

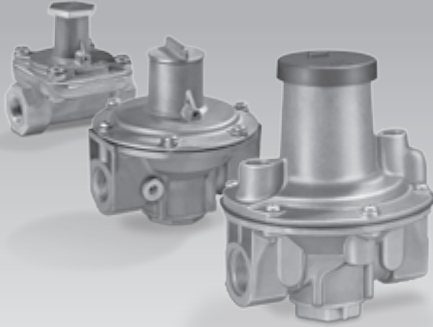
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## Operating instructions

### Gas pressure regulators 60DJ, J78R, GDJ



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## Safety

### Please read and keep in a safe place



Please read through these instructions carefully before installing or operating. Following the installation, pass the instructions on to the operator. This unit must be installed and commissioned in accordance with the regulations and standards in force. These instructions can also be found at [www.docuthek.com](http://www.docuthek.com).

### Explanation of symbols

■, **1**, **2**, **3**... = Action

> = Instruction

### Liability

We will not be held liable for damage resulting from non-observance of the instructions and non-compliant use.

### Safety instructions

Information that is relevant for safety is indicated in the instructions as follows:

#### **DANGER**

Indicates potentially fatal situations.

#### **WARNING**

Indicates possible danger to life and limb.

#### **! CAUTION**

Indicates possible material damage.

All interventions may only be carried out by qualified gas technicians. Electrical interventions may only be carried out by qualified electricians.

### Conversion, spare parts

All technical changes are prohibited. Only use OEM spare parts.

## Changes to edition 07.15

The following chapters have been changed:

- Checking the usage
- Installation
- Tightness test
- Checking the function
- Replacing the diaphragms on J78R, GDJ
- Maintenance
- Technical data
- Certification

## Checking the usage

### Intended use

Gas pressure regulators 60DJ, J78R and GDJ serve to maintain a constant outlet pressure  $p_d$  despite changing gas flow rates and inlet pressures  $p_u$  in gas pipelines.

This function is only guaranteed when used within the specified limits – see page 6 (Technical data). Any other use is considered as non-compliant.

### Type code 60DJ

Code	Description
<b>60DJ</b>	Gas pressure regulator
<b>L</b> <sup>2)</sup>	For air only (without approval)
<b>Z</b>	Set to 80 mbar

### Type code J78R

Code	Description
<b>J78R</b>	Gas pressure regulator
<b>0</b>	No measuring connection
<b>1</b>	Screw plug at the inlet
<b>-L</b> <sup>2)</sup>	For air only (without approval)

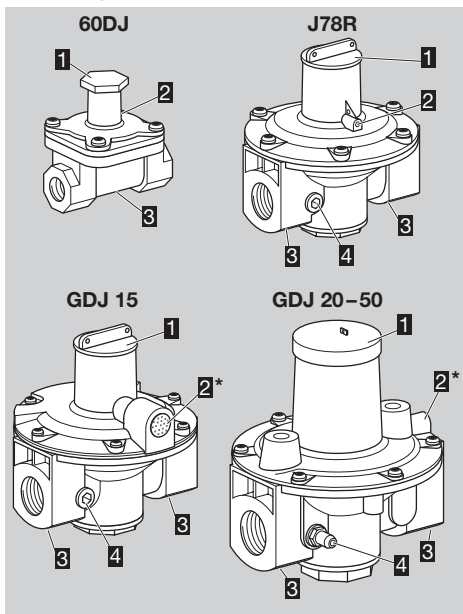
### Type code GDJ

Code	Description
<b>GDJ</b>	Gas pressure regulator
<b>15, 20, 25, 40, 50</b>	Nominal size
<b>T</b>	T-product
<b>R</b>	Rp internal thread
<b>N</b>	NPT internal thread
<b>04</b>	$p_u$ max. 400 mbar (5.8 psig)
<b>-0</b>	No pressure test point
<b>-4</b> <sup>1)</sup>	Pressure test point at the inlet
<b>L</b> <sup>2)</sup>	For air only (without approval)

<sup>1)</sup> Not for T-product.

<sup>2)</sup> If "none", this letter is omitted.

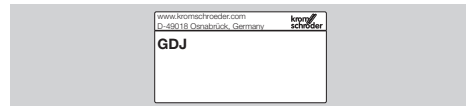
### Part designations



\* GDJ..T: a vent restrictor is enclosed. This is to be screwed into the breather orifice in place of the vent screen.

- 1 Cover cap and adjusting screw
- 2 Breather orifice
- 3 Arrow of direction of flow
- 4 Measuring connection for inlet pressure  $p_u$

Inlet pressure  $p_u$ , outlet pressure  $p_d$  and adjusting range: see type label.

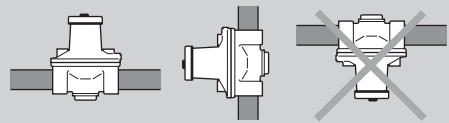


## Installation

### ! CAUTION

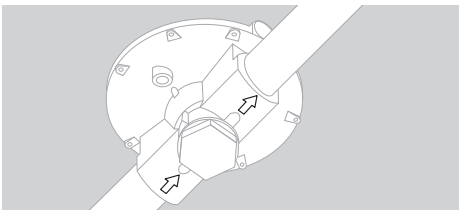
Please observe the following to ensure that the device is not damaged during installation:

- Sealing material, thread cuttings and other impurities must not be allowed to get into the housing.
- We recommend installing a filter upstream of the device in order to protect it against impurities in the pipe.
- The installation location must be dry. Do not store or install the unit in the open air.
- Install the device so that neither dirt nor water can penetrate the breather orifice during operation.
- Dropping the device can cause permanent damage. In this event, replace the entire device and associated modules before use.
- Install the unit in the pipe free of mechanical stress.
- Do not clamp the unit in a vice or use it as a lever. Risk of external leakage.
- Installation in the vertical or horizontal position, never upside down.



▷ The outlet pressure  $p_d$  is set at the factory with the spring dome pointing vertically upwards. If the gas pressure regulator is installed with the spring dome in the horizontal position, check and adjust the outlet pressure  $p_d$ , see page 3 (Changing the outlet pressure  $p_d$ ).

- 1 Install a filter upstream of the unit in order to protect it against impurities in the pipe.
- ▷ The housing must not be in contact with masonry, minimum distance 20 mm (0.8"). Ensure that there is sufficient space for changing the spring.
- 2 Remove the screw caps.



- ▷ Note direction of flow: see arrow on the housing.
- 3 Install using approved sealing material.
- ▷ Use an appropriate spanner – do not use the spring dome as a lever.

## Tightness test

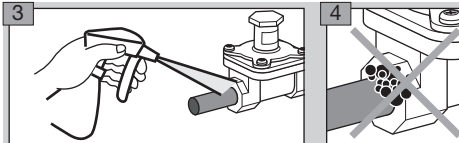
### ⚠ WARNING

- If gas-filled spaces have been opened, check them for tightness.

- 1 Block the pipeline at the inlet and outlet.

#### 60DJ

- 2 Slowly apply inlet pressure  $p_U$  – max. 100 mbar.
- ▷ To apply pressure, use a hand pump at the measuring connection of a neighbouring device.
- ▷ Since the 60DJ does not have zero shut-off, the outlet pressure does not need to be applied separately.



- 7 Relieve the inlet pressure  $p_U$ .

#### J78R, GDJ

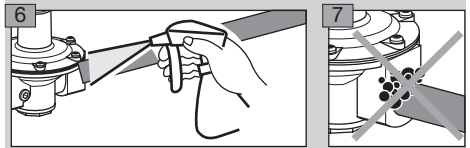
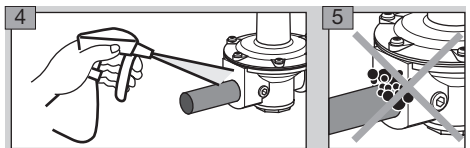
- 2 Slowly apply inlet pressure  $p_U$ .  
( $p_U \leq 1.5 \times p_{U \max.}$ , see type label)
- 3 Slowly apply outlet pressure  $p_d$ .  
( $p_d \leq 1.5 \times p_{d \max.}$ , see type label)
- ▷ To apply pressure, use a hand pump at the measuring connections of the pressure regulator or at the measuring connections of neighbouring devices.

### ! CAUTION

First apply the inlet pressure  $p_U$  – then the outlet pressure  $p_d$ .

The inlet pressure  $p_U$  must always be equal to or higher than the outlet pressure  $p_d$ .

In the event of non-compliance with the sequence, the compensating diaphragm will reverse.

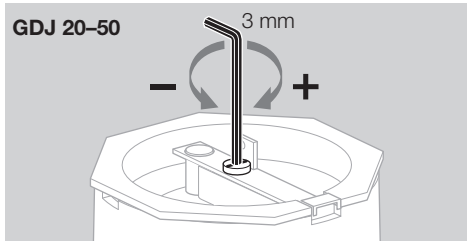
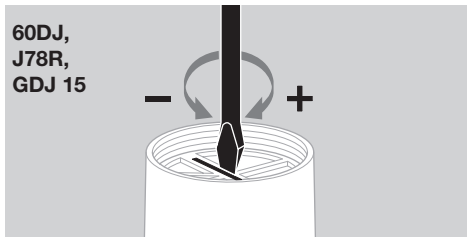


- 8 Relieve the outlet pressure  $p_d$ .

- 9 Relieve the inlet pressure  $p_U$ .

## Changing the outlet pressure $p_d$

- 1 Measure the outlet pressure  $p_d$ .
- 2 Remove the cover cap.
- 3 Turn the setpoint adjuster:



- ▷ Clockwise: higher outlet pressure, anti-clockwise: lower outlet pressure.
- 4 Clearly mark the adjusted value on the regulator.
- ▷ If the required outlet pressure  $p_d$  cannot be adjusted on J78R or GDJ, see page 4 (Replacing the spring on J78R, GDJ). No other springs are available for the 60DJ.
- 5 Replace the cover cap.

## Checking the function

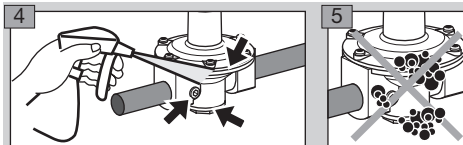
- 1 Request different capacities on the burner in order to change the flow rate.
- 2 Close the manual valve at the inlet a little in order to change the inlet pressure  $p_U$ .
- ▷ Despite changing flow rates and inlet pressures  $p_U$  (within the capacity range of the pressure regulator), the outlet pressure  $p_d$  must remain constant ( $\pm 15\%$ ).

### J78R, GDJ only

- 3** Reduce the capacity to low-fire rate and close the valve downstream of the pressure regulator.
- ▷ Approx. 30 seconds after the valve has been closed, the outlet pressure  $p_d$  should not increase significantly.

### All types

Check the tightness of the pressure regulator during operation to detect possible leaks due to hardened rubber materials.



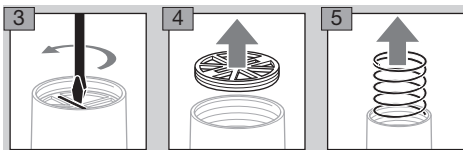
- 6** If a leak is found, replace the rubber materials. Selecting spare parts: see [www.adlatus.org](http://www.adlatus.org), PartDetective. Replacing the diaphragms: see page 4 (Replacing the diaphragms on J78R, GDJ).
- 7** Then check for tightness once again.

### Replacing the spring on J78R, GDJ

Various outlet pressure ranges can be achieved by using different springs on J78R and GDJ:

- 1** Choose a spring according to the outlet pressure range – see page 7 (Spring table).
- 2** Remove the cover cap.

### J78R, GDJ 15

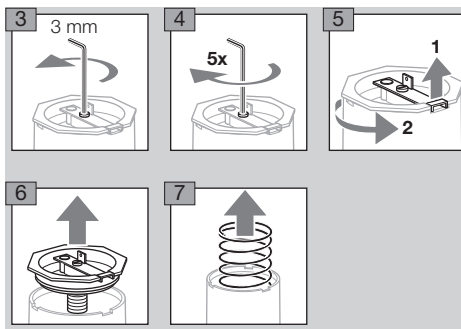


### GDJ 20–50

#### **⚠ WARNING**

Risk of injury!

- The taut spring can pop out when opening the spring dome. Therefore, decompress the spring as far as it will go before opening. Then turn back 5 x to relax the spring counter bearing.



- 8** Insert new spring.
- 9** Follow the reverse procedure when reassembling.

### All types

- 10** Set the outlet pressure – see page 3 (Changing the outlet pressure  $p_d$ ).
- 11** Replace the cover cap.
- 12** After inserting the spring, take the spring's label from the packaging and stick it below the type label on the pressure regulator.
- 13** Clearly mark the adjusted value of the outlet pressure  $p_d$  on the type label.

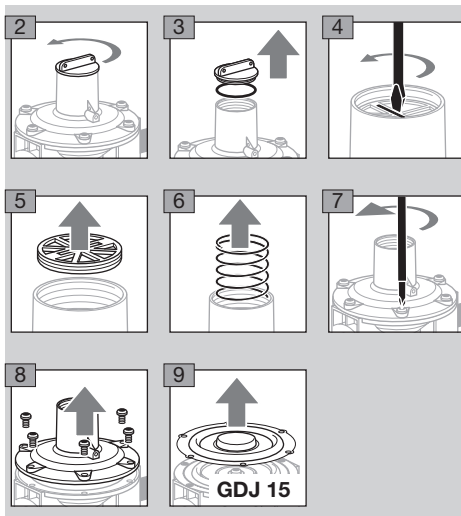
### Replacing the diaphragms on J78R, GDJ

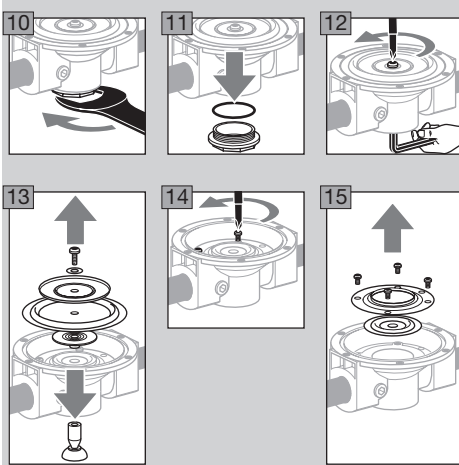
Diaphragms and seals are subject to ageing, especially in the case of long-term use in the upper ambient temperature range. Spare parts, see [www.adlatus.org](http://www.adlatus.org), PartDetective.

- ▷ On the 60DJ, replace the complete pressure regulator.

- 1** Shut off the gas supply.

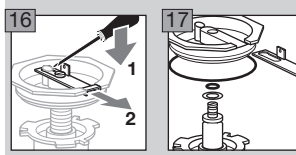
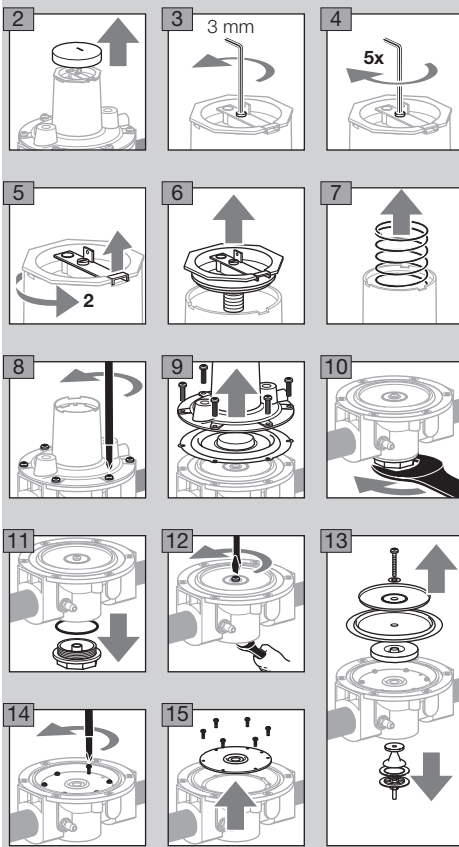
### J78R, GDJ 15





- 16** Replace all diaphragms and sealing elements, except the valve seat.  
**17** Follow the reverse procedure when reassembling.

#### GDJ 20–50



- 18** Replace all diaphragms and sealing elements.  
**19** Follow the reverse procedure when reassembling.

#### All types

- 20** Check tightness and function – see page 5 (Maintenance).  
**21** Set the outlet pressure – see page 3 (Changing the outlet pressure pd).  
**22** Replace the cover cap.

### Maintenance

In order to ensure smooth operation, check the tightness and function of the gas pressure regulator every year, or every six months if operated with biogas, see page 3 (Checking the function) and page 3 (Tightness test).

- ▷ Spare parts, see [www.adlatus.org](http://www.adlatus.org), PartDetective.
- ▷ If gas-filled space has been opened, check the tightness and function, see page 3 (Tightness test) and page 3 (Checking the function).

## Technical data

Types of gas: town gas, natural gas, LPG (gaseous) and biogas, 60DJ L, J78R..L and GDJ..L for air only.

The medium must be dry in all temperature conditions and must not contain condensate.

Pressure regulator to EN 88-1, Class A, Group 2

Ambient temperature: -20 to +60°C (-4 to +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 to +104°F).

Housing: aluminium.

Diaphragms: NBR.

### 60DJ Z

Inlet pressure  $p_{i_1}$ : max. 100 mbar.

Outlet pressure  $p_{d_1}$ : 35–90 mbar, set to 80 mbar.

Weight: 0.11 kg.

Connecting thread: Rp 1/4 to ISO 7-1, DN 8.

Valve seat: POM.

Valve disc: POM.

### J78R

Measuring connection with screw plug Rp 1/8 at the inlet on the right-hand side (option).

Inlet pressure  $p_{i_1}$ : up to 100 mbar.

Outlet pressure  $p_{d_1}$ : 6–55 mbar.

The outlet pressure  $p_{d_1}$  is adjusted by inserting different springs, see page 7 (Spring table). It is pre-set at the factory to 20 mbar (black spring).

Weight: 0.52 kg.

Connecting thread: Rp 1/2 to ISO 7-1, DN 15.

Valve seat: NBR.

Valve disc: POM.

### GDJ

Inlet pressure  $p_{i_1}$ : up to 400 mbar (5.8 psig).

Outlet pressure ranges:

GDJ 15: 2–55 mbar (0.8–22 "WC),

GDJ 20 to 40: 5–160 mbar (2–64 "WC),

GDJ 50: 5–100 mbar (2–40 "WC).

The outlet pressure range is achieved through the use of different springs, see page 7 (Spring table).

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

Control range: 10:1.

Connecting thread: Rp to ISO 7-1.

Valve seat: aluminium.

Valve disc: plastic.

Valve disc seal: NBR.

When used for air: special version.

## Designed lifetime

This information on the designed lifetime is based on using the product in accordance with these operating instructions. Once the designed lifetime has been reached, safety-relevant products must be replaced. Designed lifetime (based on date of manufacture) in accordance with EN 88 for 60DJ, J78R and GDJ: 15 years.

You can find further explanations in the applicable rules and regulations and on the afecor website ([www.afecor.org](http://www.afecor.org)).

This procedure applies to heating systems. For thermoprocessing equipment, observe local regulations.

## Logistics

### Transport

Protect the unit from external forces (blows, shocks, vibration). On receipt of the product, check that the delivery is complete, see page 2 (Part designations). Report any transport damage immediately.

### Storage

Store the product in a dry and clean place.

Storage temperature: see page 6 (Technical data).

Storage time: 6 months in the original packaging before using for the first time. If stored for longer than this, the overall service life will be reduced by the corresponding amount of extra storage time.

### Packaging

The packaging material is to be disposed of in accordance with local regulations.

### Disposal

Components are to be disposed of separately in accordance with local regulations.

## Spring table

Type	Opening pressure range		Spring marking	[mm]			Coils	Order No.
	mbar	"WC		D	d	L		
J78R	6 – 9	2.4 – 3.6	dark green/red	21.80	1.2	40.3	12.5	03089041
	9 – 17	3.6 – 6.8	yellow	21.84	1.2	42.1	10	03089042
	15 – 23 <sup>1)</sup>	6 – 9.3	black	21.64	1.2	54.4	11.5	03089043
	22 – 31	8.8 – 12.5	orange	21.84	1.2	63.5	11	03089044
	31 – 42	12.5 – 16.9	brown	21.95	1.3	65.1	10.5	03089045
	42 – 55	16.9 – 22.1	light green/light blue	20.92	1.4	40	6.5	03089047
GDJ 15	2 – 16	0.8 – 6.4	yellow	21.84	1.2	42.1	10	03089075
	10 – 20	4.0 – 8.0	black	21.64	1.2	54.4	11.5	03089076
	16 – 28 <sup>1)</sup>	6.4 – 11.3	orange	21.84	1.2	63.5	11	03089077
	22 – 40	8.8 – 16.1	brown	21.95	1.3	65.1	10.5	03089078
	40 – 55	16.1 – 22.1 <sup>2)</sup>	light green/light blue	20.92	1.4	40	6.5	03089079
GDJ 20, GDJ 25	5 – 15	2.0 – 6.0	dark green/light blue	36.90	2.0	64.4	11	03089121
	12.5 – 25 <sup>1)</sup>	5 – 10.1	black	36.03	2.0	76	11	03089122
	22.5 – 35	9.0 – 14.1	dark green/brown	36.90	2.0	80.3	7.75	03089123
	30 – 50	12.1 – 20.1	dark green/orange	37.08	2.2	83.1	8	03089124
	45 – 65	18.1 – 26.1	black/light green	36.59	2.3	81.9	8.75	03089125
	60 – 80	24.1 – 32.1	red/orange	36.01	2.3	119	12	03089126
	75 – 100	30.2 – 40.2 <sup>2)</sup>	pink/gold	36.50	2.5	80	6.8	03089127
	100 – 160	40.2 – 64.3	yellow/orange	36.29	2.8	74	5.2	03089128
GDJ 40	5 – 15	2.0 – 6.0	black/light blue	36.43	2.2	70.5	8.5	03089129
	12.5 – 25 <sup>1)</sup>	5 – 10.1	black/light green	36.59	2.3	81.9	8.75	03089130
	22.5 – 35	9.0 – 14.1	silver/orange	36.59	2.3	97.8	8.5	03089131
	30 – 50	12.1 – 20.1	black/brown	36.59	2.3	98.3	7.25	03089132
	45 – 65	18.1 – 26.1	red/gold	36.28	2.6	109	9.9	03089133
	60 – 80	24.1 – 32.1	black/orange	36.80	2.8	106	8	03089134
	75 – 100	30.2 – 40.2 <sup>2)</sup>	pink/silver	36.30	2.8	100	7	03089135
	100 – 160	40.2 – 64.3	grey/gold	36.60	3.1	101	5.75	03089136
	GDJ 50	5 – 15	2.0 – 6.0	white/brown	36.59	2.3	76.8	8
12.5 – 25 <sup>1)</sup>		5 – 10.1	white/dark blue	36.59	2.3	81.3	6	03089138
22.5 – 35		9.0 – 14.1	white/dark green	36.89	2.6	97.3	7.5	03089139
30 – 50		12.1 – 20.1	white/red	36.80	2.8	94.3	7	03089140
45 – 65		18.1 – 26.1	white/orange	36.70	3.0	93.3	6.5	03089141
60 – 80		24.1 – 32.1	dark blue/grey	36.74	2.9	138.7	9	03089142
75 – 100		30.2 – 40.2 <sup>2)</sup>	grey/gold	36.60	3.1	101	5.75	03089143

<sup>1)</sup> GDJ standard equipment, <sup>2)</sup> GDJ..T standard equipment  
 Dispatch complete with label for changed outlet pressure.

## Certification

### Declaration of conformity



We, the manufacturer, hereby declare that the product 60DJ/J78R/GDJ with product ID No. CE-C86CP21 complies with the requirements of the listed Directives and Standards.

Directives:

– 2009/142/EC – GAD (valid until 20 April 2018)

Regulation:

– (EU) 2016/426 – GAR (valid from 21 April 2018)

Standards:

– EN 88-1:2011

The relevant product corresponds to the tested type sample.

The production is subject to the surveillance procedure pursuant to Directive 2009/142/EC Annex II paragraph 3 (valid until 20 April 2018) and to Regulation (EU) 2016/426 Annex III paragraph 3 (valid from 21 April 2018).

This declaration of conformity is issued under the sole responsibility of the manufacturer.

▷ The air pressure regulators 60DJ L, J78R..L and GDJ..L are not subjected to this Directive.

Elster GmbH

Scan of the Declaration of conformity (D, GB) – see [www.docuthek.com](http://www.docuthek.com)

### Eurasian Customs Union



The products 60DJ, J78R and GDJ meet the technical specifications of the Eurasian Customs Union.

## Contact

If you have any technical questions, please contact your local branch office/agent. The addresses are available on the Internet or from Elster GmbH.

We reserve the right to make technical modifications in the interests of progress.

# Honeywell

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