

Solenoid valves for air VR

TECHNICAL INFORMATION

- Quick or slow opening and closing
- Flow rate can be restricted
- Robust design for a long service life
- Suitable for high-duty cycling
- Internal bypass orifice can be selected



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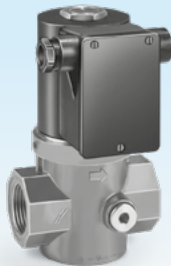
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1 Application



VR..R..N, quick opening/closing



VR..R..R, slow opening/closing



VR..F..N, quick opening/closing

Robust solenoid valves for air VR for staged control of industrial burners in cold air operating mode. For heavy-duty use in industrial heat generation.

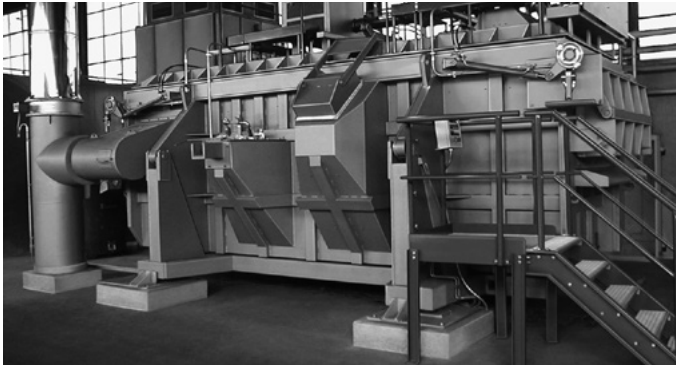
1.1 Application examples



Metallurgical industry: forging furnace



Ceramics industry: intermittent shuttle kiln



Aluminium industry: smelting furnace

2 Certification

Certificates – see www.docuthek.com

EU certified



- 2014/35/EU (LVD), Low Voltage Directive
- 2014/30/EU (EMC), Electromagnetic Compatibility Directive
- 2011/65/EU, RoHS II
- 2015/863/EU, RoHS III

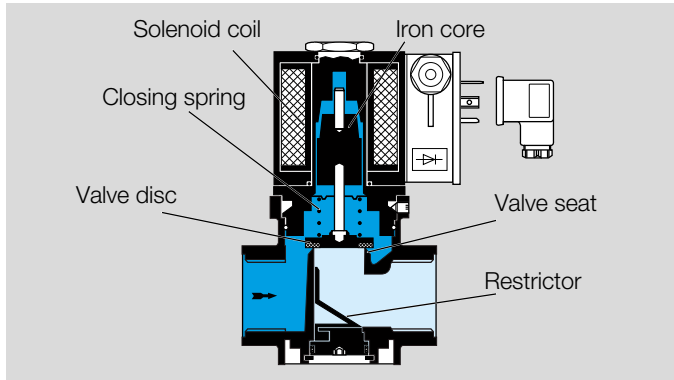
Eurasian Customs Union



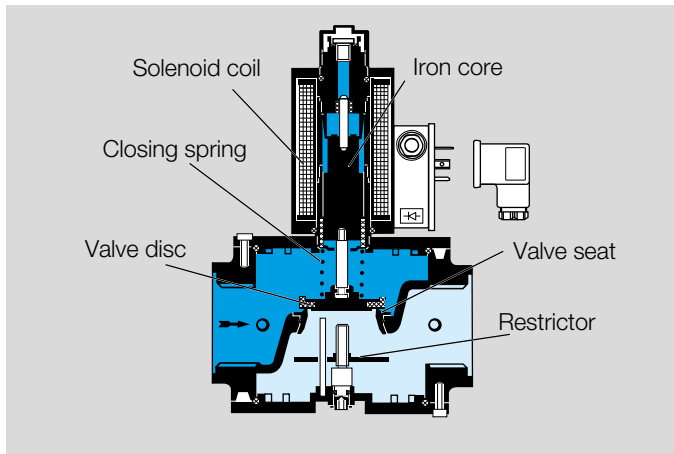
The products VR meet the technical specifications of the Eurasian Customs Union.

3 Function

3.1 Solenoid valve for air VR..N, quick opening and closing



VR 25–40/32..N



VR 40–65..N

The solenoid valve for air VR is closed when de-energized.

Opening: the applied AC voltage is rectified and generates a powerful magnetic field in the solenoid coil. The magnetic field attracts the iron core and lifts the valve plate from the valve seat, acting against the effective inlet pressure and the closing spring force. The solenoid valve for air VR opens and the air supply is released.

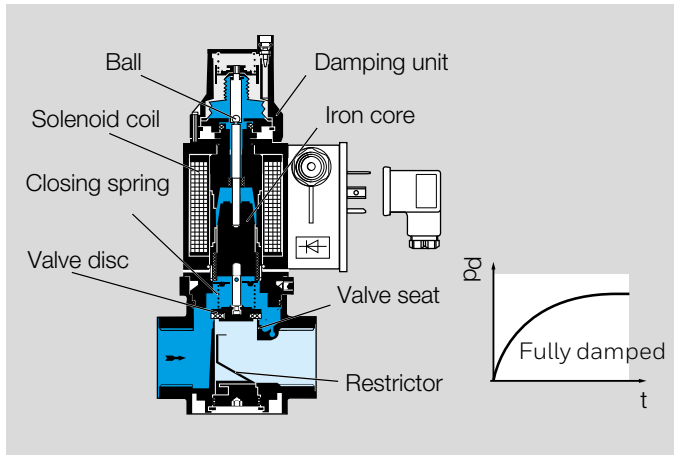
Closing: when the voltage is disconnected, the magnetic field collapses and within 1 s, the closing spring pushes the iron core with valve plate back onto the valve seat. The solenoid valve for air VR closes and the air supply is stopped.

The flow rate can be varied by a restrictor in the housing bottom.

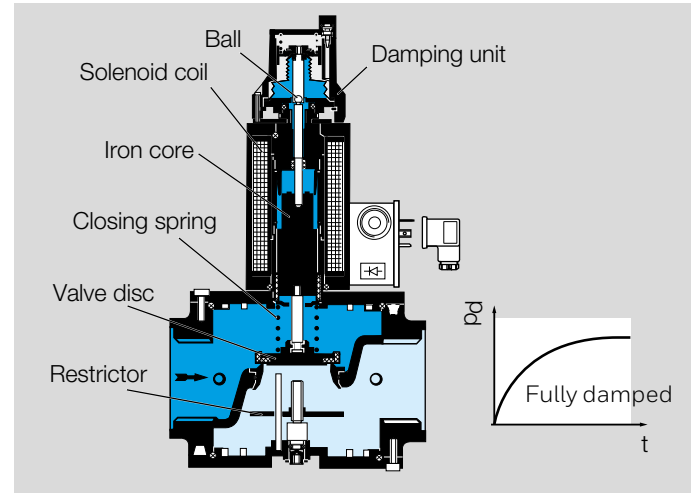
Turn clockwise to reduce the flow rate.

Turn anticlockwise to increase the flow rate.

3.2 Solenoid valve for air VR..R, slow opening and closing



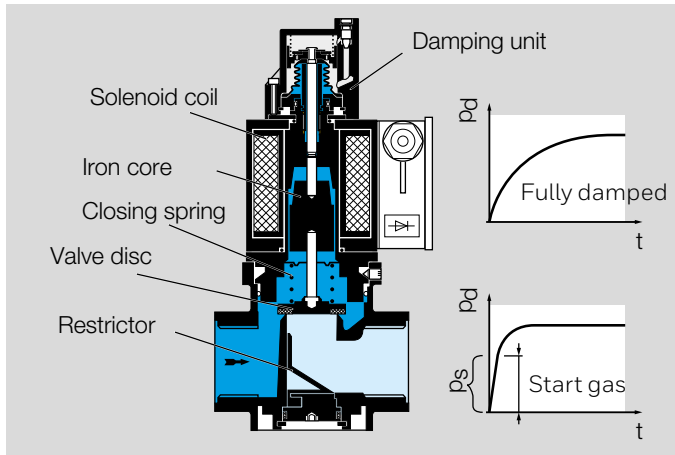
VR 25-40/32..R



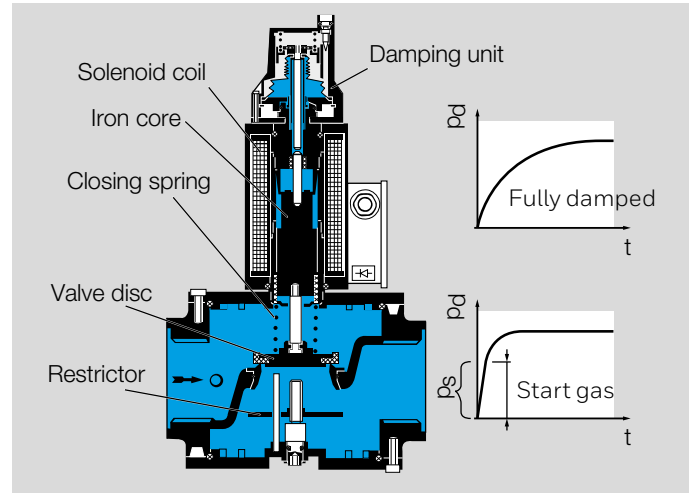
VR 40-65..R

The solenoid valve for air VR..R opens and closes within 4 s. The stem of the iron core is connected to the damping spindle via a ball. This connection ensures that the closing movement is damped.

3.3 Solenoid valve for air VR..L, slow opening and quick closing



VR 25-40/32..L



VR 40-65..L

With start rate: the solenoid valve for air opens with a quick initial lift and then continues slowly until it is fully open.

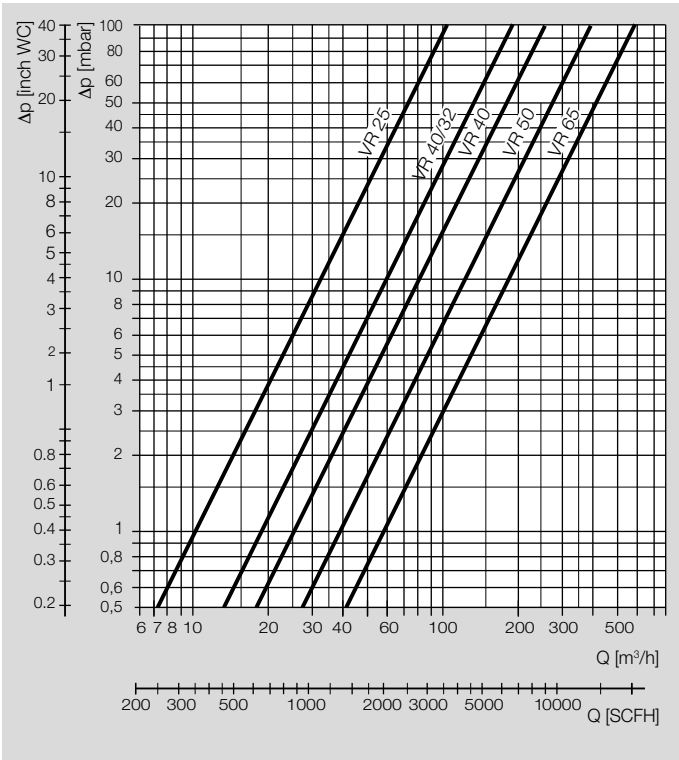
By turning the damping unit, the start rate can be set between 0 and 70% of the flow rate:

Turning it clockwise will decrease the start rate and turning it anticlockwise will increase the start rate.

No start rate is set at the factory.

The VR..L closes within 1 s.

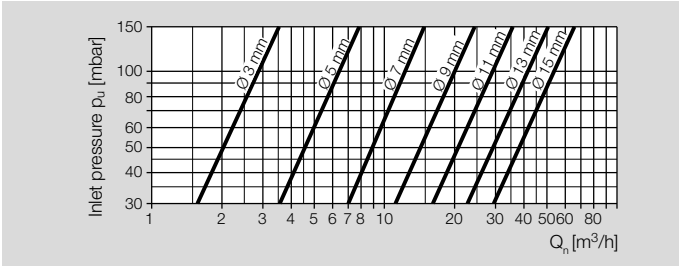
4 Flow rate



4.1 Bypass flow rate

The solenoid valve for air VR is available with a bypass orifice in the valve housing on request.

The diameter of the bypass orifice depends on the supply pressure and air requirement.



4.2 Calculating the nominal size

A web app for calculating the nominal size is available at www.adlatus.org.

5 Selection

Option	VR 25	VR 40/32	VR 40	VR 50	VR 65
DN	25	40/32	40	50	65
Pipe connection	R	R	R	R, F	F
Inlet pressure	01	01	01	01	01
Opening properties	N, L, R	N, L, R	N, L, R	N, L, R	N, L, R
Mains voltage	T, Q, K	T, Q, K	T, Q, K	T, Q, K	T, Q, K
Electrical connection	3, 6, 6L	3, 6, 6L	3, 6, 6L	3, 6, 6L	3, 6, 6L
Measurement point	1	1	3	3	3
Flow adjustment	D	D	D	D	D
Bypass plug	2–15	2–15	2–15	2–15	2–15

Order example

VR 40R01NT33D

5.1 Type code

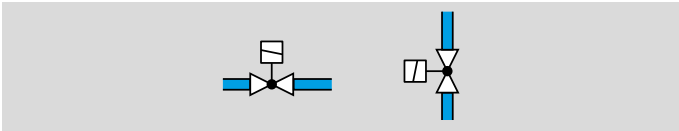
VR	Solenoid valve for air
25-65	Nominal size
R	Rp internal thread
F	Flange to ISO 7005
01	p _u max. 150 mbar
R	Slow opening, slow closing
N	Quick opening, quick closing
L	Slow opening, quick closing
T	Mains voltage 220/240 V AC, 50/60 Hz
Q	Mains voltage 120 V AC, 50/60 Hz
K	Mains voltage 24 V DC
3	Terminal connection box, IP 54
6	Connection box with 3-pin standard socket, IP 54
6L	Connection box with 3-pin standard socket, with lamp, IP 54
1	Screw plug at the inlet
3	Screw plug at the inlet and outlet
D	With flow adjustment

5.2 ProFi

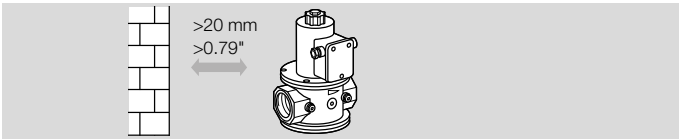
A web app selecting the correct product is available at www.adlatus.org.

6 Project planning information

6.1 Installation



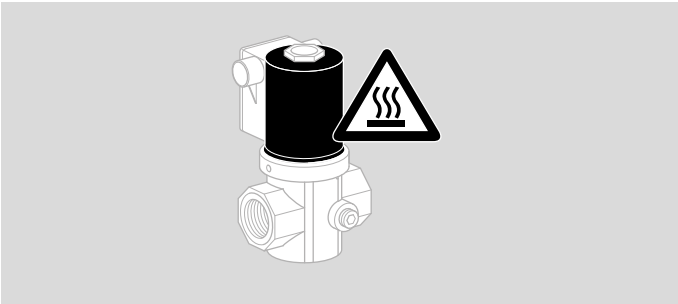
Installation position: black solenoid actuator in the vertical upright position or tilted up to the horizontal, not upside down.



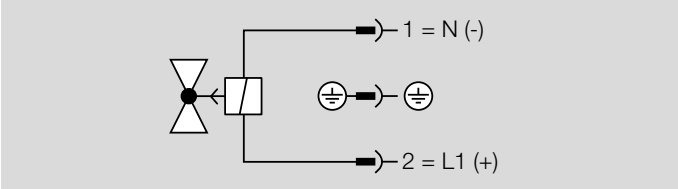
The device must not be in contact with masonry. Minimum clearance 20 mm (0.79").

Do not store or install the unit in the open air.

6.2 Electrical connection



The solenoid actuator heats up during operation. Surface temperature approx. 85°C (185°F) pursuant to EN 60730-1.



Wiring to EN 60204-1.

7 Accessories

7.1 Closed position indicator



Regardless of nominal diameter, the solenoid valve for air VR can be subsequently fitted with a micro switch for the “closed” or “not closed” signal, depending on the wiring of the contact sequence.

Cable gland: PG 11, on request: with socket to ISO 4400.

Connection rating:

12–24 V DC/V AC

$I = 0.1 \text{ A}$, $\cos \varphi = 1$,

$I = 0.05 \text{ A}$, $\cos \varphi = 0.6$.

250 V AC

$I = 1 \text{ A}$, $\cos \varphi = 0.6$,

$I = 5 \text{ A}$, $\cos \varphi = 1$.

If the micro switch has switched a voltage $> 24 \text{ V}$ and a current $> 0.1 \text{ A}$ once, the gold plating on the contacts will have been burnt through. The switch can then only be operated at this power rating or higher power rating.

8 Technical data

Medium: clean air. The air must be dry in all temperature conditions and must not contain condensate.

Opening time:

VR..N: quick opening: 0.5 s,

VR..L: slow opening: 4 s,

VR..R: slow opening: 4 s.

Closing time:

VR..N: quick closing: < 1 s,

VR..L: quick closing: < 1 s,

VR..R: slow closing: 4 s.

Ambient temperature: -20 to +60°C, no condensation permitted.

Storage temperature: -20 to +40°C.

Mains voltage:

220/240 V AC, +10/-15%, 50/60 Hz,

120 V AC, +10/-15%, 50/60 Hz,

24 V DC, +10/-15%

Electrical connection of VR 25–40/32:

Plug with socket to EN 175301-803,

cable gland: PG 11,

connection terminal: 2.5 mm².

Electrical connection of VR 40–65:

Plug with socket to EN 175301-803,

cable gland: PG 13.5,

connection terminal: 2.5 mm².

Enclosure: IP 54.

Duty cycle: 100%.

Power factor of the solenoid coil: $\cos \varphi = 1$.

Solenoid coil insulation: class F insulating material.

Switching frequency:

Version without damping unit: any,
version with damping unit: with fully operational damping unit, max. 6 switching operations per minute.

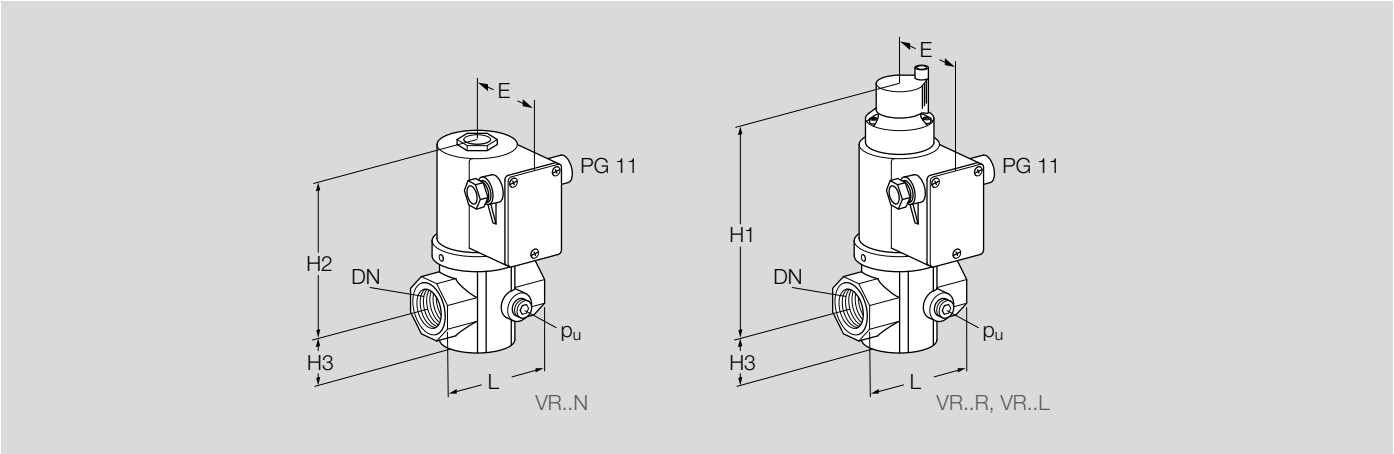
Valve housing: aluminium,
valve plate: Perbunan.

Internal thread: Rp to ISO 7-1.

Flange: ISO 7005 (DN 65 to DIN 2501), PN 16.

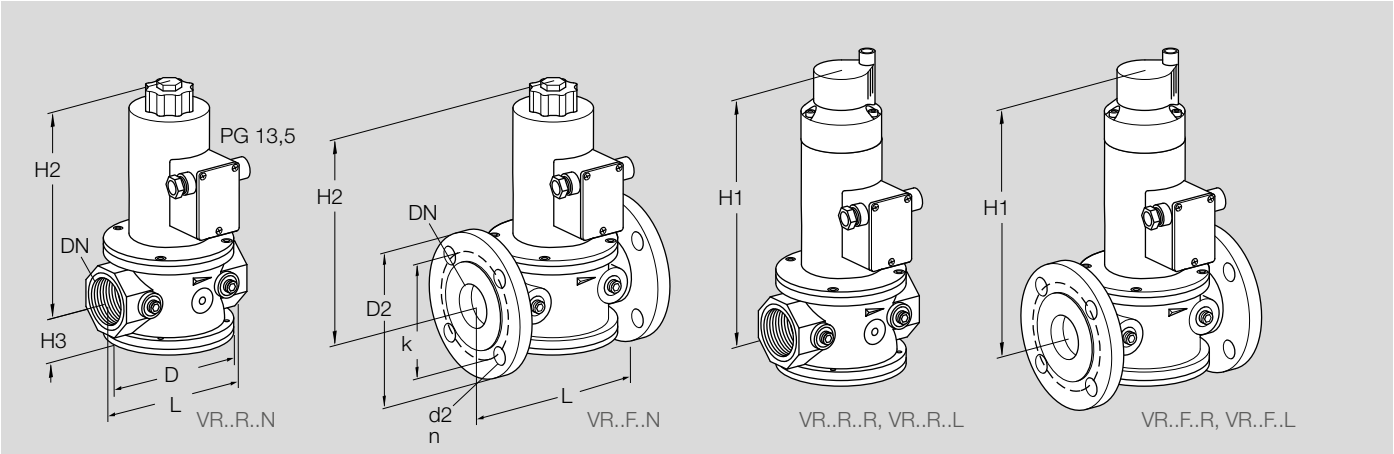
9 Dimensions

9.1 VR 25 to 40/32



Type	Connection		Dimensions [mm]					$p_{u \text{ max.}}$ [mbar]	Q [m³/h] air	k_v [m³/h]	P [VA/W]		Weight [kg]
	DN		L	D	H1	H2	H3		$\Delta p = 1 \text{ mbar}$		220 V AC 120 V AC 24 V DC	240 V AC	
VR 25R01..	25	Rp 1	91	175	126	33	66	150	10	4.3	31	37	2.1
VR 40/32R01..	40	Rp 1½	128	194	145	39	66	150	18	20.5	31	37	2.4

9.2 VR 40 to 65



Type	Conne- ction		Dimensions [mm]								n	p _{u max} [mbar]	Q [m ³ /h] air	k _v [m ³ /h]	P [VA/W]		Weight [kg]
			DN	L	D	H1	H2	H3	D2	k	d2				Δp = 1 mbar	220 V AC 120 V AC 24 V DC	240 V AC
VR 40R01..	40	Rp 1½	150	129	280	210	51	–	–	–	–	150	24	27.3	67	75	5.8
VR 40F01..	40	40	150	129	280	210	51	150	110	18	4	150	24	15.4	67	75	7.8
VR 50R01..	50	Rp 2	180	157	291	221	62	–	–	–	–	150	37	42.1	67	75	6.3
VR 50F01..	50	50	230	157	291	221	62	165	125	18	4	150	37	42.1	67	75	8.3
VR 65R01..	65	Rp 2½	218	183	303	233	74	–	–	–	–	150	57	64.8	73	86	9.1
VR 65F01	65	65	290	183	303	233	74	185	145	18	4	150	57		73	86	11.1

10 Converting units

See www.adlatus.org

11 Maintenance cycles

VR requires little servicing.

We recommend a function check once a year.

Fore more information

The Honeywell Thermal Solutions family of products includes Honeywell Combustion Safety, Eclipse, Exothermics, Hauck, Kromschroder and Maxon. To learn more about our products, visit ThermalSolutions.honeywell.com or contact your Honeywell Sales Engineer.

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