Gas Pressure Regulator HON 300

PRODUCT INFORMATION

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Applications

- direct acting gas pressure regulator, for systems in accordance with DVGW working instruction G 491 (A) and G 600 (A) (TRGI)
- especially suitable for dynamic regulating lines (e.g. gas furnaces, burner switching, gas engine operation)
- can also be used as a component for gas appliances according to EC Directive (90/396/EEC)
- suitable for gases in accordance with DVGW Worksheet G 260 and neutral, non-aggressive gases; other gases on request

Characteristics

- version with integral overpressure protection (IS)
- gas pressure regulator with incorporated safety shut-off valve (SSV) – optional designs with limited relief valve (SRV) or with safety diaphragm
- large inlet pressure range
- installation of different valve seat diameters is possible
- easy to maintain, thanks to interchangeable functional units (plug-in modules)
- SSV optionally in function class A or B, pressure equalizing valve (inner by-pass) integrated in final control element

Versions (options)

- without SSV
- SSV with manual release
- SSV with electromagnetic remote release
- with position indicator “SSV closed” (inductive proximity switch)
- regulating assembly with safety relief valve (p_d up to 0.8 bar) or safety diaphragm
- with vent valve HON 915 (SSV/RA) or tripping valve HON 919 (SSV)

Technical data						
Version	with integral overpressure protection (IS)					
Max. permissible pressure PS	16 bar					
Max. inlet pressure $p_{u\ max}$	16 bar					
	Regulating assembly RA 1			**Regulating assembly RA 2**		
	Setpoint spring			**Setpoint spring**		
Specific setting range W_{ds}	**Spring no.**	**Wire Ø in mm**	**Colour coding**	**Spring no.**	**Wire Ø in mm**	**Colour coding**
20 mbar to 45 mbar	1	2.5	grey			
35 mbar to 100 mbar	2	3	yellow			
80 mbar to 200 mbar	3	3.6	ivory			
150 mbar to 300 mbar	4	4	red			
250 mbar to 400 mbar	5	4	green			
300 mbar to 500 mbar	6	4.5	light blue			
400 mbar to 800 mbar	7	5.3	dark blue			
500 mbar to 800 mbar				6	4.5	light blue
600 mbar to 2000 mbar				7	5.3	dark blue
Accuracy class AC and closing pressure class SG Specific outlet pressure range p_d	**AC**	**SG**		**AC**	**SG**	
20 mbar to 30 mbar	10	30				
> 30 mbar to 50 mbar	10	20				
> 50 mbar to 500 mbar	5	10				
> 500 mbar to 2000 mbar	2.5	10		2.5	10	
Closing pressure zone group	SZ 2.5					
Pipe size	DN 25					
Type of connection	Flange PN 16 Upon request class 150 according to ANSI 16.5					
Material	Main valve body and SSV			Cast aluminium alloy		
	Diaphragm casings			Pressed sheet steel		
	Diaphragms; sealing rings			NBR/ ECO		
	Internal parts			Al alloy, steel, brass		
Temperature range class 2	Ambient and operating temperature range –20 °C to +60 °C					
Strength – leak tightness – functionality	According to DIN EN 334 and DIN EN 14382					
CE mark in accordance with PED	Honeywell CE 0085					
Type approval test according to	• PED (DGRL) • GAD (GGRL) as a component for gas appliances					
Explosion protection	All mechanical components of this device are without potential ignition sources and/or hot faces thus are not subject to ATEX 95 (94/9/EC). All electronic accessories, comply to ATEX requirements.					

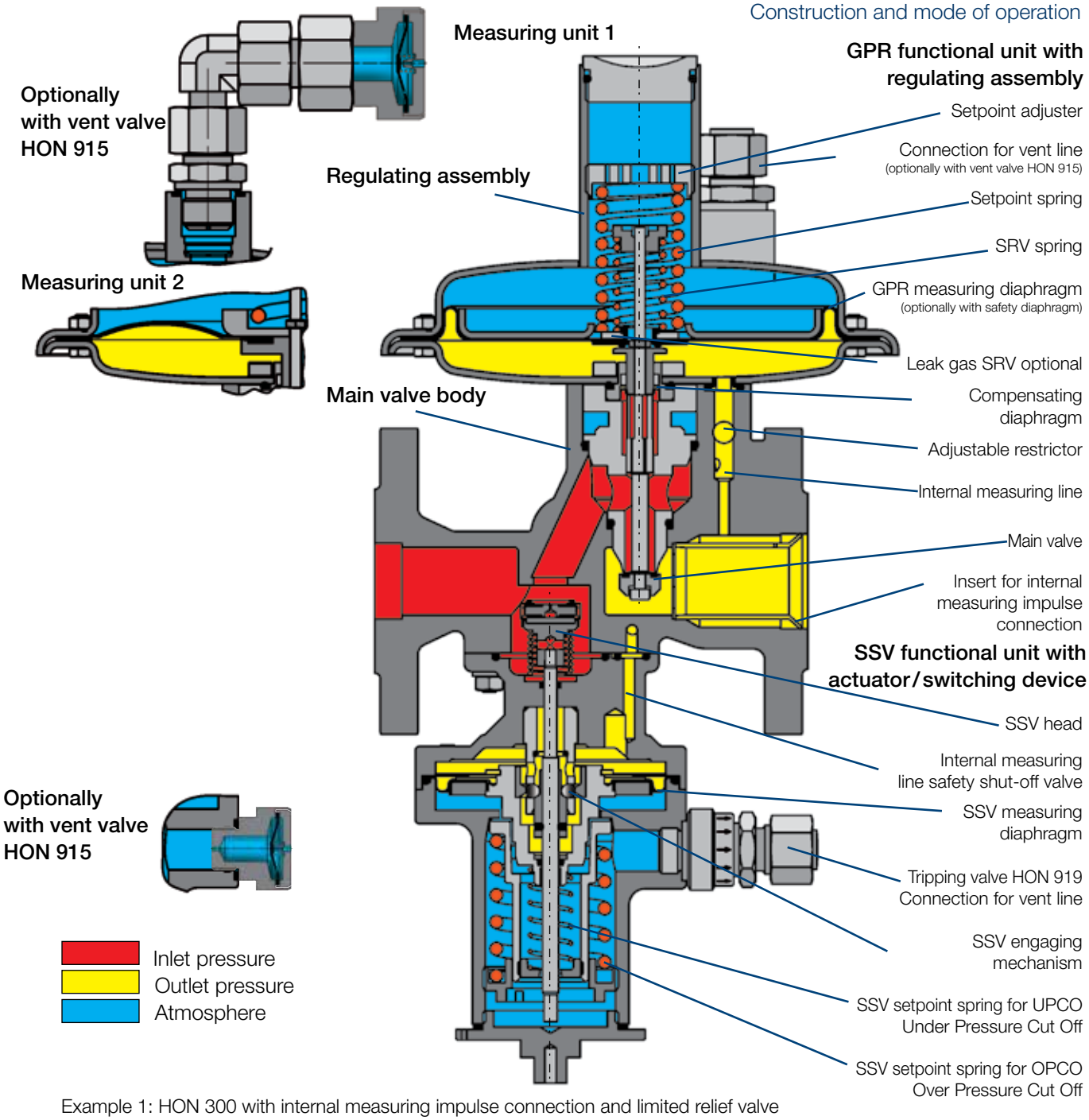
Valve specification				
Pipe size	Valve seat Ø in mm	Valve flow rate coefficient K_G* in (m³/h)/bar	Inlet pressure range $\Delta p_{u\ max}$ in bar at regulating assembly	
			RA 1	RA 2
DN 25	11	65	16	16
	14**	115	16	16

* valve flow rate coefficient for natural gas: d = 0,64 (ρ_n = 0.83 kg/m³), t_u = 15 °C
** upon request

Integrated safety relief valve (leakage gas SRV) can only be used up to $p_{ds\ max}$ = 0.5 bar			
	Setpoint spring	Regulating assembly	Response pressure
No.	Wire Ø in mm		Adjustment via p_{ds} in mbar
1	2.5	RA 1	10 to 100

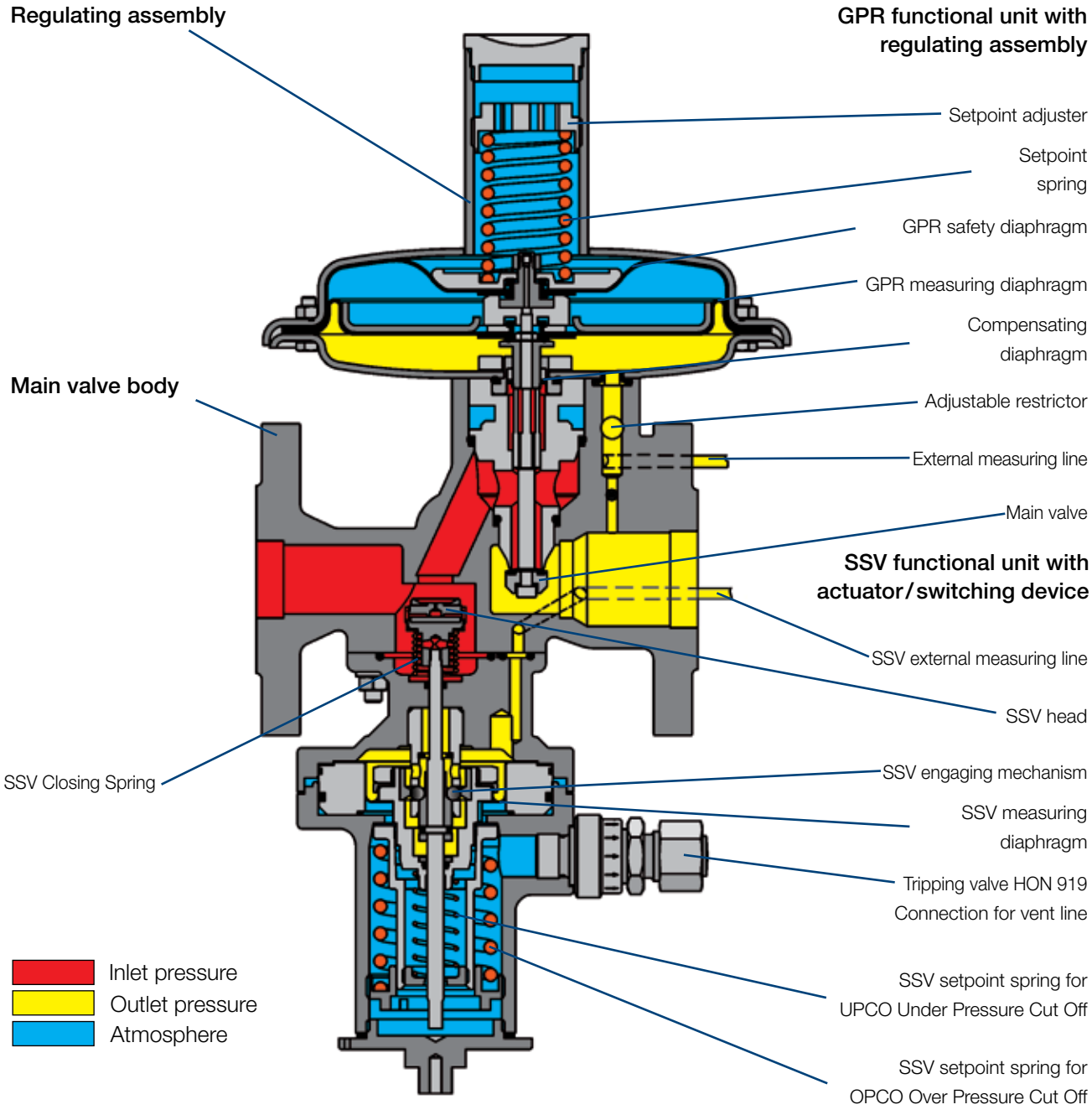
SSV setting range for actuator type HON 673, K1a/ K2a							
Actuator	Setpoint spring			Upper response pressure*		Lower response pressure*		AG Accuracy Group**
	No.	Wire Ø in mm	Colour coding	Upper setting range W_{dso} in mbar	Min. re-engage differential between response pressure and normal operating pressure Δp_{wo} in mbar	Lower setting range W_{dsu} in mbar	Min. re-engage differential between normal operating pressure and response pressure Δpwu in mbar	
K1a	1	2.5	yellow	50 ... 100	30	–	–	10/5
	2	3.2	light red	80 ... 250	50	–	–	10/5
	3	3.6	dark red	200 ... 500	100	–	–	5/2.5
	4	4.75	white	500 ... 1500	250	–	–	5/2.5
	5	1.1	light blue	–	–	10 ... 15	12	10
	6	1.2	white	–	–	14 ... 40	30	10/5
	7	1.4	black	–	–	35 ...120	60	5
K2a	2	3.2	light red	400 ... 800	100	–	–	10/5
	3	3.6	dark red	600 ... 1600	200	–	–	10/5
	4	4.75	white	1500 ... 4500	300	–	–	5/2.5
	5	1.1	light blue	–	–	60...150	50	10/5
	7	1.4	black	–	–	120...400	100	5

* PLEASE NOTE: If the actuator is configured to handle both overpressure and underpressure release, the difference between the setpoints of the overpressure and underpressure release (p_{dso} and p_{dsu}) must be at least 10 % greater than the sum of the values specified for Δp_{wo} and Δp_{wu}
$(p_{dso} - p_{dsu})_{min} = 1{,}1 \cdot (\Delta p_{wo} + \Delta p_{wu})$
** The higher AG group applies to the first half, the lower AG group to the second half of the setting range.



Example 1: HON 300 with internal measuring impulse connection and limited relief valve in measuring unit 1, with safety shut-off unit (SSV) K1a and tripping valve HON 919

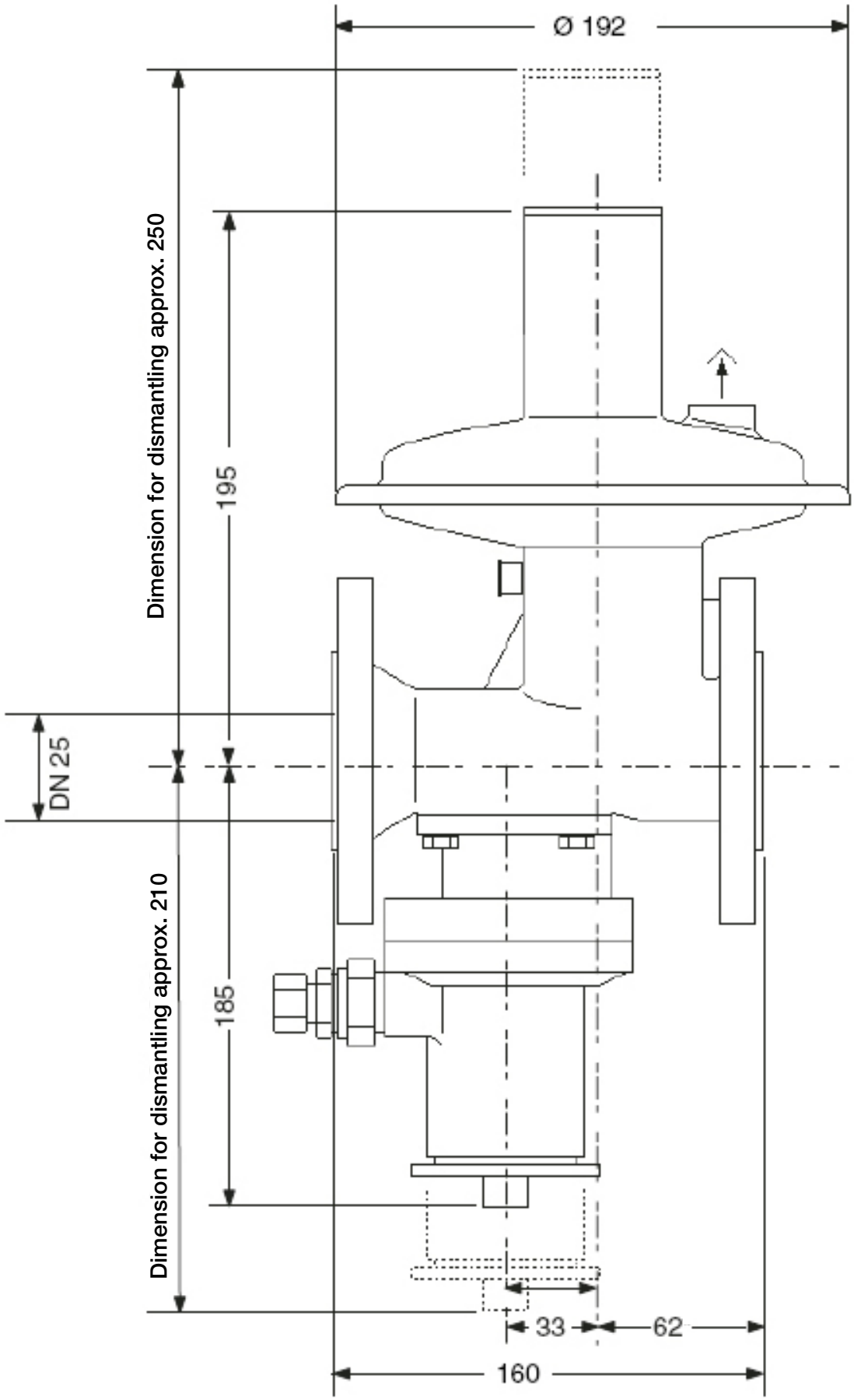
The direct acting HON 300 gas pressure regulator unit is used to maintain the outlet pressure at a constant level independent of inlet pressure variation or load. The unit comprises of regulator and integral SSV housed in one body.
After loosening the fastening screws the regulator and SSV cartridges can easily be removed from the body which can remain in situ for visual inspection during scheduled maintenance. If there is a defect, it is possible to exchange the functional units quickly with tested replacement units and to carry out the necessary maintenance work in the repair shop instead of at site.
The final contact element of the regulating assembly can be equipped with different valve seat diameters. The valve seat versions are pressure compensated. The regulating assembly can optionally be equipped with a limited relief valve or a safety diaphragm. Both regulator and SSV are ICL (Internal Control Line) type on example shown.



Example 2: HON 300 with external measuring impulse connection, with safety diaphragm in measuring unit 1, with safety shut-off unit (SSV) K2a and tripping valve HON 919

The main valve body has measuring line holes to enable an internal measuring impulse connection for the regulating assembly and SSV. When external measuring lines are used, the internal connections are sealed by pushing balls into the holes.

The measuring diaphragm of the regulating assembly detects the actual outlet pressure and compares it to the setpoint value provided by the setpoint spring. Whenever the comparison reveals a deviation, the valve stem will act directly on the main valve position, thus changing the flow rate and adjusting the outlet pressure to match the reference value again.
At zero flow the regulator valves seals tightly as the outlet pressure rises slightly to lock-up pressure. If the outlet pressure reaches either the upper or lower preset limit, then the SSV will slam shut cutting off the supply pressure to the regulator. The SSV measuring diaphragm and switch bush will move into the corresponding release position and the ball engaging mechanism will release the SSV valve stem, and the SSV control element will close by virtue of the closing spring. Ensure outlet pressure is returned to normal operating pressure (or the corresponding specified re-engage differentials for overpressure and under pressure) before attempting to latch open the SSV. The SSV can optionally also be equipped with a manual and a remote release. It can also be optionally designed for function class A (with diaphragm failure protection) or B (without diaphragm failure protection).


Ø 192
Dimension for dismantling approx. 250
195
DN 25
185
Dimension for dismantling approx. 210
33
62
160

Connection of the measuring and vent lines				
	Regulating assembly		SSV actuator/switching device	
RE1 / RE2	Measuring line **	Vent/discharge line	Measuring line **	Vent line
	Connection* for: Pipe 10 x 1.5 (thread G 1/4)	Connection* for: Pipe 12 x 1.5 (thread G 1/2)	Connection* for: Pipe 10 x 1.5 (thread G 1/4)	Connection* for: Pipe 12 x 1.5 (thread M 16 x 1.5)

* Screw connections according to DIN EN ISO 8434-1 (DIN 2353)

** The measuring line for the regulating assembly and for the SSV unit is not applicable for devices with an internal measuring impulse connection.

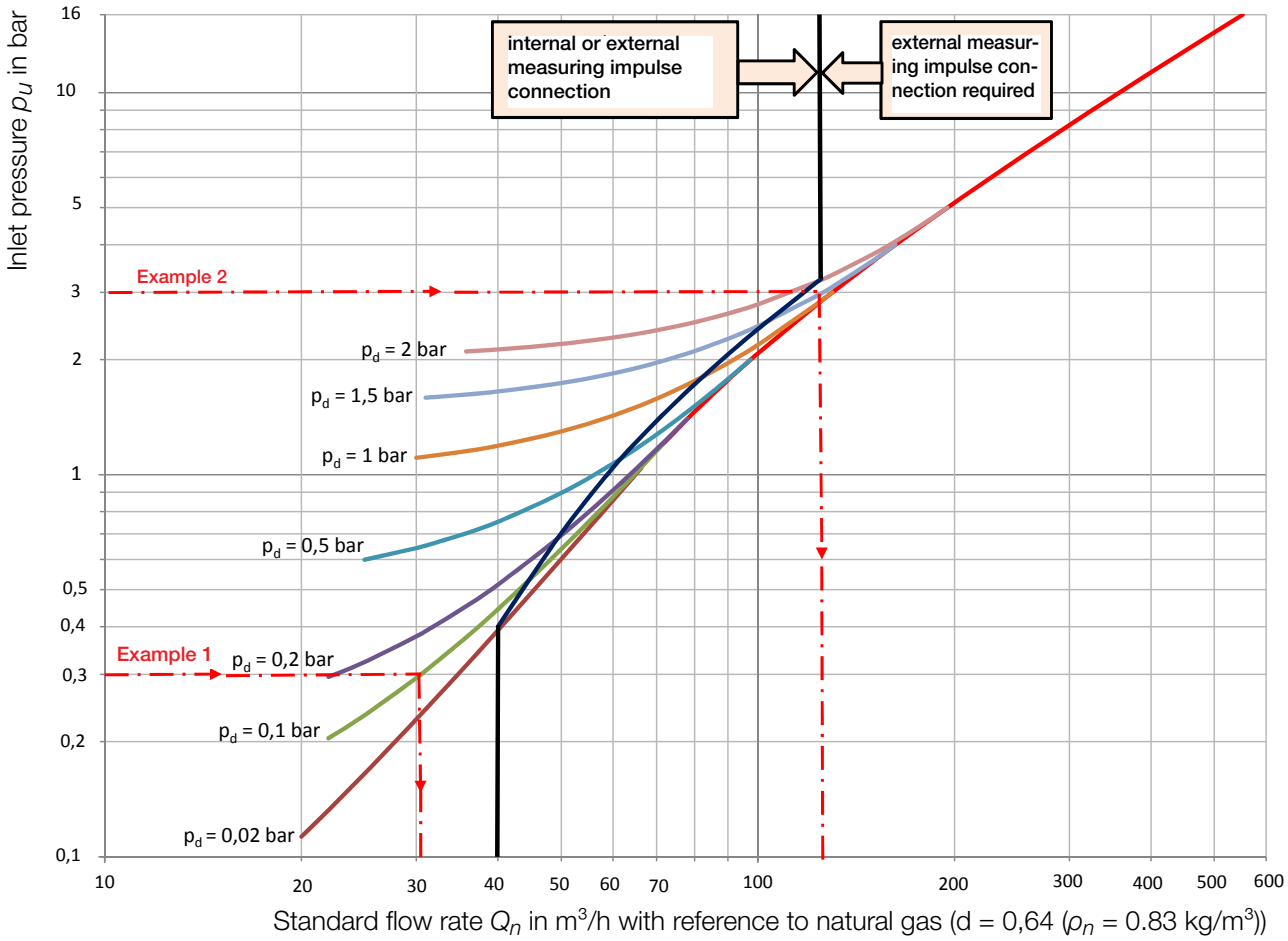
Connection element:
DN 25 screw M 12 x 55 ISO 4014 - 5.6
Nut ISO 4032 - M12 - 5

Weight in kg (approx.)				
Gas pressure regulator with regulating assembly				
	RA 1		RA 2	
DN	with SSV	without SSV	with SSV	without SSV
25	5	4	5	4

Design of device

The following diagram applies to the gas pressure regulator HON 300 with 11 mm valve seat and incorporated SSV unit. It shows the standard flow rate based on the inlet pressure p_u and the outlet pressure p_d with respect to natural gas.

Flow rate diagram for gas pressure regulator HON 300 with 11 mm valve seat (K_G = 65 (m³/h)/bar)



Example 1: p_u = 0.3 bar, p_d = 0.1 bar, Q_n = 30.5 m³/h
internal or external measuring impulse connection is possible

Example 2: p_u = 3 bar, p_d = 1.5 bar, Q_n = 125 m³/h
external measuring impulse connection required

The maximum standard flow rates Q_n can generally be achieved only if the outlet line is expanded to a larger pipe size. For the external measuring impulse connection a maximum flow velocity of approx. 25 m/s must also be observed.
(See also the “General operating instructions for Honeywell gas pressure regulators and safety devices”.)

Device designation

Example:

HON 300 - 25 / 1 - K1a / E1/HA/F - 11/1L/3-SO

Pipe size				
DN 25				25
Measuring impulse connection				
internal				1
external				2
Actuator				
	Setting range in bar			
	W_{do}	W_{du}		
K1a	0.05 to 1.5	0.01 to 0.12		K1a
K2a	0.4 to 4.5	0.06 to 0.4		K2a
Electromagnetic remote release				
Triggering at:		Current supply/current failure		E1/E2
Manual release				
Manual release with push button valve HON 912				HA
Remote indication				
Electrical remote indication of the valve position “CLOSED”				F
Valve seat diameter				
11				11
14				14
Regulating assembly				
DN	Value	Valve		
25	RA 1 SRV blocked	11	11	1
		14	14	
	RE 1 with SRV	11	11	1L
		14	14	
	RE 1 with SM	11	11	1S
		14	14	
	RA 2 SRV blocked	11	11	2
		14	14	
Specific Set range				
W_{ds}	Setpoint spring no.			
20 mbar to 45 mbar	1			1
35 mbar to 100 mbar	2			2
80 mbar to 200 mbar	3			3
150 mbar to 300 mbar	4			4
250 mbar to 400 mbar	5			5
300 mbar to 500 mbar	6			6
400 mbar to 800 mbar	7			7
500 mbar to 800 mbar*	6			6
600 mbar to 2000 mbar*	7			7
Special design				
Special design (must be explained in more detail)				So

*) for RE2

For More Information

To learn more about Honeywell's Advanced Gas Solutions, visit www.honeywellprocess.com or contact your Honeywell account manager

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