

# Gas Pressure Regulator RMG 372



## PRODUCT INFORMATION

**Serving the Gas Industry  
Worldwide**

## Gas Pressure Regulator RMG 372


Application, properties, technical specifications

### Applications

- Pilot-operated gas pressure regulator for commercial and industrial applications and local supply stations.
- Suitable for gases according to DVGW Worksheet G 260 and neutral, non-aggressive gases.  
Other gases: on enquiry.

### Characteristics

- Gas pressure regulator with incorporated safety shut-off valve (SSV)
- Valve diameter = pipe size (DN)  
Except DN 150 = valve seat 140 mm
- SSV with in-line flow – pressure compensating valve (internal bypass) is incorporated in the main line valve
- Large inlet pressure range
- Noise reduction optional
- High regulating accuracy
- Final control element with pressure compensation
- Optionally with pilot, models RMG 610 (RS 10d), RMG 650 and BD-600
- Design available with/ without safety shut-off valve (SSV) with in-line flow
- Very easy to maintain thanks to exchangeable functional units (cartridge assembly)

TECHNICAL DATA		
Max. admissible pressure PS	Integral overpressure protection: 16 bar / Integral overpressure protection: 20 bar	
Max. inlet pressure $p_{u\max}$	16 bar / 20 bar	
Set range $W_{ds}$	0.01 to 15 bar	
Outlet pressure range $p_d$	Accuracy class AC	Lock-up pressure class SG
10 to 20 mbar	10	50
> 20 to 50 mbar	5	30
> 50 to 500 mbar	5	10
> 0.5 to 2.5 bar	2,5	10
> 2.5 bar	1	5
Class of lock-up pressure zone SZ	SZ 2.5	
Min. pressure difference	0.2 bar Smaller min. pressure difference on enquiry.	
Pipe sizes	DN 25, DN 50, DN 80, DN 100, DN 150	
Type of connection	DIN flanges PN 16, class (ANSI) 150 Other flanges on enquiry.	
Materials	Main valve body Actuator housing Diaphragms, sealing rings Internal parts	Ductile iron, cast steel Cast aluminium alloy NBR/ECO Al alloy, steel, brass
Temperature range class 2	-20 °C to +60 °C	
Function and strength	according to DIN EN 334 and DIN EN 14382	
CE registration according to PED		
Explosion protection	All mechanical components of this device are without ignition sources. As such, they are not subject to ATEX 95 (94/9/EC). All electrical components used with this device fulfil the ATEX requirements.	

## Gas Pressure Regulator RMG 372

Application, properties, technical specifications

VALVE SPECIFICATIONS			
Nominal width	Valve seat Ø (mm)	Flow rate coefficient $K_G^*$ in (m <sup>3</sup> /h)/bar	
		without noise reduction	with noise reduction
DN 25	25	370	360
	31	460	440
DN 50	50	1,500	1,300
	31	900	800
DN 80	80	3,400	3,100
	60	2,500	2,300
DN 100	100	5,300	4,400
	80	4,000	3,300
	60	3,200	2,900
DN 150	140	12,800	11,300
	100	6,100	5,300

\*) Flow rate coefficient  $K_G$  for natural gas: ( $\rho_n = 0.83 \text{ kg/m}^3$ ,  $t = 15 \text{ °C}$ )

ACCURACY CLASS AND LOCK-UP PRESSURE CLASS										
Outlet pressure range $p_d$ in bar	RMG 610		RMG 650 - 1		BD 600 LP		BD 600 MP		BD 600 HP	
	AC	SG	AC	SG	AC	SG	AC	SG	AC	SG
0.01 to 0.02	10	50			10	50				
> 0.02 to 0.05	5	20			10	30				
> 0.05 to 0.5	5	10			5	10	10	30		
> 0.5 to 2.5	2.5	10	10	20			5	20	10	20
> 2.5 to 10	1	5	2.5	5			2.5	5	2.5	5
> 10			1	5						

For  $p_d < 1.5$  bar: two-stage version of BD 600 is used on principle.

## Gas Pressure Regulator RMG 372

Application, properties, technical specifications

SPECIFIC SET RANGE WITH PILOT RMG 610 (RS 10D)									
Load limiting stage					Control stage				
Measuring unit	Spring no.	Wire Ø in mm	Colour coding	Specific set range W <sub>ds</sub>	Measuring unit	Spring no.	Wire Ø in mm	Colour coding	Specific set range W <sub>ds</sub>
M	0	3.3	green	100 mbar to 1.5 bar	N	0	2.5	white	10 mbar to 40 mbar
						1	3	yellow	20 mbar to 60 mbar
						2	3.5	green	40 mbar to 120 mbar
						3	4	red	80 mbar to 200 mbar
					4	5	blue	100 mbar to 500 mbar	
	1	4.7	silver	500 mbar to 5 bar	M	0	3,3	green	300 mbar to 1.5 bar
						1	4	blue	1 to 2.5 bar
						2	4.7	brown	2 to 3.5 bar

SPECIFIC SET RANGE WITH PILOT RMG 650				
	Setpoint spring			Specific set range W <sub>ds</sub> in bar
	Spring no.	Wire Ø in mm	Colour coding	
Control stage	2	4.5	black	1 to 5
	3	5	grey	2 to 10
	4	6.3	brown	5 to 15
Automatic load limiting stage	0	5	green	to 15 automatic 0.5 above p <sub>d</sub>

SPECIFIC SET RANGE WITH PILOT BD-RMG 600				
Control stage				
Measuring unit	Setpoint spring			Specific set range W <sub>ds</sub>
	Spring no.	Wire Ø in mm	Colour coding	
LP	1047		blue	15 mbar to 140 mbar
	TX002	3.7	light blue	25 mbar to 200 mbar
	TX003	4.5		150 mbar to 500 mbar
MP	1047		blue	140 mbar to 350 mbar
	TX002	3.7	light blue	350 mbar to 2 bar
	TX003	4.5		2 to 4 bar
HP	TX002	3.7		700 mbar to 4 bar
	TX003	4.5	light blue	4 to 8 bar

## Gas Pressure Regulator RMG 372

Application, properties, technical specifications

SETTING RANGE OF SSV CONTROL ELEMENT									
	Setpoint spring			Upper response pressure*		Lower response pressure*		Accuracy group AG**	
	No.	Colour coding	Wire diameter in mm	Upper setting range in bar	Min. re-engage differential between response pressure and normal operating pressure $\Delta p_0$ in bar	Lower setting range in bar	Min. re-engage differential between response pressure and normal operating pressure $\Delta p_U$ in bar		
<b>K1a</b>	01***	green	2.25	0.025 to 0.05	0.02			10/5	
	1	yellow	2.5	0.05 to 0.1	0.03			10/5	
	2	light red	3.2	0.08 to 0.25	0.05			10/5	
	3	dark red	3.6	0.2 to 0.5	0.1			5/2.5	
	4	white	4.75	0.5 to 1.5	0.25			5/2.5	
	04	yellow	5	1.3 to 1.7	0.3			5/2.5	
	9	ivory	5.3	1.6 to 2.3	0.4			5/2.5	
	5	yellow	1				0.005 to 0.015	0.012	20/10
6	white	1.2				0.014 to 0.04	0.03	15/5	
7	black	1.4				0.035 to 0.12	0.06	5	
8	bright red	2.25				0.1 to 0.3	0.1	<b>5</b>	
<b>K2a</b>	2	light red	3.2	0.4 to 0.8	0.1			10/5	
	3	dark red	3.6	0.6 to 1.6	0.2			10/5	
	4	white	4.75	1.5 to 4.5	0.3			5/2.5	
	04	yellow	5	4 to 5.2	0.3			5/2.5	
	9	ivory	5.3	5 to 7	0.6****			5/2.5	
	5	light blue	1.1				0.06 to 0.15	0.05	10/5
	6	black	1.4				0.12 to 0.4	0.1	5
	8	bright red	2.25				0.35 to 1	0.15	<b>5</b>
<b>K16</b>	2	grey	5	2 to 10	0.4			1	
	3	brown	6.3	5 to 20	0.8			<b>1</b>	
<b>K17</b>	2	grey	5			2 to 10	0.4	5	
	3	brown	6.3			5 to 15	0.8	5	

\*) PLEASE NOTE: If the actuator is configured to handle both overpressure and underpressure release, the difference between the set-points of  $p_{dSO}$  and  $p_{dSU}$  must exceed the sum of the values set for  $\Delta p_{wO}$  and  $\Delta p_{wU}$  by at least 10 %.  $(p_{dSO} - p_{dSU})_{min} = 1.1 \cdot (\Delta p_{wO} + \Delta p_{wU})$

\*\*) The higher AG group applies to the first half, the lower AG group to the second half of the setting range.

\*\*\*) on enquiry

\*\*\*\*) We recommend a maximum re-engage differential of < 4.5 bar to facilitate engaging the SSV.

## Gas Pressure Regulator RMG 372

### Design and operation

#### Design and operation

The purpose of a gas pressure regulator is to stabilise – within certain predefined limits – the pressure prevailing in the pipes on the outlet side and to compensate changes in gas consumption and/or inlet pressure. The RMG 372 gas pressure regulator is composed of the main valve body on the one hand and control and safety shut-off functional units on the other.

The final control element of the main valve is in a state of equal pressure thanks to a diaphragm. A variety of valve seat diameters is available. Also a range of actuators of multiple sizes.

There is a pilot which may be supplied with or without an individually adjustable auxiliary pressure stage, depending on the outlet pressure. Auxiliary energy for the actuator is provided by the pressure difference between the inlet pressure  $p_u$  and outlet pressure  $p_d$ . Adjust the auxiliary energy to adjust static amplification, and so adjust the gas pressure regulator to the specific conditions of the regulating line.

There is a fine filter to protect the pilot against dirt. Thanks to the return line, the outlet pressure  $p_d$  is transferred to the bottom side of the control diaphragm. That way changes to the outlet pressure  $p_d$  have a direct influence on the opening behaviour of the final control element. The outlet pressure  $p_d$  you want to control is fed to the pilot via the measuring line. The measuring diaphragm of the control stage detects the actual outlet pressure  $p_d$  prevailing and compares it to the  $p_d$  target value provided by an adjustable spring. If this comparison reveals any deviations from the controlled pressure, the device will adjust the set pressure by changing the opening position of the throttling diaphragm in an effort to bring the outlet pressure (actual value) in line with the set point. If the flow rate is zero, the device will seal bubble-tight.

The RMG 372 gas pressure regulator may be supplied with or without a safety shut-off functional unit (SSV). The actuator monitors the outlet pressure  $p_d$  of the gas pressure regulator and triggers the SSV to close in the event of overpressure (or, optionally, underpressure). Closing the SSV may be also triggered by means of the (optional) manual release or the (optional) electromagnetic release which may trigger the event in case of power comes on or power cuts out. Those optional devices may be installed between the measuring line and measuring line connection to the actuator. Actuating the optional devices (manually or electrically) will shut off the pressure supply to the actuator, and the actuator will be deaerated. And the underpressure release of the actuator will, in turn, trigger the closing of the SSV.

For electrical remote indication of the valve-position SSV closed, an optional proximity switch may be installed, if desired.

The actuator detects the outlet pressure to be monitored via the SSV measuring line. The measuring diaphragm detects the outlet pressure  $p_d$  and compares it to the target values  $p_{dso}$  and  $p_{dsu}$  which may be set on the corresponding control devices. As soon as the pressure in the outlet-side pipes reaches the overpressure release point (or underpressure, depending on version), the measuring diaphragm and switch bush will move to the upper (or lower) release position. The ball mechanism will release the switching rod. And the SSV flap will close. Re-engaging the SSV is possible by hand only. Proceed as follows: unscrew the cap of the actuator. Turn the cap round and screw it on to the switching rod. Then use it to pull the switching rod back to put the closing spring under tension. Now it is possible to apply an open-jawed wrench/spanner to the valve cap shaft projecting from the body and to turn the SSV flap back to the open position. However, the following conditions must be fulfilled before the switching rod can be re-engaged. The plant must be shut down and the pressure to be monitored must be decreased or increased by a certain value. (Minimum smallest difference between release pressure and normal operating pressure.)

#### Assembly, commissioning and maintenance

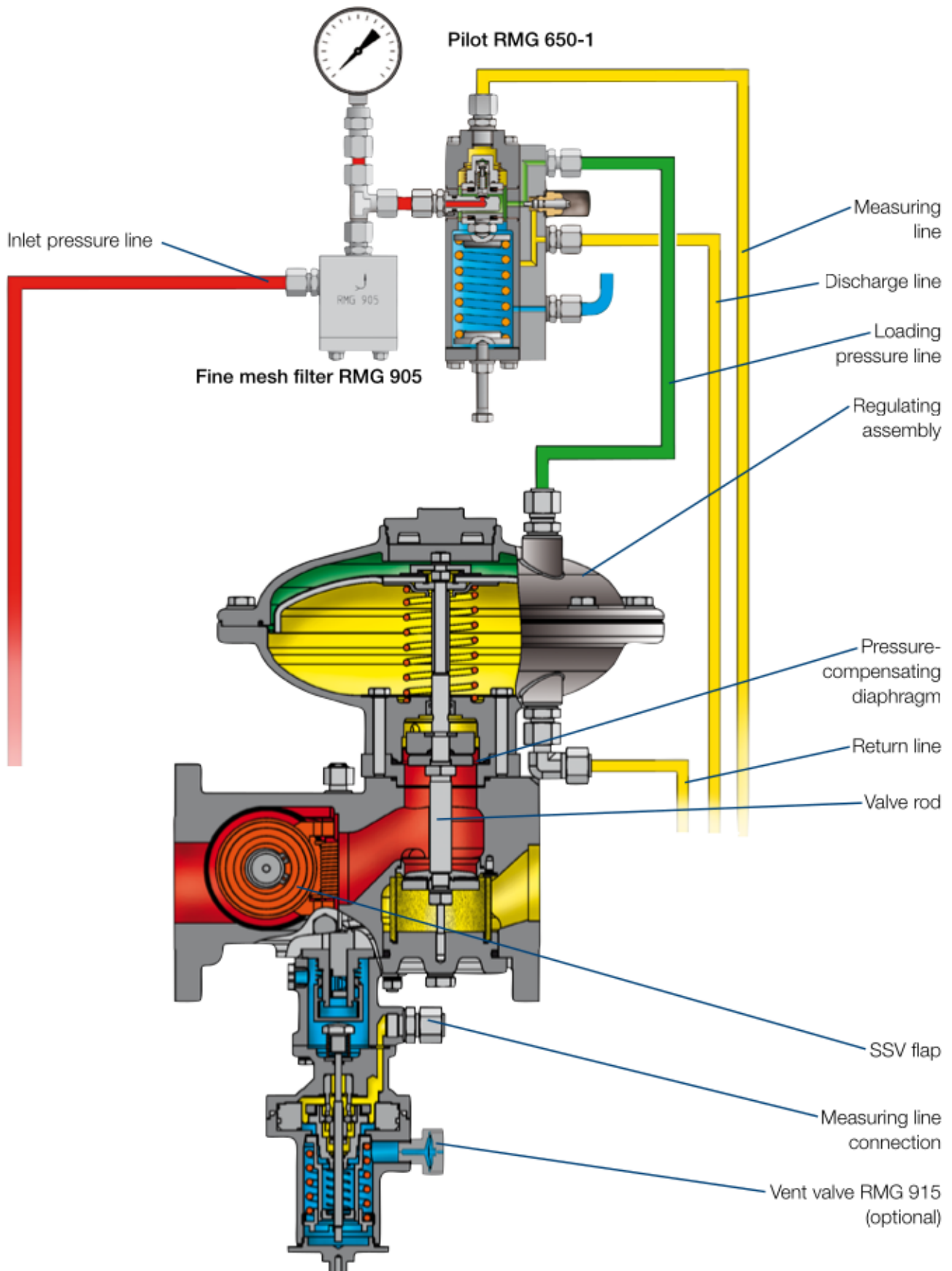
For assembly and maintenance, please refer to DVGW Worksheets G 491, G 495 and G 600, and the Manual. The "Operating and maintenance instructions: Spare parts" contain detailed information on installation, start-up, maintenance and the most important spare and replacement parts.

This gas pressure regulator should preferably be installed in a horizontal position.

## Gas Pressure Regulator RMG 372

Design and operation

**Fail close function**  
Valve closes in case diaphragm breaks.



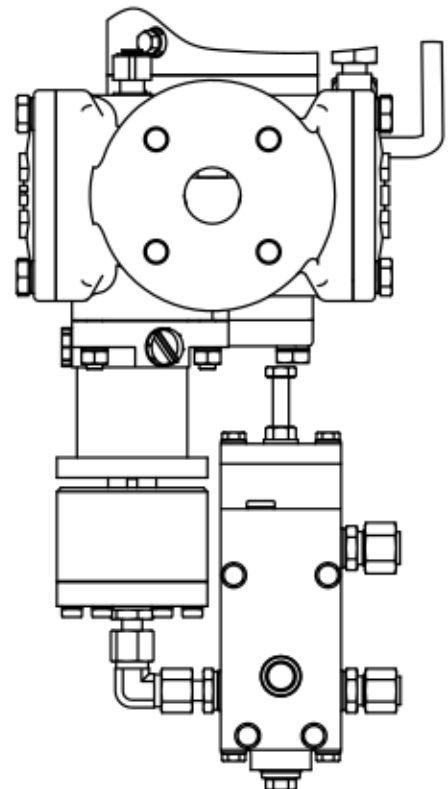
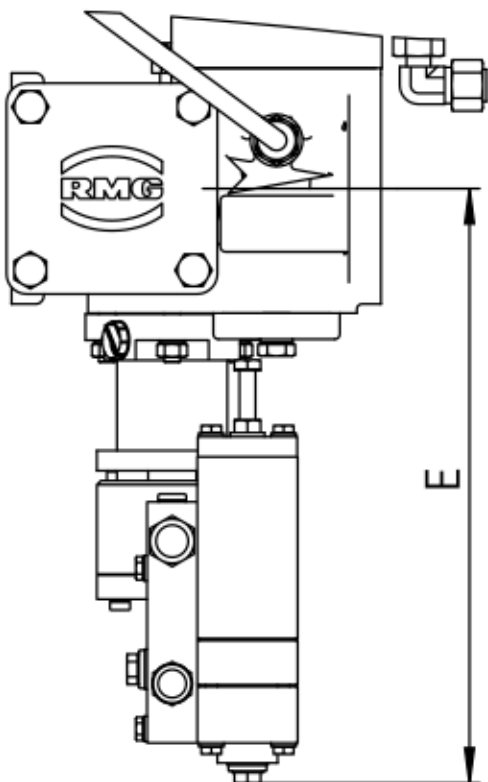
## Gas Pressure Regulator RMG 372

### Dimensions

DIMENSIONS																		
DN	A	B	C	D	E		F			G	H		I		J			
					K1a/K2a	K16/K17	RMG 610	RMG 650	BD-RMG 600/ 1/2 stages		RMG 610	BD-RMG 600/ 2-stage	RMG 650	BD-RMG 600/ 1-stage	BD-RMG 600/ 2-stage	RMG 610	RMG 650	BD-RMG 600/ 1/2 stages
in mm																		
25 / RE 1	184	80	52	40	283	296	484	383	383	308	300	226	196	212	226	212	241	248
50 / RE 1	254	114	69	50	273	286	513	413	417	308	300	226	225	204	251	215	227	248
80 / RE 2	298	140	83	65	330	343	579	468	489	398	320	223	217	224	242	246	274	300
100 / RE 2	352	160	100	72	330	343	579	467	485	398	320	223	217	226	248	254	274	300
150 / RE 3	451	227	120	106	339	352	715	580	540	560	225	199	245	273	273	333	356	370

www.ittcontrols.com | contact@ittcontrols.com

### Control unit K16/K17

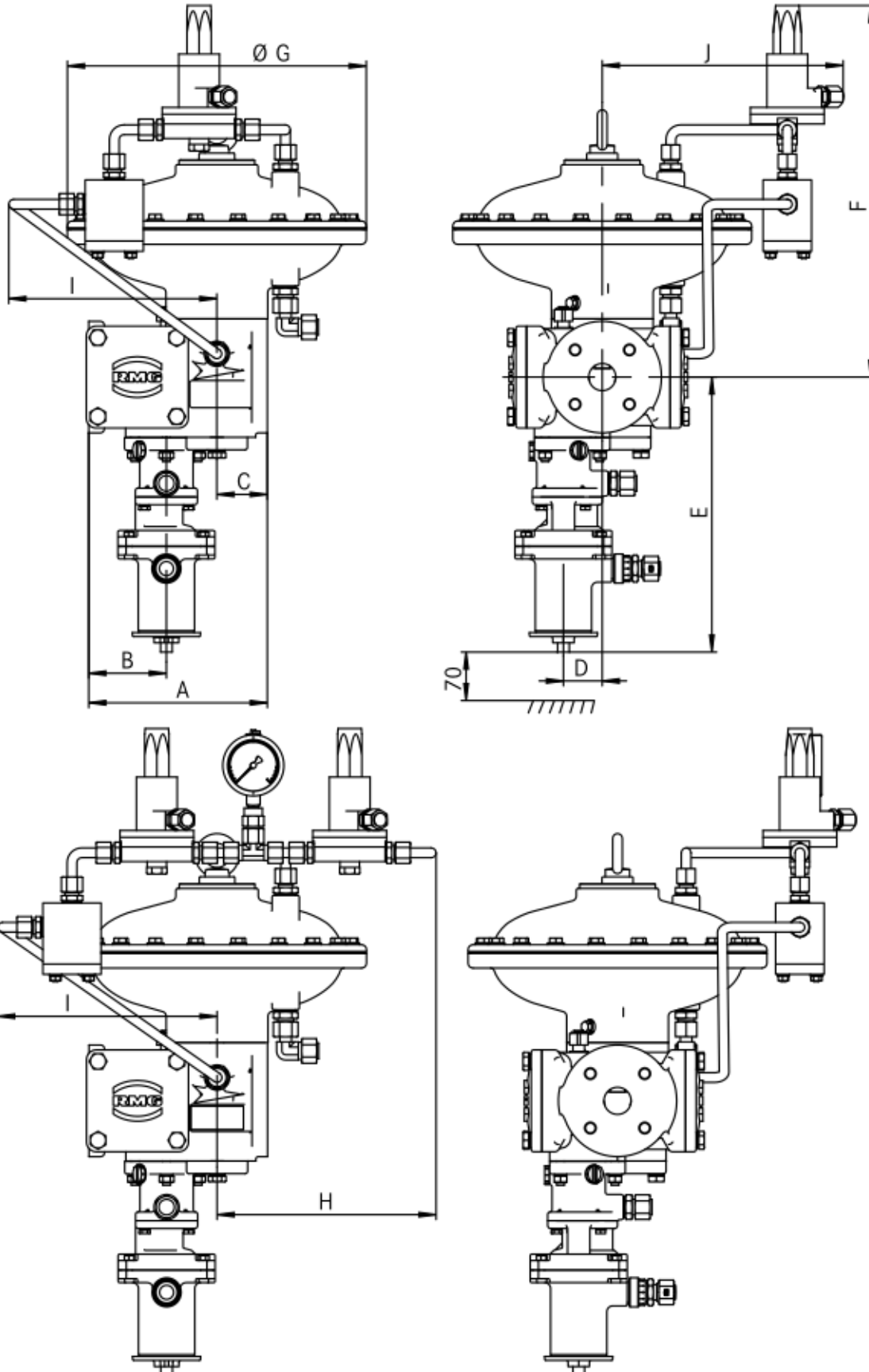




**Gas Pressure Regulator RMG 372**

Dimensions

BD RMG 600

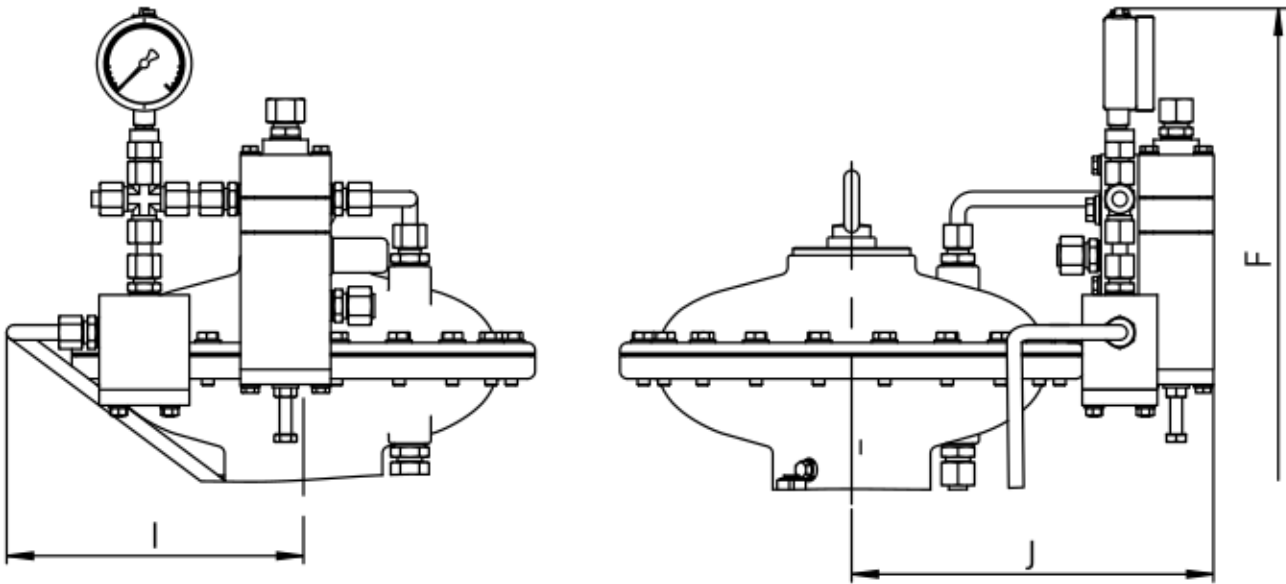


9

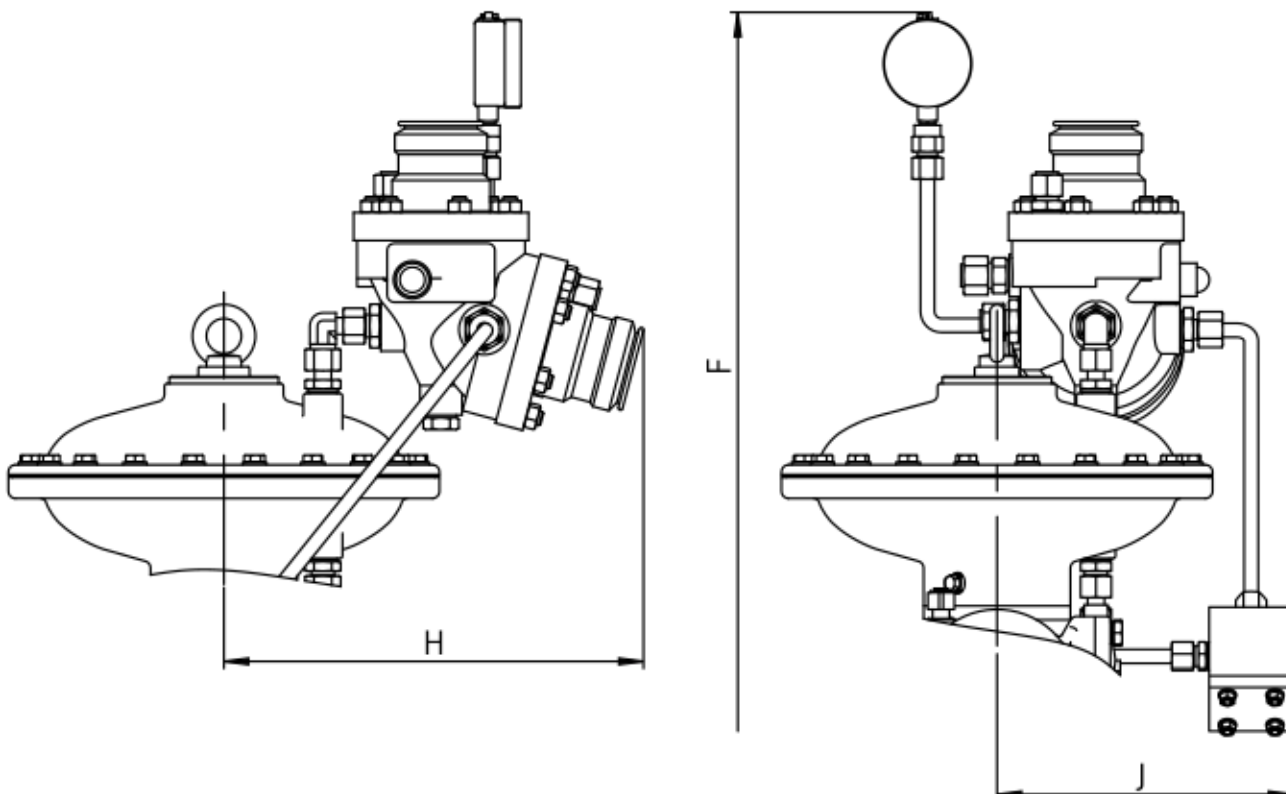
## Gas Pressure Regulator RMG 372

Dimensions

RMG 650



RMG 610



## Gas Pressure Regulator RMG 372

Dimensions, weight and connection

WEIGHT				
Nominal width	RMG 610	RMG 650	BD 600 1-stage	BD 600 2-stage
25/RE1	25 kg	24 kg	23 kg	25 kg
50/RE 1	37 kg	36 kg	35 kg	37 kg
80/RE 2	62 kg	61 kg	60 kg	62 kg
100/RE 2	73 kg	72 kg	71 kg	73 kg
150/RE 3	144 kg	140 kg	141 kg	143 kg

CONNECTION					
	Pilot				SSV controller
	Return line	Measuring line	Discharge line	Vent line	Measuring and vent lines
RA 1 DN 25/50	Connection* for  Pipe 12 x 1.5 (thread G 3/8)	Connection* for	Connection* for	Connection* for	Connection* for
RA 2 DN 80/100		Pipe 12 x 1.5 (thread M16 x 1.5)	Pipe 12 x 1.5 (thread M16 x 1.5)	Pipe 12 x 1.5 (thread M16 x 1.5)	Pipe 12 x 1.5 (K16/K17 thread M16 x 1.5; K1a/K2a G3/8)
RA 3 DN 150	Pipe 16 x 2 (thread G 1/2)				

\*) Pipe screw connection (without brazing) with compression joint according to DIN 2353

Connecting pieces: DN 25: Screws M12 x L EN 24014 - 5.6  
 DN 50 to 100: Screws M16 x L EN 24014 - 5.6  
 DN 150: Screws M20 x L EN 24014 - 5.6  
 L may vary depending on type and version.

## Gas Pressure Regulator RMG 372

Description

Example

RMG 372 - 25 - K1a / E1 / HA / F - 25 / MN - So

PIPE SIZE/REGULATING ASSEMBLY				Type	Pipe size DIN	SSV controller	Electromagnetic release	Manual release	Electrical remote indication of the "CLOSED" position	Valve seat diameter	Regulating assembly design	Special design (is to be specified)
DN	RE											
DN 25	RA 1		25									
DN 50	RA 1		50									
DN 80	RA 2		80									
DN 100	RA 2		100									
DN 150	RA 3		150									
CONTROL UNIT												
	Setting range in bar											
	$W_{dso}$	$W_{dsu}$										
K1a	0.025 to 2.3	0.005 to 0.3	K1a									
K2a	0.4 to 7	0.06 to 1	K2a									
K16	2 to 20		K16									
K17		2 to 15	K17									
ELECTROMAGNETIC REMOTE RELEASE												
Release by	current supply/current failure		E1/E2									
MANUAL RELEASE												
Manual release with push button valve RMG 912			HA									
REMOTE INDICATION												
Electrical remote indication of "CLOSED" position			F									
VALVE SEAT DIAMETER												
DN												
DN 25			25									
			31									
DN 50			31									
			50									
DN 80			60									
			80									
DN 100			60									
			80									
			100									
DN 150			100									
			140									
PILOT ASSEMBLY DESIGN												
Pilot	Set range $W_d$ in bar											
RMG 610 MN	0.01 to 0.5		MN									
RMG 610 MM	0.3 to 3.5		MM									
RMG 650	1 to 15		650									
BD-RMG 600 LP	0.015 to 0.5		LP									
BD-RMG 600 MP	0.14 to 4		MP									
BD-RMG 600 HP	0.7 to 8		PS									
SPECIAL DESIGN												
Special design (to be specified)			So									

Technical modifications reserved

## Gas Pressure Regulator RMG 372

---

## Gas Pressure Regulator RMG 372

---

14

## Gas Pressure Regulator RMG 372

---