3	78,1	65,0	70,2	73,6	72,9	67,7	61,8	56,6	52,8
		750	78,3	82,2	65,6	71,8	77,7	78,0	72,8	67,1	62,0	58,9
		1000	81,8	85,4	66,0	72,9	80,7	81,6	76,4	71,0	65,9	63,2
OPTIMA-R(0)-FC-125-BM...	486	100	57,9	67,1	60,6	64,4	58,3	55,3	52,7	47,3	44,5	40,7
		250	68,9	75,4	65,4	71,4	69,1	67,9	63,6	57,4	53,5	49,7
		500	77,5	82,7	69,2	76,9	77,3	77,4	72,1	65,2	60,3	56,6
		750	82,7	87,4	71,4	80,3	82,1	83,0	77,2	69,9	64,2	60,6
		1000	86,4	90,8	73,0	82,7	85,5	87,0	80,8	73,2	67,1	63,5

OPTIMA-R-FC-140-BM-F

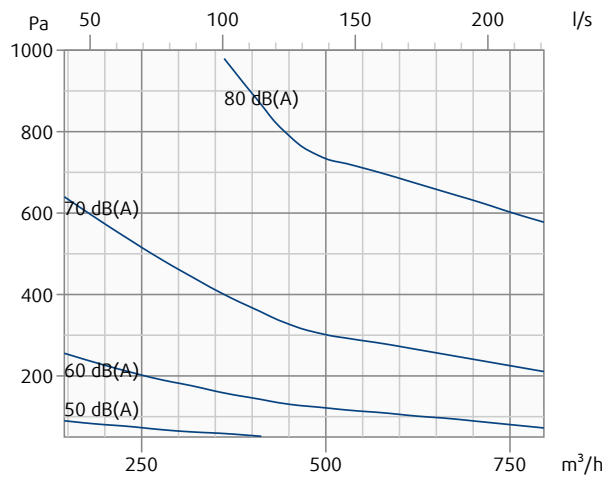
Pressure drop & A-weighted sound power level in dB(A)



	q_v	p_s	L_{WA}	L_W	L_W							
	m³/h	Pa	dB		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
OPTIMA-R(I)-FC-140-BM...	111	100	52,0	64,0	59,8	60,7	52,9	51,2	45,3	38,1	31,7	25,5
		250	62,4	69,5	62,0	65,2	62,9	61,6	56,8	51,1	45,3	40,2
		500	70,7	75,5	63,7	68,8	70,5	69,5	65,6	60,9	55,6	51,4
		750	75,7	79,6	64,7	71,1	75,0	74,1	70,8	66,7	61,7	57,9
		1000	79,3	82,7	65,5	72,7	78,1	77,3	74,5	70,7	66,0	62,5
OPTIMA-R(I)-FC-140-BM...	360	100	56,5	67,6	63,9	63,3	58,1	54,5	50,9	44,8	40,6	35,0
		250	67,4	75,4	67,8	71,8	68,7	66,4	61,7	55,8	51,3	46,6
		500	75,9	82,5	71,1	78,3	76,7	75,4	69,9	64,2	59,5	55,4
		750	80,8	86,9	73,1	82,3	81,4	80,6	74,7	69,0	64,2	60,6
		1000	84,4	90,1	74,5	85,1	84,8	84,4	78,2	72,5	67,6	64,2
OPTIMA-R(I)-FC-140-BM...	610	100	61,9	66,7	58,3	62,1	58,3	58,5	58,0	52,8	50,9	47,6
		250	71,1	76,6	66,0	72,5	69,7	69,2	66,5	61,1	58,2	55,1
		500	78,4	84,5	71,9	80,5	78,4	77,4	73,2	67,4	63,7	60,7
		750	82,8	89,2	75,4	85,3	83,4	82,2	77,2	71,1	66,9	64,0
		1000	86,0	92,6	77,8	88,7	87,0	85,6	80,1	73,7	69,2	66,3

OPTIMA-R-FC-160-BM-F

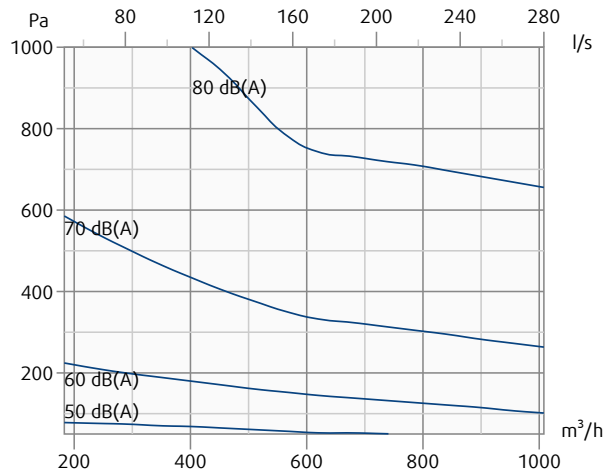
Pressure drop & A-weighted sound power level in dB(A)



	q_v	p_s	L_{WA}	L_W	L_W							
	m³/h	Pa	dB		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
OPTIMA-R(I)-FC-160-BM...	145	100	50,9	60,3	55,3	56,8	50,6	50,7	44,6	37,9	31,1	25,9
		250	59,8	64,5	54,3	58,9	57,7	58,8	54,6	50,4	44,0	39,7
		500	67,2	69,8	53,8	60,8	63,1	65,0	62,3	59,9	53,8	50,1
		750	71,8	73,6	53,7	62,1	66,2	68,6	66,9	65,4	59,5	56,3
		1000	75,2	76,5	53,6	63,0	68,5	71,2	70,2	69,4	63,6	60,6
OPTIMA-R(I)-FC-160-BM...	470	100	57,6	72,3	70,8	65,4	59,1	55,4	51,6	46,0	40,5	34,4
		250	67,5	75,9	70,4	71,3	68,9	66,2	61,8	56,7	51,5	46,7
		500	75,3	81,3	70,5	75,9	76,4	74,4	69,6	64,8	59,7	55,9
		750	80,0	85,1	70,8	78,6	80,8	79,2	74,2	69,5	64,6	61,4
		1000	83,3	88,1	71,1	80,6	83,9	82,6	77,5	72,9	68,0	65,3
OPTIMA-R(I)-FC-160-BM...	796	100	62,9	70,0	65,1	65,6	59,9	60,2	59,2	53,1	50,1	46,5
		250	71,7	78,7	70,6	75,4	70,6	69,9	67,0	61,6	58,0	54,6
		500	78,6	85,8	74,9	82,9	78,7	77,2	73,0	68,1	63,9	60,7
		750	82,7	90,2	77,5	87,4	83,5	81,5	76,7	71,9	67,4	64,2
		1000	85,6	93,3	79,4	90,6	86,9	84,6	79,3	74,5	69,9	66,7

OPTIMA-R-FC-180-BM-F

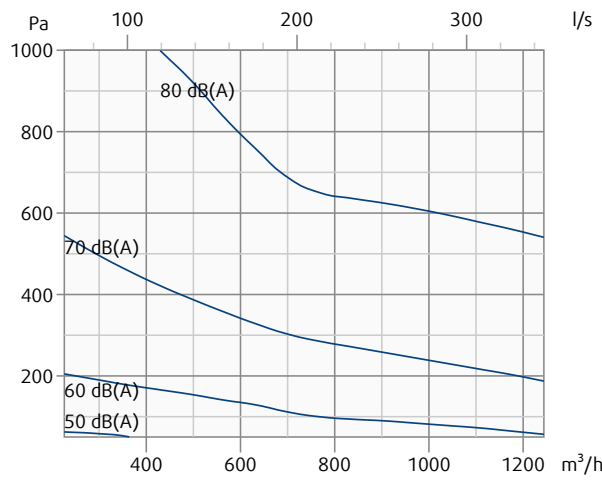
Pressure drop & A-weighted sound power level in dB(A)



	q_v	p_s	L_{WA}	L_W	L_W							
	m^3/h	Pa	dB		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
OPTIMA-R(I)-FC-180-BM...	183	100	52,3	61,0	56,4	56,8	51,0	52,8	45,1	39,5	32,9	26,1
		250	61,1	65,4	54,9	58,8	58,4	60,8	55,4	51,4	45,4	40,0
		500	68,3	70,9	54,3	60,8	64,0	66,8	63,2	60,4	55,0	50,5
		750	72,7	74,7	54,1	62,1	67,3	70,3	67,8	65,6	60,6	56,6
		1000	76,0	77,5	54,1	63,2	69,6	72,8	71,1	69,3	64,5	61,0
OPTIMA-R(I)-FC-180-BM...	595	100	55,7	72,4	71,2	65,0	57,4	53,2	48,8	44,6	39,6	32,0
		250	66,3	75,1	70,4	70,0	67,9	65,3	60,0	55,8	51,2	45,5
		500	74,9	80,6	70,0	74,1	76,1	74,4	68,5	64,2	59,9	55,8
		750	80,0	84,9	70,0	76,6	80,9	79,7	73,5	69,2	65,1	61,8
		1000	83,7	88,2	70,1	78,4	84,4	83,5	77,1	72,6	68,7	66,0
OPTIMA-R(I)-FC-180-BM...	1008	100	59,9	71,0	69,3	63,9	57,3	56,9	56,3	50,5	47,5	43,9
		250	69,5	78,0	73,3	73,9	68,9	67,7	64,5	59,6	56,3	52,9
		500	77,0	84,9	76,6	81,6	77,8	75,9	70,8	66,5	62,9	59,7
		750	81,5	89,3	78,7	86,1	82,9	80,7	74,6	70,5	66,7	63,6
		1000	84,8	92,5	80,3	89,4	86,6	84,1	77,3	73,4	69,5	66,5

OPTIMA-R-FC-200-BM-F

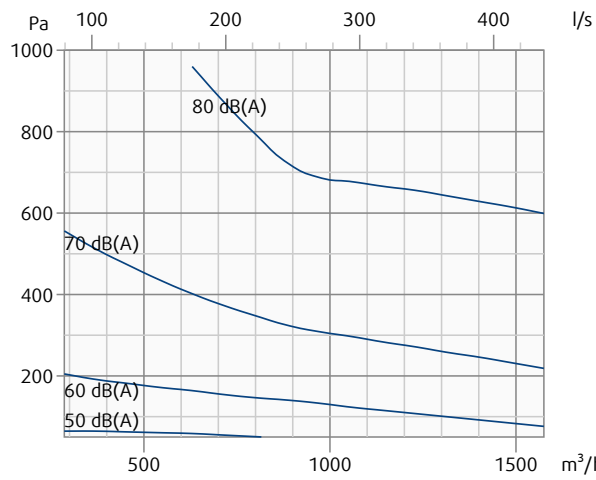
Pressure drop & A-weighted sound power level in dB(A)



	q_v	p_s	L_{WA}	L_W	L_W							
	m ³ /h	Pa	dB		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
OPTIMA-R(I)-FC-200-BM...	226	100	53,5	65,4	63,3	59,2	53,0	54,1	45,3	39,8	32,5	26,4
		250	61,9	67,9	61,4	62,0	60,3	61,9	55,8	51,9	45,4	40,3
		500	69,1	72,6	60,1	64,7	65,9	67,8	63,8	61,0	55,2	50,8
		750	73,5	76,1	59,3	66,5	69,1	71,3	68,6	66,3	61,0	57,0
		1000	76,8	78,8	58,8	67,9	71,4	73,8	72,1	70,1	65,1	61,4
OPTIMA-R(I)-FC-200-BM...	735	100	59,9	79,5	79,0	69,4	58,0	55,3	50,5	45,5	38,9	32,3
		250	68,2	80,6	78,9	73,6	69,3	67,2	61,4	57,0	51,2	45,5
		500	76,6	84,0	78,8	77,5	77,9	76,3	69,7	65,7	60,5	55,5
		750	81,7	87,6	78,8	80,2	83,0	81,6	74,6	70,7	66,0	61,4
		1000	85,4	90,6	78,8	82,2	86,7	85,3	78,1	74,3	69,8	65,5
OPTIMA-R(I)-FC-200-BM...	1244	100	64,5	78,3	77,3	69,6	60,9	61,6	60,7	53,9	50,0	46,0
		250	72,6	84,3	82,3	78,0	71,7	70,9	67,3	62,4	58,3	54,4
		500	79,2	89,5	86,1	84,8	79,9	78,1	72,6	68,8	64,6	60,7
		750	83,3	93,0	88,3	88,9	84,7	82,3	75,8	72,5	68,3	64,4
		1000	86,2	95,6	89,9	91,8	88,1	85,3	78,1	75,2	70,9	67,1

OPTIMA-R-FC-225-BM-F

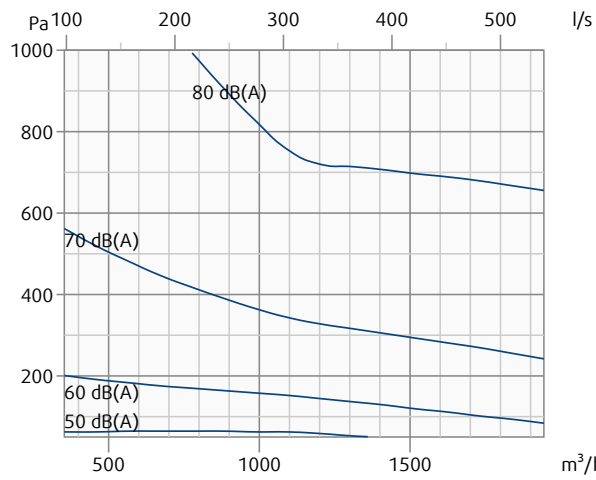
Pressure drop & A-weighted sound power level in dB(A)



	q_v	p_s	L_{WA}	L_W	L_W						
	m³/h	Pa	dB		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
286	100	53,6	63,5	59,4	59,2	53,4	54,2	46,1	40,5	33,0	26,6
	250	61,9	67,6	59,1	62,0	60,8	61,7	56,1	52,1	45,7	40,4
	500	68,9	72,5	58,9	64,6	66,3	67,5	63,8	60,9	55,3	51,0
	750	73,2	75,9	58,8	66,3	69,6	70,8	68,3	66,0	61,0	57,1
	1000	76,4	78,5	58,8	67,6	71,9	73,2	71,5	69,6	65,0	61,5
930	100	56,7	72,9	71,4	66,7	57,1	54,5	49,3	44,4	37,3	30,3
	250	67,2	76,8	72,6	72,1	68,6	66,4	60,6	56,2	50,3	44,3
	500	75,9	82,5	73,6	77,0	77,5	75,4	69,2	65,1	60,1	55,0
	750	81,1	86,7	74,2	80,1	82,6	80,7	74,3	70,4	65,9	61,2
	1000	84,7	90,0	74,6	82,4	86,3	84,4	77,9	74,1	69,9	65,6
1575	100	62,5	74,7	72,7	68,8	61,3	61,1	56,7	52,1	47,4	43,0
	250	71,3	81,3	77,5	77,0	71,6	70,1	65,0	61,1	56,7	52,3
	500	78,2	87,1	81,2	83,4	79,5	77,0	71,3	67,9	63,7	59,4
	750	82,3	90,7	83,3	87,3	84,0	81,2	75,0	71,9	67,8	63,5
	1000	85,2	93,5	84,9	90,0	87,3	84,1	77,7	74,7	70,7	66,4

OPTIMA-R-FC-250-BM-F

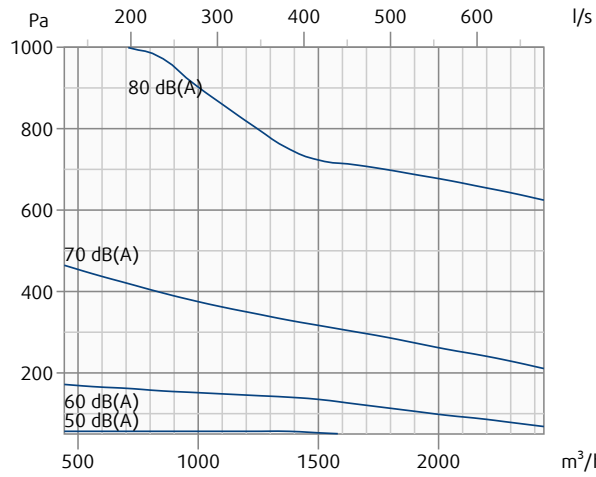
Pressure drop & A-weighted sound power level in dB(A)



	q_v	p_s	L_{WA}	L_W	L_W							
	m^3/h	Pa	dB		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
OPTIMA-R(I)-FC-250-BM...	353	100	53,9	63,1	57,8	59,2	53,8	54,5	46,9	41,3	33,5	26,7
		250	62,1	67,6	57,7	62,1	61,2	61,7	56,5	52,3	46,0	40,6
		500	68,8	72,5	58,1	64,6	66,8	67,3	63,8	60,7	55,4	51,1
		750	73,0	75,8	58,5	66,1	70,1	70,5	68,1	65,7	61,0	57,3
		1000	76,0	78,4	58,8	67,3	72,4	72,8	71,2	69,1	64,9	61,7
OPTIMA-R(I)-FC-250-BM...	1149	100	55,3	71,4	70,2	64,2	56,3	53,7	48,2	43,4	35,7	28,3
		250	66,4	75,4	70,5	71,0	68,0	65,5	59,9	55,5	49,4	43,2
		500	75,2	81,7	71,0	76,6	77,0	74,5	68,8	64,6	59,7	54,5
		750	80,5	86,3	71,5	80,1	82,3	79,8	74,0	70,0	65,7	61,1
		1000	84,2	89,7	71,9	82,7	86,1	83,6	77,6	73,8	70,0	65,7
OPTIMA-R(I)-FC-250-BM...	1944	100	61,6	77,0	76,1	68,3	61,7	60,7	53,7	50,2	44,9	40,0
		250	70,3	81,1	78,0	76,1	71,5	69,2	63,1	59,8	55,0	50,3
		500	77,2	86,0	79,8	82,1	79,0	76,0	70,2	67,0	62,7	58,0
		750	81,4	89,4	81,0	85,7	83,4	80,0	74,3	71,3	67,2	62,6
		1000	84,3	92,0	82,0	88,3	86,5	83,0	77,3	74,3	70,4	65,8

OPTIMA-R-FC-280-BM-F

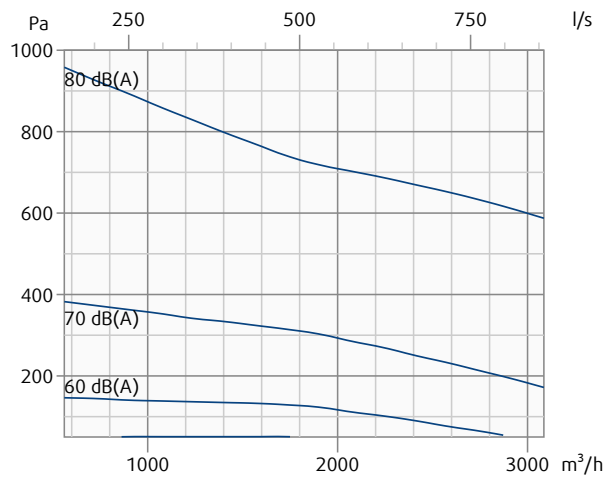
Pressure drop & A-weighted sound power level in dB(A)



	q_v	p_s	L_{WA}	L_W	L_W							
	m ³ /h	Pa	dB		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
OPTIMA-R(I)-FC-280-BM...	443	100	55,0	65,2	59,9	62,0	55,1	54,7	48,9	43,3	34,9	27,5
		250	63,7	69,9	60,8	65,2	63,7	62,7	58,5	54,2	47,6	41,9
		500	70,8	75,1	61,7	68,1	70,2	68,8	65,8	62,5	57,3	52,8
		750	75,0	78,6	62,3	70,0	74,0	72,4	70,1	67,4	63,0	59,2
		1000	78,1	81,3	62,8	71,4	76,7	74,9	73,2	70,8	67,0	63,7
	1441	100	56,2	71,6	70,1	65,0	56,9	54,8	49,5	45,0	37,9	30,7
		250	66,9	76,5	71,8	72,1	68,6	65,7	60,6	56,6	50,9	45,0
		500	75,4	82,6	73,3	78,1	77,5	74,1	69,0	65,3	60,7	55,8
		750	80,4	86,9	74,4	81,7	82,7	79,0	73,9	70,5	66,5	62,2
		1000	83,9	90,1	75,2	84,4	86,4	82,5	77,4	74,1	70,6	66,7
	2438	100	63,3	76,1	74,5	68,7	62,7	63,4	55,6	52,3	47,6	43,3
		250	71,5	81,8	78,2	77,0	72,3	70,8	64,3	61,2	56,8	52,6
		500	77,9	87,1	81,4	83,3	79,7	76,6	70,9	67,9	63,8	59,7
		750	81,7	90,5	83,4	87,0	83,9	80,0	74,8	71,8	67,9	63,8
		1000	84,4	93,0	84,9	89,7	87,0	82,4	77,5	74,6	70,8	66,7

OPTIMA-R-FC-315-BM-F

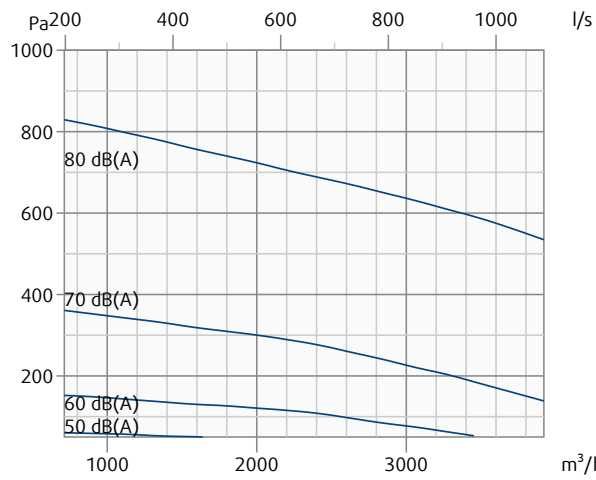
Pressure drop & A-weighted sound power level in dB(A)



	q_v	p_s	L_{WA}	L_w	L_w							
	m ³ /h	Pa	dB		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
OPTIMA-R()-FC-315-BM...	561	100	56,3	67,7	62,3	65,1	56,4	54,9	50,8	45,4	36,3	28,4
		250	65,5	72,5	64,0	68,4	66,2	63,8	60,6	56,1	49,3	43,2
		500	72,9	77,9	65,4	71,7	73,6	70,4	68,0	64,3	59,2	54,4
		750	77,3	81,7	66,2	73,8	77,9	74,3	72,3	69,1	65,0	61,0
		1000	80,5	84,5	66,8	75,5	81,0	77,1	75,4	72,5	69,1	65,7
	1824	100	57,2	71,9	70,2	65,9	57,6	56,0	50,7	46,6	40,1	33,2
		250	67,5	77,6	73,2	73,4	69,2	66,0	61,2	57,7	52,4	46,8
		500	75,6	83,7	75,7	79,7	78,0	73,7	69,2	66,0	61,8	57,2
		750	80,4	87,8	77,3	83,6	83,2	78,2	73,9	71,0	67,3	63,3
		1000	83,9	90,9	78,5	86,5	86,9	81,4	77,2	74,5	71,2	67,6
	3086	100	66,1	75,8	73,1	69,2	63,7	67,5	57,5	54,4	50,3	46,7
		250	72,9	82,6	78,6	78,0	73,1	72,8	65,5	62,6	58,6	55,0
		500	78,6	88,3	83,1	84,6	80,3	77,2	71,6	68,7	64,9	61,3
		750	82,1	91,9	86,0	88,5	84,5	80,0	75,2	72,3	68,5	65,0
		1000	84,7	94,5	88,1	91,3	87,5	82,0	77,7	74,9	71,1	67,6

OPTIMA-R-FC-355-BM-F

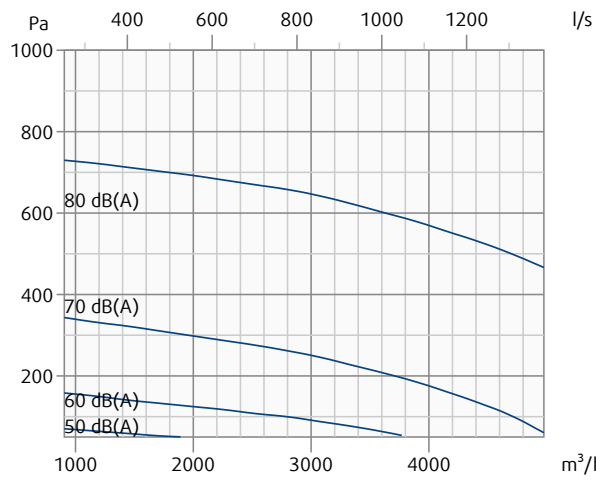
Pressure drop & A-weighted sound power level in dB(A)



	q_v	p_s	L_{WA}	L_W	L_W							
	m^3/h	Pa	dB		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
OPTIMA-R(I)-FC-355-BM...	713	100	55,2	66,8	63,8	62,4	55,3	53,7	50,0	44,4	35,6	28,1
		250	65,7	72,9	66,4	68,3	66,2	63,5	60,8	56,3	49,6	43,5
		500	73,9	79,2	68,5	73,3	74,5	71,0	69,0	65,3	60,2	55,2
		750	78,8	83,3	69,8	76,5	79,3	75,4	73,9	70,6	66,4	62,1
		1000	82,3	86,5	70,6	78,8	82,8	78,5	77,3	74,4	70,8	66,9
	2316	100	58,7	72,3	70,6	65,9	58,3	57,9	52,6	48,1	42,0	35,1
		250	68,6	78,3	74,4	73,6	69,3	67,0	62,8	59,2	54,1	48,5
		500	76,3	84,0	77,5	79,8	77,5	73,8	70,5	67,5	63,3	58,8
		750	80,9	87,8	79,4	83,6	82,4	77,9	75,0	72,4	68,7	64,7
		1000	84,2	90,7	80,8	86,3	85,8	80,7	78,2	75,9	72,5	69,0
	3920	100	67,8	77,1	74,4	69,9	64,7	69,7	59,7	56,2	51,8	48,2
		250	74,2	83,5	79,9	78,3	73,4	74,4	67,3	64,2	60,1	56,5
		500	79,5	88,9	84,4	84,6	80,0	77,9	73,1	70,3	66,4	62,7
		750	82,7	92,1	87,2	88,4	83,9	80,1	76,5	73,8	70,0	66,4
		1000	85,1	94,5	89,1	91,0	86,7	81,6	78,9	76,3	72,6	68,9

OPTIMA-R-FC-400-BM-F

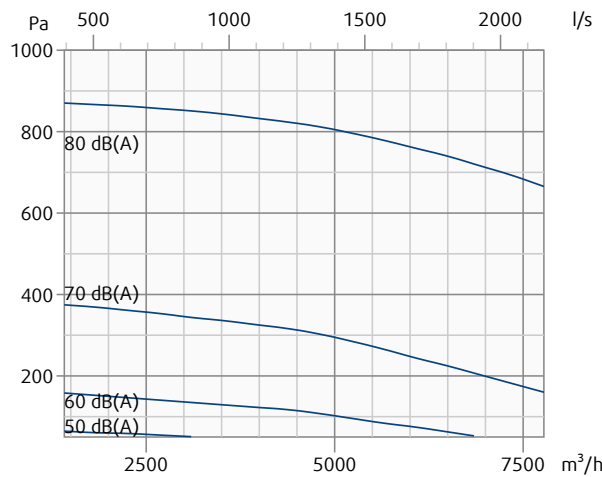
Pressure drop & A-weighted sound power level in dB(A)



	q_v	p_s	L_{WA}	L_W	L_W							
	m ³ /h	Pa	dB		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
OPTIMA-R(I)-FC-400-BM...	905	100	54,3	67,0	65,5	59,7	54,4	52,6	49,1	43,4	34,9	27,9
		250	65,9	73,6	69,1	68,2	66,3	63,5	61,1	56,4	49,8	43,9
		500	75,0	80,6	71,8	75,1	75,4	71,9	70,1	66,3	61,1	56,0
		750	80,4	85,2	73,5	79,3	80,8	76,8	75,4	72,2	67,8	63,1
		1000	84,2	88,7	74,6	82,3	84,6	80,3	79,2	76,3	72,5	68,2
	2941	100	60,5	73,9	72,7	66,0	59,3	60,2	54,5	49,7	43,9	37,0
		250	69,8	79,8	77,1	73,9	69,4	68,0	64,4	60,7	55,8	50,3
		500	77,1	85,0	80,5	80,0	77,1	74,1	71,8	69,0	64,8	60,3
		750	81,6	88,4	82,5	83,7	81,6	77,7	76,2	73,9	70,0	66,2
		1000	84,7	91,0	84,0	86,3	84,8	80,2	79,3	77,4	73,8	70,4
	4976	100	71,6	80,0	77,0	70,6	66,0	75,0	61,9	58,0	53,3	49,7
		250	76,0	85,2	82,3	78,6	73,8	77,0	69,2	65,9	61,6	57,9
		500	80,5	89,8	86,5	84,7	79,8	78,9	74,6	71,8	67,9	64,1
		750	83,5	92,8	88,9	88,3	83,4	80,2	77,9	75,3	71,6	67,7
		1000	85,7	94,9	90,7	90,8	85,9	81,3	80,1	77,8	74,2	70,3

OPTIMA-R-FC-500-BM-F

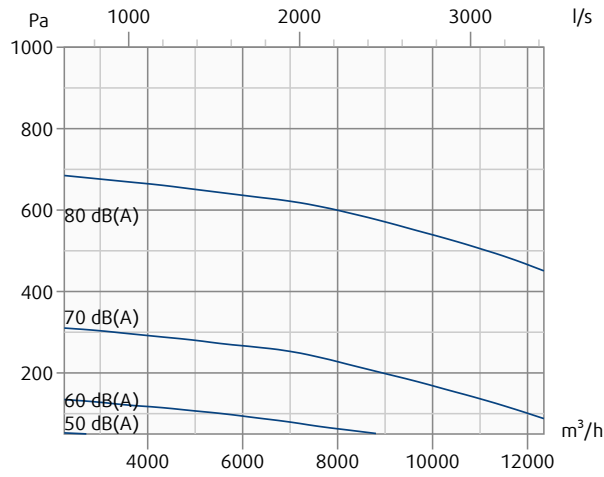
Pressure drop & A-weighted sound power level in dB(A)



	q_v	p_s	L_{WA}	L_W	L_W							
	m ³ /h	Pa	dB		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
OPTIMA-R(I)-FC-500-BM...	1414	100	54,9	64,4	62,8	56,1	51,5	51,6	51,0	46,9	40,1	31,0
		250	65,3	72,1	67,7	66,3	63,9	62,0	60,8	57,2	52,3	46,2
		500	73,4	79,4	71,7	74,7	73,5	69,9	68,3	65,0	61,7	57,7
		750	78,2	84,2	74,1	79,8	79,1	74,5	72,7	69,7	67,2	64,4
		1000	81,7	87,8	75,8	83,5	83,1	77,8	75,8	72,9	71,1	69,2
	4595	100	58,8	72,0	70,8	63,6	58,9	55,5	53,7	49,3	43,9	35,6
		250	67,8	78,1	75,8	72,0	67,5	63,6	62,6	59,5	55,4	49,4
		500	74,8	83,4	79,8	78,4	74,3	69,7	69,4	67,3	64,2	59,9
		750	79,1	86,8	82,2	82,3	78,4	73,3	73,4	71,9	69,3	66,1
		1000	82,1	89,3	84,0	85,0	81,3	75,9	76,2	75,1	72,9	70,4
	7775	100	67,0	77,0	75,2	68,1	65,9	66,4	60,9	57,6	53,4	47,6
		250	73,0	83,3	81,2	76,6	71,9	70,4	67,3	64,7	61,3	56,7
		500	77,9	88,4	85,9	83,0	77,0	73,6	72,1	70,0	67,3	63,6
		750	80,9	91,6	88,8	86,7	80,2	75,5	75,0	73,2	70,8	67,7
		1000	83,1	93,9	90,9	89,4	82,5	76,9	77,0	75,4	73,3	70,5

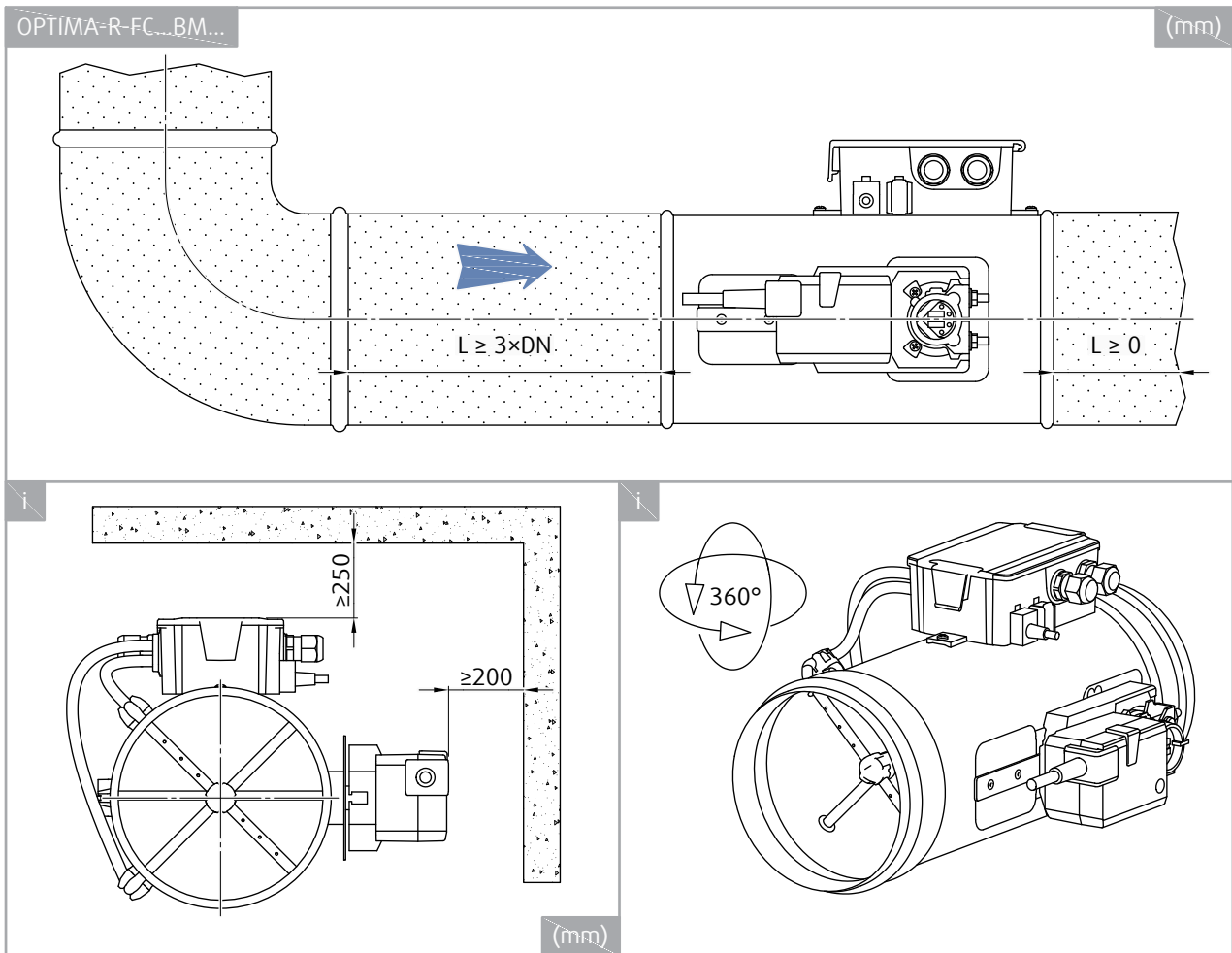
OPTIMA-R-FC-630-BM-F

Pressure drop & A-weighted sound power level in dB(A)



	q_v	p_s	L_{WA}	L_W	L_W							
	m^3/h	Pa	dB		63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
OPTIMA-R(I)-FC-630-BM...	2244	100	56,7	68,6	65,6	64,3	56,6	54,4	51,4	46,9	39,9	31,2
		250	67,4	74,8	69,4	70,3	66,7	65,0	62,4	58,6	54,7	48,8
		500	75,9	80,9	72,2	75,4	74,3	73,0	70,7	67,6	66,1	62,2
		750	81,2	85,0	73,9	78,6	78,8	77,7	75,6	72,8	72,8	70,0
		1000	85,1	88,2	75,1	81,0	82,0	81,0	79,1	76,5	77,6	75,5
	7294	100	62,1	77,4	74,5	73,5	63,9	58,8	54,3	49,3	43,8	36,7
		250	70,1	81,2	78,0	76,9	70,3	67,0	64,2	61,0	57,9	52,6
		500	77,5	84,7	80,6	79,6	75,2	73,3	71,8	69,9	68,7	64,7
		750	82,4	87,3	82,2	81,2	78,0	76,9	76,4	75,1	75,1	71,7
		1000	86,1	89,5	83,3	82,4	80,0	79,5	79,5	79,6	78,8	79,7
	12344	100	70,6	82,7	79,0	78,9	70,9	71,5	61,7	57,7	53,4	51,0
		250	75,8	86,6	83,4	82,0	74,8	75,0	69,0	66,2	63,9	61,1
		500	80,8	89,8	86,8	84,3	77,9	77,7	74,7	72,7	72,0	68,7
		750	84,2	91,7	88,8	85,7	79,8	79,4	78,0	76,5	76,8	73,3
		1000	86,7	93,3	90,3	86,7	81,1	80,7	80,4	79,2	80,2	76,5

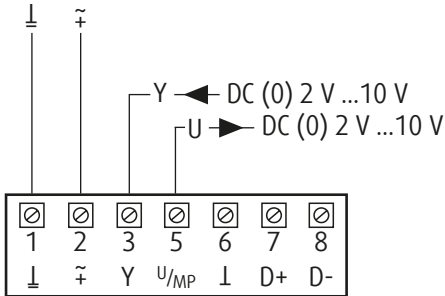
Installation



Electrical Connections

AC/DC 24 V, modulating (VAV)

The VAV controller operates with setpoint adjusted through analog input signal (terminal 3) and feedback signal (terminal 5).



Additional functions can be activated by connecting the override inputs z1 and z2.

The priority of these functions is higher than the VAV modulating operation with analog input.

Override control z1

Contact 11-9 = Motor STOP

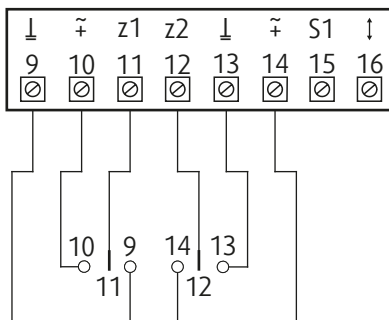
Contact 11-10 = Damper OPEN

Override control z2

Contact 12-13 = Damper CLOSED

Contact 12-14 = V_{\max}

11 and 12 without contact = no priority override through z1 or z2



Priority rule - Analog VAV-control

1. z1
2. z2
3. a) adaption (autonomous initializing controller function)
4. b) synchronisation (autonomous initializing controller function)
5. Y-Modulating: $V_{\min} \dots V_{\max}$ (through analog input)

AC/DC 24 V, contactor step control (CAV)

The VAV controller operates with setpoint in discrete steps generated by different potentials connected to the analog input (terminal 3) and analog feedback signal (terminal 5).

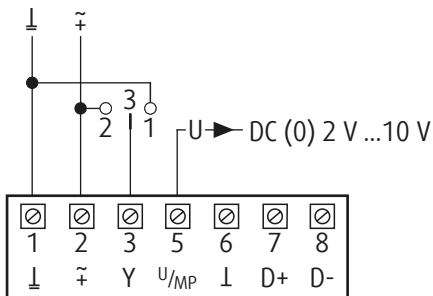
Contact 2-3 = V_{max}

3 not connected = V_{min}

Contact 1-3 = damper CLOSE (control signal mode 2...10V)

Contact 1-3 = V_{min} (control signal mode 0...10 V)

The control signal mode can be adjusted in the VAV controller by the handheld configuration tool ZTH-EU.



Additional functions can be activated by connecting the override inputs z1 and z2.

The priority of these functions is higher than the VAV modulating operation with analog input.

Override control z1

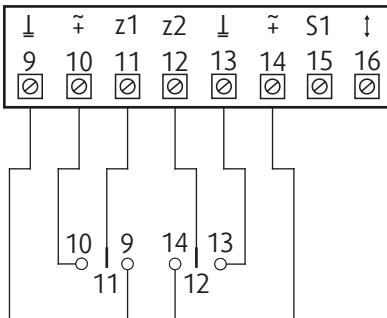
Contact 11-9 = Motor STOP

Contact 11-10 = Damper OPEN

Override control z2 Contact 12-13 = Damper CLOSED

Contact 12-14 = V_{max}

11 and 12 without contact = no priority override through z1 or z2



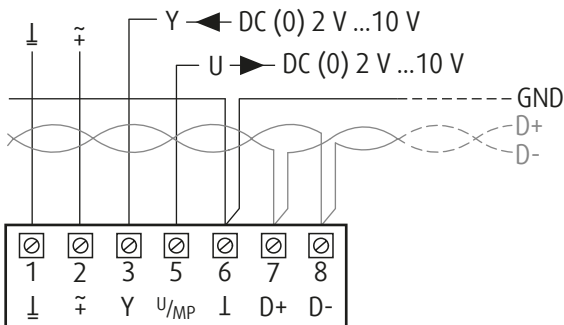
Priority rule - Step-Control

1. z1
2. z2
3. a) adaption (autonomous initializing controller function)
4. b) synchronisation (autonomous initializing controller function)
5. Y-Step Control: Close - V_{min} - V_{max} (through analog input)

BACnet MS/TP or Modbus RTU

(This operation mode requires parametrization)

VAV control in $V_{\min} \dots V_{\max}$ range and other functionalities with all variables communicated through bus (terminals 7, 8)
 – by Modbus or BACnet protocol.



Additional functions can be activated by connecting the override inputs z1 and z2.

The priority of these functions is higher than the VAV modulating operation with analog input.

Override control z1

Contact 11-9 = Motor STOP

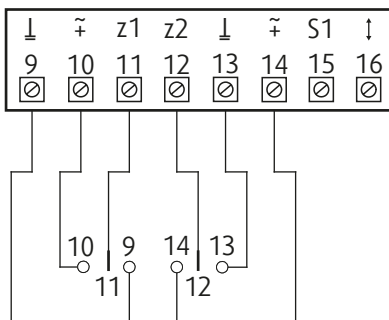
Contact 11-10 = Damper OPEN

Override control z2

Contact 12-13 = Damper CLOSED

Contact 12-14 = V_{\max}

11 and 12 without contact = no priority override through z1 or z2



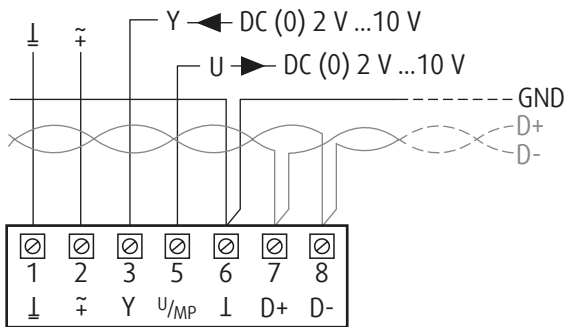
Priority rule – BACnet / Modbus Control

1. z1
2. z2
3. Bus Watchdog
4. a) adaption (autonomous initializing controller function)
5. b) synchronisation (autonomous initializing controller function)
6. Bus Override
7. Bus Setpoint: $V_{\min} - V_{\max}$

BACnet MS/TP or Modbus RTU with analog setpoint (hybrid mode)

(This operation mode requires parametrization)

VAV control in $V_{\min} \dots V_{\max}$ range and other functionalities with setpoint reading through analog input (terminal 3) and feedback through analog output (terminal 5). All other variables are communicated through bus (terminals 7, 8) – by Modbus or BACnet protocol.



Additional functions can be activated by connecting the override inputs z1 and z2.

The priority of these functions is higher than the VAV modulating operation with analog input.

Override control z1

Contact 11-9 = Motor STOP

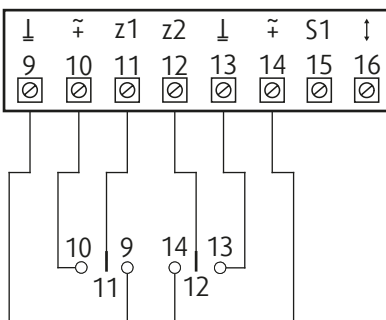
Contact 11-10 = Damper OPEN

Override control z2

Contact 12-13 = Damper CLOSED

Contact 12-14 = V_{\max}

11 and 12 without contact = no priority override through z1 or z2



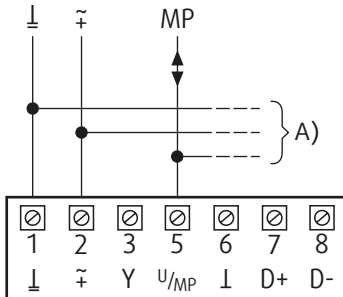
Priority rule – BACnet / Modbus Control

1. z1
2. z2
3. Bus Watchdog
4. a) adaption (autonomous initializing controller function)
5. b) synchronisation (autonomous initializing controller function)
6. Bus Override
7. Y-Step Control: Close – V_{\min} - V_{\max} (through analog input – see wiring for AC/DC 24V Step Control)
8. Y-Modulating: $V_{\min} \dots V_{\max}$ (through analog input – see wiring for Modulating VAV)

MP-Bus

(This operation mode requires parametrization)

VAV control in $V_{\min} \dots V_{\max}$ range and other functionalities with all variables communicated through bus (terminals 1, 2, 5) – by MP-Bus protocol.



Additional functions can be activated by connecting the override inputs z1 and z2.

The priority of these functions is higher than the VAV modulating operation with analog input.

Override control z1

Contact 11-9 = Motor STOP

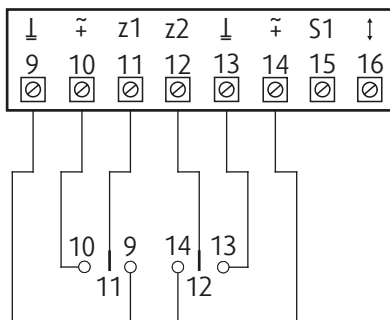
Contact 11-10 = Damper OPEN

Override control z2

Contact 12-13 = Damper CLOSED

Contact 12-14 = V_{\max}

11 and 12 without contact = no priority override through z1 or z2



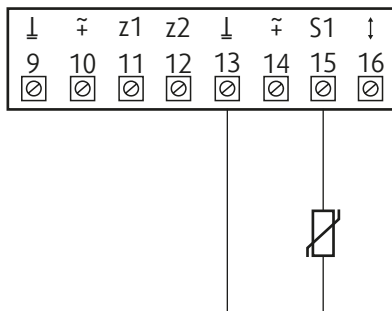
Priority rule – BACnet / Modbus Control

1. z1
2. z2
3. Bus Watchdog
4. a) adaption (autonomous initializing controller function)
5. b) synchronisation (autonomous initializing controller function)
6. Y-Step Control: Close – V_{\min} - V_{\max} (through analog input – see wiring for AC/DC 24V Step Control)
7. Bus Override
8. Bus Setpoint: V_{\min} - V_{\max}

Connection of passive sensor

(Available in bus operation)

The value measured by the passive sensor can be communicated as a variable by bus.

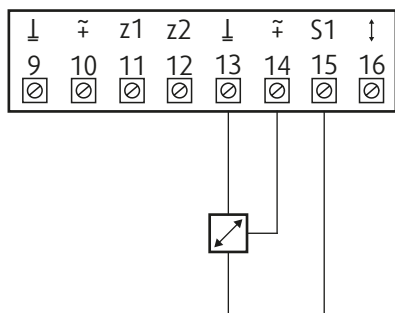


Suitable for Ni1000 and Pt1000

Connection of active sensor

(Available in bus operation)

The value measured by the active sensor can be communicated as a variable by bus.



Possible input voltage range:

DC 0...10 V (resolution 5 mV)

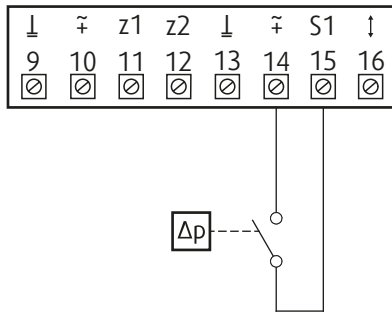
Example:

- Active temperature sensors
- setpoint generator
- humidity sensor

Connection switching contact

(Available in bus operation)

The binary value of the switching contact can be communicated as a variable by bus.



Requirements switching contact: The switch must be capable of switching a current of 10 mA @ 24 V cleanly.

Example:

- dP sensor
- window contact

Transport, Storage and Operation

Transport and storage temperature range: -20 °C to +40 °C, dry indoor conditions.

Operation temperature range: -20 °C ... +70 °C in the duct, -20 °C ... +50 °C on the actuator.

Supplement

Any deviations from the technical specifications contained herein and the terms should be discussed with the manufacturer. We reserve the right to make any changes to the product without prior notice, provided that these changes do not affect the quality of the product and the required parameters.

Current information on all products is available on design.systemair.com.

