

Pilot pressure regulator 8042



Series GS 1, DN 15 to DN 150

Pneumatic regulator for continuous and discontinuous pressure control of gases and vapours.

- High dynamics and control quality (significantly better than with self-medium-controlled pressure reducers)
- External or manual setpoint specification
- Compact and uncomplicated design of valve and controller
- Extremely light weight
- Meets the requirements of TA-Luft 2021



Connections:

- P supply air
- X Actual value (pressure to be controlled)
- M Pressure gauge (if required) W Target value
- A Output to the valve drive

Technical specifications

Valve

design	Intermediate flange design Overall length according to DIN EN 558-1 series 20 for flanges according to DIN EN 1092-1 form B For further designs, see data sheet 8042-GS3		
nominal widths	DN15 - DN150		
Nominal pressure (according to DIN 2401)	PN 40 (suitable for PN 10-40)		
media temperature	- 10°C to +230°C		
flange gaskets (customer side)	DIN EN 1514-1 or ANSI B16.21 in the respective nominal pressure level		
leak rate	sliding pair	sliding pair	sliding pair
% of Kvs	Carbon material stainless steel	SFC	STN 2
IEC 60534-4	< 0.0001	< 0.0005	< 0.001
EN12266-1	IV-S1	IV-S1	IV
	E	f	f
Marking ATEX non-electric	II 2G Ex h IIC T6...T1 X Gb II 2D Ex h IIC 85°C...350°CX Db		
leakage pack	ISO FE - BH - CC3 - SSA0 - t (-40°C / +350°C) - PN40 - ISO 15848-1		

controller

control pressure ranges	0.05 - 1 bar (remote operated) 0.5 - 6 bar (remote operated) 0.5 - 2.5 bar (manual operated)
supply pressure	4 - 6 bars
temperature range	60°C, maximum
membrane system	

* For DN15 with a reduction of less than 25%, different leakage rates are possible. K values see data sheet 8001.

materials

Valve

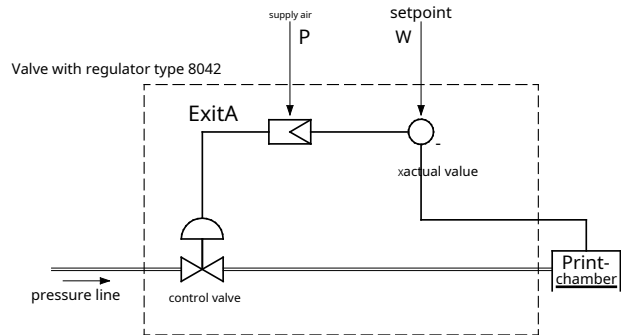
Housing	1.4408 stainless steel	Carbon steel 1.0619
drive hood	brass, chrome-plated, with drive 125 mm: aluminium, protected against corrosion	
pack	PTFE filled with carbon	
drive rod	Stainless steel 1.4571, roll polished	
sealing washer (fixed)	Coated stainless steel	STN 2
sealing disk (movable)	carbon material	SFC
Driver for sealing disc	Stainless steel 1.4581	

controller

Housing	Brass, chrome plated
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functionality

The gas or vapor pressure to be controlled in a part of the system (pressure chamber or pipeline) is fed to a membrane system in the controller and compared there with the manually or pneumatically specified setpoint. Depending on the result of this comparison, control air is then fed to the valve drive through a nozzle system or it is blown off. This changes the valve opening and flow and ultimately the controlled variable (pressure). The controller can be used both in discontinuous processes with a variable setpoint and in continuous pressure control (eg the "classic" pressure reduction of steam) (examples on the last page of this data sheet). Note: This controller is a P-controller with a very high gain. He can



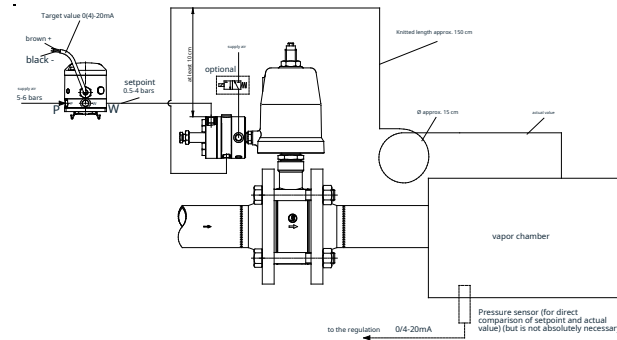
Therefore, in controlled systems that are difficult to control in terms of control technology, for example due to dead time components, do not replace a conventionally designed control device.

However, practical experience has shown that many pressure control systems can be easily controlled with it. In order to minimize this application risk, we recommend a technical consultation before use, the effort of which is definitely worthwhile due to the potential savings that can be achieved with this system (no pressure sensor and system controller necessary).

Application examples

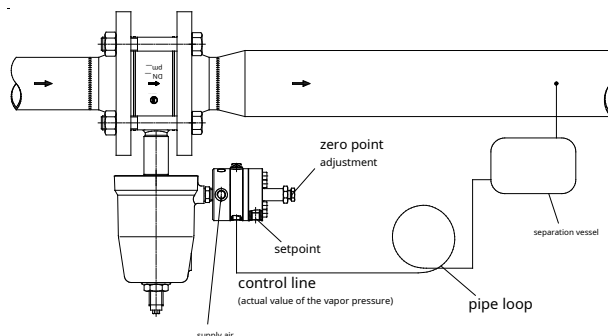
Pressure control in a closed volume:

The pressure in a steam-loaded chamber should follow a time-variable set value, which is determined by the system control (eg PLC) and is initially available as a current signal. This is converted into a pressure signal by an electropneumatic (i/p) converter and fed to the pilot pressure regulator. The actual value of the vapor pressure is recorded via a control line, which also acts as a cooling section for the membrane system of the regulator.



Vapor pressure reduction in a supply line:

The pressure in a steam supply should be kept constant regardless of the extraction quantity and fluctuations in the inlet pressure. Due to the high dynamics of this system, the outlined solution is also suitable for rapidly and strongly fluctuating flow rates.



Permissible differential pressures
(for temperatures up to 120°C)

**At temperatures above 120°C:
Consider application limits**

**Pairing: carbon material-stainless steel
coated
SFC coated stainless steel**

DN	drive	diff. pressure. Max.		psst min
		regulation	On to	
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

Pairing: STN 2

DN	drive	differential pressure max.		psst min
		regulation	On to	
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	-	-	-

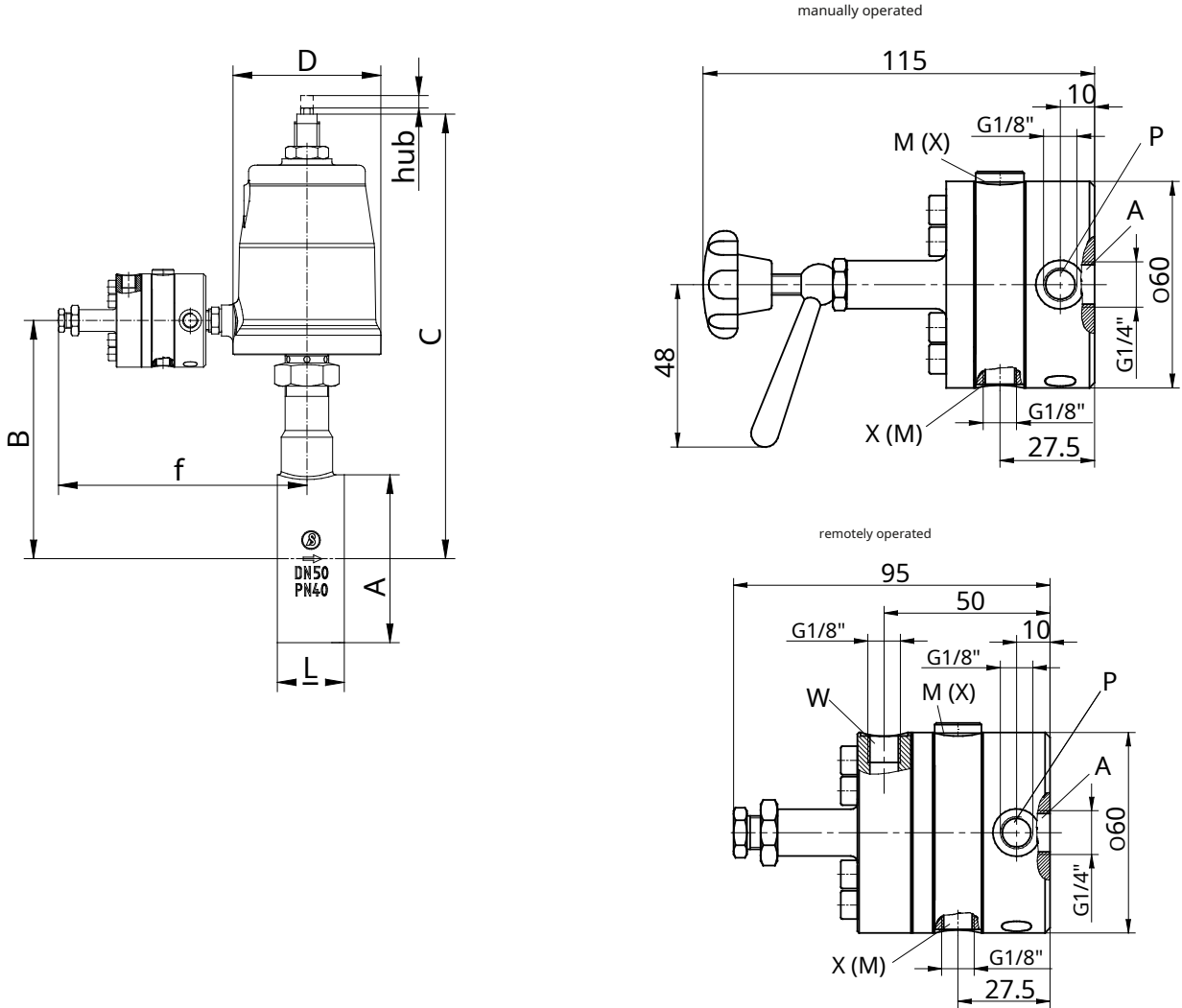
Application limits for GS1 valves

PN 40

DN	Pairing: carbon material/SFC - coated stainless steel			
	max. permissible pressures in bar for GS1 valves			
	100°C	150°C	200°C	230°C
15 - 25	40	36	31	30
32	40	36	31	30
40	40	36	31	30
50	40	36	31	30
65	40	36	31	30
80	40	36	31	30
100	24	23	22	20
125	16	15	14	13
150	16	16	16	16

DN	Pairing: STN 2				
	max. permissible pressures in bar for GS1 valves				
	100°C	150°C	200°C	230°C	
40	40	36	31	30	
40	40	36	31	24	
26	26	25	24	15	
40	40	36	31	26	
37	37	35	31	21	
22	22	20	19	12	
13	13	12	12	7	
8th	8th	8th	7	4	
10	10	10	9	6	

mass and weight



DN	A	B		B		C		C		D		f		L	hub
		stainless steel	carbon steel	stainless steel	carbon steel	stainless steel	carbon steel	D80	D125	D80	D125	D80	D125		
15	53	112	115	135	138	243	285	266	285	98	146	160	185	33	6
20	62	117	120	140	143	248	290	271	290	98	146	160	185	33	6
25	72	122	125	145	148	253	295	276	295	98	146	160	185	33	6
32	82	126	129	148	151	257	298	279	298	98	146	160	185	33	6
40	92	131	134	153	156	3262	303	284	303	98	146	160	185	33	6
50	108	154	157	154	157	287	306	287	306	98	146	160	185	43	8th
65	126	163	166	163	166	296	315	296	315	98	146	160	185	46	8th
80	142	171	174	171	174	304	323	304	323	98	146	160	185	46	8th
100	164	184	187	184	187	317	336	317	336	98	146	160	185	52	8.5
125	194	196	199	196	200	329	349	329	349	98	146	160	185	56	8.5
150	219	217	220	217	221	350	369	350	370	98	146	160	185	56	8.5

Dimension C reduced by 25.4mm for "shortened version".

size in mm