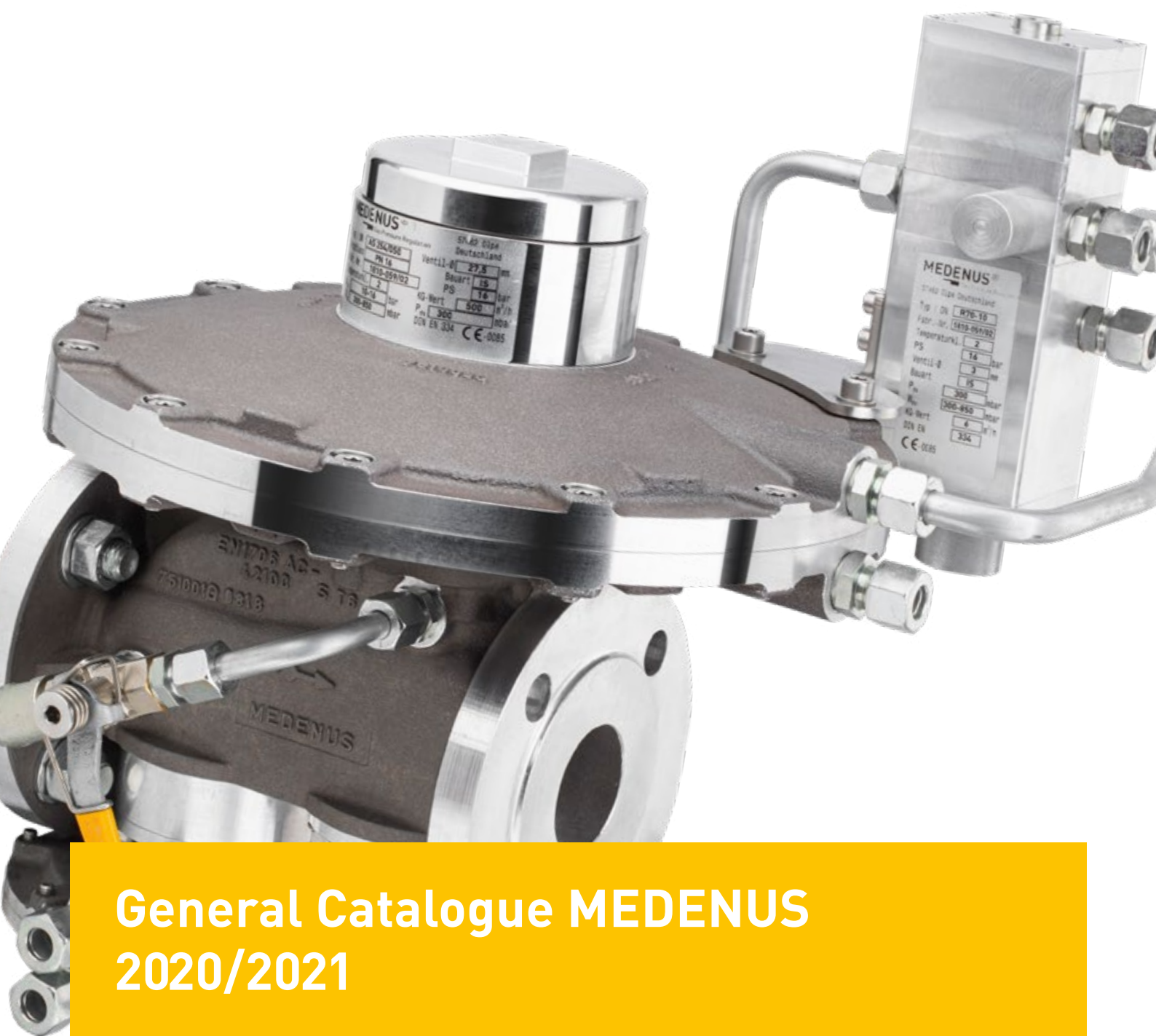


MEDENUS

Gas Pressure Regulation



General Catalogue MEDENUS
2020/2021

EN

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Do you want to be kept up-to-date with the very latest news from MEDENUS?

If so, go to our website and register for our newsletter at medenus.de/en/newsletter.html

We will send you no more than two or three emails per year and you can easily unsubscribe at any time.

LIST OF ABBREVIATIONS AND FORMULA SYMBOLS

ATC	Acceptance test certificate	$P_{d20/2}$	outlet pressure R70-20 with I/P converter 1:2 for follow setpoint adjustment
BV	Vent valve	P_{d10}	outlet pressure R70-10
DN	Nominal size	Q_n	standard volumetric flow rate
DVGW	Deutsche Vereinigung des Gas- und Wasserfaches e.V.	Q_{min}	minimum volumetric flow rate
f	conversion factor gases	Q_{max}	maximum volumetric flow rate
FPR	fluoro polymer rubber	RE	control unit
HD	high-pressure	RSD	throttle valve
HDS	high-pressure screw spindle	SSV	safety shut-off valve
$H_{s,n}$	calorific value	SRV	safety relief valve
K_G	K_G -Value	t_{gas}	gas temperature
p_d	outlet pressure	VA	stainless steel
$p_{ds\ o,u}$	setpoint of the response pressure	w_d	outlet gas velocity
PS	maximum allowable pressure	w_u	inlet gas velocity
p_u	inlet pressure	ρ_n	gas density
P_{dF}	pneumatic following target value of I/P converter	Δp	differential pressure
P_{d100}	outlet pressure R70-100		
P_{d20}	outlet pressure R70-20		

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INFORMATION REGARDING THE CATALOGUE

Please observe the following information when using this catalogue.

- The minimum order value per order is € 90.—.
- Selecting the devices:
For the right selection of the products detailed information is available at the certain product pages.
If you require assistance in selecting a suitable product please get in touch with us or use the inquiry form on page 60.
- Order changes:
If it's necessary to change a current order and you already received an order confirmation from us, we will issue an invoice of € 75.— (plus additional expenses).
- Cancellation costs:
When you cancel your order we charge:
 > 1 week before the delivery date: 25 %
 < 1 week before the delivery date: 75 %
 when ready for shipping: 100 %
- Spare Parts:
All spare parts for our products are on stock in Olpe.
On our website www.medenus.de/fabrication-number-search you can access the delivery specification and the required spare parts based on the device serial number (devices delivered from October 2006).
You can send an inquiry from there or you can directly order them.
- We supply our standard documentation with every device (Invoice, operating and maintenance instructions and if ordered an acceptance test certificate (ATC) acc. to EN10204/3.1)
Additional documentation on request and by charge.
- Special versions:
If you cannot find a suitable product in our catalogue, please feel free to contact us. We offer standard trainings as well as customized trainings. For further information please get in touch or have a look at our website.
- Training courses:
We offer standard seminars as well as customized ones. For further information please have a look at our webpage or get in touch with us.



EXPRESS

YOU'RE IN A HURRY? WE WILL BE GLAD TO HELP YOU!

If you require your valve even quicker than our standard delivery times then please get in-touch. Once reviewed by our production team, we will advise you which options are available.



FACTS

MEDENUS has grown to a global brand. With the highest standards of quality and craftsmanship taken over from Mr. MEDENUS, Gas pressure regulators, filters, safety shut-off and safety relief valves are still being manufactured today. With our innovative tradition, we face today's energy transition and deliver hundreds of items already for hydrogen applications.



MEDENUS

 Gas Pressure Regulation

HISTORY

Three years before a global player in silicon valley was founded, Dieter Medenus already recognized the possibility of producing gas pressure regulators in his own residence to meet a worldwide demand.

Within a few years, Dieter Medenus earned international reputation due to his high quality level. MEDENUS grew into a brand - the company grew in the same way. Until the retirement of Mr. Medenus in 2004, he perfected the high quality standard of the regulators. Regulator quality remains our top priority. By combining high quality materials with craftsmanship, we create a wide range of controllers for worldwide use. We guarantee a continuous and stable gas supply, whether at the blast furnace, in the power plant or city gas distribution.

**GERMAN QUALITY IN
LEADING DELIVERY TIMES.**

WE REGULATE THAT.

WWW.MEDENUS.DE



NEW HEADQUARTERS

Since the beginning of MEDENUS as a small company in a garage, we have grown with the requirements of our customers. In order to be able to be your efficient and flexible partner in the future as well, we invested in a new production facility in Olpe.

Olpe offers us an excellent infrastructure for short delivery times and proximity to our suppliers. In one of the most industrial regions in Germany, we also find employees, experienced partners and space for innovation.

With the new headquarters and our new production facility, we have significantly larger training facilities for direct exchange with our customers.



3.000 m²

Production area with modern office building and sixfold production and storage capacity compared to the old company headquarters.
All spare parts in stock.

20.000 m²

Large company property with modern storage and craft facilities.

1/2

Half year production capacity for standard devices in stock.

2-3

Weeks standard delivery time ex works.
Express production within 1 week or shorter possible.

GAS PRESSURE REGULATION FOR HYDROGEN

UP TO 16 BAR BY USING ALUMINIUM ALLOYS

Owing to the increasing importance of the topic regarding gas pressure regulation of hydrogen and contradictory statements regarding the use of aluminum alloys for these applications up to 16 bar, we, as MEDENUS Gas-Druckregeltechnik GmbH, have ordered from the RWTH Aachen a comprehensive investigation and literature search into this problem. The objective was to examine, first and foremost, the aluminum alloys used by MEDENUS Gas-Druckregeltechnik, with the aim to approach the open questions scientifically and to find answers.

The results of these investigations have shown that the alloys used by us can be used without restrictions for dry hydrogen up to an inlet pressure of 16 bar and represent an attractive alternative to conventional steel/cast iron and copper materials. Additional advantages are their substantially reduced weight, thus giving better handling and a higher corrosion class (C5-I) even without painting. This investigation focused specifically on the alloys used by MEDENUS and has no validity for other aluminum materials.

The specific T6 heat treatment of the alloy mentioned in the report is also in use for MEDENUS devices and is implemen-

ted by one of Europe's most advanced aluminum foundries, Ohm and Häner in Olpe, Germany. The owners of the foundry are also the owners of MEDENUS, thus giving rise to further positive synergies.

The alloys that were examined are used at MEDENUS not only for spring-loaded (R and RS series) but also for pilot-controlled gas pressure regulators (RSP series), cellular gas filters (DF 100 series), and safety relief valves (SL 10 series) in all nominal widths up to DN 200.

The specific pressure and tightness test for hydrogen applications is done at MEDENUS with helium as the test medium.

Pilot operated Gas Pressure
Regulator RSP 254 with expansion

THE ANALYSIS BY RWTH AACHEN (DUE TO THE VOLUME OF THE ANALYSIS, IT HAS BEEN ABBREVIATED TO INCLUDE ONLY THE MOST RELEVANT SECTIONS):

QUESTION

The hypoeutectic aluminum cast alloy AlSi7Mg0.3 (EN-AC 42100) is being used widely in the automotive industry or aviation and aerospace technologies and is also being used for safety-relevant structural components. This range of applications is due to the favorable properties of the material, such as low density, good casting properties, good mechanical properties in the heat-treated state, and generally good corrosion resistance.



Previously, steel casting, cast iron, and brass materials have been used as material for gas pressure regulation fittings for hydrogen. However, due to the attractive properties of AlSi7Mg0.3 and based on the literature of the last 20 years, the suitability of the material for such an application shall now be investigated focusing especially on the risk caused by hydrogen embrittlement.

SUMMARY AND FORECAST

for the application of castings made of AlSi7Mg0.3 ST6 in gas pressure regulation fittings for dry hydrogen gas atmosphere.

The cast alloy AlSi7Mg0.3 ST6 has a potentially lower number of hydrogen traps in the microstructure compared with 7xxx alloys that are susceptible to EAC and stress corrosion. In contrast, 6xxx alloys are being used as lining for high-pressure hydrogen tanks. Due to the proximity of the aluminum cast alloy mentioned to 6xxx wrought alloys in terms of microstructure and chemistry and on the basis of the extensive literature search performed, it must be assumed that AlSi7Mg0.3 ST6 will have similar resistance and be stable in a dry hydrogen atmosphere. Moreover, there is no evidence for any drawbacks compared with steel castings and spheroidal graphite cast iron.

Accordingly, the combination of favorable mechanical processing and corrosion properties of the alloy AlSi7Mg0.3-S/K-T6 makes this material an attractive alternative to conventional steel/cast iron and also copper materials in gas pressure regulation fittings for dry hydrogen gas, used for pressures of up to 16 bar.

AUTHOR OF THE EXPERTISE OF THE RWTH AACHEN:

Univ. Prof. Dr.-Ing. Daniela Zander

Find the complete article as a download in the service area on our website.

INTERPRETATION

NOTE: All calculation pressures are absolute pressures ($p + 1$ bar).

The required K_G -value for a GPR is obtained with the smallest inlet pressure or lowest pressure gradient.

CALCULATION OF THE REQUIRED K_G -VALUES

$$p_d / p_u > 0,5$$

K_G -Value at a subcritical pressure ratio

$$K_G = Q_n / \sqrt{p_d \cdot (p_u - p_d)}$$

$$p_d / p_u \leq 0,5$$

K_G -value at a

supercritical pressure ratio

$$K_G = 2 \cdot Q_n / p_u$$

NOTE: For spring-loaded devices, a capacity reserve of 10 - 20% recommended in order to maintain the specified accuracies. Selection of the Device with the help of the K_G -value from the flow coefficient table.

DEVICE SELECTION

NOTE: Closing pressure zone group: SZ 2,5

For the Q_{min} small load, an SZ 2,5: $Q_{min} = 0,025 \cdot K_G \cdot p_{u \max}$

Q_{min} small load - When starting the burner or at Q_{min} , the value should be at least 1% of the K_G -Value. Selection of the control device from the target value spring control device table.

$$p_{f \max} = p_{ds} \cdot [1 + SG/100]$$

Select the SSV from the SSV control device table

Recommended upper SSV response pressure $p_{ds0} < 500 \text{ mbar} + p_{ds}$

DETERMINATION OF THE UPPER RESPONSE PRESSURE

OUTLET PRESSURE P_d (MBAR)	UPPER RESPONSE PRESSURE W_{DS0}^*
≤ 200	$P_d + 100 \text{ mbar}$
$> 200 - \leq 800$	$P_d \times 1,5$
$> 800 - \leq 1600$	$P_d \times 1,3$
> 1600	$P_d + 500 \text{ mbar}$

CHECKING THE GAS VELOCITIES

$$w = 380 \cdot Q_n / (DN^2 \cdot p_{abs})$$

NOTE: The factor 380 refers to an operating gas temperature from approx. 15° C to 20° C. For other temperatures, the velocity must be corrected as follows: $w_{korr} = w \cdot (t_{gas} + 273,15) / 290$

Recommended max. gas velocity at the inlet flange: 50 - 70 m/s lower value for deflections upstream of the regulating valve, 20 m/s for filters connected upstream.

Recommended max. gas velocity at the outlet flange:
100 - 200 m/s lower value for reducing noise emission.

Recommended max. gas velocity at the impulse tap:
25 m/s Lower value for outlet pressures below 100 mbar.

The device selected in the example of nominal size DN 50 can be operated under these conditions.

*) The upper response pressure is rounded up to full tens(e.g. 251mbar -> 260mbar)

CALCULATION EXAMPLE

p_u Inlet pressure (bar)

p_d Outlet pressure (bar)

Q_n Standard volume flow m^3/h

EXAMPLE:

	Overpressure	Absolute pressure
p_u	min 13,0 bar	14,0 bar
p_d	min 0,25 bar	1,25 bar
Q_n	min 3000 m^3/h	

$$1,25 \text{ bar} / 14 \text{ bar} = 0,089 < 0,5$$

-> supercritical pressure ratio

$$K_G = 2 \cdot 3000 / 14 = 429 [m^3/(h \cdot bar)]$$

SELECTED DEVICE

Typ RS 254

DN - Nominal size 080

D - jet V 27,5

K_G -Value 550 $m^3/(h \cdot bar)$

$$Q_{min} = 0,025 \cdot 550 \cdot 14 = 193 \text{ m}^3/h$$

Selected control device

RE-Control device 275

setpoint spring FA11

(W_{ds} 208 - 339)

AC 5/SG 10 (for RE 275 D - Jet 27,5)

Selected SSV

MD-R with FD 913 (285 - 460 mbar) AG_u 10
set on $P_{ds0} = 375 \text{ mbar}$
and FE 901 (50 - 80 mbar) AG_u 5

NOTE: Standard setpoint spring SSV

Small ball lock

MD FE 902 (12 - 24 mbar)

MD-R FE 901 (50 - 80 mbar)

HD-SSV FE 902 (280 - 480 mbar)

Big ball lock

MD FM 402 (35 - 115 mbar)

MD-R FM 400 (10 - 180 mbar)

HD-SSV FM 402 (150 - 1000 mbar)

Input and output nominal size of the Pipeline according to the selected device: 80 mm
chosen expansion of the outlet pipeline: 200 mm

$$w_u = 380 \cdot 3000 / (80^2 \cdot 14) = 13 \text{ m/s}$$

$$w_d = 380 \cdot 3000 / (80^2 \cdot 1,25) = 143 \text{ m/s}$$

$$w_{impuls} = 380 \cdot 3000 / (200^2 \cdot 1,25) = 23 \text{ m/s}$$

CHARACTERISTICS OF GASES

Gas	f	H _{s,n} [kWh/m ³]	Gas	f	H _{s,n} [kWh/m ³]
Acetylene	0,84	16,25	Sewage gas	0,84	
Ammonia	1,04	4,83	Carbon monoxide	0,81	3,51
Butane	0,55	37,23	Carbon dioxide	0,65	-
Chlorine	0,51	-	Air	0,80	-
Landfill gas	ca. 0,80		Methane	1,08	11,06
Natural gas L	1,00	9,77	Propane	0,64	28,03
Natural gas H	1,03	11,45	Oxygen	0,76	-
Ethane	0,78	19,55	Sulphur dioxide	0,53	-
Ethylene	0,97	16,516	Nitrogen	0,81	-
Mine gas	(30 % CH ₄)	0,86	Hydrogen	3,04	13,43
Helium	2,15	-			

PRESSURE CONVERSION FACTORS

UNIT	BAR	MBAR	PA N/M ²	AT KP/CM ²	ATM	TORR MMHG MMQS	PSI LBF/IN ²
1 bar	1	10 ³	10 ⁵	1,02	0,987	750	14,5
1 mbar	10 ⁻³	1	100	1,02 10 ⁻³	0,987 10 ⁻³	0,750	0,0145
1 Pa 1 N/m ²	10 ⁻⁵	0,01	1	1,02 10 ⁻⁵	0,987 10 ⁻⁵	0,0075	1,45 10 ⁻⁴
1 at 1 kp/cm ²	0,981	981	0,981 10 ⁵	1	0,968	736	14,22
1 atm	1,013	1013	1,013 10 ⁵	1,033	1	760	14,696
1 Torr 1 mm Hg 1 mm QS	1,333 10 ⁻³	1,333	133,322	1,36 10 ⁻³	1,316 10 ⁻³	1	1,934 10 ⁻²
1 psi 1 lbf/in ²	6,895 10 ⁻²	68,95	6895	7,031 10 ⁻²	0,06805	51,7	1

UNITS CONVERSION FACTORS

	KWH	J = WS = NM
1 kWh	1	3,6 · 10 ⁶
1 J = 1 Ws = 1 Nm	277,8 · 10 ⁻⁹	1
1 PSh	0,7355	2,6476 · 10 ⁶
1 kpm	2,724 · 10 ⁻⁶	9,81
1 kcal	1,163 · 10 ⁻³	4186,8
1 ft lbf	376,6 · 10 ⁻⁹	1,3558
1 in ozf	1,96 · 10 ⁻⁹	0,00706
1 ft pdl	1,17 · 10 ⁻⁸	0,04214
1 SKE	8,141	31,83 · 10 ⁶

R 50 | GAS PRESSURE REGULATOR

FOR SIMPLE APPLICATIONS WITH STABLE INPUT PRESSURE ($\pm 5\%$)



DESIGN AND FUNCTION

The spring-loaded gas pressure regulator R 50 has the function of keeping the outlet pressure of a gaseous medium constant within allowable limit values. The gas pressure regulator is composed of the actuator housing and the „diaphragm assembly plus actuator“ functional unit. The gas flows through the actuator housing in the direction of the arrow. The internal measurement line port is used for passing the outlet pressure to be regulated to the bottom of the diaphragm comparator of the diaphragm assembly. It compares the actual value with the command variable preset by the force of the setpoint spring. The setpoint required in each case is set via the setting screw. Any deviation from the setpoint is recognized by the valve stem to the actuator, which is adjusted such that the actual value is adjusted to the setpoint. In case of zero flow, the actuator will close tight, causing the closing pressure to be established.

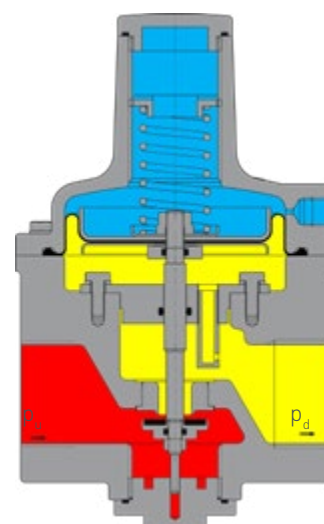


GOT QUESTIONS ABOUT THE R 50?

info@medenus.de or in the [product information](https://products.medenus.de/R50)
products.medenus.de/R50

CHARACTERISTICS

INLET PRESSURE P_u	max. 3 bar
OUTLET PRESSURE P_d	200 mbar - 1.200 mbar
RP 1": Q_{max}	100 Nm ³ /h
RP 1 1/2"; RP 2": Q_{max}	300 Nm ³ /h
PS	5 bar
AMBIENT TEMPERATURE	-20 to +60 °C
HOUSING MATERIAL	aluminium sand cast
APPROVAL	according to PED
GAS SPECIFICATION	gas families 1, 2, 3 (DVGW - G 260) and non-aggressive gases. Other gases on request.



VERSIONS

NOMINAL SIZE	DESCRIPTION	OUTLET PRESSURE RANGE [MBAR]
DN 25 RP 1"	Standard	200 - 400
	High-pressure version	401 - 1.000
	High-pressure version with HDS	1.001 - 1.200
DN 40 RP 1½"	Standard	200 - 400
	High-pressure version	401 - 1.000
	High-pressure version with HDS	1.001 - 1.200
DN 50 RP 2"	Standard	200 - 400
	High-pressure version	401 - 1.000
	High-pressure version with HDS	1.001 - 1.200

VALVE DIAMETER

NOMINAL SIZE	VALVE DIAMETER [MM]
DN 25 RP 1"	11,0
	15,0
	20,0
DN 40 RP 1½"	15,0
	25,0
DN 50 RP 2"	15,0
	25,0

OPTIONS

- Suitable for oxygen
- Vent valve (BV) for breather connection (for non-dynamic applications)
- Coating with epoxy resin in RAL colours
- Acceptance test certificate (ATC) to EN 10204/3.1
- "Gonzo-Nose" (insect protection for outdoor installation)
- Helium leak test for hydrogen applications
- NPT thread on demand

THIS IS HOW YOU SELECT YOUR GAS PRESSURE REGULATOR R 50

- Determine the required flow rate
- Select a size that can handle the required flowrate
- Select the version of the valve that can do the required outlet pressure
- Select any options you require
- When ordering please advise the direction of the gas flow (from right to left or left to right)

R 51 | GAS PRESSURE REGULATOR



DESIGN AND FUNCTION

The spring-loaded gas pressure regulator R 51 has the function of keeping the outlet pressure of a gaseous medium constant within permissible limit values, independently of the effect of interferences, such as changes in the inlet pressure and/or in the gas flow, in the connected regulating line on the outlet side. The regulator is composed of the actuator housing and "diaphragm assembly plus actuator" functional unit. The valve seat model is pre-pressure-compensated.

The gas flows through the actuator housing in the direction of the arrow. The internal or external measurement line port is used for passing the outlet pressure to be regulated to the bottom of the diaphragm comparator of the diaphragm assembly. It compares the actual value with the command variable preset by the force of the setpoint spring. The setpoint required in each case is set via the setting screw. Any deviation from the setpoint is transmitted by the valve rod to the actuator, which is adjusted such that the actual value is adjusted to the setpoint.

In case of zero flow, the actuator will close tight, causing the closing pressure to be established.

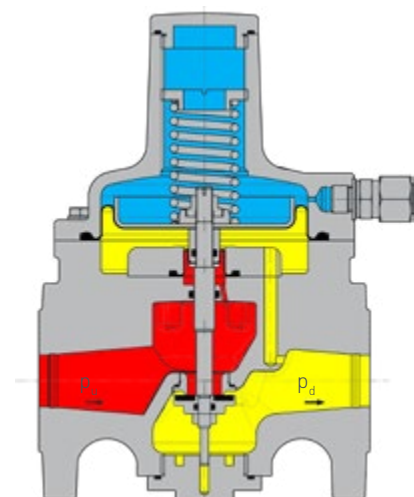


GOT QUESTIONS ABOUT THE R 51?

info@medenus.de or in the [product information](https://products.medenus.de/R51)
products.medenus.de/R51

CHARACTERISTICS

INLET PRESSURE P_u	16 bar
OUTLET PRESSURE P_d	20 mbar - 3.000 mbar < 40 mbar (mounted head down)
K_G -VALUE	175 m ³ /(h*bar)
PS	16 bar
AMBIENT TEMPERATURE	-20 to +60 °C
HOUSING MATERIAL	aluminium sand cast
GAS SPECIFICATION	gas families 1, 2, 3 (DVGW - G 260) and non-aggressive gases. Other gases on request.
FLANGE STANDARD	DIN 1092 - PN 16

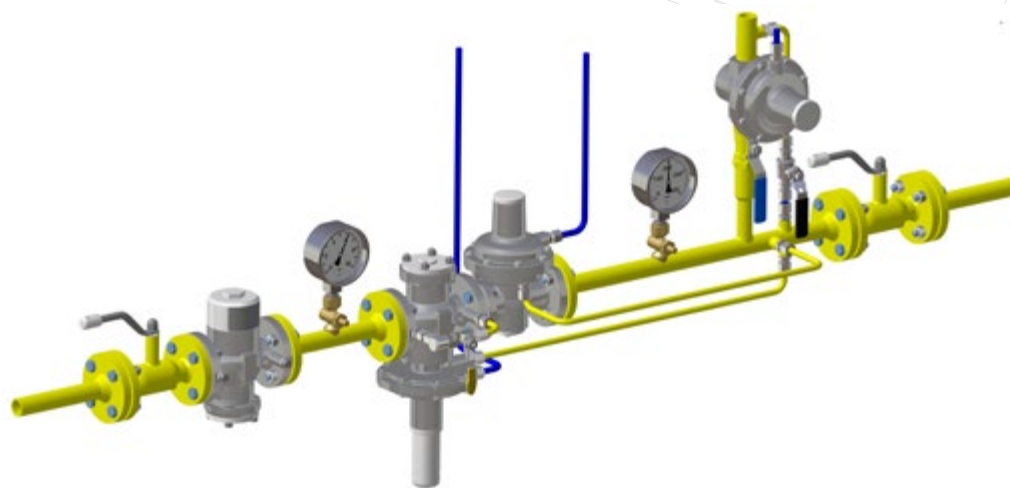


VERSIONS

NOMINAL SIZE	DESCRIPTION	OUTLET PRESSURE RANGE [MBAR]
DN 25	Standard	20 - 575
	High-pressure version	420 - 1.000
	High-pressure version with HDS	1.001 - 3.000

OPTIONS

- External measuring connection*
- Vent valve (BV) for breather connection (for non-dynamic applications)
- Throttle valve (RSD) for the breathing port on SSV
- Suitable for oxygen (<10 bar)
- Coating with epoxy resin in RAL colours
- Acceptance test certificate (ATC) to EN 10204/3.1
- "Gonzo-Nose" (insect protection for outdoor installation)
- Assembly kit (threaded rods, washers, nuts)
- Helium leak test for hydrogen applications



* With an internal impulse line, the accuracy class [AC] can only be reached at $Q_n < 100 \text{ Nm}^3/\text{h}$.

R 100 | GAS PRESSURE REGULATOR



DESIGN AND FUNCTION

The spring-loaded gas pressure regulator R 100 has the function of keeping the outlet pressure of a gaseous medium constant within allowable limit values, independently of the effect of interferences, such as changes in the inlet pressure and/or in the gas flow, in the connected regulating line on the outlet side. The gas pressure regulator is composed of the actuator housing and the "diaphragm assembly plus actuator" functional unit. The double valve seat model is pre-pressure-compensated. The gas flows through the actuator housing in the direction of the arrow. The external measurement line port is used for passing the outlet pressure to be regulated to the bottom of

the diaphragm comparator of the diaphragm assembly. It compares the actual value with the command variable preset by the force of the setpoint spring. The setpoint required in each case is set via the setting screw. Any deviation from the setpoint is transmitted by the valve stem to the actuator, which is adjusted such that the actual value is adjusted to the setpoint. In case of zero flow, the actuator will close tight, causing the closing pressure to be established.

GOT QUESTIONS ABOUT THE R 100?

info@medenus.de or in the product information products.medenus.de/R100

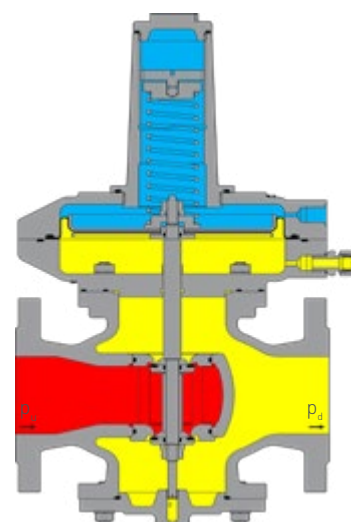
K_G-VALUE

NOMINAL SIZE	VALVE DIAMETER [MM]	K _G -VALUE [M3/(H*BAR)]
DN 50	27,5 - 27,5	800
DN 80	32,5 - 32,5	1.500
	45,0 - 50,0	2.500
DN 100	42,5 - 42,5	2.400
	60,0 - 65,0	4.700
DN 150	65,0 - 65,0	5.200
	95,0 - 100,0	12.000
DN 200	90,0 - 90,0	10.000
	125,0 - 130,0	20.200



CHARACTERISTICS

OPENING PRESSURE P_u	max. 8 bar
BACK PRESSURE P_d	8 - 1.200 mbar
PS	8 bar
AMBIENT TEMPERATURE	-20 °C to +60 °C
HOUSING MATERIAL	aluminium sand cast
GAS SPECIFICATION	gas families 1, 2, 3 (DVGW - G 260) and non-aggressive gases. Other gases on request.
FLANGE STANDARD	DIN 1092 - PN 16 or ASME B 16.5-Class 150





VERSIONS

NOMINAL SIZE	DESCRIPTION	OUTLET PRESSURE RANGE [MBAR]	WITH HIGH-PRESSURE SCREW SPINDLE (HDS-OPTION) [MBAR]
DN 50	with RE 390	8 - 130	130 - 450
	with RE 275	130 - 450	450 - 1.100
	with RE 160	450 - 1.200	-
DN 80	with RE 390	8 - 130	130 - 450
	with RE 275	130 - 450	450 - 1.100
	with RE 160	450 - 1.200	-
DN 100	with RE 390	8 - 130	130 - 450
	with RE 275	130 - 450	450 - 1.100
	with RE 160	450 - 1.200	-
DN 150	with RE 385	8 - 350	350 - 850
	with RE 275	350 - 850	850 - 1.200
DN 200*	with RE 385	8 - 350	350 - 850
	with RE 275	350 - 850	850 - 1.200

* Please note that we changed the DIN flange standard for DN 200 from PN 10 to PN 16 with September 2018.

OPTIONS

- High-pressure screw spindle (HDS) for convenient and accurate setting of the regulator despite high spring forces
- Safety diaphragm (SM) for the control device
- Valve disc VA and sealings FKM e.g. for biogas applications
- Throttle valve (RSD) for the breathing port on SSV
- Suitable for oxygen
- Coating with epoxy resin in RAL colours
- Acceptance test certificate (ATC) to EN 10204/3.1
- "Gonzo-Nose" (insect protection for outdoor installation and when using safety diaphragm)
- Assembly kit (threaded rods, washers, nuts)
- Helium leak test for hydrogen applications

THIS IS HOW YOU SELECT YOUR GAS PRESSURE REGULATOR R 100

- Calculate the required K_G -Value (see page 12)
- Using the K_G value you have just calculated, select a suitably sized valve from the " K_G -Value" table below. Allow at least an additional 10% spare capacity in the valve you select
- Select the diaphragm assembly with the corresponding outlet pressure from the "Versions" table above
- Select any options you require
- In addition, check the flow rates (see page 12)
- When ordering please advise the direction of the gas flow (from right to left or left to right). For safety reasons, please also provide us with your process details (P_u , P_d , Q_n and the type of gas) so we can check your selection

R 100 U | ROTARY REGULATOR



DESIGN AND FUNCTION

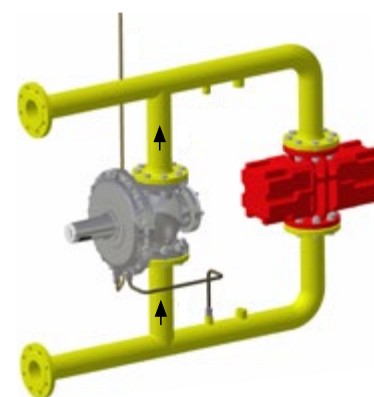
Circulation regulator for limiting the pressure in gas-pressure-increasing systems. Upon exceeding the opening pressure, the gas flows back to the suction side of the compressor.

GOT QUESTIONS ABOUT THE R 100 U?

info@medenus.de or in the product information
products.medenus.de/R100U

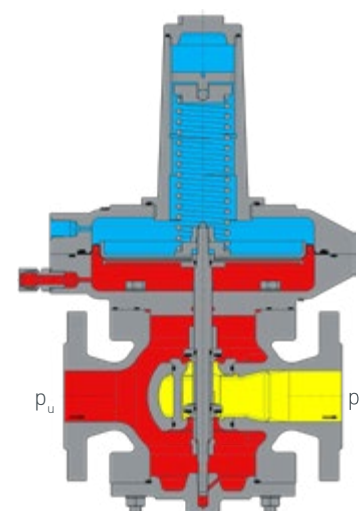
K₆-VALUE

NOMINAL SIZE	VALVE DIAMETER [MM]	K ₆ -VALUE [M3/(H*BAR)]
DN 50	27,5 - 27,5	800
DN 80	32,5 - 32,5	1.500
	45,0 - 50,0	2.500
DN 100	42,5 - 42,5	2.400
	60,0 - 65,0	4.700
DN 150	65,0 - 65,0	5.200
	95,0 - 100,0	12.000
DN 200	90,0 - 90,0	10.000
	125,0 - 130,0	20.200



CHARACTERISTICS

OPENING PRESSURE P_u	8 - 1.200 mbar
BACK PRESSURE P_d	$< P_u$
PS	8 bar
AMBIENT TEMPERATURE	-20 °C to +60 °C
HOUSING MATERIAL	aluminium sand cast
GAS SPECIFICATION	gas families 1, 2, 3 (DVGW - G 260) and non-aggressive gases. Other gases on request.
FLANGE STANDARD	DIN 1092 - PN 16 or ASME B 16.5-Class 150





VERSIONS

NOMINAL SIZE	DESCRIPTION	OUTLET PRESSURE RANGE [MBAR]	WITH HIGH-PRESSURE SCREW SPINDLE(HDS-OPTION) [MBAR]
DN 50	with RE 390	8 - 130	130 - 450
	with RE 275	130 - 450	450 - 1.100
	with RE 160	450 - 1.200	-
DN 80	with RE 390	8 - 130	130 - 450
	with RE 275	130 - 450	450 - 1.100
	with RE 160	450 - 1.200	-
DN 100	with RE 390	8 - 130	130 - 450
	with RE 275	130 - 450	450 - 1.100
	with RE 160	450 - 1.200	-
DN 150	with RE 385	8 - 350	350 - 850
	with RE 275	350 - 850	850 - 1.200
DN 200*	with RE 385	8 - 350	350 - 850
	with RE 275	350 - 850	850 - 1.200

* Please note that we changed the DIN flange standard for DN 200 from PN 10 to PN 16 with September 2018.

OPTIONS

- High-pressure screw spindle (HDS) for convenient and accurate setting of the regulator despite high spring forces
- Safety diaphragm for the control device
- Valve disc VA and sealings FKM e.g. for biogas applications
- Coating with epoxy resin in RAL colours
- Acceptance test certificate (ATC) to EN 10204/3.1
- "Gonzo-Nose" (insect protection for outdoor installation and when using safety diaphragm)
- Assembly kit (threaded rods, washers, nuts)
- Helium leak test for hydrogen applications

THIS IS HOW YOU SELECT YOUR GAS PRESSURE REGULATOR R 100 U

- Calculate the required K_G -Value (see page 12)
- Using the K_G value you have just calculated, select a suitably sized valve from the " K_G -Value" table below. Allow at least an additional 10% spare capacity in the valve you select
- Select the diaphragm assembly with the corresponding outlet pressure from the „Versions“ table above
- Select any options you require
- In addition, check the flow rates (see page 12)
- When ordering please advise the direction of the gas flow (from right to left or left to right). For safety reasons, please also provide us with your process details (P_u , P_d , Q_n and the type of gas) so we can check your selection

R 101 | GAS PRESSURE REGULATOR



DESIGN AND FUNCTION

The spring-loaded gas pressure regulator R 101 has the function of keeping the outlet pressure of a gaseous medium constant within allowable limit values, independently of the effect of interferences, such as changes in the inlet pressure and/or in the gas flow, in the connected regulating line on the outlet side. The gas pressure regulator is composed of the actuator housing and the "diaphragm assembly plus actuator" functional unit. The diaphragm assembly is pre-pressure-compensated. The gas flows through the actuator housing in the direction of the arrow. The external measurement line port is used to pass the outlet pressure to be regulated to the bottom of the

diaphragm comparator of the diaphragm assembly. It compares the actual value with the command variable preset by the force of the setpoint spring. The setpoint required in each case is set via the setting screw. Any deviation from the setpoint is transmitted by the valve stem to the actuator, which is adjusted such that the actual value is adjusted to the setpoint. In case of zero flow, the actuator will close tight, causing the closing pressure to be established.

GOT QUESTIONS ABOUT THE R 101?

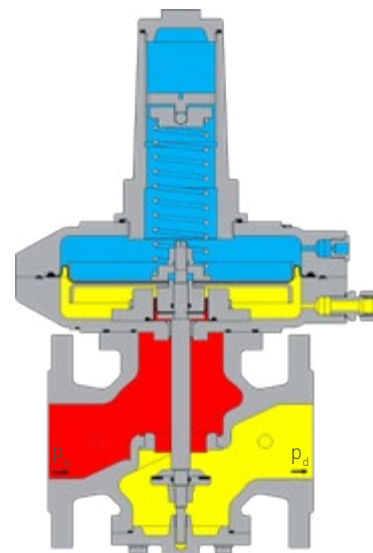
info@medenus.de or in the product information products.medenus.de/R101

K₆-VALUE

NOMINAL SIZE	VALVE DIAMETER [MM]	K ₆ -VALUE [M3/(H*BAR)]
DN 25	17,5	200
	27,5	460
DN 40	17,5	220
	27,5	600
	32,5	750
DN 50	32,5	1.000
	42,5	1.500
	52,5	1.800
DN 65	32,5	1.000
	42,5	1.500
	52,5	1.800
DN 100	65,0	3.500
	95,0	5.800

CHARACTERISTICS

OPENING PRESSURE P_u	max. 8 bar
OUTLET PRESSURE P_d	8 - 1.200 mbar
PS	8 bar
AMBIENT TEMPERATURE	-20 °C to +60 °C
MOUNTING POSITION	any
HOUSING MATERIAL	aluminium sand cast
GAS SPECIFICATION	gas families 1, 2, 3 (DVGW - G 260) and non-aggressive gases. Other gases on request.
FLANGE STANDARD	DIN 1092 - PN 16 or ASME B 16.5-Class 150





VERSIONS

NOMINAL SIZE	DESCRIPTION	OUTLET PRESSURE RANGE [MBAR]	WITH HIGH-PRESSURE SCREW SPINDLE (HDS-OPTION) [MBAR]
DN 25	with RE 330	22 - 200	200 - 800
	with RE 205	200 - 750	750 - 1.200
	with RE 160	750 - 1.200	-
DN 40	with RE 330	22 - 200	200 - 800
	with RE 205	200 - 750	750 - 1.200
	with RE 160	750 - 1.200	-
DN 50	with RE 385	22 - 130	130 - 450
	with RE 275	130 - 400	400 - 1.100
	with RE 205	400 - 750	750 - 1.200
DN 65	with RE 385	22 - 130	130 - 450
	with RE 275	130 - 400	400 - 1.100
	with RE 205	400 - 750	750 - 1.200
DN 100	with RE 485	22 - 150	150 - 450
	with RE 385	150 - 350	350 - 850
	with RE 275	350 - 850	850 - 1.200

OPTIONS

- High-pressure screw spindle (HDS) for convenient and accurate setting of the regulator despite high spring forces
- Safety diaphragm for the control device
- Throttle valve (RSD) for the breathing port on SSV
- Suitable for oxygen
- Coating with epoxy resin in RAL colours
- Acceptance test certificate (ATC) to EN 10204/3.1
- "Gonzo-Nose" (insect protection for outdoor installation and when using safety diaphragm)
- Assembly kit (threaded rods, washers, nuts)
- Helium leak test for hydrogen applications

THIS IS HOW YOU SELECT YOUR GAS PRESSURE REGULATOR R 101

- Calculate the required K_G -Value (see page 12)
- Using the K_G -Value you have just calculated, select a suitably sized valve from the " K_G -Value" table below. Allow at least an additional 10% spare capacity in the valve you select
- Select the diaphragm assembly that has the relevant outlet pressure from the "Versions" table above
- Select any options you require
- In addition, check the flow rates (see page 12)
- When ordering please advise the direction of the gas flow (from right to left or left to right). For safety reasons, please also provide us with your process details (P_u , P_d , Q_n and the type of gas) so we can check your selection

R 101 U | OVERFLOW VALVE

DESIGN AND FUNCTION

The R 101 U is a gas overpressure valve that opens from a set pressure. The diaphragm is charged from below through the impulse line (Ø 8 mm). When the pressure under the diaphragm becomes higher than the spring pressure, the valve will open, allowing the medium to escape. Since there is only spring load, the valve can be installed in any position.

GOT QUESTIONS ABOUT THE R 101 U?

info@medenus.de or in the [product information](https://products.medenus.de/R101U)

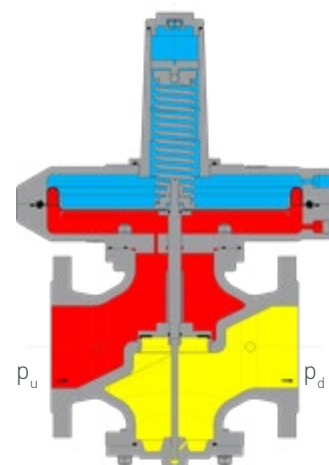


K₆-VALUE

NOMINAL SIZE	VALVE DIAMETER [MM]	K ₆ -VALUE [M3/(H*BAR)]
DN 50	52,5	1.350
DN 65	52,5	1.650
DN 80	80,0	3.300
DN 100	80,0	3.900
DN 125	80,0	4.500
DN 150	125,0	8.000
DN 200	160,0	14.000

CHARACTERISTICS

INLET PRESSURE P_u	50 mbar
PS	8 bar
AMBIENT TEMPERATURE	-20 °C to +60 °C
MOUNTING POSITION	any
HOUSING MATERIAL	aluminium sand cast
GAS SPECIFICATION	gas families 1, 2, 3 (DVGW - G 260) and non-aggressive gases. Other gases on request.
FLANGE STANDARD	DIN 1092 - PN 16 or ASME B 16.5-Class 150



VERSIONS

NOMINAL SIZE	DESCRIPTION	OUTLET PRESSURE RANGE [MBAR]
DN 50	with RE 390	5 - 50
DN 65	with RE 390	5 - 50
DN 80	with RE 390	5 - 50
DN 100	with RE 390	5 - 50
DN 125	with RE 390	5 - 50
DN 150	with RE 385	5 - 50
DN 200*	with RE 385	5 - 50

* Please note that we changed the DIN flange standard for DN 200 from PN 10 to PN 16 with September 2018.

OPTIONS

- Coating with epoxy resin in RAL colours
- Acceptance test certificate (ATC) to EN 10204/3.1
- "Gonzo-Nose" (insect protection for outdoor installation and when using safety diaphragm)
- Assembly kit (threaded rods, washers, nuts)
- Helium leak test for hydrogen applications

NOTE ON DEVICE SELECTION GAS PRESSURE REGULATOR R 101 U

Due to a very wide variation in applications and specific requirements of the gas pressure regulators, we would ask you to contact us for the detailed design of the devices.

R 101 US | REGULATOR FOR GAS TORCHES

DESIGN AND FUNCTION

The R 101 US is a gas pressure control valve controlled via a solenoid valve. When the solenoid valve is closed, the open bore in the diaphragm ensures that the pressure on both sides of the diaphragm in the diaphragm gas will flow through the bore in the diaphragm as in the closed solenoid valve. However, the gas can escape more quickly through the now open solenoid valve through a larger bore than the gas that enters through the bore in the diaphragm. As a result, higher pressure builds up under the diaphragm, resulting in the valve being opened.

GOT QUESTIONS ABOUT THE R 101 US?

info@medenus.de or in the product information
products.medenus.de/R101US

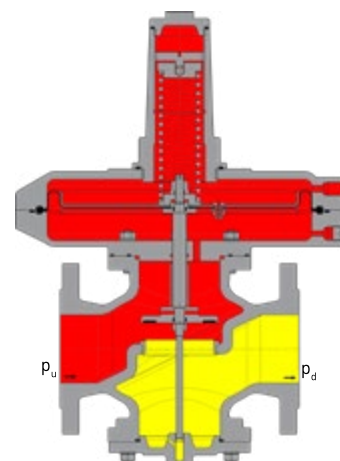


K_G-VALUE

NOMINAL SIZE	VALVE DIAMETER [MM]	K _G -VALUE [M³/(H*BAR)]
DN 50	52,5	1.350
DN 65	52,5	1.650
DN 80	80,0	3.300
DN 100	80,0	3.900
DN 125	80,0	4.500
DN 150	125,0	8.000
DN 200	160,0	14.000

CHARACTERISTICS

INLET PRESSURE P_u	max. 5 - 50 mbar
OUTLET PRESSURE P_d	< p_u
PS	8 bar
AMBIENT TEMPERATURE	-20 °C to +60 °C
MOUNTING POSITION	any
HOUSING MATERIAL	aluminium sand cast
GAS SPECIFICATION	gas families 1, 2, 3 (DVGW - G 260) and non-aggressive gases. Other gases on request.
FLANGE STANDARD	DIN 1092 - PN 16 or ASME B 16.5-Class 150



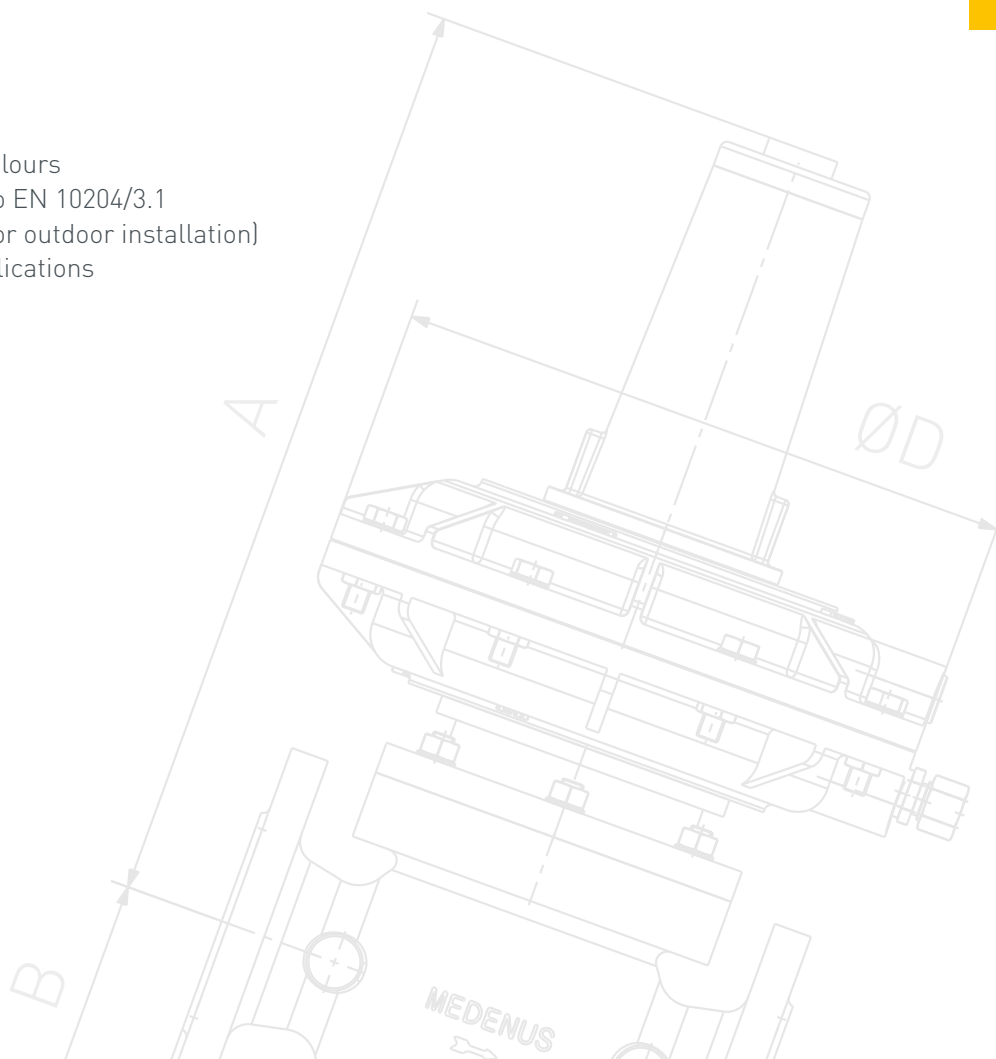
VERSIONS

NOMINAL SIZE	DESCRIPTION	OUTLET PRESSURE RANGE [MBAR]
DN 50	with RE 390	5 - 50
DN 65	with RE 390	5 - 50
DN 80	with RE 390	5 - 50
DN 100	with RE 390	5 - 50
DN 125	with RE 390	5 - 50
DN 150	with RE 385	5 - 50
DN 200*	with RE 385	5 - 50

* Please note that we changed the DIN flange standard for DN 200 from PN 10 to PN 16 with September 2018.

OPTIONS

- Coating with epoxy resin in RAL colours
- Acceptance test certificate (ATC) to EN 10204/3.1
- "Gonzo-Nose" (insect protection for outdoor installation)
- Helium leak test for hydrogen applications



NOTE ON DEVICE SELECTION GAS PRESSURE REGULATOR R 101 US

Due to a very wide variation in applications and specific requirements of the gas pressure regulators, we would ask you to contact us for the detailed design of the devices.

RS 250 / RS 251 | GAS PRESSURE REGULATOR

WITH INTEGRATED SAFETY SHUT-OFF VALVE WITH A MAXIMUM INLET PRESSURE OF 8 BAR



DESIGN AND FUNCTION

The spring-loaded gas pressure regulators RS 250 / RS 251 have the function of keeping the outlet pressure of a gaseous medium constant within allowable limit values, independently of the effect of interferences, such as changes in the inlet pressure and/or in the gas flow, in the connected regulating line on the outlet side. The gas pressure regulator is composed of the actuator housing and the "diaphragm assembly plus actuator" and "SRV controller/switching device plus actuator" functional units.

For each nominal size, the actuator of the diaphragm assembly can be designed in different valve seat diameters. The diaphragm assembly is pre-pressure-compensated and can be equipped with noise reduction on request.

The gas flows through the actuator housing in the direction of the arrow. The measurement line port is used to pass the outlet pressure to be regulated to the bottom of the diaphragm comparator of the diaphragm assembly. It compares the actual value with the command variable preset by the force of the setpoint spring. The setpoint required in each case is set via the setting screw. Any deviation from the setpoint is transmitted by the valve stem to the actuator, which is adjusted such that the actual value is adjusted to the setpoint. In case of zero flow, the actuator will close tight, causing the

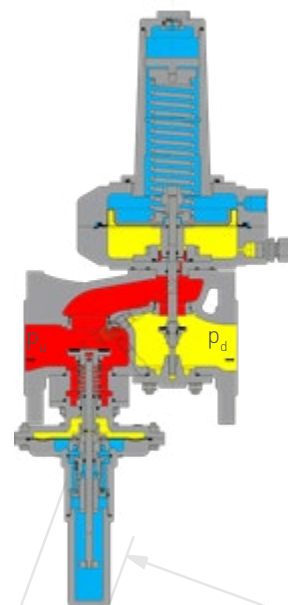
closing pressure to be established. In case of inadmissible overpressure or lack of gas in the regulating section, the actuator of the safety shut-off valve arranged in the same housing on the inlet side will shut off the gas flow. To this end, the outlet pressure to be monitored is passed to the SSV control device via a separate measurement line. As a function of the change in pressure, the diaphragm comparator in the controller is raised or lowered. When the outlet pressure in the regulating section exceeds or falls below a certain response pressure, the switch socket connected to the SSV diaphragm will move to the corresponding disengaging position, the balls of the engaging mechanism will release the SSV valve stem, and the closing spring will press the SSV valve disc against the valve seat. The SSV actuator shuts off the gas flow gas-tight. The SSV can only be opened by hand and engaged in the open position. To do so, the outlet pressure at the measuring point must be lowered below the upper response pressure or raised above the lower response pressure by at least the re-engaging differential amount (Δp).

GOT QUESTIONS ABOUT THE RS 250 OR RS 251?

info@medenus.de or in the product information
products.medenus.de/RS250
products.medenus.de/RS251

CHARACTERISTICS

INLET PRESSURE P_u	max. 8 bar
OUTLET PRESSURE P_d	18 - 3.000 mbar
AMBIENT TEMPERATURE	-20 °C to +60 °C
MOUNTING POSITION	any
SSV $P_{ds\ o}$	50 - 14.000 mbar
SSV $P_{ds\ u}$	5 - 1.000 mbar
HOUSING MATERIAL	aluminium sand cast
APPROVAL	according to PED
GAS SPECIFICATION	gas families 1, 2, 3 (DVGW - G 260) and non-aggressive gases. Other gases on request.
FLANGE STANDARD	DIN 1092 - PN 16 or ASME B 16.5-Class 150



K_G -VALUE [M3/(H*BAR)]

	RS 250						RS 251		
	DN 25	DN 50	DN 80	DN 100	DN 150	DN 200	DN 50	DN 80	DN 100
17,5	200	220							
27,5	420	500	550	600			550		
32,5		750	850	900			750		
42,5			1.450	1.500	1.600		1.250	1.500	1.500
52,5				1.800	2.000		1.700	1.800	1.850
65,0					3.500			2.600	3.200
85,0					4.600			3.500	4.300
95,0					5.800	6.100			4.800
115,0						8.950			

VERSIONS RS 250

NOMINAL SIZE	DESCRIPTION	OUTLET PRESSURE RANGE [MBAR]	WITH HIGH-PRESSURE SCREW SPINDLE (HDS-OPTION) [MBAR]
DN 25	with RE 330	18 - 200	200 - 800
	with RE 205	200 - 750	750 - 3.000
DN 50	with RE 330	18 - 200	200 - 800
	with RE 205	200 - 750	750 - 3.000
DN 80	with RE 390	18 - 130	130 - 450
	with RE 275	130 - 400	400 - 1.100
	with RE 205	400 - 750	750 - 3.000
DN 100	with RE 390	18 - 130	130 - 450
	with RE 275	130 - 400	400 - 1.100
	with RE 205	400 - 750	750 - 3.000
DN 150	with RE 485	18 - 150	150 - 450
	with RE 385	150 - 350	350 - 850
	with RE 275	350 - 850	850 - 3.000
DN 200	with RE 485	18 - 150	150 - 450
	with RE 385	150 - 350	350 - 850
	with RE 275	350 - 850	850 - 3.000

VERSIONS RS 251

NOMINAL SIZE	DESCRIPTION	OUTLET PRESSURE RANGE [MBAR]	WITH HIGH-PRESSURE SCREW SPINDLE (HDS-OPTION) [MBAR]
DN 50	with RE 390	18 - 130	130 - 450
	with RE 275	130 - 400	400 - 1.100
	with RE 205	400 - 750	750 - 3.000
DN 80	with RE 385	18 - 350	350 - 850
	with RE 275	350 - 850	850 - 3.000
DN 100	with RE 485	18 - 150	150 - 450
	with RE 385	150 - 350	350 - 850
	with RE 275	350 - 850	850 - 3.000

OPTIONS REGULATOR

- High-pressure screw spindle (HDS) for convenient and accurate setting of the regulator despite high spring forces
- Noise reduction equipment
- Safety diaphragm (SM) for the control device
- Throttle valve (RSD) for the breathing port on SSV
- Suitable for oxygen
- Coating with epoxy resin in RAL colours
- Acceptance test certificate (ATC) to EN 10204/3.1
- "Gonzo-Nose" (insect protection for outdoor installation and when using safety diaphragm)
- Assembly kit (threaded rods, washers, nuts)
- Helium leak test for hydrogen applications

OPTIONS SSV

- High-pressure SSV ($p_{dso} > 3.500 \text{ mbar}$)
- Vent valve (BV) for breather connection
- SSV position indicator
 - Inductive
 - Reed contact
- SSV release
 - Manual release
 - Remote release (upon current supply or in case of power failure)
 - Manual and remote release (upon current supply or in case of power failure)

THIS IS HOW YOU SELECT YOUR GAS PRESSURE REGULATOR RS 250 / RS 251

- Calculate the required K_G value (see page 12)
- Using the K_G -Value you have just calculated, select a suitably sized valve from the "K_G-Value" table below. Allow at least an additional 10% spare capacity in the valve you select
- Select the diaphragm assembly that has the relevant outlet pressure from the "Versions" table on the left
- For the selection of the relevant safety shut-off valve, please refer to our Product information leaflet RS 250 / RS 251, which can be found on our website in the Service / Downloads area
- Select any options you require
- In addition, check the flow rates (see page 12)
- When ordering please advise the direction of the gas flow (from right to left or left to right). For safety reasons, please also provide us with your process details (P_u , P_d , Q_n and the type of gas) so we can check your selection

RS 254 / RS 255 | GAS PRESSURE REGULATOR

WITH INTEGRATED SAFETY SHUT-OFF VALVE WITH A MAXIMUM INLET PRESSURE UP TO 16 BAR



DESIGN AND FUNCTION

The spring-loaded gas pressure regulators RS 254 / RS 255 have the function of keeping the outlet pressure of a gaseous medium constant within allowable limit values, independently of the effect of interferences, such as changes in the inlet pressure and/or in the gas flow, in the connected regulating line on the outlet side. The gas pressure regulator is composed of the actuator housing and the "diaphragm assembly plus actuator" and "SRV controller/switching device plus actuator" functional units.

For each nominal size, the actuator of the diaphragm assembly can be designed in different valve seat diameters. The diaphragm assembly is pre-pressure-compensated and can be equipped with noise reduction on request.

The gas flows through the actuator housing in the direction of the arrow. The measurement line port is used to pass the outlet pressure to be regulated to the bottom of the diaphragm comparator of the diaphragm assembly. It compares the actual value with the command variable preset by the force of the setpoint spring. The setpoint required in each case is set via the setting screw. Any deviation from the setpoint is transmitted by the valve stem to the actuator, which is adjusted such that the actual value is adjusted to the setpoint. In case of zero flow, the actuator will close tight, causing the closing pres-

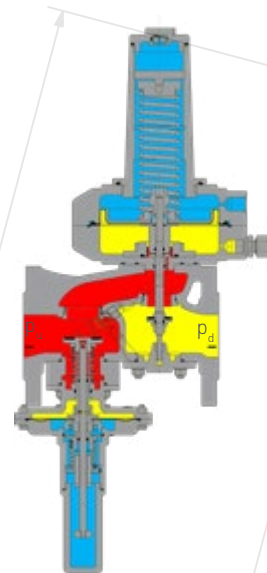
sure to be established. In case of inadmissible over-pressure or lack of gas in the regulating section, the actuator of the safety shut-off valve arranged in the same housing on the inlet side will shut off the gas flow. To this end, the outlet pressure to be monitored is passed to the SSV control device via a separate measurement line. As a function of the change in pressure, the diaphragm comparator in the controller is raised or lowered. When the outlet pressure in the regulating section exceeds or falls below a certain response pressure, the switch socket connected to the SSV diaphragm will move to the corresponding disengaging position, the balls of the engaging mechanism will release the SSV valve stem, and the closing spring will press the SSV valve disc against the valve seat. The SSV actuator shuts off the gas flow gas-tight. The SSV can only be opened by hand and engaged in the open position. To do so, the outlet pressure at the measuring point must be lowered below the upper response pressure or raised above the lower response pressure by at least the re-engaging differential amount (Δp).

GOT QUESTIONS ABOUT THE RS 254 OR RS 255?

info@medenus.de or in the product information
products.medenus.de/RS254
products.medenus.de/RS255

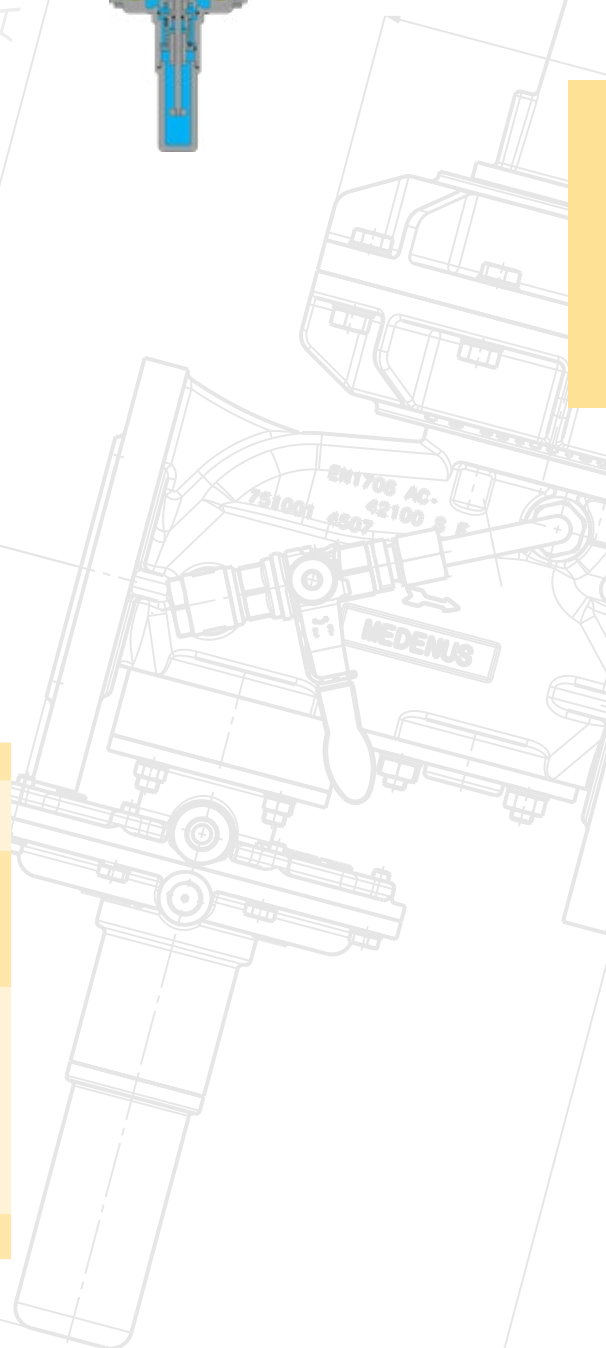
CHARACTERISTICS

INLET PRESSURE P_u	max. 16 bar
OUTLET PRESSURE P_d	18 - 3.000 mbar
AMBIENT TEMPERATURE	-20 °C to +60 °C
MOUNTING POSITION	any
SSV $P_{ds\ o}$	50 - 14.000 mbar
SSV $p_{ds\ u}$	5 - 1.000 mbar
HOUSING MATERIAL	aluminium sand cast
APPROVAL	according to PED
GAS SPECIFICATION	gas families 1, 2, 3 (DVGW - G 260) and non-aggressive gases. Other gases on request.
FLANGE STANDARD	DIN 1092 - PN 16 or ASME B 16.5-Class 150



K₆-VALUE [M3/(H*BAR)]

	RS 254						RS 255		
	DN 25	DN 50	DN 80	DN 100	DN 150	DN 200	DN 50	DN 80	DN 100
17,5	200	220							
27,5	420	500	550	600			550		
32,5		750	850	900			750		
42,5			1.450	1.500	1.600		1.250	1.500	1.500
52,5				1.800	2.000		1.700	1.800	1.850
65,0					3.500			2.600	3.200
85,0					4.600			3.500	4.300
95,0					5.800	6.100			4.800
115,0						8.950			



VERSIONS RS 254

NOMINAL SIZE	DESCRIPTION	OUTLET PRESSURE RANGE [MBAR]	WITH HIGH-PRESSURE SCREW SPINDLE(HDS-OPTION) [MBAR]
DN 25	with RE 330	18 - 200	200 - 800
	with RE 205	200 - 750	750 - 3.000
DN 50	with RE 330	18 - 200	200 - 800
	with RE 205	200 - 750	750 - 3.000
DN 80	with RE 390	18 - 130	130 - 450
	with RE 275	130 - 400	400 - 1.100
	with RE 205	400 - 750	750 - 3.000
DN 100	with RE 390	18 - 130	130 - 450
	with RE 275	130 - 400	400 - 1.100
	with RE 205	400 - 750	750 - 3.000
DN 150	with RE 485	18 - 150	150 - 450
	with RE 385	150 - 350	350 - 850
	with RE 275	350 - 850	850 - 3.000
DN 200	with RE 485	18 - 150	150 - 450
	with RE 385	150 - 350	350 - 850
	with RE 275	350 - 850	850 - 3.000

VERSIONS RS 255

NOMINAL SIZE	DESCRIPTION	OUTLET PRESSURE RANGE [MBAR]	WITH HIGH-PRESSURE SCREW SPINDLE (HDS-OPTION) [MBAR]
DN 50	with RE 390	18 - 130	130 - 450
	with RE 275	130 - 400	400 - 1.100
	with RE 205	400 - 750	750 - 3.000
DN 80	with RE 385	18 - 350	350 - 850
	with RE 275	350 - 850	850 - 3.000
DN 100	with RE 485	18 - 150	150 - 450
	with RE 385	150 - 350	350 - 850
	with RE 275	350 - 850	850 - 3.000

OPTIONS REGULATOR

- High-pressure screw spindle (HDS) for convenient and accurate setting of the regulator despite high spring forces
- Noise reduction equipment
- Safety diaphragm (SM) for the control device
- Throttle valve (RSD) for the breathing port on SSV
- Suitable for oxygen (<10 bar)
- Coating with epoxy resin in RAL colours
- Acceptance test certificate (ATC) to EN 10204/3.1
- "Gonzo-Nose" (insect protection for outdoor installation and when using safety diaphragm)
- Assembly kit (threaded rods, washers, nuts)
- Helium leak test for hydrogen applications

OPTIONS SSV

- High-pressure SSV ($p_{dso} > 3.500 \text{ mbar}$)
- Vent valve (BV) for breather connection
- SSV position indicator
 - Inductive or Reed contact
- SSV release
 - Manual release
 - Remote release (upon current supply or in case of power failure)
 - Manual and remote release (upon current supply or in case of power failure)

THIS IS HOW YOU SELECT YOUR GAS PRESSURE REGULATOR RS 254 / RS 255

- Calculate the required K_G -Value (see page 12)
- Using the K_G -Value you have just calculated, select a suitably sized valve from the " K_G -Value" table below. Allow at least an additional 10% spare capacity in the valve you select
- Select the diaphragm assembly that has the relevant outlet pressure from the "Versions" table on the left
- For the selection of the relevant safety shut-off valve, please refer to our product information leaflet RS 254 / RS 255, which can be found on our website in the Service / Downloads area
- Select any options you require
- In addition, check the flow rates (see page 12)
- When ordering please advise the direction of the gas flow (from right to left or left to right)
For safety reasons, please also provide us with your process details (P_u , P_d , Q_n and the type of gas) so we can check your selection

RSP 254 / RSP 255



PILOT CONTROLLED GAS PRESSURE REGULATOR

WITH INTEGRATED SAFETY SHUT OFF VALVE (RSP) OR WITHOUT (RP) UP TO 16 BAR



DESIGN AND FUNCTION

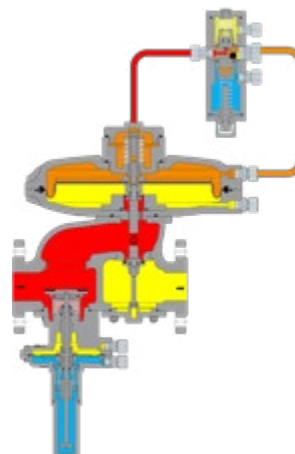
The gas pressure regulator RSP 254 / 255 has the task of keeping the outlet pressure of a gas regulating circuit according to a gas pressure regulating device constant, independent of changes in the gas absorption and changes in the inlet pressure. The required auxiliary energy is taken from the pressure gradient between the inlet pressure and the outlet pressure of the gas pressure regulator. The regulator consists of the control stage, optionally with a fine filter and a downstream valve. The control variable is measured via a diaphragm in the control stage, which is part of a double diaphragm system. The pneumatic amplifier operating according to the nozzle baffle plate principle is actuated by this comparator. The static gain of the controller can be influenced via the discharge valve and possibly setpoint spring changes and adapted to the respective conditions of a control section. The output pressure is conducted via the measuring line

to the upper side of the double diaphragm system in the regulating stage, thereby resulting in a compressive force and compared with the adjusted setpoint value of the force as a predetermined guide variable for the output pressure to be regulated. If the control loop is taken off at zero, the amplifier valve closes in the double diaphragm system of the control stage, the closing pressure is established. Versions with pneumatic following setpoint inputs with pressure ratios 1:1 and 1:2 are available. For example: With an I/P converter and a 4-20 mA signal you can adjust the outlet pressure remotely.

GOT QUESTIONS ABOUT THE RSP 254 / RSP 255?
info@medenus.de or in the product information
products.medenus.de/RSP254 or
products.medenus.de/RSP255

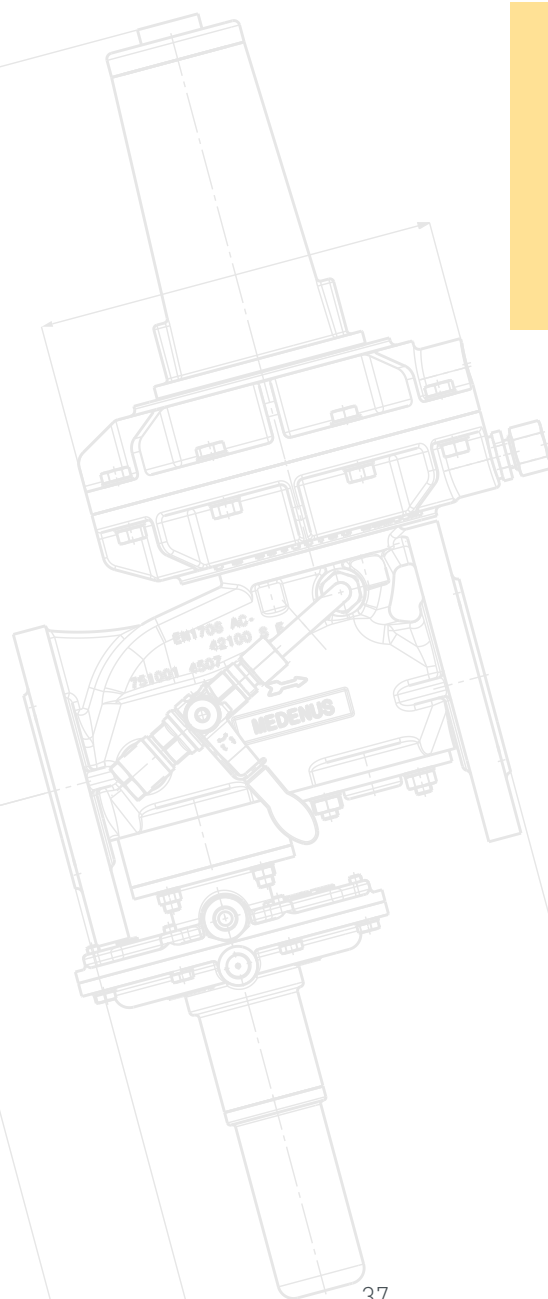
CHARACTERISTICS

INLET PRESSURE P_u	max. 16 bar
OUTLET PRESSURE P_d	10 - 12.000 mbar
AMBIENT TEMPERATURE	-20 °C to +60 °C
MOUNTING POSITION	any
SSV $P_{ds\ o}$	50 - 14.000 mbar
SSV $p_{ds\ u}$	5 - 1.000 mbar
HOUSING MATERIAL	aluminium sand cast
APPROVAL	according to PED
GAS SPECIFICATION	gas families 1, 2, 3 (DVGW - G 260) and non-aggressive gases. Other gases on request.
FLANGE STANDARD	DIN 1092 - PN 16 or ASME B 16.5-Class 150



K_G-VALUE [M3/(H*BAR)]

	RSP 254						RSP 255		
	DN 25	DN 50	DN 80	DN 100	DN 150	DN 200	DN 50	DN 80	DN 100
17,5	200	220							
27,5	420	500	550	600			550		
32,5		750	850	900			750		
42,5			1.450	1.500	1.600		1.250	1.500	1.500
52,5				1.800	2.000		1.700	1.800	1.850
65,0					3.500			2.600	3.200
85,0					4.600			3.500	4.300
95,0					5.800	6.100			4.800
115,0						8.950			



VERSIONS PILOT CONTROLLER R 70

DESCRIPTION	OUTLET PRESSURE RANGE
R 70-10	500 - 12.000
R 70-20 (1:1 or 1:2 with integrated amplifier)	100 - 6.000
R 70-100	10 - 500

OUTLET PRESSURE RANGE AND SIZES ACTUATOR A(S) 254

VERSIONS		OUTLET PRESSURE RANGE [MBAR]		
NOMINAL SIZE	DESCRIPTION	R70-10	R70-20 (1:2)	R70-100
DN 25	with RE 330	500 - 12.000	200 - 12.000	10 - 500
DN 50	with RE 330	500 - 12.000	200 - 12.000	10 - 500
DN 80	with RE 390	500 - 12.000	200 - 12.000	10 - 500
DN 100	with RE 390	500 - 12.000	200 - 12.000	10 - 500
DN 150	with RE 385	500 - 12.000	200 - 12.000	10 - 500
DN 200	with RE 385	500 - 12.000	200 - 12.000	10 - 500

OUTLET PRESSURE RANGE AND SIZES ACTUATOR A(S) 255

VERSIONS		OUTLET PRESSURE RANGE [MBAR]		
NOMINAL SIZE	DESCRIPTION	R70-10	R70-20 (1:2)	R70-100
DN50	with RE 390	500 - 12.000	200 - 12.000	10 - 500
DN80	with RE 385	500 - 12.000	200 - 12.000	10 - 500
DN100	with RE 385	500 - 12.000	200 - 12.000	10 - 500

OPTIONS REGULATOR

- Fine filter (FF) in front of the pilot
- Pneumatic I/P converter
- Noise reduction equipment
- Throttle valve (RSD) for the breathing port on SSV
- Suitable for oxygen (< 10bar)
- Coating with epoxy resin in RAL colours
- Acceptance test certificate (ATC) to EN 10204/3.1
- "Gonzo-Nose" (insect protection for outdoor installation)
- Assembly kit (threaded rods, washers, nuts)
- Helium leak test for hydrogen applications

OPTIONS SSV

- High-pressure SSV (pdso > 3.500 mbar)
- Vent valve (BV) for breather connection
- SSV position indicator
 - Inductive or Reed contact
- SSV release
 - Manual release
 - Remote release (upon current supply or in case of power failure)
 - Manual and remote release (upon current supply or in case of power failure)

THIS IS HOW YOU SELECT YOUR GAS PRESSURE REGULATOR RSP 254 / RSP 255

- Calculate the required K_G -Value (see page 12)
- Using the K_G -Value you have just calculated, select a suitably sized valve from the " K_G -Value" table below. Allow at least an additional 10% spare capacity in the valve you select
- Select the diaphragm assembly that has the relevant outlet pressure from the "Versions" table
- For the selection of the relevant safety shut-off valve, please refer to our Product information leaflet RS 250 / RS 251, which can be found on our website in the Service / Downloads area
- Select any options you require
- In addition, check the flow rates (see page 12)
- When ordering please advise the direction of the gas flow (from right to left or left to right). For safety reasons, please also provide us with your process details (P_u , P_d , Q_n and the type of gas) so we can check your selection

GAS PRESSURE REGULATOR

WITH FITTINGS FOR LENGTH OR NOMINAL SIZE COMPENSATION



In order to save you unnecessary mechanical modifications, we also offer a variety of pipe fittings to compensate the length or the nominal size.



OPTION

- Pipe fitting and regulator completely mounted (fittings are standardly delivered as a loose part)

GOT QUESTIONS ABOUT THE RSP 254 / RSP 255?

info@medenus.de or in the product information
products.medenus.de/RSP254 or
products.medenus.de/RSP255



EXAMPLES

PILOT OPERATED REGULATOR WITH NOMINAL SIZE COMPENSATION

TECHNICAL SPECIFICATION – RSP 254 WITH WIDENING

NOMINAL SIZE	INSTALLATION LENGTH REGULATOR	LENGTH PIPE FITTING	OVERALL LENGTH	VALVE DIAMETER (MM)	K _G -VALUE
DN 50/100	230 mm	+ 220 mm	450 mm	17,5	220
				27,5	500
				32,5	750
DN 80/150	310 mm	+ 190 mm	500 mm	27,5	550
				32,5	850
				42,5	1.450
DN 100/200	350 mm	+ 300 mm	650 mm	27,5	600
				32,5	900
				42,5	1.500
				52,5	1.800

TECHNICAL SPECIFICATION – RSP 255 WITH WIDENING

NOMINAL SIZE	INSTALLATION LENGTH REGULATOR	LENGTH PIPE FITTING	OVERALL LENGTH	VALVE DIAMETER (MM)	K _G -VALUE
DN 50/100	310 mm	+ 140 mm	450 mm	27,5	550
				32,5	750
				42,5	1.250
				52,5	1.700
DN 80/150	410 mm	+ 90 mm	500 mm	42,5	1.500
				52,5	1.800
				65	2.600
				85	3.500
DN 100/200	480 mm	+ 170 mm	650 mm	42,5	1.500
				52,5	1.850
				65	3.200
				85	4.300
				95	4.800

SPRING LOADED REGULATOR WITH LENGTH COMPENSATION

SPRING LOADED REGULATOR WITH EXTENSION, E.G.

TYPE	NOMINAL SIZE	LENGTH REGULATOR [MM]	EXTENSION [MM]	OVERALL LENGTH [MM]
RS 250 / 254	DN 50	230	without	230
RS 250 / 254	DN 80	310	110	420
RS 250 / 254	DN 100	350	150	500

Other pipe fittings for length or nominal size compensation upon request

DF 50 | GAS FILTER

DESIGN AND FUNCTION

The gas flows through the inlet flange into the filter housing. The dust particles entrained in the gas are retained by the filter element. The cleaned gas flows off through the outlet flange.

The filters mainly consist of the housing, the cover and the filter cartridge. Taking off the cover for maintenance and replacement of the filter cartridge guarantees easy access. The filter cartridge consists of the filter basket and the filter element. Up to DN 100 the housing material is aluminium die cast, beyond DN 100 aluminium sand cast.

GOT QUESTIONS ABOUT THE DF 50?

info@medenus.de or in the [product information](https://products.medenus.de/DF50)
products.medenus.de/DF50



CHARACTERISTICS

INLET PRESSURE P_u	max. 6 bar
PS	RP $1\frac{1}{2}$ " to DN 150: max. 6 bar DN 200 - DN 300: max. 2 bar
DEGREE OF SEPARATION	30 μ m standard, 5 μ m optional
AMBIENT TEMPERATURE	-40 °C to +80°C
HOUSING MATERIAL	to DN 100 aluminium die cast > DN 100 aluminium sand cast
GAS SPECIFICATION	gas families 1, 2, 3 (DVGW - G 260) and non-aggressive gases. Other gases on request.
CONNECTIONS	flange sets for threaded versions in DN 25, DN 40 and DN 50 available flange DN 65-DN 300 (ISO 7005)

NOMINAL SIZE	DESCRIPTION	PS
RP 1/2"	Gas filter DF 50	6 bar
RP 3/4"	Gas filter DF 50	6 bar
RP 1"	Gas filter DF 50	6 bar
RP 1 1/2"	Gas filter DF 50	6 bar
RP 2"	Gas filter DF 50	6 bar
DN 65	Gas filter DF 50	6 bar
DN 80	Gas filter DF 50	6 bar
DN 100	Gas filter DF 50	6 bar
DN 125	Gas filter DF 50	6 bar
DN 150	Gas filter DF 50	6 bar
DN 200	Gas filter DF 50	2 bar
DN 250	Gas filter DF 50	2 bar
DN 300	Gas filter DF 50	2 bar

Please find the related pressure loss of the devices in the product information leaflet on our website.

OPTIONS

- 5 µm degree of separation
- Biogas or coke oven gas version (max. 0,1 % H₂S)
- Black epoxy coating
- Acceptance test certificate (ATC) to EN 10204/3.1
- Flange set for threaded versions for DN 25, DN 40 and DN 50

THIS IS HOW YOU SELECT YOUR CELLULAR GAS FILTER DF 50

- Determine the required flow rate
- Select a size that can handle the required flowrate from the table listed above
- Select any options you require
- When ordering please advise the direction of the gas flow

DF 100 | CELLULAR GAS FILTER

DESIGN AND FUNCTION

The gas flows through the inlet flange into the filter housing. The more than 100-fold increased filter area compared with the cross-section of the inlet flange reduces the flow rate accordingly. The dust particles entrained in the gas are retained by the filter element. The cleaned gas flows off through the outlet flange.

The filters mainly consist of the housing, the cover and the filter cartridge. Taking off the cover for maintenance and replacement of the filter cartridge guarantees easy access. The filter cartridge consists of the filter basket and the filter element. Depending on the application and the particle size to be separated, the filter cartridge to be used must have a suitable pore size.

The lid at the bottom of the filter allows convenient removal of any residues formed.

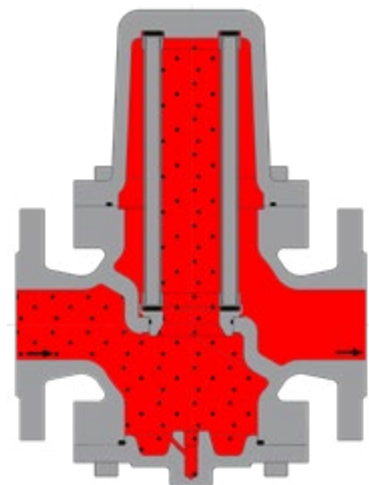


GOT QUESTIONS ABOUT THE DF 100?

info@medenus.de or in the product information
products.medenus.de/DF100

CHARACTERISTICS

INLET PRESSURE P_u	max. 16 bar
PS	16 bar
DEGREE OF SEPARATION	99,9% > 2µm
AMBIENT TEMPERATURE	-20 °C to +60 °C optional -40 °C to +70 °C
HOUSING MATERIAL	aluminium sand cast
APPROVAL	according to PED
GAS SPECIFICATION	gas families 1, 2, 3 (DVGW - G 260) and non-aggressive gases. Other gases on request.
FLANGE STANDARD	DIN 1092 - PN 16 or ASME B 16.5-Class 150 in DN 25 - DN 200





VERSIONS

NOMINAL SIZE	DESCRIPTION	PS
DN 25	Cellular gas filter DF 100	16 bar
DN 50	Cellular gas filter DF 100	16 bar
DN 80	Cellular gas filter DF 100	16 bar
DN 100	Cellular gas filter DF 100	16 bar
DN 150	Cellular gas filter DF 100	16 bar
DN 200	Cellular gas filter DF 100	16 bar

Please find the related pressure loss of the devices in the product information leaflet on our website.

OPTIONS

- Differential pressure gauge equipped with 2 shut-off ball (fully assembled)
- Differential pressure gauge equipped with reed contact and 2 shut-off ball valves (fully assembled)
- Temperature range -40°C to +70°C
- Suitable for oxygen
- Coating with epoxy resin in RAL colours
- Acceptance test certificate (ATC) to EN 10204/3.1
- Helium leak test for hydrogen applications
- Assembly kit

THIS IS HOW YOU SELECT YOUR CELLULAR GAS FILTER DF 100

- Determine the required flow rate
- Select a size that can handle the required flowrate from the table listed above
- Select any options you require
- When ordering please advise the direction of the gas flow (from right to left or left to right)

SL 5 | SAFETY RELIEF VALVE

FOR SIMPLE APPLICATIONS

DESIGN AND FUNCTION

The spring-loaded safety relief valve SL 5 is used for reducing short-term pressure surges upstream of gas consumption systems or preventing an inadmissibly high pressure increase due to escaping gas. The safety relief valve is composed of the actuator housing and the "control device" functional unit.

In the open position, the gas flows through the actuator housing in the direction of the arrow. The internal measurement line port is used to pass the outlet pressure to be regulated to the bottom of the diaphragm comparator of the safety relief valve. It compares the actual value with the command variable preset by the force of the setpoint spring. The setpoint required in each case is set via the setting screw. When the setpoint is exceeded, the measuring movement will lift the actuator, allowing the gas to escape via the blow-off line.



GOT QUESTIONS ABOUT THE SL 5?

info@medenus.de or in the product information
products.medenus.de/SL5

CHARACTERISTICS

P _{uo}	50 mbar - 1.000 mbar
PS	3 bar
AMBIENT TEMPERATURE	-15 to +60
MOUNTING POSITION	any
HOUSING MATERIAL	aluminium die cast
GAS SPECIFICATION	gas families 1, 2, 3 (DVGW - G 260) and non-aggressive gases. Other gases on request.
CONNECTIONS	RP 3/4", RP 1" or NPT

VERSIONS

NOMINAL SIZE	DESCRIPTION	OUTLET PRESSURE RANGE [MBAR]
RP 3/4"	Standard	50 - 150
	Standard	110 - 190
	Standard	150 - 450
	Standard	400 - 1.000
RP 1"	Standard	50 - 150
	Standard	110 - 190
	Standard	150 - 450
	Standard	400 - 1.000

OPTIONS

- Black epoxy coating
- Acceptance test certificate (ATC) to EN 10204/3.1
- Biogas or coke oven gas version (p_u max.: 1 bar, set pressure max.: 450 mbar, H₂S max 0,1%)
- NPT threads

THIS IS HOW YOU SELECT YOUR SAFETY RELIEF VALVE SL 5

- Determine the required blow-off quantity
- Select a size that can handle the required flowrate
- Then you select the desired blow-off pressure
- Select any options you require

SL 10 | SAFETY RELIEF VALVE



DESIGN AND FUNCTION

The spring-loaded safety relief valve SL 10 is used for reducing short-term pressure surges upstream of gas consumption systems or preventing an inadmissibly high pressure increase due to escaping gas.

The safety relief valve is composed of the actuator housing and the "control device" functional unit.

In the open position, the gas flows through the actuator housing in the direction of the arrow. The internal measurement line port is used to pass the outlet pressure to be regulated to the bottom of the diaphragm comparator of the safety relief valve. It compares the actual value with the command variable preset by the force of the setpoint spring. The setpoint required in each case is set via the setting screw. When the setpoint is exceeded, the measuring movement will lift the actuator, allowing the gas to escape via the blow-off line.

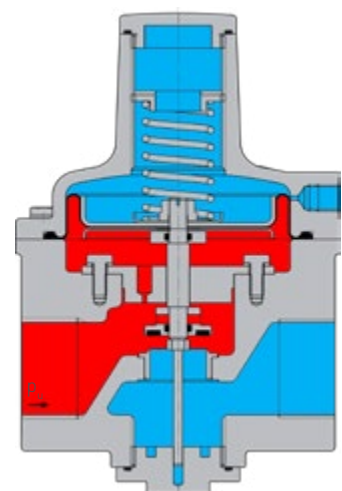


GOT QUESTIONS ABOUT THE SL 10?

info@medenus.de or in the product information
products.medenus.de/SL10

CHARACTERISTICS

P_{uo}	25 mbar - 3.500 mbar
PS	8 bar
RP 1": Q_{max}	100 Nm ³ /h
RP 1 1/2"; RP 2": Q_{max}	300 Nm ³ /h
AMBIENT TEMPERATURE	-20 °C to +60 °C
MOUNTING POSITION	any
HOUSING MATERIAL	aluminium sand cast
APPROVAL	according to PED
GAS SPECIFICATION	gas families 1, 2, 3 (DVGW - G 260) and non-aggressive gases. Other gases on request.



VERSIONS

NOMINAL SIZE	DESCRIPTION	OUTLET PRESSURE RANGE [MBAR]
DN 25 RP 1"	Standard	25 - 400
	High-pressure version	401 - 1.000
	High-pressure version with HDS	1.001 - 3.500
DN 40 RP 1½"	Standard	25 - 400
	High-pressure version	401 - 1.000
	High-pressure version with HDS	1.001 - 3.500
DN 50 RP 2"	Standard	25 - 400
	High-pressure version	401 - 1.000
	High-pressure version with HDS	1.001 - 3.500

OPTIONS

- Suitable for oxygen
- Coating with epoxy resin in RAL colours
- Acceptance test certificate (ATC) to EN 10204/3.1
- Vent valve (BV) for breather connection
- Leakage gas indicator
 - Typ LI-1 (Corner version)
 - with reed contact
 - without reed contact
 - Typ LI-2 (Straight execution)
 - with reed contact
 - without reed contact
- "Gonzo-Nose" (insect protection for outdoor installation)
- Helium leak test for hydrogen applications
- NPT thread on request

THIS IS HOW YOU SELECT YOUR SAFETY RELIEF VALVE SL 10

- Determine the required blow-off quantity
- Select a size that can handle the required flowrate
- Then you select the desired blow-off pressure
- Select any options you require

S 50 | SAFETY SHUT-OFF VALVE



DESIGN AND FUNCTION

The safety shut-off valve S 50 shuts off the gas flow when the outlet pressure in the regulating sections exceeds or falls below a certain response pressure. To this end, the outlet pressure to be monitored is passed to the SSV controller via a separate measurement line. As a function of the change in pressure, the diaphragm comparator in the controller is raised or lowered. When the outlet pressure in the regulating section falls below the lower switch-off point or exceeds the upper switch-off point, the switch socket connected to the SSV diaphragm will move to the corresponding disengaging position, the balls of the engaging mechanism will release the SSV valve stem, and the closing spring will press the SSV valve disc against the valve seat. The SSV actuator shuts off the gas flow gas-tight. The SSV can only be opened by hand and engaged in the open position. To do so, outlet pressure at the measuring point must be lowered below the upper response pressure or raised above the lower response pressure by at least the re-engaging differential amount (Δp).

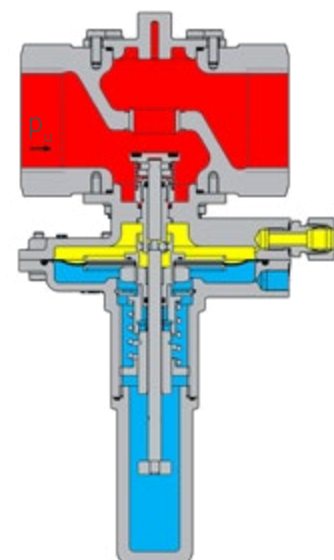


GOT QUESTIONS ABOUT THE S 50?

info@medenus.de or in the [product information](https://products.medenus.de/S50)
products.medenus.de/S50

CHARACTERISTICS

INLET PRESSURE P_u	max. 3 bar
$P_{ds\ o}$	50 - 1.500 mbar
$P_{ds\ u}$	10 - 300 mbar
AMBIENT TEMPERATURE	-20 °C to +60 °C
RP 1": Q_{max}	100 Nm ³ /h
RP 1 1/2"; RP 2": Q_{max}	300 Nm ³ /h
MOUNTING POSITION	any
HOUSING MATERIAL	aluminium sand cast
APPROVAL	according to PED
GAS SPECIFICATION	gas families 1, 2, 3 (DVGW - G 260) and non-aggressive gases. Other gases on request.

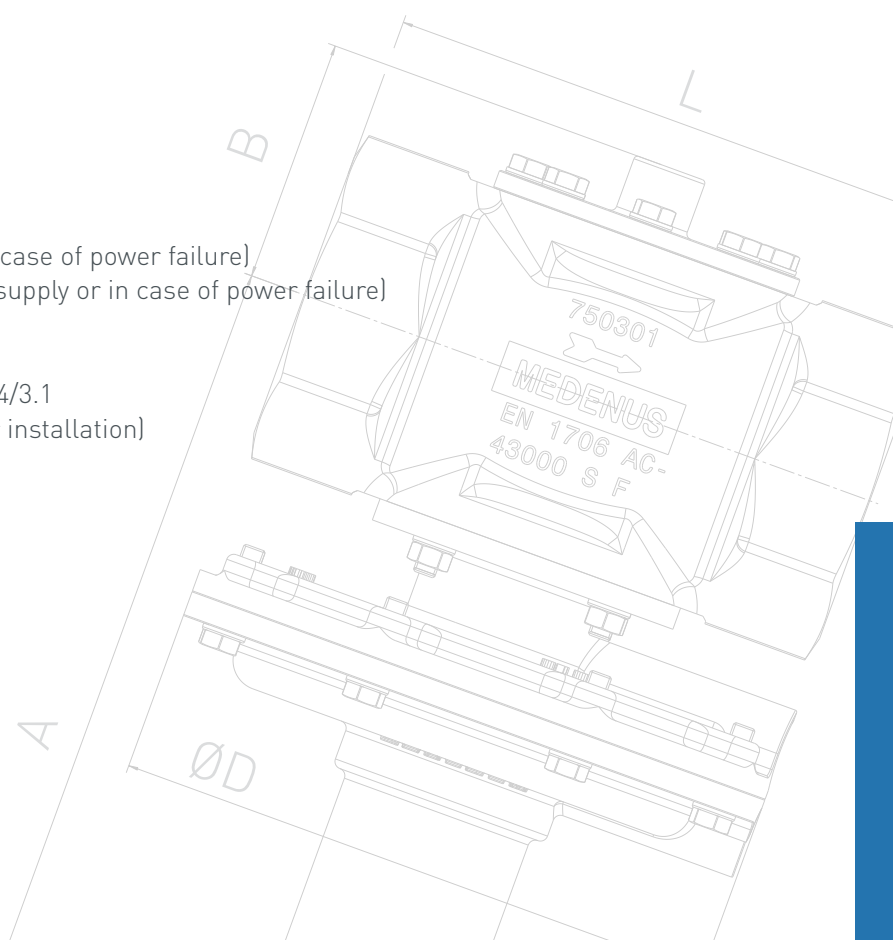


VERSIONS

NOMINAL SIZE	DESCRIPTION
RP 1"	Safety shut-off valve S 50
RP 1 1/2"	Safety shut-off valve S 50
RP 2"	Safety shut-off valve S 50

OPTIONS

- Vent valve (BV) for breather connection
- SSV position indicator
 - Inductive or Reed contact
- SSV release
 - Manual release
 - Remote release (upon current supply or in case of power failure)
 - Manual and remote release (upon current supply or in case of power failure)
- Suitable for oxygen
- Coating with epoxy resin in RAL colours
- Acceptance test certificate (ATC) to EN 10204/3.1
- "Gonzo-Nose" (insect protection for outdoor installation)
- Helium leak test for hydrogen applications
- NPT thread on request



THIS IS HOW YOU SELECT YOUR SAFETY SHUT-OFF VALVE S 50

- Determine the required flow rate
- This is followed by selecting the suitable nominal size for the required K_G -Value from the table listed below
- Select any options you require
- In addition, check the flow rates (see page 12)
- When ordering please advise the direction of the gas flow (from right to left or left to right). For safety reasons, please also provide us with your process details (P_u , P_d , Q_n and the type of gas) so we can check your selection

S 100 | SAFETY SHUT-OFF VALVE



DESIGN AND FUNCTION

The safety shut-off valve S 100 shuts off the gas flow when the outlet pressure in the regulating sections exceeds or falls below a certain response pressure. To this end, the outlet pressure to be monitored is passed on to the SSV controller via a separate measurement line. As a function of the change in pressure, the diaphragm comparator in the controller is raised or lowered. When the outlet pressure in the regulating section falls below the lower switch-off point or exceeds the upper switch-off point, the switch socket connected to the SSV diaphragm will move to the corresponding disengaging position, the balls of the engaging mechanism will release the SSV valve stem, and the closing spring will press the SSV valve disc against the valve seat. The SSV actuator shuts off the gas flow gas-tight. The SSV can only be opened by hand and engaged in the open position. To do so, the outlet pressure at the measuring point must be lowered below the upper response pressure or raised above the lower response pressure by at least the re-engaging differential amount (Δp).

chanism will release the SSV valve stem, and the closing spring will press the SSV valve disc against the valve seat. The SSV actuator shuts off the gas flow gas-tight. The SSV can only be opened by hand and engaged in the open position. To do so, the outlet pressure at the measuring point must be lowered below the upper response pressure or raised above the lower response pressure by at least the re-engaging differential amount (Δp).

GOT QUESTIONS ABOUT THE S 100?

info@medenus.de or in the product information products.medenus.de/S100

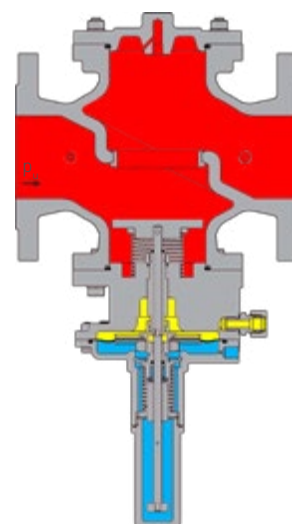
K_G-VALUE

NOMINAL SIZE	VALVE DIAMETER [MM]	K _G -VALUE [M ³ /(H*BAR)]
DN 25	32,5	450
DN 40	32,5	550
DN 50	52,5	1.350
DN 65	52,5	1.650
DN 80	80,0	3.300
DN 100	80,0	3.900
DN 125	80,0	4.500
DN 150	125,0	8.000
DN 200	160,0	14.000



CHARACTERISTICS

INLET PRESSURE P_u	max. 8 bar
$P_{ds\ o}$	50 - 1.500 mbar
$P_{ds\ u}$	10 - 300 mbar
AMBIENT TEMPERATURE	-20 °C to +60 °C
MOUNTING POSITION	any
HOUSING MATERIAL	aluminium sand cast
APPROVAL	according to PED
GAS SPECIFICATION	gas families 1, 2, 3 (DVGW - G 260) and non-aggressive gases. Other gases on request.
FLANGE STANDARD	DIN 1092 - PN 16 or ASME B 16.5-Class 150





VERSIONS

NOMINAL SIZE	DESCRIPTION
DN 25	Safety shut-off valve S 100
DN 40	Safety shut-off valve S 100
DN 50	Safety shut-off valve S 100
DN 65	Safety shut-off valve S 100
DN 80	Safety shut-off valve S 100
DN 100	Safety shut-off valve S 100
DN 125	Safety shut-off valve S 100
DN 150	Safety shut-off valve S 100

* Please note that we changed the DIN flange standard for DN 200 from PN 10 to PN 16 with September 2018.

OPTIONS

- Vent valve (BV) for breather connection
- SSV position indicator
 - Inductive
 - Reed contact
- SSV release
 - Manual release
 - Remote release (upon current supply or in case of power failure)
 - Manual and remote release (upon current supply or in case of power failure)
- Suitable for oxygen
- Coating with epoxy resin in RAL colours
- Acceptance test certificate (ATC) to EN 10204/3.1
- "Gonzo-Nose" (insect protection for outdoor installation)
- Assembly kit (threaded rods, washers, nuts)
- Helium leak test for hydrogen applications

THIS IS HOW YOU SELECT YOUR SAFETY SHUT-OFF VALVE S 100

- Calculate the required K_G -Value at the supercritical pressure ratio (see page 12)
- This is followed by selecting the suitable nominal size for the required K_G -Value from the table listed below
- Select any options you require
- In addition, check the flow rates (see page 12)
- When ordering please advise the direction of the gas flow (from right to left or left to right).
For safety reasons, please also provide us with your process details (P_u , P_d , Q_n and the type of gas) so we can check your selection

ACCESSOIRES

DESCRIPTION	
Drilling winch set (including drill winch, nut, connecting square and extension) for easy adjustment of the setpoint value	
Suction nut for mounting ball cage	
Breathing valve (BV) for the breathing connection of the safety shut - off or the safety relief valve	
Throttle valve (RSD) for the measuring line of the control unit. The throttle valve can be used to optimize the control behavior of the controller in case of need	
<ul style="list-style-type: none"> · Inductive sensor for safety shut-off valve with cap · Reed contact for safety shut-off valve with cap 	
Helium leak test (eg for hydrogen applications)	
<ul style="list-style-type: none"> · R 50 / S 50 / SL 10 · DN 25 - DN 100 · DN 125 - DN 200 	
Additional or subsequent type plate	
Inspection test certificate 3.2 / Individual inspection	
Inspection test certificate 3.1 with material verification list	
Leakage gas indicator	
<ul style="list-style-type: none"> · Type LI-1 (corner version) <ul style="list-style-type: none"> · with reed contact · without reed contact · Type LI-2 (straight execution) <ul style="list-style-type: none"> · with reed contact · without reed contact 	
Fine filter (FF) for pilot controller	
"Gonzo-Nose" (insect protection for outdoor installation and when using safety diaphragm)	
Device identification with plastic label (others on request)	
Special markings (e.g. barcodes) on request	
Lubricant (Synthesa Proba 270) 50 g	
Other accessories such as flange gaskets, spare parts*	

*) For product-specific spare parts kits please use our spare parts catalogue (on request) and / or our factory number search on our website medenus.de/fabrication-number-search



THE MEDENUS ADD ONS

10 REASONS IN FAVOUR OF GOOD BUSINESS RELATIONSHIPS

1. High levels of expertise and high quality standards developed over decade
2. Wide range of reliable, well proven regulators
3. Customised designs as well as special constructions can be supplied if you cannot find what you need from our standard range
4. Modern, fast and efficient production systems
5. Guaranteed delivery dates
6. Quick response times
7. We hold a large quantity of valve parts meaning new valves and spares can be supplied quickly
8. Theoretical and practical training sessions can be provided to suit your needs
9. Optimised spare parts inventories due to the modular design of our whole product range
10. 100% Made in Germany

TRADING GOODS

To offer even better service and to save your time and money we also offer some other products of German manufacturers as trading products.

FLANGED BALL VALVES



DESIGN AND FUNCTION

Our flanged ball valves consist of a two-piece spheroidal graphite cast iron housing and are fire-safe designed.

The sliding ball on the inside, sealed on three sides, is adjusted via the handle. Optionally, the handle can be replaced with an electric or pneumatic rotary drive.

OPTIONS

- Special paint finishes
- Inspection certificate 3.1 (ATC)
- Oxygen versions
- Locking device

VERSIONS

PN 16

DN 25	DN 32	DN 40	DN 50	DN 65	DN 80	DN 100	DN 125	DN 150
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VERSIONS

PN 16 WITH TWO-PART HOUSING WITH INTERMEDIATE FLANGE

DN 125	DN 150	DN 200	DN 250
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CHARACTERISTICS

PS	16 bar
AMBIENT TEMPERATURE	-20 °C to +60 °C
HOUSING MATERIAL	spheroidal graphite iron
CORROSION PROTECTION	primer
GAS SPECIFICATION	gas families 1, 2, 3 (DVGW - G 260) and non-aggressive gases. Other gases on request.
FLANGE STANDARD	DIN 1092 - PN 16

MECHANICAL QUANTOMETER

DESIGN AND FUNCTION

The turbine meter / quantometer is a flow meter. The flow of the gas to be measured rotates the impeller wheel. The gas flow is concentrated to an annular cross-section and directed onto the smooth-running aluminium impeller wheel. The number of turbine wheel revolutions is proportional to the flow volume, while the frequency of rotation is proportional to the flow rate. The rotation of the impeller wheel is reduced by means of a reduction gear and transmitted from the gas-filled room to the adjustable roller counter in the ambient atmosphere by means of a magnetic coupling. The quantometers are delivered without flanges als intermediate flange version together with the relevant thread bolts, nuts and flat seals.

CHARACTERISTICS

PS	16 bar
AMBIENT TEMPERATURE	-20 to +55 °C
HOUSING MATERIAL	aluminium
PED-APPROVAL	Hpi / 222-103-Q-01
REPRODUCIBILITY	< 0,2 %
PRESSURE CHANGE RATE	< 0,35 bar/s
GAS SPECIFICATION	gas families 1, 2, 3 (DVGW - G 260) and non-aggressive gases. Other gases on request.

VERSIONS

NOMINAL SIZE	G-SIZE	Q _{MIN} [M³/H]	Q _{MAX} [M³/H]
RP 1"	G 10	1,6	16
RP 1"	G 16	2,5	25
RP 1"	G 25	2,0	40
RP 1"	G 40	3,3	65
RP 1 1/2"	G 40	3,3	65
25/1"	G 10	1,6	16
25/1"	G 16	2,5	25
25/1"	G 25	2,0	40
25/1"	G 40	3,3	65
50/2"	G 40	3,3	65
50/2"	G 65	5,0	100
80/3"	G 100	8,0	160
80/3"	G 160	12,5	250
80/3"	G 250	20,0	400
100/4"	G 160	12,5	250
100/4"	G 250	20,0	400
100/4"	G 400	32,5	650
150/6"	G 400	32,5	650
150/6"	G 650	50,0	1000
150/6"	G 1000	80,0	1600



OPTIONS

- Aluminium counter head
- NF reed contact for aluminium counter head
- 1 x MF for aluminium counter head
- 1 x HF sensor / 2 x HF sensor
- Oil pump
- 1 x thermowell / 2 x thermowell
- Additionally copy of the manual
- Test certificate 3.1 with / without detailed material list

FOLLOWING CHARACTERISTICS ARE INCLUDED AS STANDARD:

- 1 x anti-manipulation contact
- Intermediate flange design with mounting aid
- Counter head made of plastic
- 1 x standard documentation
- Test certificate 2.2

ELECTRONICAL QUANTOMETER

DESIGN AND FUNCTION

The MQMe Quantometer is a turbine gas meter that registers the operating volume using a nine-digit electronic index.

The flow of the gas to be measured causes the turbine rotor to rotate. The gas flow is narrowed on an annular cross section, is accelerated and directed onto the smooth-running Aluminum rotor. The number of rotations is proportional to the measured gas volume; the frequency of rotations is proportional to the actual gas flow.

The rotation of the rotor is transmitted via a magnetoresistance sensor from the gas pressurized area to the electronic index which is in the atmospheric environment. The CPU is receiving the high frequency signal for the magnetoresistance sensor to calculate the gas flow and gas volume under operating conditions. If the optional electronic volume corrector function is installed the gas flow and gas volume under standard conditions will be calculated according AGA NX-19. The calculation can be based on fixed factors for temperature and pressure or on optionally installed temperature and pressure sensors. The MQMe is designed to have one external temperature and one external pressure transmitter installed directly in the meter.



- Several options to transmit the measured and calculated data to a digital control system (DCS) or SCADA
- Equipped with alternatively RS 485 or M-Bus interface and one high frequency (HF) as well as one low frequency (LF) pulser
- If an external power supply is connected to the MQMe one 4 to 20 mA configurable signal is available
- The rotation of the rotor can be scanned additionally with one external high frequency (HF) sensor
- The HF-sensor signal allows the determination of the actual gas flow in high-resolution and can be transmitted to any digital control system (DCS) or SCADA for flow control purposes
- Integrated electronic volume corrector

CHARACTERISTICS

PS	16 bar
AMBIENT TEMPERATURE	-20 to +55 °C
HOUSING MATERIAL	aluminium
PED-APPROVAL	Hpi / 222-103-Q-01
REPRODUCIBILITY	< 0,2 % Pressure Change
PRESSURE CHANGE RATE	< 0,35 bar/s
GAS SPECIFICATION	gas families 1, 2, 3 (DVGW - G 260) and non-aggressive gases. Other gases on request.



VERSIONS

NOMINAL SIZE	G-SIZE	Q _{MIN} [M³/H]	Q _{MAX} [M³/H]
RP 1"	G 10	1,6	16
RP 1"	G 16	2,5	25
RP 1"	G 25	2,0	40
RP 1"	G 40	3,3	65
RP 1 1/2"	G 40	3,3	65
25/1"	G 10	1,6	16
25/1"	G 16	2,5	25
25/1"	G 25	2,0	40
25/1"	G 40	3,3	65
50/2"	G 40	3,3	65
50/2"	G 65	5,0	100
80/3"	G 100	8,0	160
80/3"	G 160	12,5	250
80/3"	G 250	20,0	400
100/4"	G 160	12,5	250
100/4"	G 250	20,0	400
100/4"	G 400	32,5	650
150/6"	G 400	32,5	650
150/6"	G 650	50,0	1.000
150/6"	G 1000	80,0	1.600

OPTIONS

- Integrated volume corrector (incl. pressure & temperature sensors)
- Analog output (4-20 mA) only with ext. care
- RS485 (then no M-bus possible)
- M-Bus (then no RS485 possible)
- 1x HF sensor acceptance on the Alurad (only with external supply)
- Oil pump
- 1 x thermowell
- Test certificate 3.1 without detailed material list
- LF-Signal (only with integrated volume corrector)

FOLLOWING CHARACTERISTICS ARE INCLUDED AS STANDARD:

- Permanently sprinkled warehouse
- HF Signal
- Aluminium turbine
- Intermediate flange design

INQUIRY FORM

To be able to answer your enquiry as quickly as possible, please complete as much as possible.

Title _____ Firstname _____ Lastname _____

Company _____

Street and number _____

PP box _____ Post vCode _____ Place _____

E-Mail _____ Country _____ Tel. _____

Fax _____ Mobile _____

Please tick the device type in question.

- | | | |
|---|--|---|
| <input type="checkbox"/> Gas pressure regulator | <input type="checkbox"/> Rotary regulator | <input type="checkbox"/> Vacuum regulator |
| <input type="checkbox"/> Overflow valve | <input type="checkbox"/> Regulator for gas torches | |
| <input type="checkbox"/> Gas pressure regulator with integrated safety shut-off valve | <input type="checkbox"/> Safety shut-off valve | |
| <input type="checkbox"/> Safety relief valve | | |

Should you require a replacement device or spare parts, please tell us the fabrication number of your device.

Please tick the desired nominal size.

- | | | |
|---------------------------------|---------------------------------|---------------------------------|
| <input type="checkbox"/> DN 25 | <input type="checkbox"/> DN 40 | <input type="checkbox"/> DN 50 |
| <input type="checkbox"/> DN 65 | <input type="checkbox"/> DN 80 | <input type="checkbox"/> DN 100 |
| <input type="checkbox"/> DN 125 | <input type="checkbox"/> DN 150 | <input type="checkbox"/> DN 200 |

Please enter the relevant flow rate and pressures:

Inlet pressure P_u _____ Outlet pressure p_d _____

Flow rate _____ Pressure level _____

Please enter the relevant type of gas and the temperature range.

Type of gas _____ Temperature range _____

Notes / additional equipment (e.g.: Breathing valve):

SERVICE AND TRAINING

ON-SITE SERVICE

Service Engineer hourly rate	€ 89.—
Surcharge from first additional working hour up to 10 working hours maximum daily and no later than 8:00 p.m.	+25%
additional charge for more than 10 hours daily and/or after 8:00 p.m.	+50%
Surcharge for public holidays, Sundays and on December 24th and December 31st	+125%

A working hour includes the travel time for arrival and departure to the customer or to the construction site, the documentation and any resulting additional times required or caused by the customer (e.g. waiting time for requested operators, set-up times, etc.)

DAILY EXPENSES:

Each day of attendance is calculated from a travel time of 4 hours a rate of € 40,- per day.

ACCOMMODATION COSTS:

Any accommodation costs incurred shall be payable by the customer as follows:

- Per night (or after receipt): € 60.—

TRAVEL EXPENSES/ MILEAGE ALLOWANCE:

Service vehicle:	€ 0.85 / km
To determine the kilometres to be charged, the place of departure of the Service Engineer shall be used. Round trip will be charged. The upper calculation limit for the number of km shall be 1000 km maximum.	

FIXED PRICES:

For clearly defined scopes of services, we can offer you fixed prices. Please contact our sales department.

REPAIR

We will be glad to assess returned devices as to whether repair is still worthwhile.

This will incur the following fees:

- Cost estimate for repair: € 89.—
(This fee does not apply if repair or a new device is ordered)
- Scrapping fee per device:
- For small devices (threaded versions): € 50.—
- For flanged versions: € 89.—

Any returns will incur the relevant freight and packing costs.

TRAINING COURSES

We offer you internal standard seminars as well as customer-specific on-site training. Just take a look at our webpage or get in touch with us.



MEDENUS
Gas Pressure Regulation

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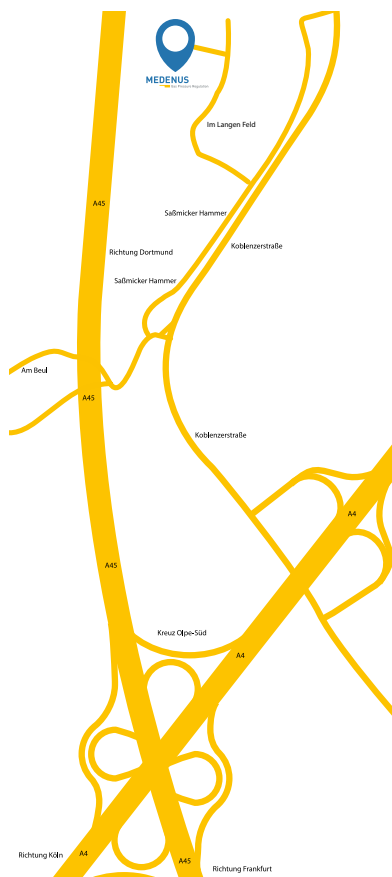
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If you want to know more about our products and services, please contact your local representative or visit our website at **www.medenus.de/en**



MEDENUS

GAS-DRUCKREGELTECHNIK GMBH

Im Langen Feld 3

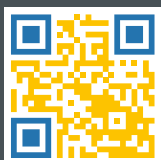
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