Gas Pressure Regulator HON 503



PRODUCT INFORMATION

Serving the Gas Industry Worldwide



Application, properties, technical specifications

Application

- Device for local use at power plants and industrial facilities
- Suitable for use with natural gas and all non-aggressive gases

Properties

- Large inlet pressure range
- Diaphragm valve acts as actuator
- Made up of few parts, easy to maintain, and quiet operation
- With integrated safety shut-off valve

TECHNICAL SPECIFICATIONS								
Max. inlet pressure puma	ax	100 bar						
Outlet pressure range Wd								
optional with pilot HON 630 in two-stage								
design, for inlet pressure c	hanges of >15	0.3 to 40 bar						
bar or pilot HON 640 (one-	-stage design,	20 to 90 bar (with metal harmonica measuring	unit)					
used for inlet pressure cha	nges of up	, , , , , , , , , , , , , , , , , , ,						
to 15 bar)								
Pressure difference	Min. pressure difference	$\Delta p_{min} = 2,0$ bar, $\Delta p_{min} = 4,0$ bar (at DN 25/25)						
between inlet and outlet	Max. pressure difference	Δp _{max} = 70 bar						
		DN 25 / 25 K _G = 250 m ³ /h						
		DN 25 / 50 KG = 350 m ³ /h						
Nominal width and KG va	alue	DN 50 / 100 KG = 1400 m ³ /h						
		DN 80 / 150 KG = 3600 m ³ /h						
		DN 100 / 200 KG = 5500 m ³ /h						
		DN 150 / 300 KG= 12000 m3/h						
Turne of connection		DIN PN 40 flange						
Type of connection		and flanges according to ANSI 150 (DN 25/25 on	ly), ANSI 300, ANSI 6	00				
Accuracy class and closi	ng pressure			closing pressure				
category		outlet pressure range Wd	accuracy class	category				
		0.30 0.50 bar	AC 20	SG 30				
		> 0.50 1.00 bar	AC 10	SG 20				
with pilot HON 630		> 1.00 5.00 bar	AC 2.5	SG 10				
		> 5.00 90.0 bar	AC 1	SG 5				
		0.30 1.00 bar	AC 20*/30 SG 30*/50					
		> 1.00 3.00 bar	AC 20	SG 30				
with pilot HON 640		> 2.50 5.00 bar	AC 10	SG 20				
		> 5.00 10.0 bar	AC 5	SG 10				
		> 10.0 90.0 bar	AC 2.5	SG 10				
Closing pressure catego	ry	SZ 2,5						
Class II temperature rang	je	-20 °C to +60 °C						
Operation and strength		according to DIN EN 334, DIN EN 14382						
CE mark according to PE	according to PED							
Ex protection		Since the device is not fitted with potential ignition sources of its own, it is not subject to ATEX 95 regulations (all used electronic accessories meet ATEX requirements).						
*) The lawer ecourees	alace and alaci	na proceuro optogony je volid for inlat prov	couro obongoo <	9 hor				

Application, properties, technical specifications

MATERIALS			
Actuator unit housing	Cast steel	SAV switching device	Steel, brass, aluminum wrought alloy
Interior parts of actuator unit	Steel, aluminum alloys	SAV controller	Aluminum wrought alloys
Controller	aluminum alloys		
Diaphragms	Rubber plastics (NBR, ECO)		
Gaskets	Rubber plastics (NBR)		

ADJUSTMEN	T RAN	RANGES OF SAV CONTROL UNITS USED FOR ACTUATORS WI		OR ACTUATORS WITH	H INTEGRATED SAVS (DN 50/100 TO DN 100/200				
		Setpoint spr	ing	L UNITS USED FOR ACTUATORS W Upper response pressure pdso Adjustment range Smallest difference between response pressure and norm operating pressure Wdso (bar) Δpwo (bar) 0,05 0,10 0,030 0,08 0,25 0,050 0,20 0,50 0,100 0,40 1,50 0,250 0,40 1,60 0,200 1,50 4,50 0,300 2,50 8,00 0,500 0,08 0,250 0,050 0,008 0,250 0,050 0,200 1,60 0,200 1,50 4,50 0,300 0,08 0,250 0,050 0,20 0,500 0,100 0,40 1,500 0,250 0,008 0,250 0,050 0,20 0,500 0,100 0,40 1,500 0,250		Lower respo	Response		
Control unit	No.	Color	Wire ø	Adjustment range Wdso (bar)	Smallest difference between response pressure and normal operating pressure*	Adjustment range Wdsu (bar)	Smallest difference between response pressure and normal operating pressure*	pressure group **	
	1	yellow	2,50	0,05 0,10	0,030			10 / 5,0	
	2	light red	3,20	0,08 0,25	0,050			10/5,0	
	3	dark red	3,60	0,20 0,50	0,100			5/2,5	
K1a	4	white	4,75	0,40 1,50	0,250			5/2,5	
	5	light blue	1,10			0,010 0,015	0,012	20	
	6	white	1,20			0,014 0,040	0,030	10 / 5,0	
	7	black	1,40			0,035 0,120	0,060	5	
	1	light red	3,20	0,40 0,80	0,100			10 / 5,0	
	2	dark red	3,60	0,60 1,60	0,200			10 / 5,0	
K2a/1	3	white	4,75	1,50 4,50	0,300			5 / 2,5	
	4	light blue	1,10			0,060 0,150	0,050	10 / 5,0	
	5	black	1,40			0,120 0,400	0,080	5	
K0a/0	3	white	4,75	2,50 8,00	0,500			10 / 5,0	
riza/2	6	red	2,25			0,800 2,200	0,400	15 / 5,0	
	2	light red	3,20	0,08 0,250	0,050			10 / 5,0	
	3	dark red	3,60	0,20 0,500	0,100			5 / 2,5	
K10a	4	white	4,75	0,40 1,500	0,250			5 / 2,5	
	6	white	1,20			0,010 0,040	0,030	10 / 5,0	
	7	black	1,40			0,035 0,120	0,060	5	
	1	light red	3,20	0,4 0,8	0,100			10 / 5,0	
	2	dark red	3,60	0,6 1,6	0,200			10 / 5,0	
K11a/1	3	white	4,75	1,5 4,5	0,300			5/2,5	
	4	light blue	1,10			0,060 0,150	0,050	10 / 5,0	
	5	black	1,40			0,120 0,400	0,080	5	
	6	red	2,25			0,350 1,000	0,100	5	
K11a/2	3	white	4,75	2,5 8,0	0,500			10 / 5,0	
	6	red	2,25			0,800 2,200	0,400	10 / 5,0	
	0	***blue	3,20	0,8 1,5	0,100			2,5	
	1	black	4,50	1,0 5,0	0,200			2,5 / 1,0	
K16	2	gray	5,00	2,0 10	0,400			1	
	3	brown	6,30	5,0 20	0,800			1	
	4	red	7,0	10 40	1,200			1	
	2	gray	5,00			2 10	0,400	5	
K17	3	brown	6,30			5 20	0,800	5	
	4	red	7,00			10 40	1,200	5	
K18	1		9,00	20 90	1,500			1	

*) Please note: When using control units for both the upper and the lower response pressure, make sure that the difference between the two setpoints p_{dso} and p_{dsu} is at least 10 % greater than the sum of the two values Δp_{wo} and Δp_{wu} .

**) The higher AG group applies to the first half, while the lower AG group applies to the second half the adjustment range.

***) only DN 25/25



Fig. HON 503 DN 50/100 with HON 630a controller and K16 control unit

The gas pressure regulator HON 503 unit is used to keep the outlet pressure of a gaseous medium at a constant level independent of any disturbance variables such as changes in inlet and/or outlet pressure throughout the controlled system.

The HON 503 is composed of the actuator unit and the functional units "pilot" and "safety shut-off valve (SAV)." A fine filter is switched in front of the pilot to protect it against dirt.

Thanks to the fact that it is composed of only a few parts, the actuator unit is particularly easy to maintain: its only wearing part, the restrictor diaphragm, can be subjected to a quick inspection by simply removing the upper part of the housing without the need to remove the actuator housing from the controlled system.

The valve cap gasket (SAV) can also be serviced without the need to remove the unit from the system.

The actuator is designed as a diaphragm valve. The diaphragm supports itself on the flow restrictor, which is fitted with bores. An all-around sealing edge is located in front of the bores. A closing spring generates the necessary sealing force for zero shut-off.

In contrast to a device operating with a valve disk/actuator, this standard version achieves a noise reduction of 10 to 15 dB(A) thanks to its integrated gas flow divider inside the flow restrictor. Installing additional noise-reducing components (nominal widths of DN 25/50 or more) below the flow restrictor will lower the noise level even further.

Setup and mode of operation

However, a KG value reduced by approx. 10 % is to be expected. The outlet pressure you want to control is fed to the controller via the measuring line. The double diaphragm system inside the controller captures the actual value of the outlet pressure as a force acting on the measuring diaphragm and compares it to the force of the setpoint spring, which serves as a set point. If this comparison reveals any deviations from the controlled pressure, the device will adjust the set pressure by changing the opening position of the restrictor diaphragm in an effort to bring the outlet pressure (actual value) in line with the set point. Thanks to its use of a diaphragm construction as an actuator, the HON 503 manages to operate soundly even when handling only low flow rates. The device will seal tightly when consumption is zero.

The gas pressure control unit will be equipped with a start-up valve for nominal widths of DN 25/50 or greater to allow the device to faster equalize the inlet pressure acting on the restrictor diaphragm.

The tried and tested HON 711 system or, for nominal widths of DN 25/25 or greater, the SAV HON 704 function as safety shut-off valves (SAV). The SAV will close every time the pressure exceeds or falls below the set response pressure. For a functional description of the SAV and information on how to adjust it and reset it, see the technical product information on the Honeywell devices 703/704/711, the associated operating and maintenance instructions of Honeywell devices 703/711 as well as the brochure sheets of the corresponding control units.



Fig. HON 503 DN 25/25 with HON 640-1 controller (view of the control unit)

Dimensions, weights, and connectors





DIMENSIONS							
Nominal width Dimensions in mm							
Inlet/outlet	Inlet/outlet A B C D E						
25 / 25	230	130	300	250	200		
25 / 50	340	150	490	300	265		
50 / 100	380	190	490	300	265		
80 / 150	550	310	500	350	330		
100 / 200	550	310	500	350	330		
150 / 300	750	470	640	430	390		

CONNECTIONS				
Pilot		SAV		
Inlet pressure line	E 10	Measuring line	E 12	
Loading pressure line	E 10	Vent/	E 10	
Measuring line	E 12	discharge line		
Discharge line	E 12			
Vent line	E 12			

WEIGHTS					
Nominal width					
Inlet/outlet	Weights in kg				
25 / 25	26				
25 / 50	90				
50 / 100	100				
80 / 150	270				
100 / 200	330				
150 / 300	850				

Device name

7

Example			503 - 8	50/100) – K16	/ E2 / I	HA / F ·	- 630a	2 -	So
			Type	Nominal width (inlet/outlet)	Control unit	Release unit	Remote control	Type of controller	Setpoint spring	Special design
NOMINAL WIDT	4									
DN										
25 / 25										
25 / 50										
50 / 100										
80 / 150										
100 / 200										
ADJUSTMENT B	ANGE IN BAB									
W _{do}	W _{du}		Control unit							
0,05 1,50	0,01 0,12	only DN 25/25	K 1a							
0,40 4,50	0,06 0,40	only DN 25/25	K 2a/1							
2,50 8,00	0,80 2,20	only DN 25/25	K 2a/2							
0,08 1,50	0,01 0,12	from DN 25/50	K 10a							-
0,40 4,50	0,06 1,00	from DN 25/50	K 11a/1		i					
2,50 8,00	0,80 2,20	from DN 25/50	K 11a/2						-	
1,00 40,0			K 16							
	2,00 40,0		K 17							
20,0 90,0			K 18							÷
RELEASE										
Current input	05 (50		E1							
Power failure (DN	25/50 or greater)		E2		••••••	••••••				÷
Manual release			HA							
Electrical remote	OL	a position "CLOSE"	E						-	÷
PILOT TYPE			· ·							
			HON 630a							
Pilot			HON 640							
			HON 640-1							
OUTLET PRESS	URE RANGE IN E	BAR								
Wd			Setpoint spring	9						
0,30 1,00			1							-
1,00 5,00			2							
2,00 10,0			3							
5,00 20,0			4							
10,0 40,0			5							
20,0 90,0			Metal harmonica measurir	ng unit						
SPECIAL DESIG	N (TO BE SPECIFIED	IN MORE DETAIL)			•••••					
			50					•••••		

.....

For More Information

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

GERMANY

Honeywell Process Solutions

Honeywell Gas Technologies GmbH Osterholzstrasse 45 34123 Kassel, Deutschland Tel: +49 (0)561 5007-0 Fax: +49 (0)561 5007-107

HON 503.00 2017-01 © 2017 Honeywell International Inc.

