



## NORDdamper

RPM-LV Airflow measurement and control device for variable or standard airflow ventilation systems

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Nominal size 100 to 315 mm

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Airflow rates 4 l/s ... 623 l/s

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Air velocity operation range 0,5 m/s ...8 m/s

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Insulated version available

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External casing leakage class C, blade leakage class 3 acc. to EN 1751

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Material: hot-dip galvanized steel plate Z275

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Each unit is equipped with a pressure sensor and control device (Belimo LMV-D3-MP or LMV-D3-MOD, input voltage 24 V)

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Versions:

- Analog standard signal
  - Modbus/Bacnet Control
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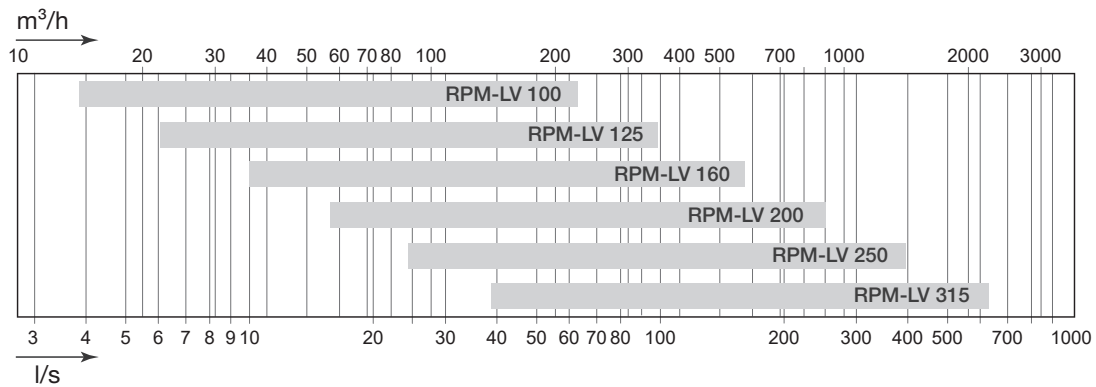
**RPM-LV Airflow measurement and control device for variable or standard airflow**

**Description**

Airflow controllers are intended to be used in supply air or exhaust air ducts of HVAC systems. Airflows need to be controlled to achieve an energy saving air handling system. Airflow should be minimized when it is not needed and maximized when the room is crowded. National regulations and standards should always be fulfilled.

The airflow controller consists of air-tight body, air-tight damper blade in the body, electric actuator, airflow rate measuring system and electronic controller, including communication interface.

**Quick Selection**



**Specifications and operation conditions**

- Intended use: control of the airflow
- Nominal measurements: Ø 100... Ø 315
- External casing leakage class C, internal leakage class 3 acc. to EN 1751
- Airflow rates: 2,5 l/s... 623 l/s
- Air velocity in the duct: 0,5 m/s... 8 m/s
- Pressure drop: 2 Pa... 600 Pa
- Accuracy: ± 4% (see Figure 1. and Figure 2.)
- Temperature range: 0 °C... +50 °C
- Humidity: 5 RH%... 95 RH%

According to EN 60721-3-3, A2, the variable airflow controller should not be exposed to condensating humidity, water droplets, frost and snowflakes. The system should not contain abrasive or adhesive particles, electronically charged, chemically active or radioactive particles or droplets, or chemically active or radioactive gases.

**Actuator types**

Electric actuators are integrated with sensors, electronic controller and communication interface into one airflow controller. Electronic controller reads values from sensors, calculates actual value of the airflow rate, compares it with the requested airflow rate and commands the actuator to increase or decrease the opening of the damper blade as needed.

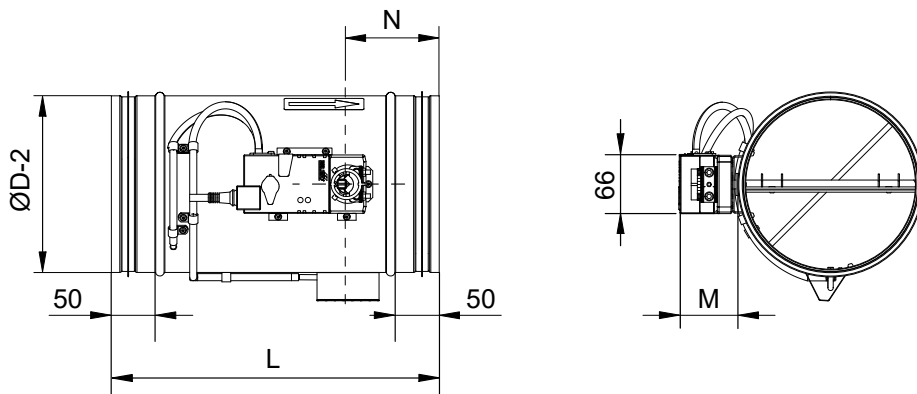
Analog and digital communication is available. Refer to table for the list of different configurations and setups available.

Standard/ optional	Built-in compact VAV controller	Input voltage	Pressure loss/ flow range	Analog input/ output	NFC, wireless
Constant	BELIMO LMV-D3W-MP.1 MDK	24 V AC/DC	2-600 Pa 0.5-8 ms	2-10 V 2-10 V	yes
Option *	BELIMO LMV-D3W-MP.1 MDK	24 V AC/DC	2-600 Pa 0.5-8 ms	0-10 V 0-10 V	yes

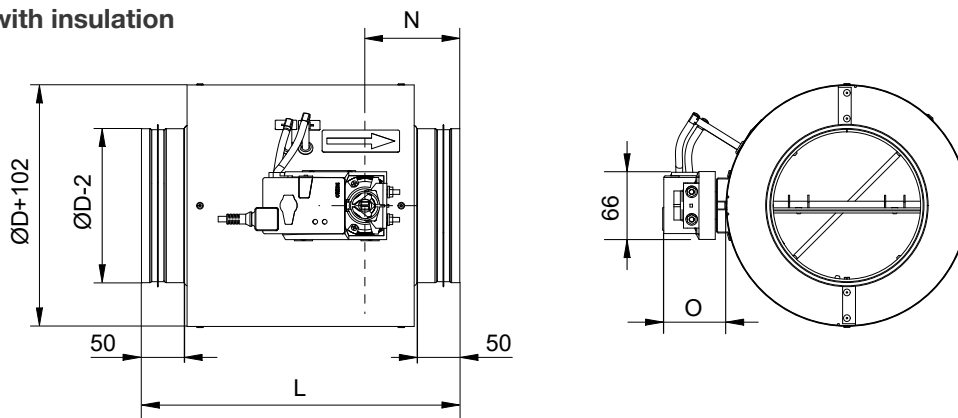
\* to be specified in the order

**Basic dimensions and weight**

**RPM-LV without insulation**



**RPM-LV-I with insulation**



Nominal size ØD [mm]	L [mm]	M [mm]	N [mm]	Ø [mm]	Weight [kg]	
					uninsulated	insulated
100	300	84	110	72	1.7	2.6
125	300	84	110	72	1.9	3.0
160	300	72	110	72	2.3	3.5
200	370	72	150	72	3.1	4.7
250	450	72	190	72	4.2	6.5
315	450	72	190	72	5.2	7.9

**Airflow ranges and accuracy of control**

Nominal dimension [mm]	Minimum		Maximum $q_{nom}$	
	[m³/h]	[l/s]	[m³/h]	[l/s]
100	14	3,9	226	63
125	22	6,1	353	98
160	36	10	579	161
200	57	16	905	251
250	88	25	1414	393
315	140	39	2244	623
$v$ [m/s] *	0.5		8	

\* average air velocity in the duct..

Accuracy at low control pressure drop is impacted by the accuracy of pressure sensors making part of airflow controllers. Low velocities are difficult to measure for the sensors. Premium actuators and pressure sensors are used in our products.

Airflow controllers are designed to be used in air velocity range 0,5... ..0,8 m/s. Check the controllers accuracy by air velocity rate [Figure 1]. If the pressure drop is very low, under 10 Pa, accuracy correction rate is added [Figure 2].

Figure 1. Accuracy of control for control drop of 10 Pa ...600 Pa

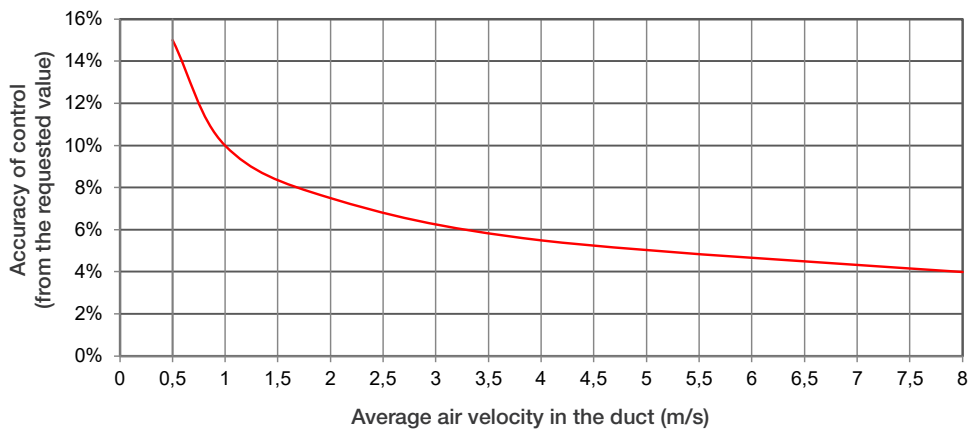
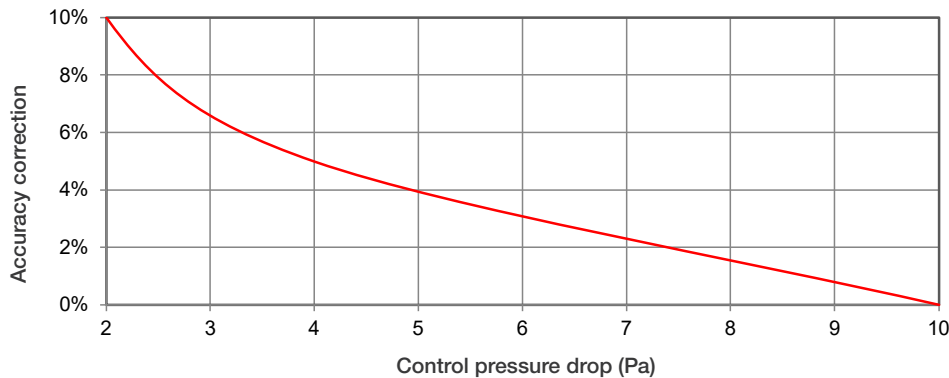
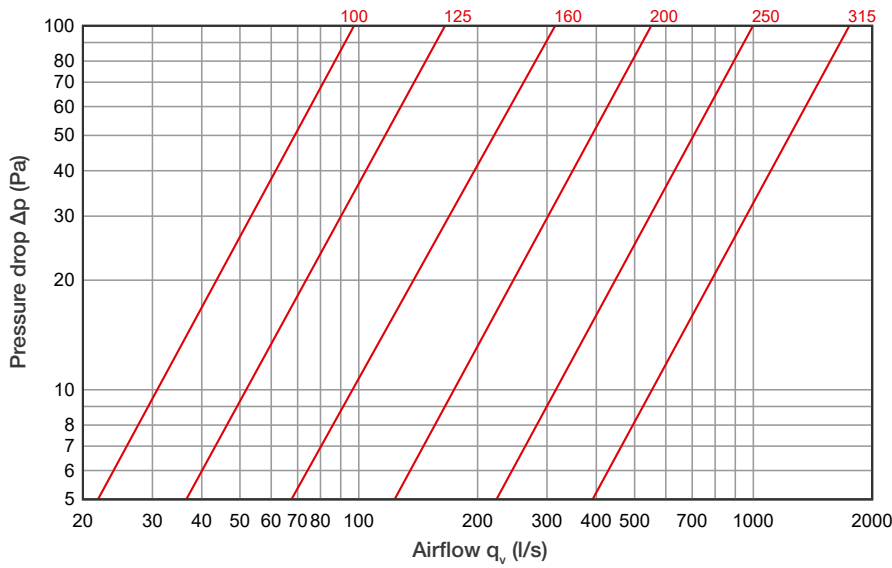


Figure 2. Accuracy of control for extremely small control pressure drops



**Pressure drop**

The values are valid when the blade or the controller is completely open.



**Sound data**

The sound of air volume controller is listed in the following tables.

**A-weighted sound power level.**

- $q_v$  [m<sup>3</sup>/h] - airflow
- $\Delta p_{st}$  [Pa] - pressure differential
- $L_w$  [dB/Okt.] - sound power level by octave band
- $L_{WA}$  [dB(A)] - A-weighted sound power level
- $f_m$  [Hz] - average frequency of the octave band
- $v$  [m/s] - airflow speed

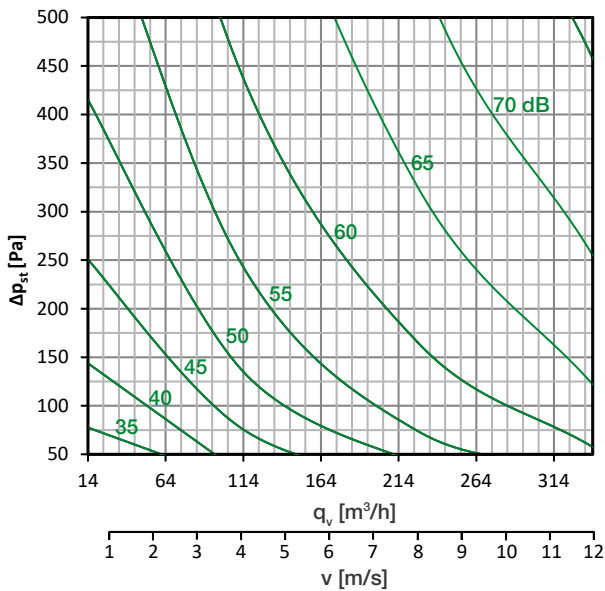
Nominal dimension d (mm)	$q_v$		$\Delta p_{st} = 50$ Pa								$L_{WA}$ [dB(A)]
	m <sup>3</sup> /h	l/s	$L_w$ (dB/okt), $f_m$ (Hz)								
			63	125	250	500	1000	2000	4000	8000	
100	14	3.9	41	32	26	26	29	25	18	8	32
	113	31.4	52	42	39	39	36	34	35	18	42
	226	62.8	61	54	50	50	45	46	38	25	52
	339	94.2	68	62	58	58	50	52	40	29	59
125	22	6.1	43	33	27	27	30	27	19	9	33
	177	49.2	57	48	44	41	42	39	32	22	46
	353	98.1	63	55	51	47	46	42	39	27	51
	530	147.2	70	62	58	53	50	42	43	33	56
160	36	10	46	37	31	31	34	30	22	12	37
	290	80.6	58	49	45	42	44	39	32	22	47
	579	160.8	65	57	53	49	48	44	39	29	53
	869	241.4	71	64	60	56	53	48	44	33	59
200	57	15.8	46	36	31	31	34	31	23	12	37
	452	125.6	58	49	45	43	44	40	33	22	47
	905	251.4	66	58	54	50	49	45	41	30	54
	1357	376.9	73	65	61	56	54	49	43	36	59
250	88	24.4	48	37	33	33	34	32	24	13	38
	707	196.4	58	50	46	43	44	42	33	24	48
	1414	392.8	65	59	55	51	49	46	41	29	54
	2121	589.2	72	64	61	56	53	50	46	34	59
315	140	38.9	48	54	32	32	24	31	24	14	40
	1122	311.7	60	52	47	44	45	41	44	24	50
	2244	623.3	68	60	56	52	51	47	43	31	56
	3367	935.3	76	68	64	59	56	52	48	37	62

Nominal dimension d (mm)	q <sub>v</sub>		Δp <sub>st</sub> = 100 Pa L <sub>w</sub> (dB/okt), f <sub>m</sub> (Hz)								L <sub>WA</sub> [dB(A)]
	m <sup>3</sup> /h	l/s	63	125	250	500	1000	2000	4000	8000	
100	14	3.9	47	37	31	31	34	30	22	10	37
	113	31.4	59	49	45	45	42	39	33	21	47
	226	62.8	67	59	56	56	50	46	42	30	57
	339	94.2	73	66	64	64	55	51	47	33	64
125	22	6.1	49	39	33	33	36	32	23	11	39
	177	49.2	63	54	50	48	47	43	36	25	51
	353	98.1	68	60	56	52	51	47	42	30	56
	530	147.2	74	66	62	57	54	50	46	35	60
160	36	10	52	42	36	36	39	35	27	15	42
	290	80.6	63	54	50	47	48	44	37	26	52
	579	160.8	70	62	58	54	53	49	44	32	58
	869	241.4	77	69	65	60	57	53	50	48	63
200	57	15.8	54	44	38	38	41	37	28	16	44
	452	125.6	64	55	51	48	49	45	38	26	53
	905	251.4	71	63	59	55	54	50	46	33	59
	1357	376.9	78	70	66	62	58	54	50	40	64
250	88	24.4	52	44	38	38	41	37	29	17	44
	707	196.4	64	55	51	48	49	46	38	27	53
	1414	392.8	70	62	58	55	54	49	45	32	58
	2121	589.2	77	69	65	60	57	53	50	38	63
315	140	38.9	56	46	40	40	43	39	30	19	46
	1122	311.7	66	57	54	51	51	48	40	29	55
	2244	623.3	73	65	61	57	56	52	48	35	61
	3367	935.3	80	72	68	63	60	56	53	41	66

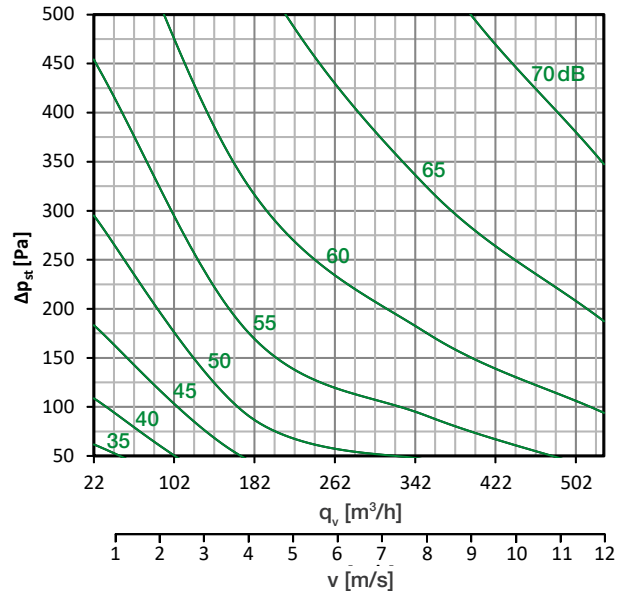
Nominal dimension d (mm)	q <sub>v</sub>		Δp <sub>st</sub> = 250 Pa L <sub>w</sub> (dB/okt), f <sub>m</sub> (Hz)								L <sub>WA</sub> [dB(A)]
	m <sup>3</sup> /h	l/s	63	125	250	500	1000	2000	4000	8000	
100	14	3.9	55	46	39	39	42	38	30	18	45
	113	31.4	65	57	53	53	50	48	39	29	55
	226	62.8	73	66	62	62	58	52	48	36	63
	339	94.2	81	73	69	70	62	57	54	43	70
125	22	6.1	58	48	42	42	45	41	32	20	48
	177	49.2	68	59	56	53	54	49	43	32	58
	353	98.1	75	67	63	59	58	53	48	36	63
	530	147.2	81	73	69	63	60	56	53	41	67
160	36	10	61	51	45	45	48	44	36	24	51
	290	80.6	71	62	58	55	56	52	45	33	60
	579	160.8	77	69	65	61	60	56	51	39	65
	869	241.4	83	75	71	66	63	59	55	44	69
200	57	15.8	63	53	47	47	50	46	38	25	53
	452	125.6	72	63	59	56	57	53	46	35	61
	905	251.4	77	70	66	62	61	57	52	40	66
	1357	376.9	83	75	71	67	63	59	56	44	70
250	88	24.4	64	54	47	47	50	47	39	27	53
	707	196.4	71	62	59	55	56	53	45	34	60
	1414	392.8	77	69	65	61	60	56	52	40	65
	2121	589.2	83	75	71	66	63	59	56	45	69
315	140	38.9	64	54	48	48	51	48	39	26	54
	1122	311.7	74	65	61	58	59	55	48	36	63
	2244	623.3	80	72	68	64	63	59	55	42	68
	3367	935.3	86	78	74	69	66	62	59	48	72

Nominal dimension d (mm)	q <sub>v</sub>		Δp <sub>st</sub> = 500 Pa L <sub>w</sub> (dB/okt), f <sub>m</sub> (Hz)								L <sub>WA</sub> [dB(A)]
	m <sup>3</sup> /h	l/s	63	125	250	500	1000	2000	4000	8000	
100	14	3.9	62	53	46	46	49	46	38	26	52
	113	31.4	71	62	59	59	57	53	46	35	61
	226	62.8	80	73	68	68	64	60	55	43	69
	339	94.2	87	80	76	76	68	64	60	49	76
125	22	6.1	66	56	60	60	53	49	40	28	56
	177	49.2	76	67	63	59	61	46	48	37	64
	353	98.1	81	73	69	65	64	61	56	44	69
	530	147.2	87	79	75	70	67	64	60	49	73
160	36	10	68	58	52	52	55	51	43	30	58
	290	80.6	78	69	65	62	63	60	52	41	67
	579	160.8	83	75	71	68	66	62	59	46	71
	869	241.4	89	81	77	72	69	65	61	50	75
200	57	15.8	70	61	55	55	58	54	46	33	61
	452	125.6	78	69	65	62	63	60	53	41	67
	905	251.4	83	75	71	68	66	63	59	46	71
	1357	376.9	90	81	78	72	69	65	60	51	75
250	88	24.4	72	62	55	55	58	55	47	34	61
	707	196.4	78	69	65	62	63	59	52	40	67
	1414	392.8	83	75	71	67	66	62	58	45	71
	2121	589.2	89	81	77	72	69	65	61	50	75
315	140	38.9	74	64	58	58	61	57	49	36	64
	1122	311.7	81	72	68	65	66	63	56	44	70
	2244	623.3	85	78	74	70	69	64	61	48	74
	3367	935.3	91	83	79	74	71	67	63	51	77

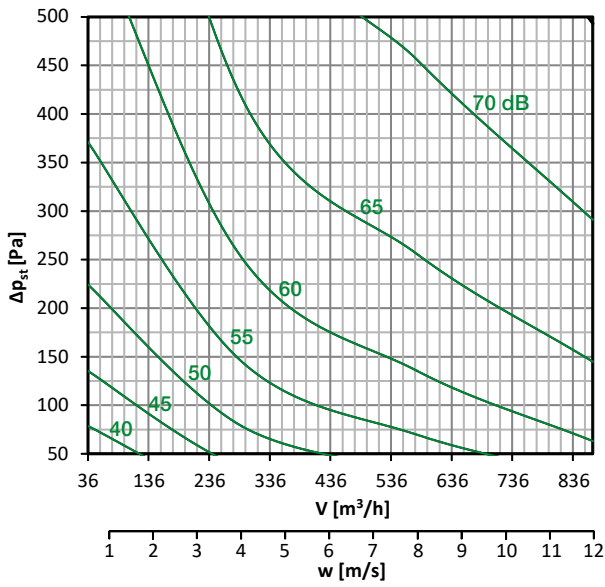
RPM-LV 100



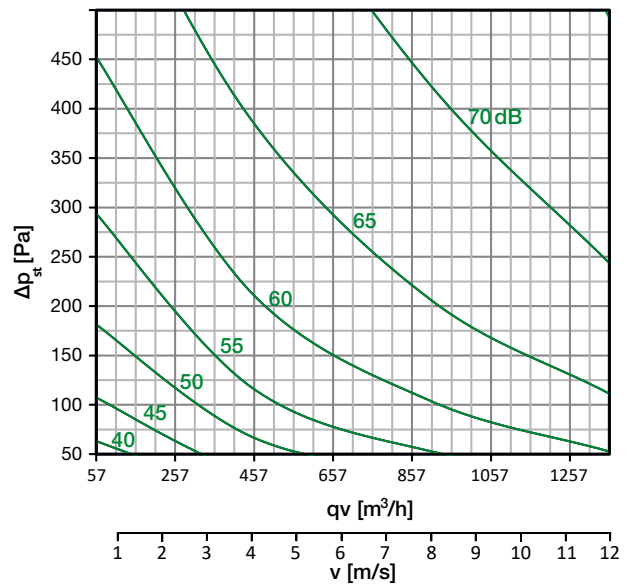
RPM-LV 125



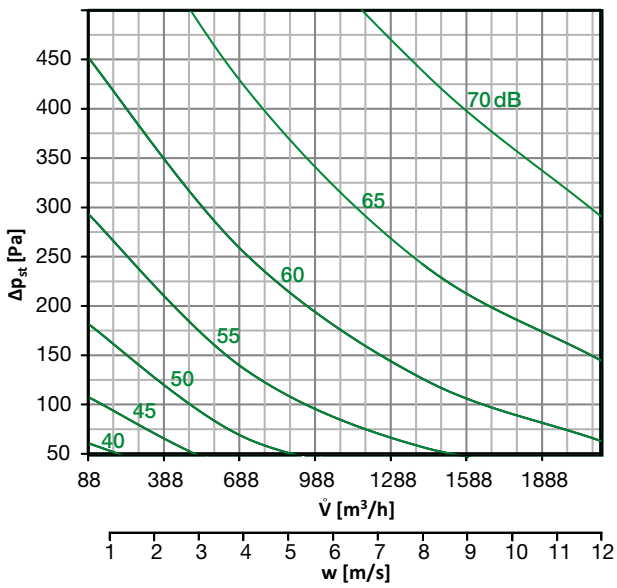
**RPM-LV 160**



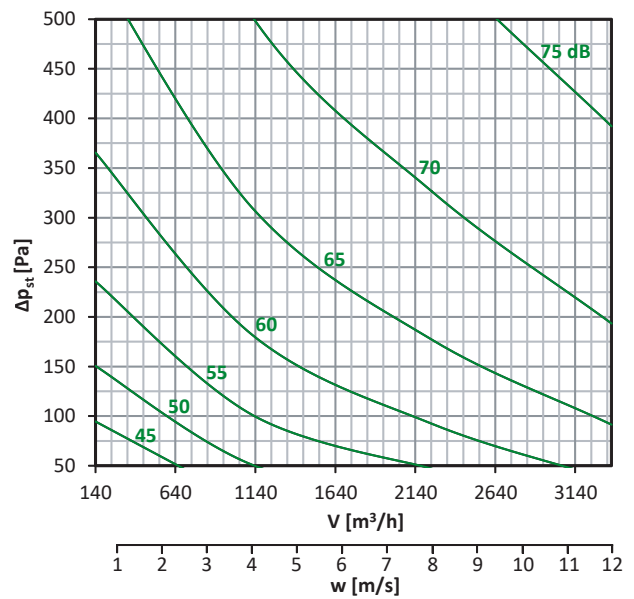
**RPM-LV 200**



**RPM-LV 250**



**RPM-LV 315**





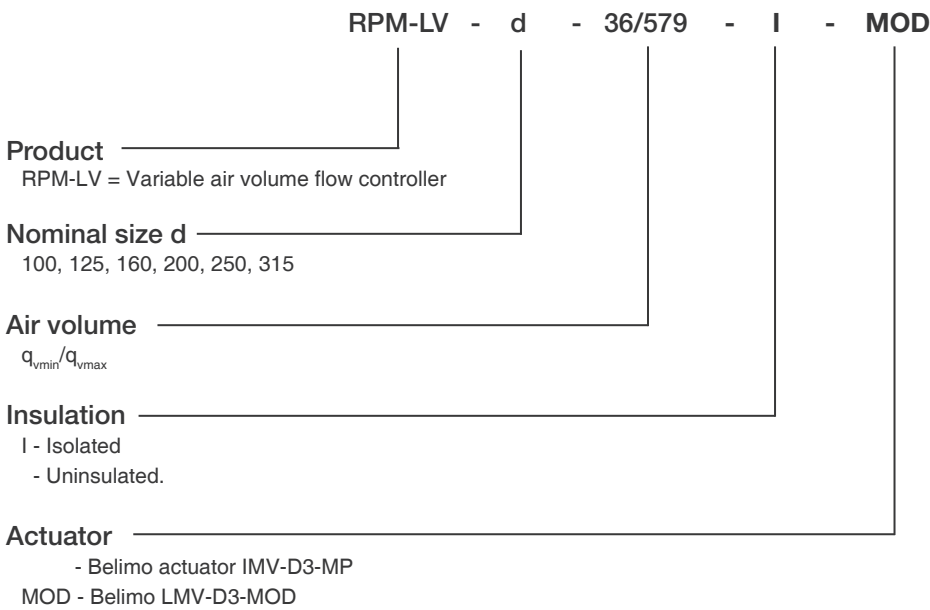
**Transport and storage**

The dampers are transported by box freight vehicles; no sharp shocks must occur and the ambient temperature must not exceed +40°C. For handling during transport, the dampers must be protected against mechanical damages and weather impact. The damper blade must be in the “CLOSED” position.

The dampers must be stored in covered buildings, in an environment without aggressive vapours, gases and dust. A temperature in a range of -5°C and +40°C and a relative humidity of max. 80% must be maintained in the buildings.

The controller is delivered without surface treatment.

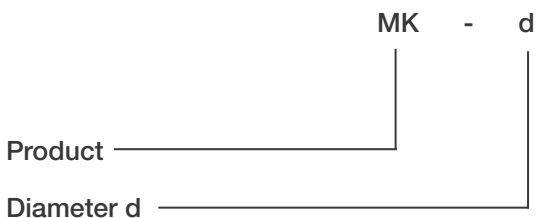
**Product label**



**Example: RPM-LV 160 - 36/579 - I - MOD**

**Accessories**

**MK Mounting clamp**



**Example: MK 160**



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