

Pressure Controller 8042

GS 3 series, DN 15 up to DN 150



Pneumatic controller for continuous and discontinuous pressure control of gases and steam.

- High dynamic and control quality
- External or manual set point setting
- Compact and simple design of valve as well as of controller
- Lowest possible weight



Technical Information

Valve

Body design	Flangeless, wafer-type construction more versions see on data-sheet 8042-GS1		
Nominal sizes	DN 15 up to DN 150		
Nominal pressure acc. DIN 2401 for flanges with facing type B	PN 40 (fitting for PN 10-25)	DN 15 - DN 150	
Nominal pressure acc. ANSI for flanges acc. ASME B16.5 RF	ANSI 150	DN 15 - DN 150	
	ANSI 300	DN 15 - DN 150	
Nominal pressure acc. JIS for "raised face" flanges	10K	DN 15 - DN 50	
	20K	DN 15 - DN 40	
Fluid temperature	carbon and stainless steel body -10°C up to +230°C		
Leakage rate (% of Kvs-Value)	disc pair	disc pair	disc pair
	carbon-stainless steel coated	SFC	STN 2
	< 0,0001 %	<0,0005	<0,001



Controller

Control pressure ranges	0,05 - 1 bar (remote operation)
	0,5 - 6 bar (remote operation)
	0,5 - 2,5 bar (manual operation)
Supply pressure	4 - 6 bar
Temperature range for diaphragm system	60 °C, maximum

Materials

Valve

Body	stainless steel 1.4581	carbon steel 1.0619
Tube for Packing	stainless steel 1.4571	
Bonnet	brass, chrome plated, for actuator 125 mm: aluminium, corrosion protected	
Packing	PTFE, carbon filled	
Actuating stem	stainless steel 1.4571, roller burnished	
Fixed disc	stainless steel covered	STN 2
Sliding disc	special carbon material	SFC STN 2
coupling ring for sliding disc	stainless steel 1.4581	

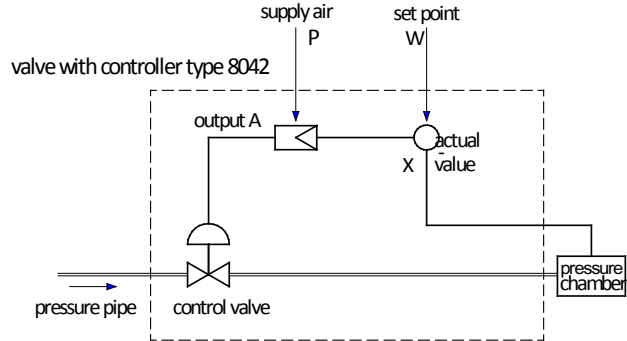
Controller

Body	brass, chrome plated
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Function

The steam or gas pressure from the installation (pressure chamber or pipe) is applied to the controller's diaphragm and compared to the set point signal. As a result of this comparison, supply air is either delivered to the actuator or exhausted. Consequently valve position and flow change, as well as the controlled pressure. The controller can be used for non-continuous processes with varying set points as well as for continuous pressure control (e.g. pressure reduction of steam). Examples can be found at the end of this brochure.

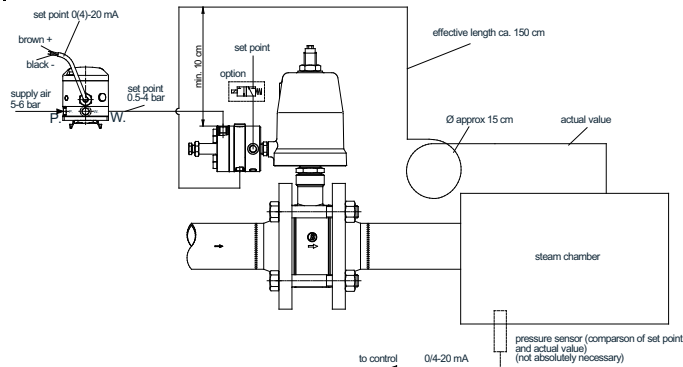
Remark: This proportional controller has a high internal gain and might not replace a conventional control loop with considerable dead times. Practical experience, however, indicates that many different pressure control loops can be handled with this system. To reduce the application risk prior to installation we recommend factory consultation, which is in any case worthwhile due to the potential cost reduction (no pressure gauge and process controller required).



Application Examples

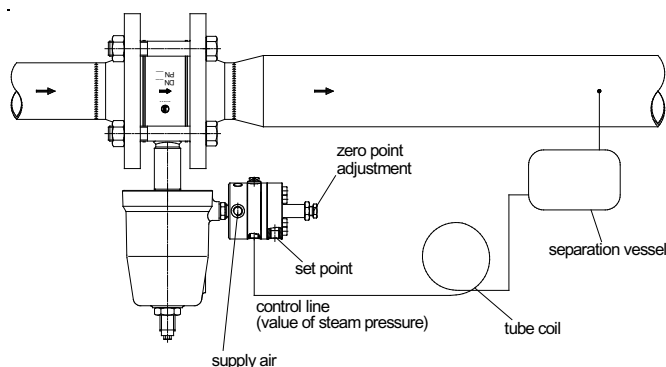
Pressure control in a closed chamber:

The pressure in a steam vessel is to be controlled in accordance with a varying set point signal, which is a current signal determined by the process controller (e.g. a CPS). This signal first is converted to a pressure signal by an i/p-converter and then fed to the pressure controller type 8042. The actual steam pressure is picked up via a pilot line which at the same time takes care of cooling down the medium before it gets into contact with the controller's diaphragm system.



Steam pressure reduction in an energy supply line:

The pressure in a steam supply installation is to be maintained constant in spite of varying flow and upstream pressure. Due to the controller's high dynamic the sketched solution can be used in case of rapidly and strongly changing flows.



Admissible Differential Pressure (For temperatures of up to 120°C)

For temperatures of 120°C and above:
obey application limits !

Disc-pair: Carbon - stainless steel coated

DN	actuator	max. differential pressures		Pst min.
		control	on/off	
15	80	25	37	5
20	80	22	33	5
25	80	19	28	5
32	80	16	24	5
40	80	14	22	5
50	80	10	16	5
65	80	6	9	5
80	80	4	6	5
100	80	2,5	3,5	5
50	125	24	36	4
65	125	14	21	4
80	125	9	13	4
100	125	6	9	4
125	125	4	6	4
150	125	3	4,5	4

Disc pair: STN 2

DN	actuator	max. differential pressures		Pst min.
		control	on/off	
15	80	17	27	5
20	80	15	24	5
25	80	13	20	5
32	80	11	17	5
40	80	10	16	5
50	80	7	11	5
65	80	4	6	5
80	80	2,5	3,5	5
100	80	1,5	2	5
50	125	16	25	4
65	125	10	15	4
80	125	6	9	4
100	125	3,5	5	4
125	125	-	-	-
150	125	-	-	-

P max.	Upper limits for admissible pressures in bar					
	PN16	PN40	PN100	ANSI 150	ANSI 300	ANSI 600
	16	40	100	16	40	80

Pressure - Temperature ratings for GS3 valves

PN40

DN	Sliding unit: carbon/SFC - stainless steel, coated			
	max. admissible diff. pressures for GS3-valves			
	100°C	150°C	200°C	230°C
15 - 65	40	38	35	32
80	40	38	35	32
100	33	31	29	27
125	23	21	20	19
150	16	15	14	13

DN	Sliding unit: carbon - STN2			
	max. admissible diff. pressures for GS3-valves			
	100°C	150°C	200°C	230°C
15 - 65	40	38	35	32
80	36	34	33	26
100	33	31	29	24
125	22	21	20	16
150	16	15	14	11

ANSI #150

DN	Sliding unit: carbon/SFC - stainless steel, coated			
	maximum pressures for GS3-valves (bar)			
	100°C	150°C	200°C	230°C
15 - 125	16	15	13	12
150	16	15	13	12

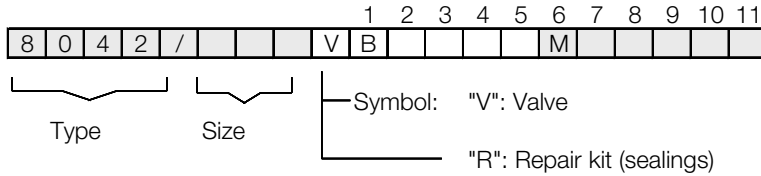
DN	Sliding unit: carbon - STN2			
	maximum pressures for GS3-valves (bar)			
	100°C	150°C	200°C	230°C
15 - 125	16	15	13	12
150	16	15	13	11

ANSI #300

DN	Sliding unit: carbon/SFC - stainless steel, coated			
	maximum pressures for GS3-valves (bar)			
	100°C	150°C	200°C	230°C
15 - 65	40	38	35	33
80	40	38	35	22
100	33	31	29	27
125	23	21	20	19
150	16	15	14	13

DN	Sliding unit: STN2			
	maximum pressures for GS3-valves (bar)			
	100°C	150°C	200°C	230°C
15 - 65	40	38	35	33
80	36	34	33	26
100	33	31	29	24
125	22	21	20	16
150	16	15	14	11

Ordering Number System (valve including controller)



1 - 5 : Please quote all 5 sections.
 6 - 11: Quote only if required.

1.	Function	2.	Connection	3.	Body material	4.	Control functions	5.	Actuator	6.	Special versions
B	GS pressure regulator type 8040 (long design)	E	GS3-flangeless design	0	carbon steel 1.0619	A	manually operated 0,5 - 2,5 bar	1	Piston 80 mm	M	Special versions
		F	GS3-flangeless design acc. ANSI 300	1	stainless steel 1.4581	B	remote control 0,5 - 6 bar	2	Piston 125 mm		
		G	GS3-flangeless design acc. DIN PN10- PN40	2	carbon steel 1.0619	C	remote control 0,05 - 1 bar				
				1	reduced design stainless steel 1.4581 reduced design	D	manually operated 0,5 - 2,5 bar (spring opens, overflow valve) without regulator				
						X					

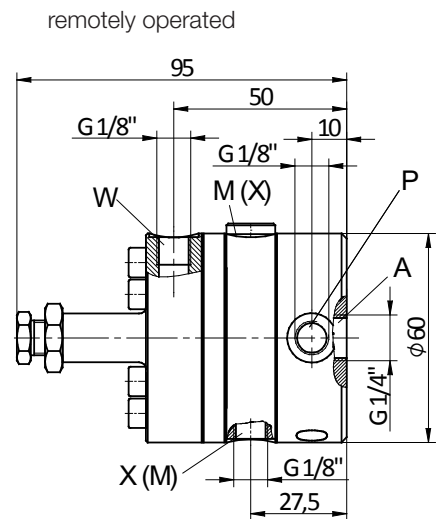
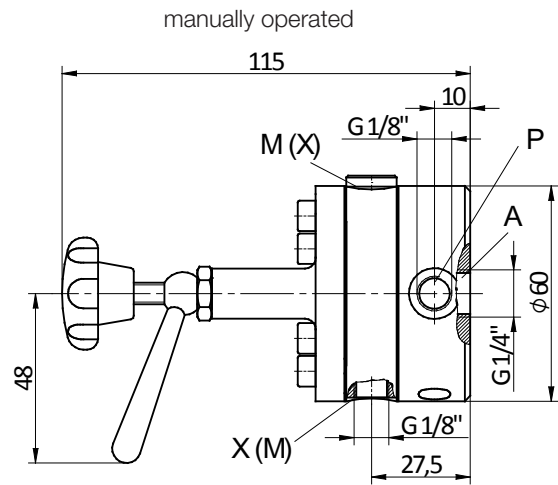
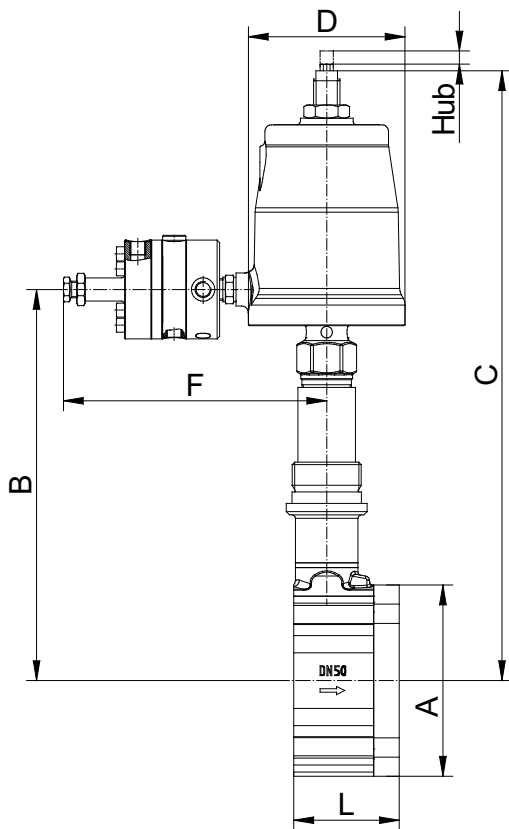
7.	without significance	8.	without significance	9.	Moving disc	10.	Fixed disc	11.	Kvs-values	12.	Characteristic
-		-		-	Carbon	-	stainless steel	-	100% (stand.)	-	linear
				9	STN2-disc		1.4571, coated	A	red. to 63%	1	equal percentage
				S	SFC-disc	1	STN2-disc	1	red. to 40%		
								B	red. to 25%		
								2	red. to 16%		
								C	red. to 10%		
								3	red. to 6,3%		
								4	red. to 2,5%		
								5	red. to 1%		
								6	red. to 20%		
								7	red. to 12%		
								8	red. to 2%		
								9	red. to 0,4%		

Ordering Example:

8042/025VBG1B1M - - - -2

GS-stop valve typ 8040, 1", GS3-flangeless design acc. DIN, body material stainless steel, remotely operated, pressure range 0,05 - 1 bar, piston 80 mm, Cv-value red. to 16%

Dimensions and Weights



DN	A	B		C max		L	Weight kg		Stroke
		80	125	80	125		80	125	
15	64	213	215	344	362	56	5,9	7,3	6
20	72	217	219	348	366	56	6,1	7,5	6
25	82	222	224	353	371	56	6,4	7,8	6
32	89	224	226	355	373	56	6,6	8	6
40	99	230	232	361	379	56	6,9	8,3	6
50	116	238	240	371	389	64	8,4	9,8	8
65	138	247	249	380	398	68	9,9	11,3	8
80	153	256	258	389	407	70	11,1	12,5	8
100	184	269	271	402	420	75	14,3	15,7	8,5
125	212	283	286	416	434	80	16,6	18	8,5
150	242	296	298	429	447	80	20,4	21,8	8,5

Actuator mm	D	E
80	96	55
125	146	80

Dimensions in mm

Dimension C „reduced design“ shortened by 25,4 mm