

# OPTIMA-LV-R & OPTIMA-LV-RI

Low Velocity VAV Controller

Data Sheet



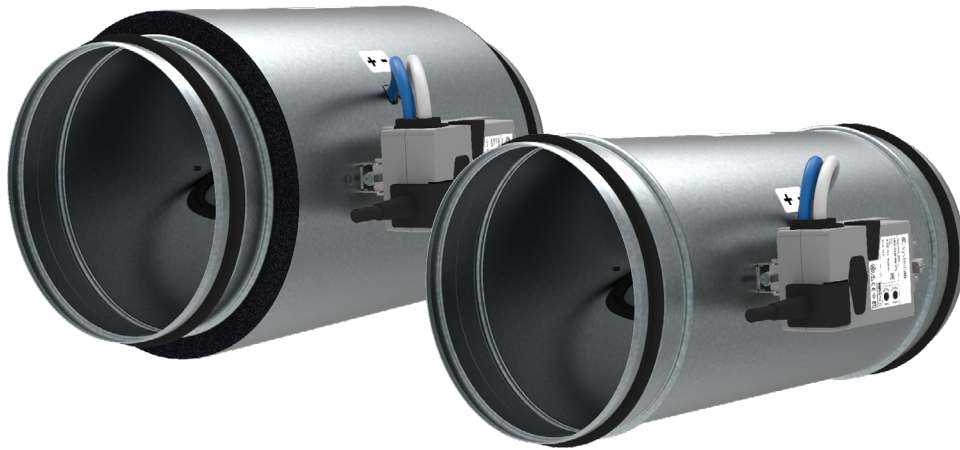
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## Good to know

Current information on all products is available at [www.design.systemair.com](http://www.design.systemair.com)



## Description

OPTIMA-LV-R (RI) is a Variable Air flow Volume (VAV) controller installed in circular ducts for demand oriented ventilation. It can operate in large air velocity range and it is especially intended for precise flow control at low air flow velocities down to 0,2 m/s. It is pressure independent in range of 2 Pa to 600 Pa. The electronic controllers can operate for air supply or air extract. Individual control operation or Master/Slave combination of multiple controllers is possible.

### Highlights

- Extends the range of VAV controllers in low air flow velocity part – down to 0,2 m/s
- Adaptive measurement probe for high efficient dynamic pressure readings on whole velocity range
- Advanced algorithm for appropriate control at subliminal duct static pressure
- Operable at  $\Delta p$  range 2 Pa ... 600 Pa
- Unprecedented control ratio  $V_{max}/V_{min} = 30/1$  (0,2 m/s ... 6 m/s)
- Lowest possible cross section restriction for given pressure - /flow parameters >> low pressure loss, low noise
- No straight duct in front or behind the VAV controller required. Installation immediately behind or in front of elbow or tee duct piece is possible.
- Accuracy: app. 5% defiation from measured value \*
- Leakage class 4C
- Full set of operation and override functions (Open, Close,  $V_{min}$ ,  $V_{max}$ )
- On-board Bus communication port available

NOTE: \* The air flow controller OPTIMA-LV-R (RI) utilizes a special control algorithm to protect the actuator from mechanical damage in low velocity flow.

### Legend

$\Delta p$	(Pa)	Dynamic pressure on flow measurement probe
$V_{min}$		Minimum limit of the air flow control range
$V_{max}$		Maximum limit of the air flow control range
$\pm\Delta$	(%)	Deviation from measured value
$v$	(m/s)	Air flow velocity in the duct

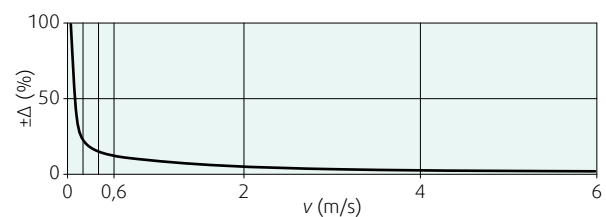


Diagram 1:  $\pm\Delta$  (%) deviation from measured value of air flow velocity in the duct  $v$  (m/s)

## Product Types

- OPTIMA-LV-R: VAV Controller  
With non insulated, single skin sheet metal casing.
- OPTIMA-LV-RI: VAV Controller  
With insulated, double skin sheet metal casing with closed cell insulation foam mat in-between as noise and thermal insulation.
- OPTIMA-LV-R...MOD: VAV Controller  
With non insulated, single skin sheet metal casing. Bus communication port adjustable for Modbus RTU or BACnet MS/TP protocol. Setpoint input via analog signal 2 V (0 V) ... 10 V available.
- OPTIMA-LV-RI...MOD: VAV Controller  
With insulated, double skin sheet metal casing with closed cell insulation foam mat in-between as noise and thermal insulation. Bus communication port adjustable for Modbus RTU or BACnet MS/TP protocol. Setpoint input via analog signal 2 V (0 V) ... 10 V available.

## List of Accessories

Detailed information about accessories for OPTIMA-LV-R is available from page 10

- ZTH-EU: Configuration and Setup Tool
- Belimo Assistant: Android Smartphone Application

# Design

## Material Composition

The VAV controller has galvanized steel sheet circular casing as well as damper blade. The galvanized steel blade shaft can be turned in reinforced polymer bearings. The insulated version OPTIMA-LV-RI has double skin casing enclosing hermetic cell foam mat for acoustic and thermal insulation. The metallic measurement probe is connected to the tubing from polymere. The compact actuator/controller body is from reinforced polymere. The damper blade and the connection sleeves are equipped by rubber gaskets.

## Controls

The OPTIMA-LV-R (RI) is equipped with compact controller/actuator units.

It can operate with analog DC 2 V (optionally 0 V) ... 10 V setpoint and feedback signals or via MP-Bus (Belimo-native) communication capability. It can be used stand-alone or in master and slave configuration of multiple devices. Gateway communication units can be provided for integration into building management systems on bus protocols like Modbus, Bacnet, KNX, LON.

With the type OPTIMA-LV-R (RI)...MOD the Bus communication interface is on-board. It can be configured for the communication protocol Modbus or BACnet with the ZTH-EU configuration tool. VAV controllers are factory calibrated as default standard to the air volume indicated in the table or upon request adjusted to site required settings prior to dispatch on  $V_{\min}$  and  $V_{\max}$  range. The air volumes can also be readjusted on site with ZTH-EU hand held service tool or by an NFC communicating Android smartphone in the app (not for types OPTIMA-LV-R (RI)...MOD) Belimo Assistant. If specific air volumes 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.

During operation the standard air flow control procedure runs: The measurement probe enables continuous reading of dynamic pressure dependent on the air flow velocity. The actual air flow is calculated and compared with setpoint. If there is a difference, the actuator changes damper position to adjust the air flow exactly to setpoint value.

OPTIMA-LV-R (RI) can operate properly and accurately at very low air flow velocities (0,2 m/s) and low duct pressures ( $\geq 2$  Pa). Though to avoid some undesirable behaviour and destructive effects on the actuator, at subliminal pressures and velocities the controller runs special procedures. If the actual setpoint corresponds to velocity lower than 1 m/s, measured  $\Delta p$  (dynamic pressure on flow measurement probe) on the probe drops lower than 2 Pa (then also duct pressure is lower than 2 Pa and the velocity is lower than 0,2 m/s) the controller stops operation and the damper parks in a special waiting position (slightly open).

This damper position enables a proper probe  $\Delta p$  reading at lowest possible duct pressure. The actuator does not move, avoiding so mechanically destructive small oscillations. The  $\Delta p$  measurement on the probe continues. As soon as the  $\Delta p$  value rises to 6 Pa the controller re-starts the normal control operation.

Tab. 1: Functional overview

	Flow Volume Adjustment Analog Input	Flow Volume Adjustment Via BUS Commun.	Controller Parameters Setup	Hard Wired Override	Feedback Signal Type	Feedback Values (Analog Output)	BUS Communicated Variables	Power Supply
OPTIMA-LV-R (RI)	DC 2 V (0 V) ... 10 V	MP-BUS	ZTH-EU, PC tool NFC app.	Open, Close, $V_{min}$ $V_{max}$	DC 2 V (0 V) ... 10 V, MP-BUS	Actual Volume, Damper Angle, Actual Pressure	<b>Read/Write:</b> Setpoint, $V_{min}$ $V_{max}$ Open, Close  <b>Read:</b> Actual Volume, Damper Angle, Actual Pressure, Serial Number, Fault/Alarm Messages	AC 24 V, DC 24 V
OPTIMA-LV-R (RI)...MOD		Modbus/ BACnet	ZTH-EU, PC tool		Modbus/ BACnet  DC 2 V (0 V) ... 10 V			

NOTE: More details about installation, maintenance and operation are available in the User Manual (document „UserManual\_OPTIMA-LV-R\_RI“).

### Tightness of the Blade and the Casing

According to the standard EN 1751 the tightness class of the casing is C and the closed damper blade reaches class 3. Both parameters were tested and reached in duct pressure up to 1000 Pa.

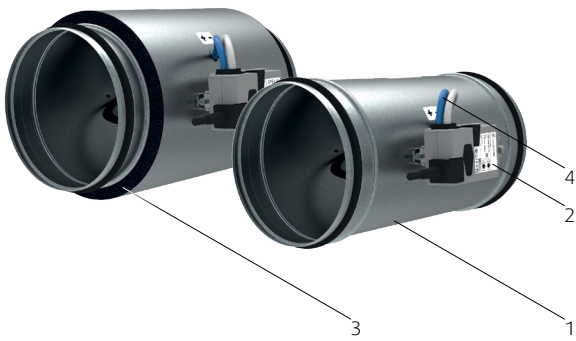


Fig. 1: Components of the OPTIMA-LV-R and OPTIMA-LV-RI

### Legend

1	Damper body
2	Actuator
3	Insulation
4	Measurement probe/tubing

# Dimensions

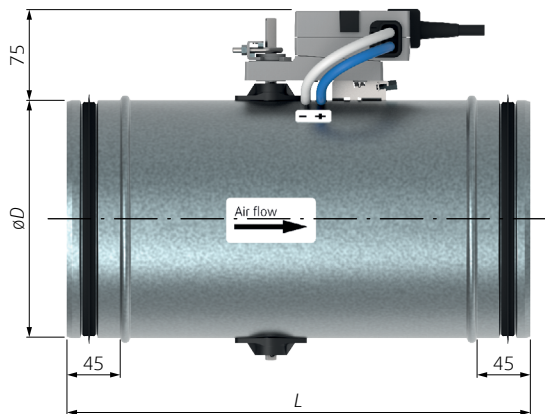


Fig. 2: Dimensions of the OPTIMA-LV-R

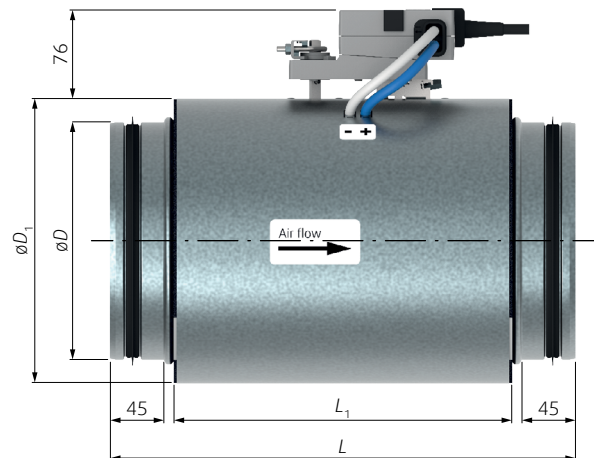


Fig. 3: Dimensions of the OPTIMA-LV-RI

Tab. 2: Dimensions of the OPTIMA-LV-R and OPTIMA-LV-RI

Nominal Size $\varnothing D$	$V_{\min}$ @ 0,2 m/s *		$V_{\max}$ @ 6 m/s *		$V_{\text{nom}}$ @ 6 m/s *		$\varnothing D_1$	$L$	$L_1$	$m$	
	(m <sup>3</sup> /h)	(l/s)	(m <sup>3</sup> /h)	(l/s)	(m <sup>3</sup> /h)	(l/s)				(kg)	OPTIMA-LV-R
100	6	2	170	47	170	47	137	287	181	1,4	1,8
125	9	2	265	74	265	74	162	288	181	1,6	2,4
140	11	3	332	92	332	92	177	289	181	1,8	2,7
160	14	4	434	121	434	121	197	327	221	2	3
180	18	5	549	153	549	153	217	327	221	2,2	3,3
200	23	6	678	188	678	188	237	387	281	2,8	4,4
250	35	10	1060	294	1060	294	287	387	281	4,2	6,2
315	56	16	1682	467	1682	467	352	487	381	5,6	8,6
400	90	25	2713	754	2713	754	437	487	381	8	11,7

## NOTES:

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

The  $V_{\min}$  can be adjusted between values  $V_{\min}$  and  $V_{\text{nom}}$  corresponding to velocities 0,2 m/s to 6 m/s.

The  $V_{\max}$  can be adjusted from 20% to 100% of the  $V_{\text{nom}}$  corresponding to velocities 1,2 to 6 m/s.

## Legend

$V_{\min}$	Minimum limit of the air flow control range
$V_{\max}$	Maximum limit of the air flow control range
$V_{\text{nom}}$	Nominal air flow; calibration value for the controller, maximum adjustable value of $V_{\min}$ and $V_{\max}$

# Ordering Codes

## OPTIMA-LV-R

VAV Controller, Non-insulated

OPTIMA-LV-R-		
		100
		125
		140
		160
		180
		200
		250
		315
Nominal size $\varnothing D$	(mm)	400
<hr/>		
Minimum air flow volume factory setup <sup>1)</sup>	$V_{min}$ (m <sup>3</sup> /h)	
<hr/>		
Maximum air flow volume factory setup <sup>1)</sup>	$V_{max}$ (m <sup>3</sup> /h)	
<hr/>		
Setpoint analog input/output mode <sup>2)</sup>	DC 0 V ... 10 V	0
	DC 2 V ... 10 V	2
<hr/>		
Feedback analog output mode <sup>3)</sup>	Air flow volume feedback	F
	Damper position feedback	D

### NOTES:

- 1) If the  $V_{min}$  and  $V_{max}$  is not stated in the ordering code, the controller will be adjusted to the basic factory pre-set values.  
Corresponding to 0,2 m/s ( $V_{min}$ ) and 6 m/s ( $V_{max}$ ).
- 2) Default flow setpoint analog input mode is „2“ (DC 2 V ... 10 V)
- 3) Default feedback analog output mode is „F“ (actual air flow volume).  
The mode „D“ is required for integration in optimizing system AIAS.

### Example of the Ordering Code

OPTIMA-LV-R-160-14-289-2-F

The non-insulated VAV controller, diameter size 160 mm, control range 14 m<sup>3</sup>/h ... 289 m<sup>3</sup>/h, analog signals 2 V ... 10 V, feedback air flow.

## OPTIMA-LV-RI

VAV Controller, Insulated

OPTIMA-LV-RI-		
		100
		125
		140
		160
		180
		200
		250
		315
Nominal size $\varnothing D$	(mm)	400
<hr/>		
Minimum air flow volume factory setup <sup>1)</sup>	$V_{min}$ (m <sup>3</sup> /h)	
<hr/>		
Maximum air flow volume factory setup <sup>1)</sup>	$V_{max}$ (m <sup>3</sup> /h)	
<hr/>		
Setpoint analog input/output mode <sup>2)</sup>	DC 0 V ... 10 V	0
	DC 2 V ... 10 V	2
<hr/>		
Feedback analog output mode <sup>3)</sup>	Air flow volume feedback	F
	Damper position feedback	D

### NOTES:

- 1) If the  $V_{min}$  and  $V_{max}$  is not stated in the ordering code, the controller will be adjusted to the basic factory pre-set values.  
Corresponding to 0,2 m/s ( $V_{min}$ ) and 6 m/s ( $V_{max}$ ).
- 2) Default flow setpoint analog input mode is „2“ (DC 2 V ... 10 V)
- 3) Default feedback analog output mode is „F“ (actual air flow volume).  
The mode „D“ is required for integration in optimizing system AIAS.

### Example of the Ordering Code

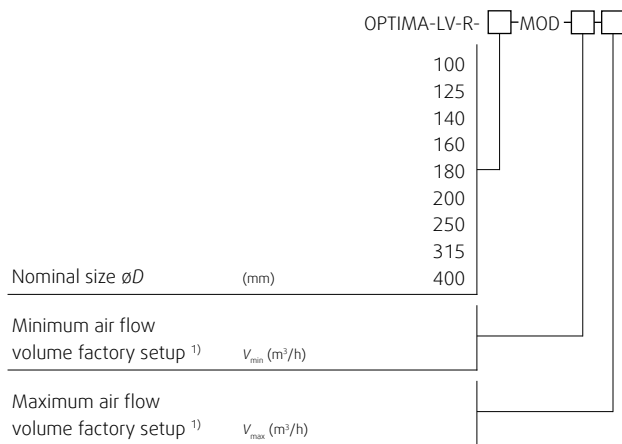
OPTIMA-LV-RI-160-14-289-2-D

The insulated VAV controller, diameter size 160 mm, control range 14 m<sup>3</sup>/h ... 289 m<sup>3</sup>/h, analog signals 2 V ... 10 V, feedback damper position.



**OPTIMA-LV-R...MOD**

VAV Controller, Non-insulated



NOTES:

- 1) If the  $V_{\min}$  and  $V_{\max}$  is not stated in the ordering code, the controller will be adjusted to the basic factory pre-set values. Corresponding to 0,2 m/s ( $V_{\min}$ ) and 6 m/s ( $V_{\max}$ ).

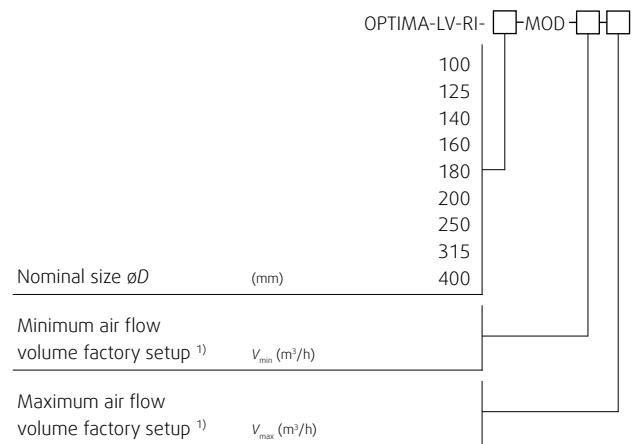
**Example of the Ordering Code**

OPTIMA-LV-R-160-MOD-20-250

The non-insuted VAV-controller, diameter size 160 mm, with customized pre-adjustment of  $V_{\min}$  to 20 m<sup>3</sup>/h and  $V_{\max}$  to 250 m<sup>3</sup>/h.

**OPTIMA-LV-RI...MOD**

VAV Controller, Insulated



NOTES:

- 1) If the  $V_{\min}$  and  $V_{\max}$  is not stated in the ordering code, the controller will be adjusted to the basic factory pre-set values. Corresponding to 0,2 m/s ( $V_{\min}$ ) and 6 m/s ( $V_{\max}$ ).

**Example of the Ordering Code**

OPTIMA-LV-RI-160-MOD-20-250

The insulated VAV controller, diameter size 160 mm, with customized pre-adjustment of  $V_{\min}$  to 20 m<sup>3</sup>/h and  $V_{\max}$  to 250 m<sup>3</sup>/h.

# Accessories

## ZTH-EU

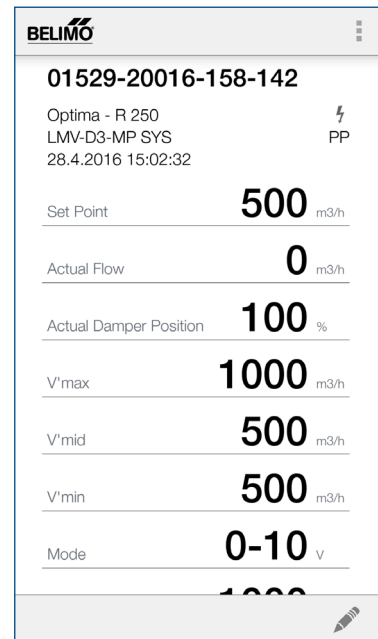
Configuration and Setup Tool



## Belimo Assistant

Android Smartphone Application

Application for configuration and setup.  
Functional with Android smartphones equipped  
by NFC connectivity.



# Quick Selection

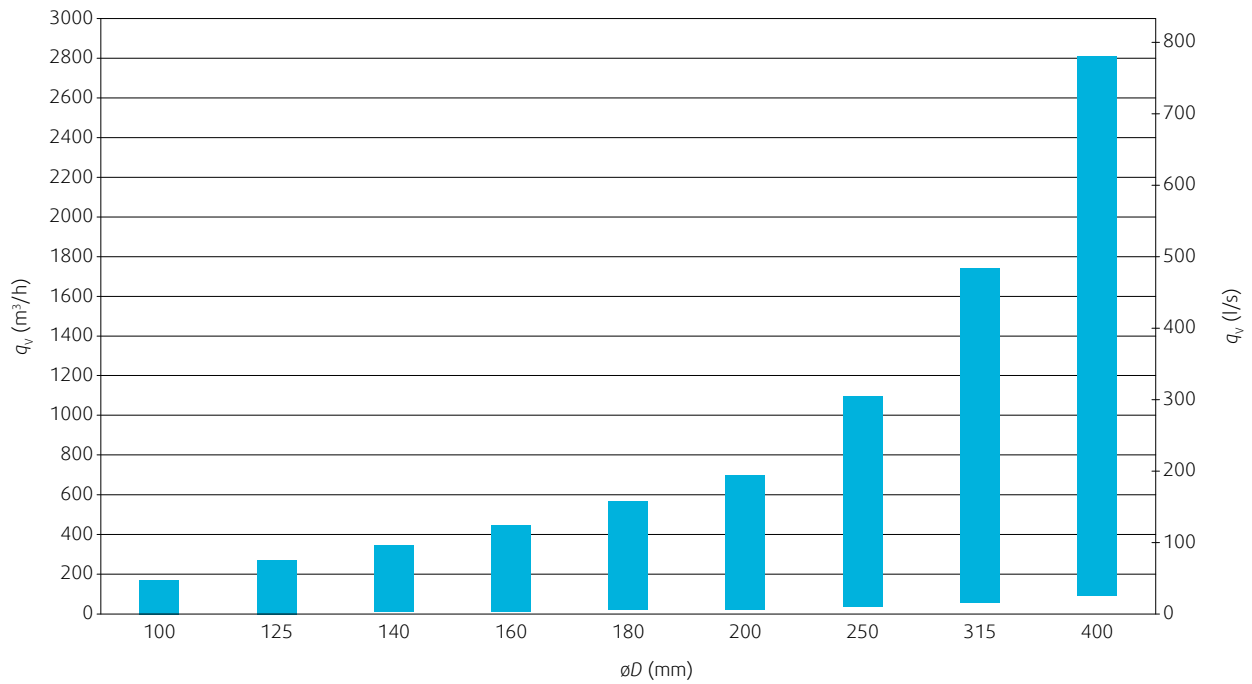


Diagram 2: Adjustable air flow range ( $V_{\min}$  ...  $V_{\max}$ ) for different sizes of OPTIMA-LV-R and OPTIMA-LV-RI

## Legend

$q_v$	(m³/h) (l/s)	Air flow volume
$\varnothing D$	(mm)	Nominal size

# Technical Parameters

## Legend

$p_s$	Pa	Pressure drop
$q_v$	m <sup>3</sup> /h l/s	Air flow volume
$L_{WA}$	dB(A)	A-weighted total discharged sound power level
$L_w$	dB	Non weighted total sound power level

SIZE 100

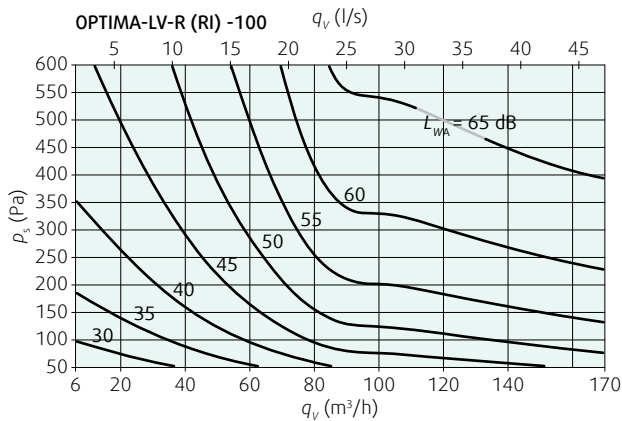


Diagram 3: Pressure drop and A-weighted total discharged sound power level depending on air flow volume at different duct pressures

Tab. 3: A-weighted & non-weighted octave band discharged sound power level dependent on duct static pressure and air flow volume; OPTIMA-LV-R (RI) -100

$q_v$ (m <sup>3</sup> /h)	$p_s$ (Pa)	$L_{WA}$ (dB)	$L_w$	Non Weighted Sound Power Level							
				63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
6	50	26	38	38	25	23	28	14	12	13	19
	100	29	40	39	25	23	27	19	18	19	26
	150	32	41	40	25	23	27	22	21	23	30
	300	38	44	42	24	22	27	27	27	29	37
	600	44	47	43	24	22	27	32	33	35	44
85	50	40	48	44	42	38	38	35	30	22	22
	100	46	52	47	47	44	45	42	37	31	30
	150	51	55	49	49	47	49	46	42	37	35
	300	58	61	52	54	53	55	53	50	46	43
	600	65	67	55	58	59	62	60	57	56	51
170	50	46	55	51	49	47	45	40	37	29	23
	100	52	59	53	53	52	51	46	44	38	32
	150	56	61	54	55	54	54	50	48	43	37
	300	62	66	56	59	58	60	57	56	51	46
	600	69	71	57	63	63	65	63	63	60	55

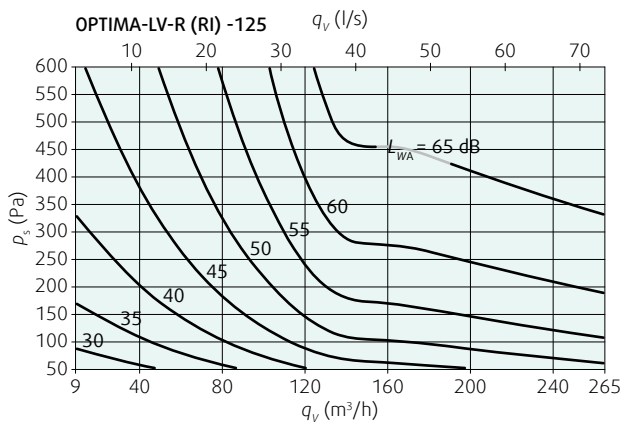


Diagram 4: Pressure drop and A-weighted total discharged sound power level depending on air flow volume at different duct pressures

Tab. 4: A-weighted & non-weighted octave band discharged sound power level dependent on duct static pressure and air flow volume; OPTIMA-LV-R (RI) -125

$q_v$ (m <sup>3</sup> /h)	$p_s$ (Pa)	$L_{WA}$ (dB)	$L_w$	Non Weighted Sound Power Level							
				63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
9	50	27	43	43	30	23	29	15	12	13	19
	100	30	44	44	30	23	29	20	18	19	26
	150	33	45	44	30	23	29	23	22	23	30
	300	38	46	45	30	23	30	28	28	29	38
	600	45	49	46	31	24	31	33	34	35	45
133	50	41	52	50	46	40	40	36	28	21	24
	100	48	57	53	51	47	47	43	37	31	32
	150	52	60	55	54	51	51	47	41	36	37
	300	59	65	59	60	58	58	53	50	46	46
	600	67	72	62	66	65	66	60	58	56	55
265	50	48	56	51	51	48	47	44	37	30	23
	100	54	62	56	57	54	53	49	43	38	33
	150	58	65	58	61	58	57	52	48	42	39
	300	64	71	63	67	64	63	58	54	50	49
	600	71	77	67	73	70	69	64	61	58	60

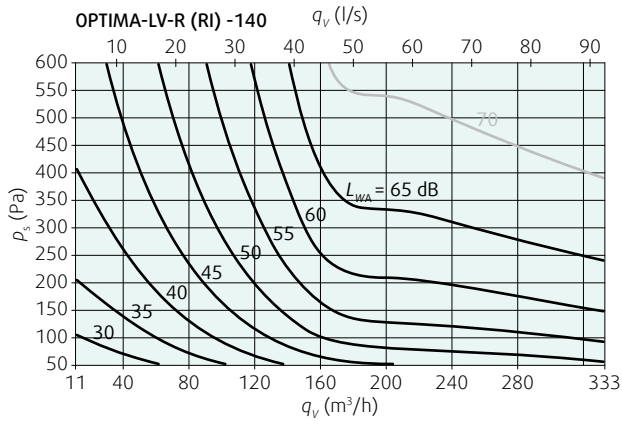


Diagram 5: Pressure drop and A-weighted total discharged sound power level depending on air flow volume at different duct pressures

Tab. 5: A-weighted & non-weighted octave band discharged sound power level dependent on duct static pressure and air flow volume; OPTIMA-LV-R (RI) -140

$q_v$ (m³/h)	$p_s$ (Pa)	$L_{WA}$ (dB)	$L_w$	Non Weighted Sound Power Level							
				63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
11	50	25	40	40	25	21	23	15	13	15	20
	100	29	40	39	24	23	26	20	19	20	26
	150	32	40	39	24	23	28	23	22	23	30
	300	37	41	38	24	25	31	28	28	28	36
	600	43	45	37	24	27	34	33	33	34	42
166	50	43	60	59	49	42	43	37	29	22	22
	100	50	62	60	54	50	50	45	38	32	30
	150	55	64	61	57	54	55	49	43	37	36
	300	62	69	63	63	62	62	56	52	47	44
	600	70	75	65	68	69	69	64	61	57	53
333	50	49	66	66	54	48	47	43	38	32	25
	100	56	68	67	60	55	54	50	46	40	34
	150	60	70	67	63	59	58	55	50	44	40
	300	67	74	69	69	66	66	62	58	52	49
	600	75	80	71	75	74	74	73	69	66	60

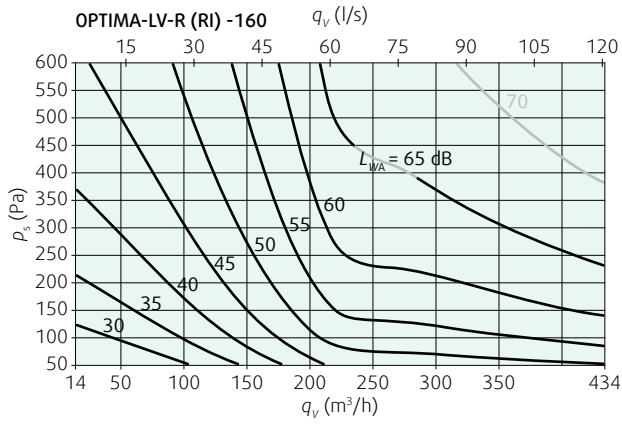


Diagram 6: Pressure drop and A-weighted total discharged sound power level depending on air flow volume at different duct pressures

Tab. 6: A-weighted & non-weighted octave band discharged sound power level dependent on duct static pressure and air flow volume; OPTIMA-LV-R (RI) -160

$q_v$ (m³/h)	$p_s$ (Pa)	$L_{WA}$ (dB)	$L_w$	Non Weighted Sound Power Level							
				63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
14	50	22	40	40	24	17	17	8	10	13	20
	100	28	41	40	24	20	20	14	16	19	27
	150	31	41	40	25	21	21	18	20	23	31
	300	38	43	40	25	23	24	24	26	29	38
	600	45	47	41	25	25	28	30	33	35	44
217	50	46	62	61	53	45	46	38	31	22	20
	100	51	63	61	56	50	51	44	38	31	29
	150	54	64	60	58	54	55	47	43	36	34
	300	60	67	60	61	59	60	53	50	45	43
	600	66	71	59	65	65	66	60	58	54	52
434	50	50	65	64	55	49	48	44	38	31	26
	100	56	69	68	62	56	56	50	45	39	34
	150	60	72	69	65	61	60	54	49	43	39
	300	68	77	73	72	68	67	61	56	51	47
	600	75	83	76	79	75	75	67	64	59	56

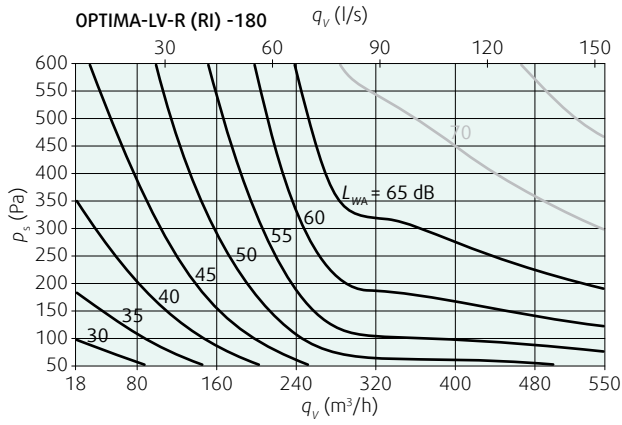


Diagram 7: Pressure drop and A-weighted total discharged sound power level depending on air flow volume at different duct pressures

Tab. 7: A-weighted & non-weighted octave band discharged sound power level dependent on duct static pressure and air flow volume; OPTIMA-LV-R (RI) -180

$q_v$ ( $m^3/h$ )	$p_s$ (Pa)	$L_{WA}$ (dB)	$L_w$	Non Weighted Sound Power Level							
				63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
18	50	26	45	45	24	23	27	14	11	13	19
	100	30	45	44	26	26	29	19	17	19	26
	150	32	45	44	27	27	30	22	21	23	30
	300	38	45	44	29	29	31	26	27	29	37
	600	45	48	43	31	31	33	31	33	35	44
275	50	47	62	61	56	47	47	39	32	23	21
	100	53	64	61	59	53	53	46	40	32	30
	150	56	65	61	60	56	56	50	45	38	35
	300	63	69	61	64	61	62	57	53	48	44
	600	70	73	61	67	66	68	64	62	57	53
550	50	50	65	63	58	50	48	43	39	32	26
	100	58	71	69	65	59	56	51	46	40	35
	150	62	74	72	69	64	61	55	50	45	39
	300	70	81	77	76	72	70	62	58	52	48
	600	78	87	83	83	83	81	78	69	65	60



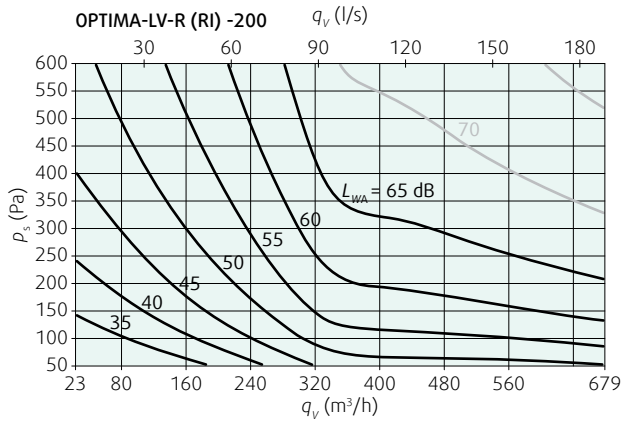


Diagram 8: Pressure drop and A-weighted total discharged sound power level depending on air flow volume at different duct pressures

Tab. 8: A-weighted & non-weighted octave band discharged sound power level dependent on duct static pressure and air flow volume; OPTIMA-LV-R (RI) -200

$q_v$ (m³/h)	$p_s$ (Pa)	$L_{WA}$ (dB)	$L_w$	Non Weighted Sound Power Level							
				63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
23	50	26	38	38	22	23	24	18	14	14	19
	100	31	40	38	24	27	27	24	22	22	27
	150	35	41	39	26	30	29	27	27	26	31
	300	42	44	39	29	34	31	33	34	34	38
	600	49	50	40	31	38	34	39	43	42	46
339	50	47	63	62	56	46	46	39	32	24	21
	100	52	65	63	59	52	52	46	40	33	31
	150	56	66	64	61	55	55	50	45	39	37
	300	63	70	65	65	62	62	57	53	49	46
	600	70	75	66	69	68	68	64	61	59	56
679	50	49	66	65	59	48	47	43	38	30	25
	100	57	71	69	65	57	55	50	46	39	34
	150	61	74	72	69	62	60	55	50	44	40
	300	69	80	77	75	70	68	62	58	53	49
	600	77	86	81	82	79	76	69	66	62	59

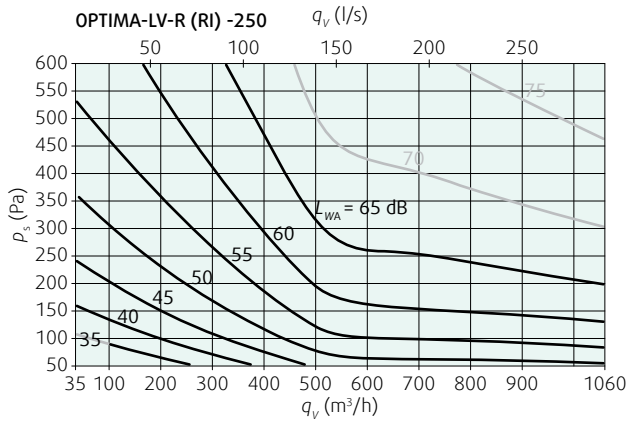


Diagram 9: Pressure drop and A-weighted total discharged sound power level depending on air flow volume at different duct pressures

Tab. 9: A-weighted & non-weighted octave band discharged sound power level dependent on duct static pressure and air flow volume; OPTIMA-LV-R (RI) -250

$q_v$ (m³/h)	$p_s$ (Pa)	$L_{WA}$ (dB)	$L_w$	Non Weighted Sound Power Level							
				63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
35	50	28	42	42	29	29	29	17	12	10	17
	100	33	44	42	32	33	32	25	23	21	25
	150	38	45	43	34	36	34	31	30	27	30
	300	47	49	44	37	40	38	40	41	38	39
	600	57	57	45	40	45	42	49	53	49	47
530	50	47	61	58	58	47	47	39	31	22	22
	100	54	64	60	61	54	54	47	41	33	31
	150	58	67	61	63	58	58	52	46	39	37
	300	65	72	63	68	65	64	60	55	50	46
	600	73	78	65	72	71	71	68	65	60	56
1060	50	49	65	62	61	48	47	42	36	27	24
	100	57	70	66	66	57	55	50	45	37	33
	150	61	73	68	69	63	60	55	50	43	38
	300	70	79	72	75	72	69	63	58	52	48
	600	78	86	76	82	81	77	72	67	62	57

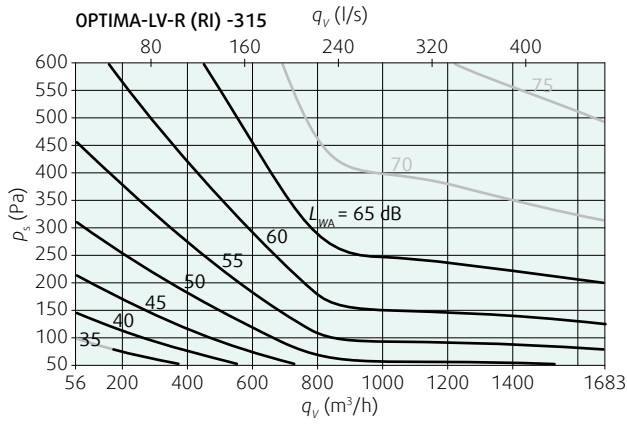


Diagram 10: Pressure drop and A-weighted total discharged sound power level depending on air flow volume at different duct pressures

Tab. 10: A-weighted & non-weighted octave band discharged sound power level dependent on duct static pressure and air flow volume; OPTIMA-LV-R (RI) -315

$q_v$ ( $m^3/h$ )	$p_s$ (Pa)	$L_{WA}$ (dB)	$L_w$	Non Weighted Sound Power Level							
				63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
56	50	28	43	43	30	31	26	19	13	11	18
	100	34	45	44	33	35	30	28	24	22	27
	150	39	46	44	35	37	32	33	31	29	32
	300	48	50	45	38	41	37	42	43	40	40
	600	59	59	46	41	45	42	51	55	52	49
842	50	48	61	59	56	49	48	41	33	23	22
	100	55	65	61	61	56	54	49	42	34	31
	150	59	68	63	64	60	58	53	47	40	37
	300	66	74	66	70	67	64	61	56	51	47
	600	74	79	69	75	74	70	69	66	62	58
1683	50	50	66	65	58	50	48	44	39	30	23
	100	57	71	69	65	58	56	51	46	39	32
	150	62	74	71	69	63	60	56	51	44	37
	300	69	80	75	77	72	67	63	59	53	47
	600	77	87	79	84	81	75	70	66	62	56

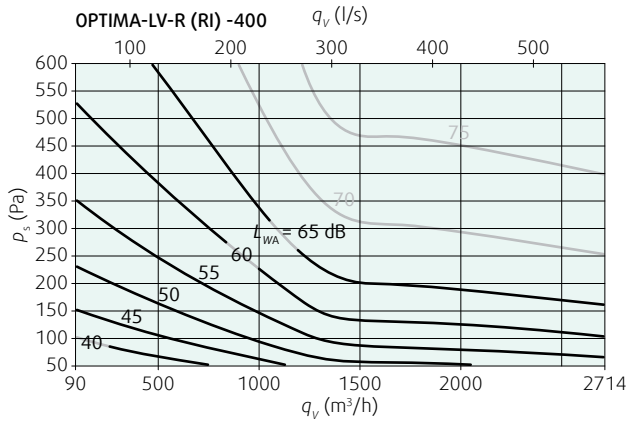


Diagram 11: Pressure drop and A-weighted total discharged sound power level depending on air flow volume at different duct pressures

Tab. 11: A-weighted & non-weighted octave band discharged sound power level dependent on duct static pressure and air flow volume; OPTIMA-LV-R (RI) -400

$q_v$ ( $m^3/h$ )	$p_s$ (Pa)	$L_{WA}$ (dB)	$L_w$	Non Weighted Sound Power Level							
				63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
90	50	33	46	44	36	38	31	23	15	13	19
	100	38	48	45	39	41	36	32	27	24	28
	150	43	49	46	40	43	39	37	34	31	33
	300	52	54	47	43	46	44	46	46	43	41
	600	62	62	48	47	50	50	55	58	54	50
1357	50	48	66	65	59	49	45	38	30	26	26
	100	55	71	69	65	58	53	47	40	36	34
	150	60	74	71	69	63	58	53	46	42	39
	300	69	80	75	75	72	67	62	56	51	48
	600	78	86	80	82	81	75	72	67	61	56
2714	50	52	68	67	61	52	51	45	38	31	26
	100	59	75	73	69	61	58	52	46	40	35
	150	64	79	77	73	66	62	57	51	45	41
	300	72	86	84	81	75	69	64	59	54	50
	600	80	93	90	89	84	84	76	72	67	64

# Installation, Maintenance & Operation

OPTIMA-LV-R (RI) is mounted directly in a spiro duct by a rubber gasket tight connection. Operation temperature range: -10°C ... +70°C in the duct, -5°C ... +50°C on the actuator.

**Important:** In installations with higher hygienic standards like hospitals the service openings for cleaning shall be foreseen in the duct closely in front and behind the VAV unit.

Information about installation, maintenance and operation is available in the document ["UserManual\\_OPTIMA-LV-R"](#).



[UserManual](#)

## Transport & Storage

Dry indoor conditions with a temperature range of -40°C to +50°C.

## 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 at [www.systemair.com](http://www.systemair.com)

## Related Products

### OPTIMA-R

VAV Controller

Product information is available within the technical documentation ["DataSheet\\_OPTIMA-R"](#) and at [Systemair DESIGN](#).



### OPTIMA-S

VAV Controller

Product information is available within the technical documentation ["DataSheet\\_OPTIMA-S"](#) and at [Systemair DESIGN](#).



