

Gas pressure regulator GDJ

Technical Information · GB
2 Edition 05.18

- Universal pressure regulator for gaseous media
- Design with inlet pressure compensation diaphragm ensures high control accuracy
- Internal impulse
- Feedforwarding the furnace chamber pressure is possible
- No breather line required
- EC type-tested and certified



Contents

Gas pressure regulator GDJ 1

Contents 2

1 Application 3

 1.1 Examples of application 4

2 Certification 5

3 Function 6

 3.1 Animation 7

4 Flow rate 8

5 Selection 9

 5.1 Type code 9

6 Project planning information 10

 6.1 Installation 10

 6.2 Installation to EN 746-2 10

 6.3 Vent restrictor to ANSI/CSA 11

 6.4 Varying furnace pressure 11

7 Technical data 12

 7.1 Dimensions 13

 7.2 Spring table 14

 7.3 Converting units 14

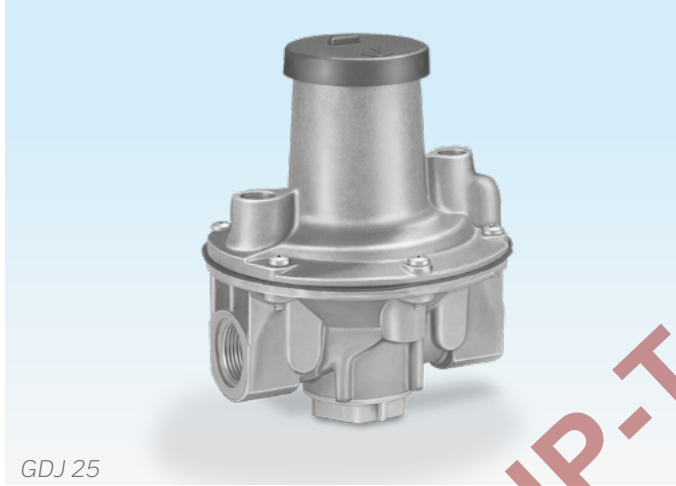
8 Maintenance cycles 15

Feedback 16

Contact 16



1 Application



GDJ 25

The spring-loaded gas pressure regulator GDJ with inlet pressure compensation diaphragm and zero shut-off serves to maintain the set outlet pressure constant despite changing gas flow rates and inlet pressures in gas pipelines. Thanks to an additional safety diaphragm, no breather line is required.

For controlling the pressure of the gas and air supply to gas burners and gas appliances in industry and the heating sector.

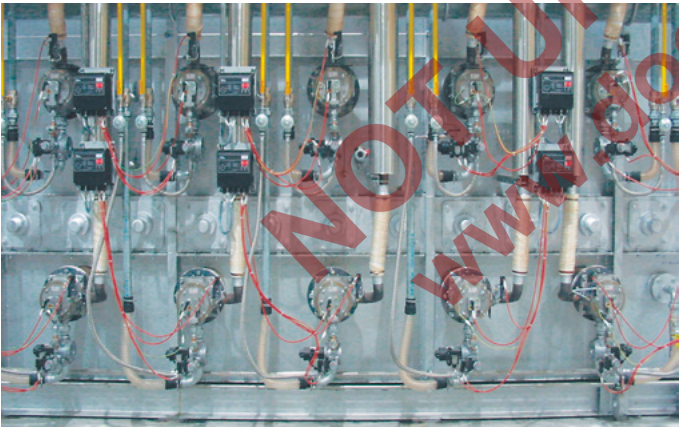
1.1 Examples of application



Bogie hearth furnace



Bogie hearth furnace



Roller hearth furnace

2 Certification

Certificates – see Docuthek.

EU certified pursuant to



Regulation:

- Gas Appliances Regulation (EU) 2016/426

Standards:

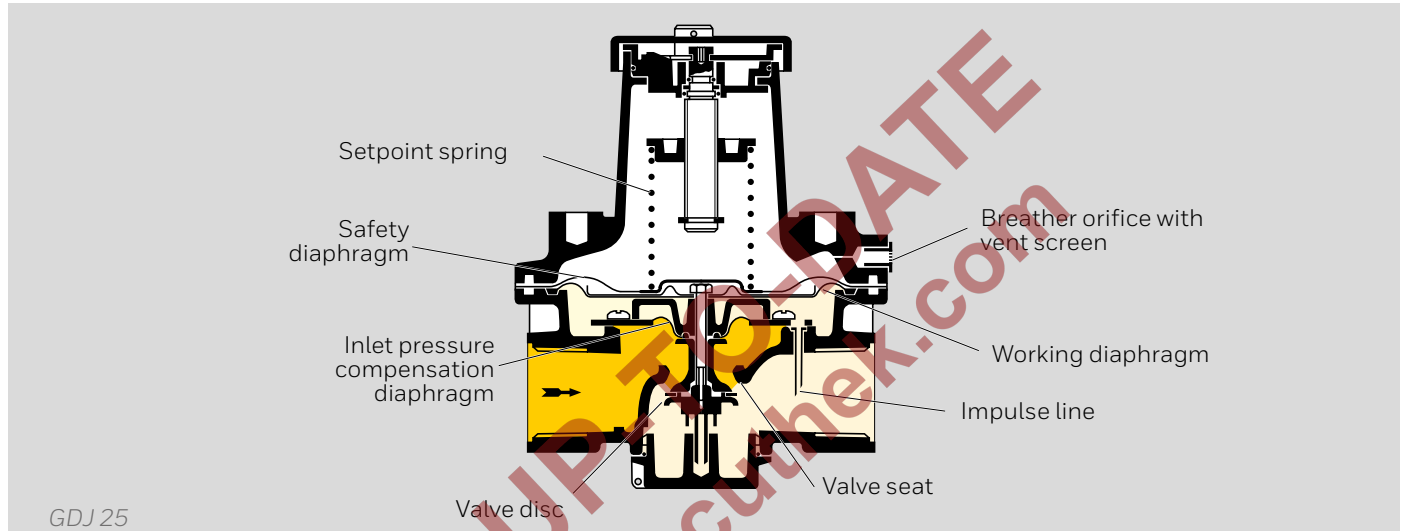
- EN 88-1:2011

Eurasian Customs Union



The product GDJ meets the technical specifications of the Eurasian Customs Union.

3 Function



Gas pressure regulator GDJ is open when no pressure is applied.

The gas supply is opened slowly and the gas flows via the valve seat to the pressure regulator outlet. The outlet pressure is applied to the working diaphragm from below via the impulse line. As soon as the outlet pressure corresponds to the set spring force, the working diaphragm lifts and the valve disc connected to it reduces the flow rate.

If the outlet pressure drops, e.g. due to switching on a consumer, the valve disc is opened further and the outlet pressure increases again.

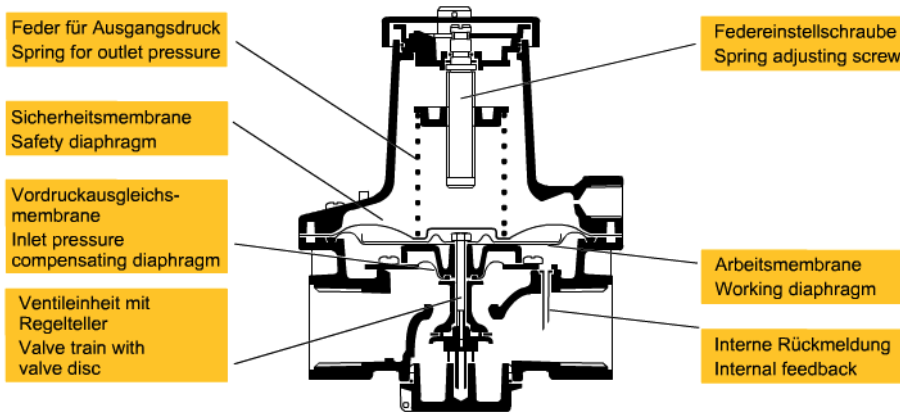
If the outlet pressure increases, e.g. due to reduced consumption, the valve disc is closed further and the outlet pressure decreases again. Thus, the outlet pressure is maintained constant despite changing gas flow rates.

If consumption is stopped, the valve disc closes completely (zero shut-off).

Fluctuations in the inlet pressure are compensated by the inlet pressure compensation diaphragm.

For measuring the inlet pressure, the optional pressure test nipple at the inlet can be used.

Gas-Druckregler/Gas pressure regulator GDJ

krom
schroder

3.1 Animation

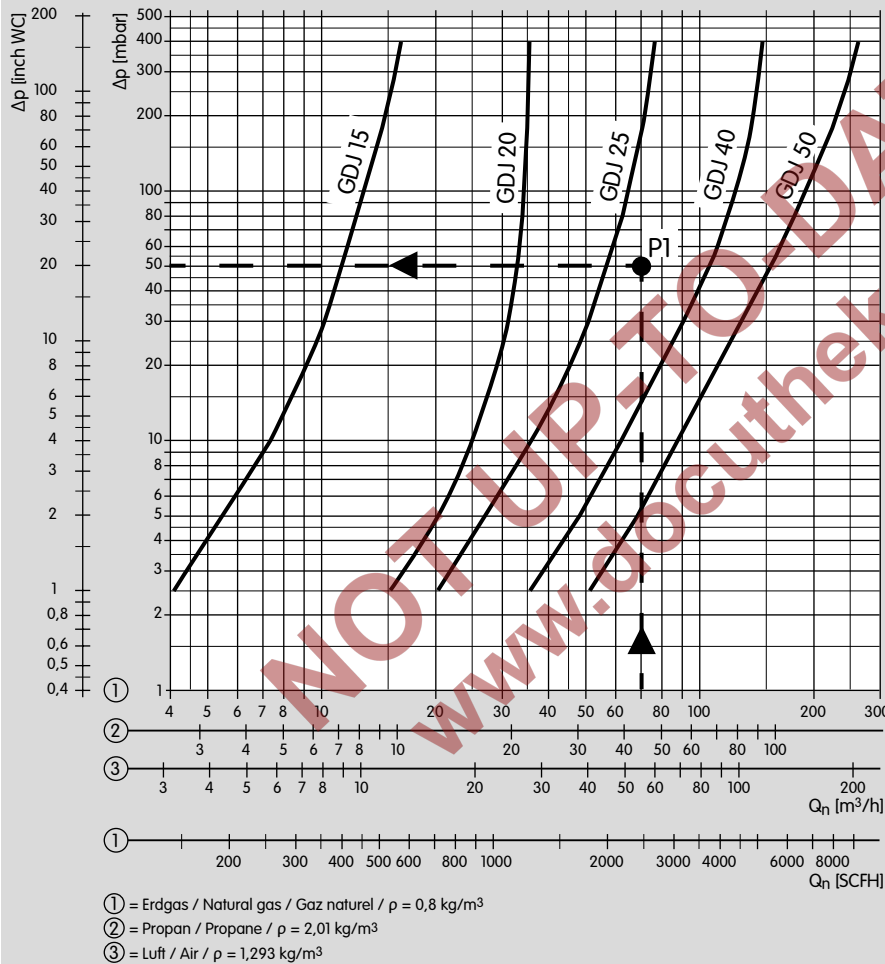
The interactive animation shows the function of the GDJ.

Click on the picture. The animation can be controlled using the control bar at the bottom of the window (as on a DVD player).

To play the animation, you will need Adobe Reader 7 or a newer version. If you do not have Adobe Reader on your system, you can download it from the Internet.

If the animation does not start to play, you can download it from the document library (Docuthek) as an independent application.

4 Flow rate



Example:

Gas type: natural gas,
 flow rate $Q = 70 \text{ m}^3/\text{h}$ (2613 SCFH),
 inlet pressure $p_u = 70 \text{ mbar}$ (28.1 "WC),
 outlet pressure $p_d = 20 \text{ mbar}$ (8.0 "WC),
 pressure loss:

$\Delta p = p_u - p_d = 50 \text{ mbar}$. (20.1 "WC).

The result is intersection P1. The next largest nominal size is selected: GDJ 40.

At a pressure loss of $\Delta p = 50 \text{ mbar}$ (20.1 "WC),
 the max. flow rate is

$Q_{\text{max.}} = 105 \text{ m}^3/\text{h}$ (3920 SCFH),

the min. flow rate is $Q_{\text{min.}}$, derived from

$Q_{\text{min.}} = Q_{\text{max.}} \times 10\% = 10.5 \text{ m}^3/\text{h}$ (392 SCFH).

5 Selection

Type	T	R	N	04	-0	-4	L
GDJ 15		●		●	●	●	○
GDJ 15T	●		●	●	●		○
GDJ 20		●		●	●	●	○
GDJ 20T	●		●	●	●		○
GDJ 25		●		●	●	●	○
GDJ 25T	●		●	●	●		○
GDJ 40		●		●	●	●	○
GDJ 40T	●		●	●	●		○
GDJ 50		●		●	●	●	○
GDJ 50T	●		●	●	●		○

● = standard, ○ = available

Order example

GDJ 40R04-4

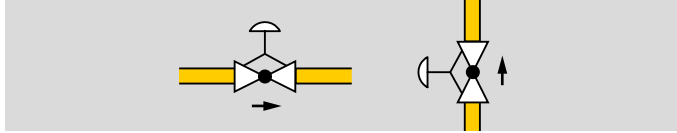
5.1 Type code

Code	Description
GDJ	Gas pressure regulator
15, 20, 25, 40, 50	Nominal size
T	T-product
R	Rp internal thread
N	NPT internal thread
04	p _{u,max.} 400 mbar (5.8 psig)
-0	Without pressure test point
-4 ¹⁾	Pressure test point at the inlet
L ²⁾	For air only (without approval)

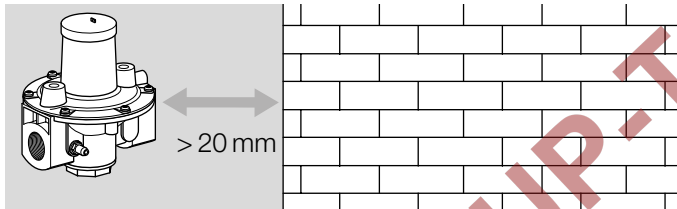
1) Not for T-product.
2) If “none”, this letter is omitted.

6 Project planning information

6.1 Installation

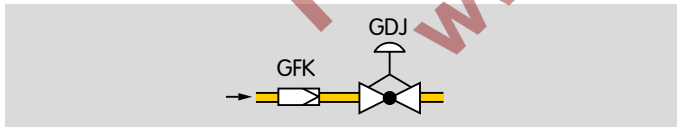


Installation position: spring dome pointing vertically upwards or to the side, not upside down.



The gas pressure regulator GDJ must not be in contact with masonry. Minimum clearance 20 mm (0.8 inch). Ensure that there is sufficient space for changing the spring.

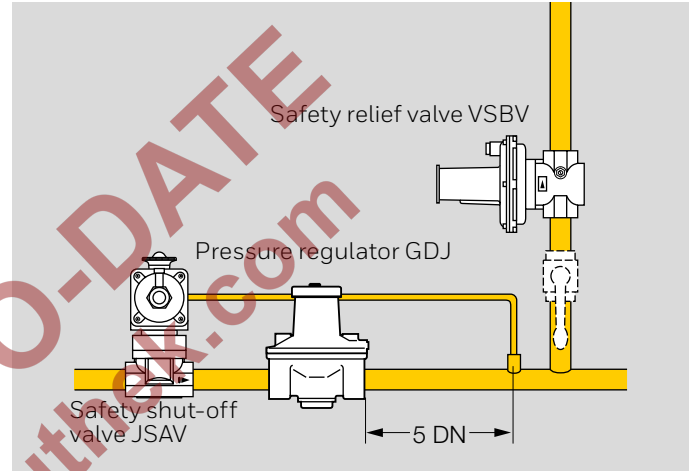
Do not store or install the unit in the open air.



Sealing material and dirt, e.g. thread cuttings, must not be allowed to get into the regulator housing.

Install a filter (GFK) upstream of every system.

6.2 Installation to EN 746-2



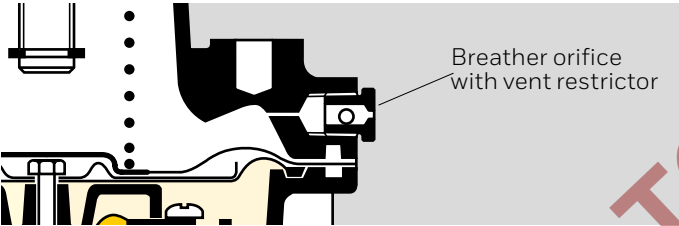
In accordance with EN 746-2, a safety shut-off valve upstream of the gas pressure regulator and a safety relief valve are required for gas pressure control systems.

These valves are not required if the highest possible operating pressure upstream of the regulator cannot exceed the maximum allowable operating pressure of the downstream devices.

6.3 Vent restrictor to ANSI/CSA

The vent restrictor complies with the requirements of ANSI Z21.18a-2010 and CSA 6.3a-2010.

It is included with every GDJ..T T-product and screwed into the breather orifice in place of the vent screen.



In normal operation, the vent restrictor ensures venting as does the vent screen.

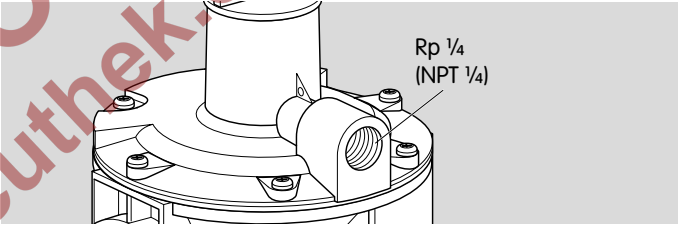
In the event of a sudden malfunction, a ball inside the vent restrictor is pressed onto the restrictor outlet and blocks the escaping gas.

Pressure		Flow rate			
		Natural gas		Air	
mbar	psig	m ³ /h	ft ³ /h	m ³ /h	ft ³ /h
34.5	0.5	0.028	0.995	0.036	1.284
69	1.0	0.028	0.995	0.036	1.284
103	1.5	0.031	1.085	0.040	1.401
138	2.0	0.041	1.447	0.053	1.869
345	5.0	< 0,056	< 2,0	0.071	< 2,5

The vent restrictor is designed so that the flow rate is between 1 and 2.5 ft³/h (natural gas with a relative density of 0.64) in the event of a malfunction.

6.4 Feedforwarding the furnace chamber pressure

If furnace pressure varies, a combustion chamber control line can be connected to the breather orifice (GDJ..R = Rp 1/4, GDJ..N = NPT 1/4) in place of the vent screen in order to maintain a constant burner capacity. This application is only permitted for a maximum furnace chamber pressure between 0 and 100 mbar and for slow pressure changes.



7 Technical data

Gas types: natural gas, town gas, LPG (gaseous) and biologically produced methane (max. 0.02 %-by-vol. H₂S), GDJ..L also for air. The medium must be dry in all temperature conditions and must not contain condensate.

Inlet pressure range up to 400 mbar (5.8 psig).

Outlet pressure ranges:

GDJ 15: 2 to 55 mbar (0,8 bis 22 "WC),

GDJ 20 – 40: 5 to 160 mbar (2 bis 64 "WC),

GDJ 50: 5 to 100 mbar (2 bis 40 "WC).

The regulators are pre-set at the factory to 20 mbar.

Control range: 10:1.

Ambient temperature: -20 to +60°C (-4 bis 140 °F).

No condensation permitted.

Long-term use in the upper ambient temperature range accelerates the ageing of the elastomer materials and reduces the service life (please contact manufacturer).

Storage temperature: -20 to +40°C (-4 bis 104 °F).

Valve housing: aluminium.

Valve seat: aluminium.

Valve disc: plastic.

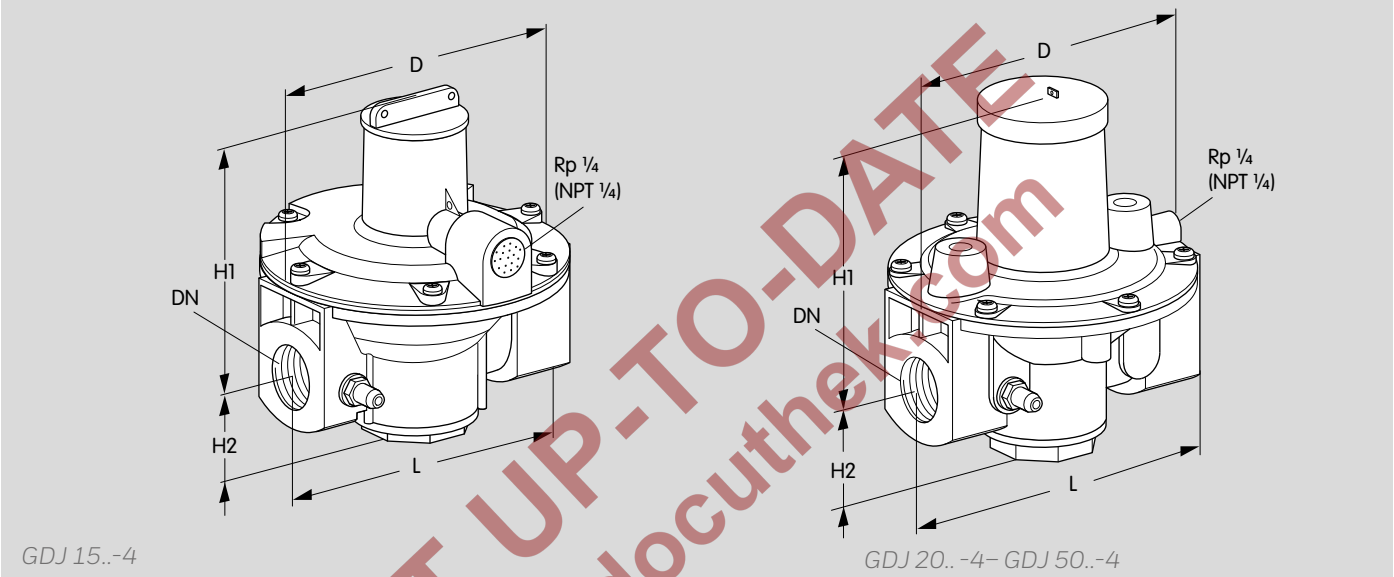
Valve disc seal: NBR.

Diaphragms: NBR.

When used for air: special version.

Internal thread: Rp to ISO 7-1.

7.1 Dimensions



Type	Dimensions										Weight		
			L		H1		H2		D				
	DN	Connection		mm	inch	mm	inch	mm	inch	mm	inch	kg	lbs
GDJ 15, GDJ 15T	15	Rp ½	½ NPT	100	3.93	90	3.54	30	1.18	100	3.93	0.6	1.32
GDJ 20, GDJ 20T	20	Rp ¾	¾ NPT	125	4.92	132	5.20	34	1.34	134	5.28	1	2.20
GDJ 25, GDJ 25T	25	Rp 1	1 NPT	125	4.92	132	5.20	34	1.34	134	5.28	1	2.20
GDJ 40, GDJ 40T	40	Rp 1½	1½ NPT	155	6.10	149	5.87	45	1.77	185	7.29	1.9	4.19
GDJ 50, GDJ 50T	50	Rp 2	2 NPT	200	7.87	167	6.57	52	2.05	234	9.21	3.1	6.82

7.2 Spring table

Typ	Outlet pressure		Spring marking	Order No.
	mbar	"WC		
GDJ 15	2 – 16	0.8 – 6.4	yellow	03089075
	10 – 20	4.0 – 8.0	black	03089076
	16 – 28 ¹⁾	6.4 – 11.3	orange	03089077
	22 – 40	8.8 – 16.1	brown	03089078
	40 – 55	16.1 – 22.1 ²⁾	light green/light blue	03089079
GDJ 20, GDJ 25	5 – 15	2.0 – 6.0	dark green/light blue	03089121
	12.5 – 25 ¹⁾	4.8 – 10.1	black	03089122
	22.5 – 35	9.0 – 14.1	dark green/brown	03089123
	30 – 50	12.1 – 20.1	dark green/orange	03089124
	45 – 65	18.1 – 26.1	black/light green	03089125
	60 – 80	24.1 – 32.1	red/orange	03089126
	75 – 100	30.2 – 40.2 ²⁾	pink/gold	03089127
	100 – 160	40.2 – 64.3	yellow/orange	03089128
GDJ 40	5 – 15	2.0 – 6.0	black/light blue	03089129
	12.5 – 25 ¹⁾	4.8 – 10.1	black/light green	03089130
	22.5 – 35	9.0 – 14.1	silver/orange	03089131
	30 – 50	12.1 – 20.1	black/brown	03089132
	45 – 65	18.1 – 26.1	red/gold	03089133
	60 – 80	24.1 – 32.1	black/orange	03089134
	75 – 100	30.2 – 40.2 ²⁾	pink/silver	03089135
	100 – 160	40.2 – 64.3	grey/gold	03089136
GDJ 50	5 – 15	2.0 – 6.0	white/brown	03089137
	12.5 – 25 ¹⁾	4.8 – 10.1	white/dark blue	03089138
	22.5 – 35	9.0 – 14.1	white/dark green	03089139
	30 – 50	12.1 – 20.1	white/red	03089140
	45 – 65	18.1 – 26.1	white/orange	03089141
	60 – 80	24.1 – 32.1	dark blue/grey	03089142
	75 – 100	30.2 – 40.2 ²⁾	grey/gold	03089143

7.3 Converting units

see www.adlatus.org

¹⁾ GDJ standard equipment. ²⁾ GDJ..T standard equipment
Dispatch complete with label for changed outlet pressure.

8 Maintenance cycles

At least once a year, at least twice a year in the case of biologically produced methane.

NOT UP-TO-DATE
www.docuthek.com

Feedback

Finally, we are offering you the opportunity to assess this "Technical Information (TI)" and to give us your opinion, so that we can improve our documents further and suit them to your needs.

Clarity

Found information quickly
Searched for a long time
Didn't find information
What is missing?
No answer

Comprehension

Coherent
Too complicated
No answer

Scope

Too little
Sufficient
Too wide
No answer



Use

To get to know the product
To choose a product
Planning
To look for information

Navigation

I can find my way around
I got "lost"
No answer

My scope of functions

Technical department
Sales
No answer

Remarks

Contact

Elster GmbH
Postfach 2809 · 49018 Osnabrück
Strothweg 1 · 49504 Lotte (Büren)
Germany
Tel. +49 541 1214-0
Fax +49 541 1214-370
hts.lotte@honeywell.com
www.kromschroeder.com

The current addresses of our international agents
are available on the Internet:
www.kromschroeder.de/Weltweit.20.0.html?&L=1

We reserve the right to make technical
modifications in the interests of progress.
Copyright © 2018 Elster GmbH
All rights reserved.

