MD15-LP-HE and MD15-LP-R-HE small actuator Rxx/RWxx valves

Application

The MD15-LP-HE and MD15-LP-R-HE actuators are used for three-point, two-point or continuous control systems in zone post-treatment devices for heating, ventilation and air conditioning systems.

MD15-LP-HE	Small actuator for Rxx and RWxx valves and other valves with an M30x1.5 connection that were manufactured by Heimeier, Honeywell-MNG, Junkers, Honeywell-Baukmann, Oventrop (2001 and later) or Cazzaniga
MD15-LP-R-HE	Same as MD15-LP-HE, but with positioning feedback

HINWEIS
This document does not contain safety instructions.
You can find detailed information about handling the actuator in the operating instructions 3.09-20.130-80 "MD15-LP-HE and MD15-LP-R-HE small actuator Rxx/RWxx/ valves".

Technical Data

Nominal voltage	12 V AC (-10%) ..24 V AC (+10%); 50/60 Hz or 12 V DC (-10%) ..24 V DC (+10%) only for MD15-LP-HE 15 V DC (-10%) ..24 V DC (+10%) only for MD15-LP-R-HE
Dimensioning	MD15-LP-HE: 1.4 VA (12..24 V AC); 0.7 W (12..24 V DC) MD15-LP-R-HE: 3.8 VA (AC 12..24 V); 1.5 W (DC 15..24 V)
Power consumption	MD15-LP-HE: Nominal: 0.7 VA (12..24 V AC); 0.3 W (12..24 V DC) Sleep mode: 0.3 VA (12..24 V AC); 0.1 W (12..24 V DC) MD15-LP-R-HE: Nominal: 1.5 VA (AC 12..24 V); 0.7 W (DC 15..24 V) Sleep mode: 0.4 VA (AC 12..24 V); 0.2 W (DC 15..24 V)
Switch-on current	Max. 7.5 A < 1 ms
Control	Two-point signal (open/closed), three-point signal (open/stop/closed), min. switch-on time 0,1 s (from Rev. 1.01): - 1 s at 12 V AC/DC - 0,1 s at 24 V AC/DC Or continuous control 0(2)..10 V DC, Re = 100 kΩ Control invertible
Connection	Built-in cable MD15-LP-HE: 1.5 m; 3 x 0.5 mm^2 MD15-LP-R-HE: 1.5 m; 5 x 0.5 mm^2
Sound power	< 23 dB (A)
Positioning stroke	Max. 6 mm, automatic valve adaptation
Positioning time	10 s/mm
Positioning force	Nominal 100 N

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Position feedback	Only with MD15-LP-R-HE 0..10 V DC; 5 mA for 0..100% positioning stroke
Permitted medium temperature in the valve	0..+120 °C
Ambient temperature	During operation: 0..+50 °C Out of operation: -20..+60° C
Ambient humidity	0..85 % r. h., non-condensing
Overvoltage category	III
Level of contamination	2
Degree of protection	IP54
Protection class	III in accordance with EN 60730
Installation position	360°
Maintenance	Maintenance-free
Weight	MD15-LP-HE: 220 g, MD15-LP-R-HE: 230 g

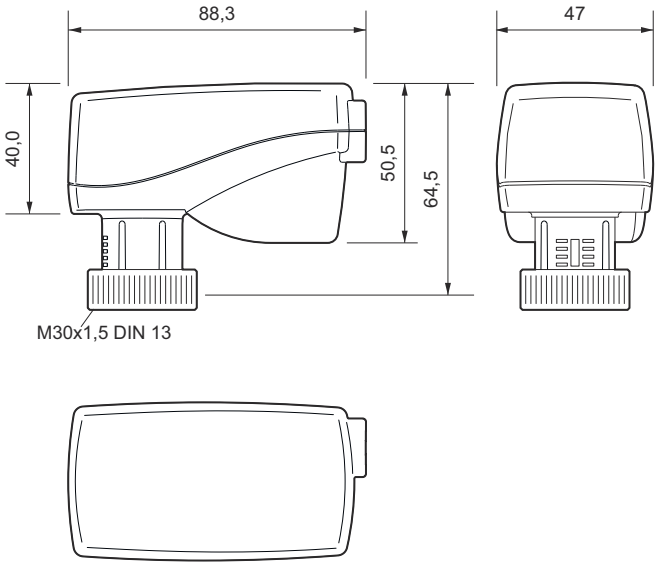
Accessories (not included in delivery)

VS3 Anti-vandalism protector for MD15-xx-HE

Adapters for radiator valves with **MD15-LP-HE, MD15-LP-R-HE** small actuators

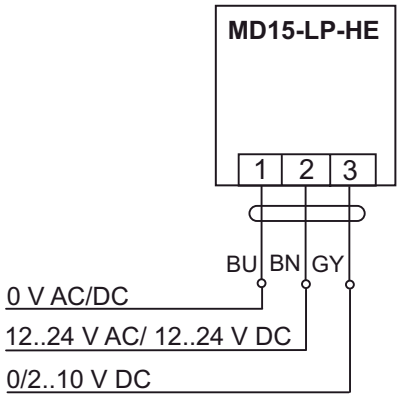
Item no.	ID	Type
Z800-HW	9703-24	Danfoss series 2 - 20 x 1
Z801-HW	9704-24	Danfoss series 3 - 23.5 x 1.5
Z802-HW	-	Danfoss RA2000
Z803-HW	9800-24	Danfoss RAV
Z804-HW	9700-24	Danfoss RAV-L
Z805-HW	9700-27	Vaillant Ø 30 mm
Z806-HW	9701-28	TA (M28 x 1.5)
Z807-HW	9700-30	Herz (M28 x 1.5)
Z808-HW	9700-55	Comap (M28 x 1.5)
Z809-HW	9700-10	Oventrop (M30 x 1)
Z810-HW	9700-33	Giacomini
Z811-HW	9700-36	ISTA (M32 x 1)
Z812-HW	9700-32	Rotex (M30 x 1)
Z814-HW	9700-34	Uponor (Velta) valves
Z815-HW	9701-34	Uponor (Velta) Provario
Z816-HW	9700-41	Markaryd

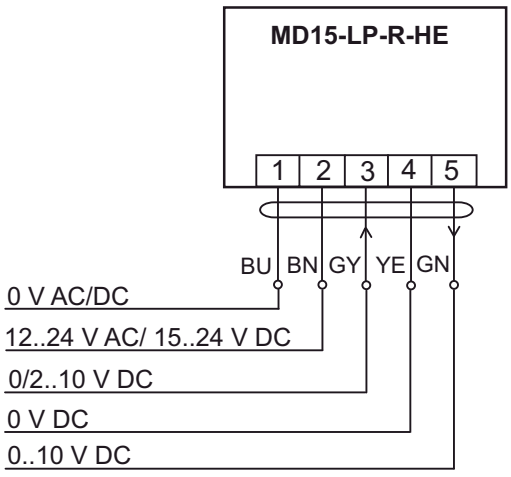
Dimensions



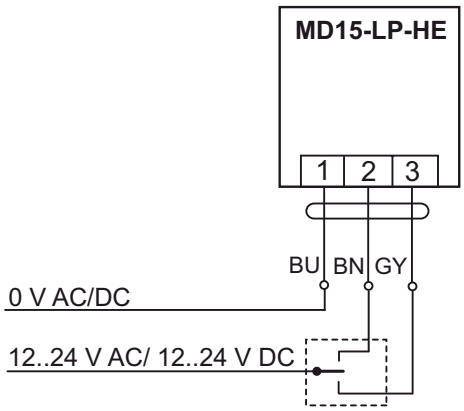
Connection

- Continuous control

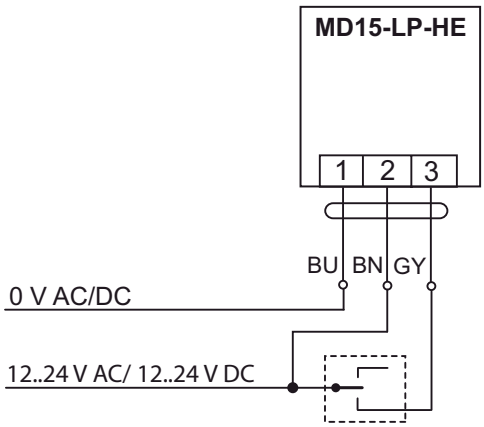




- Three-point control



- Two-point control



R10..20xx and RW15x two-way/three-way valve for MD15-LP-HE/MD15-LP-R-HE

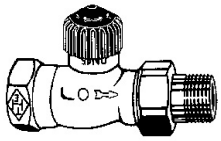
Types

PN10 gunmetal two-way valve for water up to 120 °C

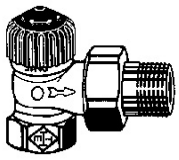
	Type	DN	PN	Kvs	R
Straight flow	R10D	10	10	1.25	3/8"
	R15D	15	10	1.35	1/2"
	R20D	20	10	2.5	3/4"
Right-angled flow	R10E	10	10	1.25	3/8"
	R15E	15	10	1.35	1/2"
	R20E	20	10	2.5	3/4"
Straight flow with Kvs setting	R10DV	10	10	0.86	3/8"
	R15DV	15	10	0.86	1/2"
	R20DV	20	10	0.86	3/4"
Right-angled flow with Kvs setting	R10EV	10	10	0.86	3/8"
	R15EV	15	10	0.86	1/2"
	R20EV	20	10	0.86	3/4"

Technical data – valves R10..20xx and RW15x

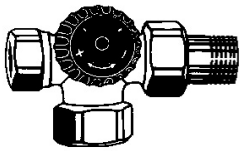
Nominal diameter	DN10 - 20
Pressure rating	PN10
Connection	Pipe screw connections in accordance with DIN EN 2115
Actuating stroke	2 mm
Temperature of medium	Water up to 120 °C
Housing	Gunmetal; nickel-plated
Cone	EPDM
Valve spindle	Stainless steel
Spindle seal	EPDM
Maintenance	Maintenance-free



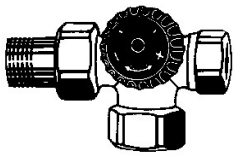
R10..20D,
R10..20DV



R10..20E,
R10..20EV

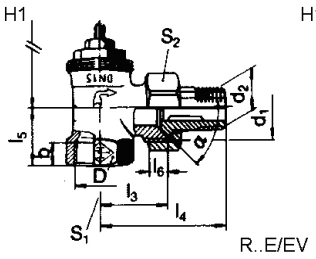


RW15L

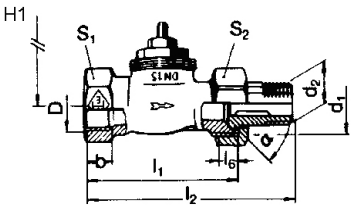


RW15R

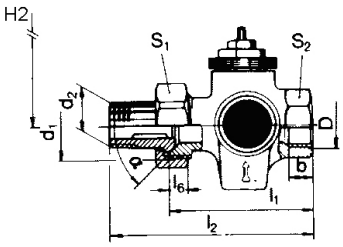
Dimensions

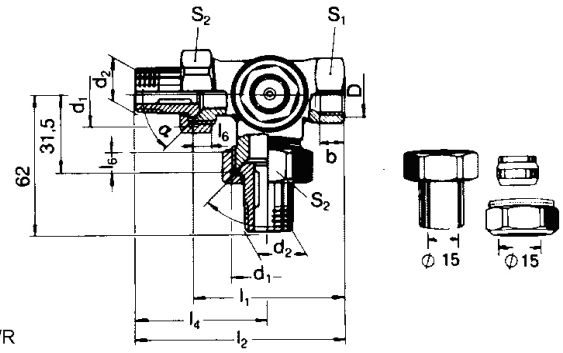


R..E/EV



R..D/DV





RW..L/R

DN	D	b min	d1	d2	l1 ±1	l2 ±2	l3 ±1	l4 ±1,5	l5 ±1,5	l6 min	S1	S2	H1 ±2	H2 ±2
10	Rp 3/8	10,1	G 5/8	R 3/8	59	85	26	52	22	6	22	27	69	74
15	Rp 1/2	13,2	G 1/2	R 1/2	66	95	29	58	26	7	27	30	69	74
20	Rp 3/4	14,5	G 1	R 3/4	74	106	34	66	29	8	32	39	69	74

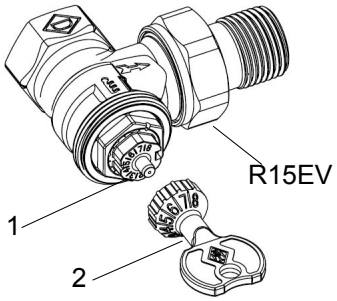
Kvs default setting for R10 - 20DV/EV valves

To adjust to the heat requirement, the R10 - 20DV/EV valves have 8 flow settings for the radiator mass flow rate.

The maximum flow rate, Kvs value (m³/h) can be selected by using the settings 1, 2, 3, 4, 5, 6, 7 or 8 (delivery setting = 8, corresponds to a Kvs value = 0.86).

The setting can be made using a Z29 socket key (accessory). The setting between 1 and 8 can be read from the valve, and will be implemented by the installed small actuator.

Position	1	2	3	4	5	6	7	8
Kvs value	0,049	0,102	0,185	0,313	0,420	0,565	0,740	0,860



(1) Setting mark
(2) Z29 socket key (accessory)

R10..20DQ and R10..20EQ two-way valve for MD15-LP-HE and MD15-LP-R-HE

Types

Gunmetal two-way valve PN10 for water of between -10°C and +100°C

	Type	**DN**	**PN**	**Flow rate range** [l/h]
Straight flow	R10DQ	10	10	10..150
	R15DQ	15	10	10..150
	R20DQ	20	10	10..150
Right-angled flow	R10EQ	10	10	10..150
	R15EQ	15	10	10..150
	R20EQ	20	10	10..150

Technical Data

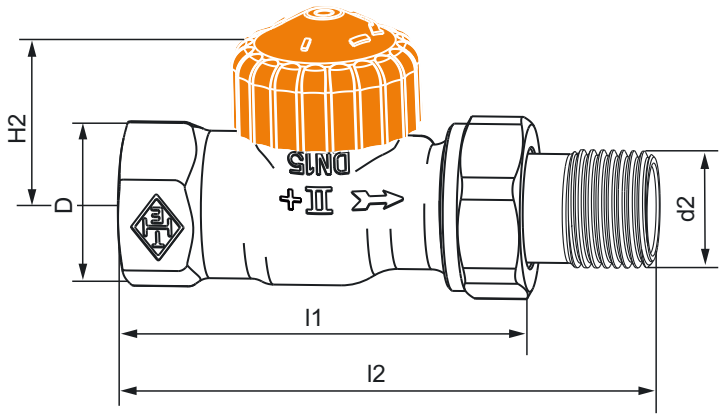
Nominal diameter	DN10–20
Pressure rating	PN10
Flow rate range	The flow rate can be infinitely adjusted within the specified range: 10..150 l/h **Default setting:** 150 l/h
Connection	for actuators and thermostat heads M30x1.5
Differential pressure	Max. 60 kPa min. 10..100 l/h = 10 kPa; 100..150 l/h = 15 kPa
Stroke	1.5 +0.20/-0.25 mm
Temperature	max. operating temperature: 100 °C min. operating temperature: -10 °C
Housing	Corrosion-resistant gunmetal; nickel-plated
Thermostat upper part	Brass, PPS
Compression spring	Stainless steel
Spindle	Stainless steel spindle with double O-ring seal
Valve disc	EPDM

Accessories (not included in delivery)

Z34 Socket key for the two-way valves RxxDQ and RxxEQ

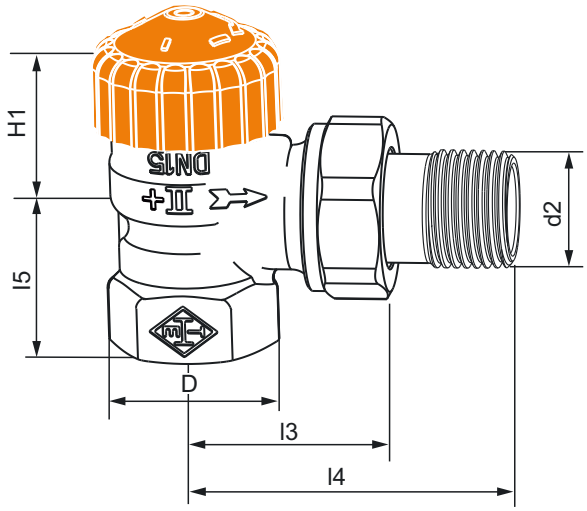
Dimensions

- R10..20DQ



DN	D [inch]	d2 [inch]	l1 [mm]	l2 [mm]	H2 [mm]
10	Rp3/8	R3/8	59	85	21.5
15	Rp1/2	R1/2	66	95	21.5
20	Rp3/4	R3/4	74	106	23.5

- R10..20EQ



DN	D [inch]	d2 [inch]	l3 [mm]	l4 [mm]	l5 [mm]	H1 [mm]
10	Rp3/8	R3/8	26	52	23.5	23.5
15	Rp1/2	R1/2	29	58	27	23.5
20	Rp3/4	R3/4	34	66	29	23.5

Default setting for the flow rate range

The valves have a default setting for adjusting the flow rate.

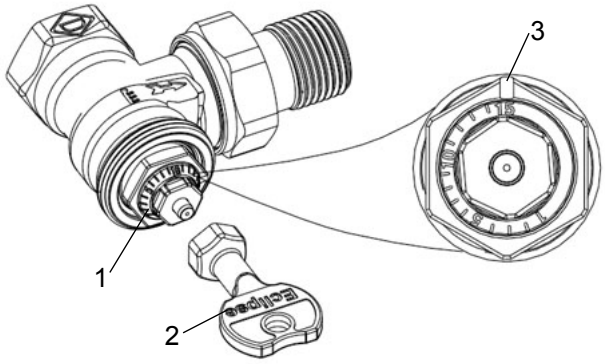
The max. flow rate can be selected with the positions 1 to 15 (delivery setting = 15 corresponds to max. flow rate = 150 l/h).

The setting can be made using a Z34 socket key (accessory). The setting between 1 and 15 can be read from the valve, and will be implemented by the installed small actuator.

Setting	1	I	I	I	5	I	I	I	I	10	I	I	I	I	15
l/h	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150

Control deviation [xp] max. 2 K

Control deviation [xp] max. 1 K to 90 l/h



(1) Settings scale
(2) Z34 socket key (accessory)
(3) Setting mark

Setting at different radiator performance and system spread

Q [W]	200	250	300	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	3800	4000	4800	5300	6500	6800
Δt [K]																													
10	2	2	3	3	4	5	6	7	8	9	10	12	14	15															
15	1	1	2	2	3	3	4	5	5	6	7	8	9	10	12	13	14	15											
20	1	1	1	2	2	3	3	3	4	4	5	6	7	8	9	10	10	11	12	13	14	15							
40		1	1	1	1	1	2	2	2	2	3	3	3	4	4	5	5	6	6	7	7	7	8	8	9	10	11	14	15

Δp min. 10 - 100 l/h = 10 kPa
Δp min. 100 - 150 l/h = 15 kPa

Q = radiator output
Δt = system spread
Δp = differential pressure

example:
Q = 1000 W, Δt = 15 K
setting: 6 (»60 l/h)

Diagramm