

# Safety shut-off valves JSAV

## TECHNICAL INFORMATION

- For positive pressure with over-pressure shut-off
- DN 25, DN 40: with under-pressure shut-off
- Large adjusting range for trip pressure
- DN 25../2, DN 40../2: no breather line required
- EU certified
- Suitable for hydrogen



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## 1 Application



JSAV 25



JSAV 40



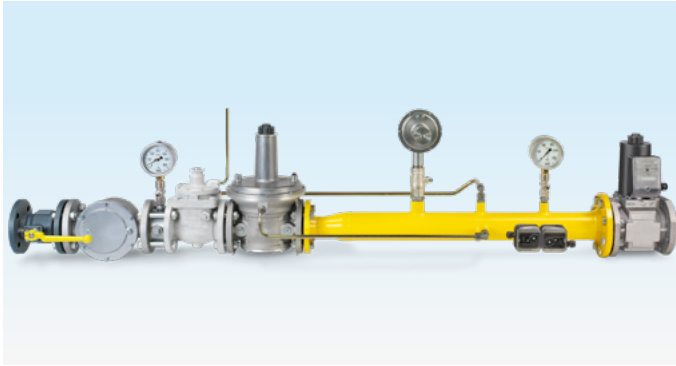
JSAV 50 – 100

Controls which are connected downstream of a gas pressure regulator are secured against excess gas pressure.

If the required operating conditions are not met, the gas supply is shut off.

A safety shut-off valve is required in accordance with EN 746-2 for all gas pressure control systems in which the controls downstream of the gas pressure regulator are not resistant to the supply pressure.

### 1.1 Application examples



The JSAV protects all controls downstream of the gas pressure regulator in the gas inlet section.

## 2 Certification

### 2.1 Certificate download

Certificates – see [www.docuthek.com](http://www.docuthek.com)

### 2.2 EU certified



- (EU) 2016/426 (GAR) – Gas Appliances Regulation
- Pressure Equipment Directive (2014/68/EU), Class A  
JSAV 25 – 40 with over-pressure/under-pressure shut-off
- Pressure Equipment Directive (2014/68/EU), Class B  
JSAV 25 – 40 with over-pressure shut-off  
JSAV 50 – 100 with over-pressure shut-off
- DIN EN 14382

### 2.3 UKCA certified



Gas Appliances (Product Safety and Metrology etc.  
(Amendment etc.) (EU Exit) Regulations 2019)  
BS EN 14382:2019

### 2.4 Eurasian Customs Union



The products JSAV meet the technical specifications of the Eurasian Customs Union.

### 2.5 REACH Regulation

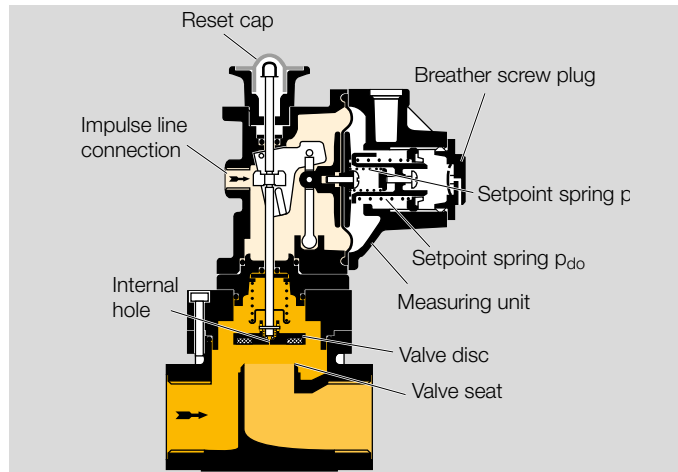
The device contains substances of very high concern which are listed in the Candidate List of the European REACH Regulation No. 1907/2006. See Reach list HTS at [www.docuthek.com](http://www.docuthek.com).

### 2.6 China RoHS

Directive on the restriction of the use of hazardous substances (RoHS) in China. Scan of the Disclosure Table China RoHS2, see certificates at [www.docuthek.com](http://www.docuthek.com).

# 3 Function

## 3.1 JSAV 25–40



The upper trip pressure is set using the outer setpoint spring in the measuring unit. The lower trip pressure is set using the inner spring in the measuring unit. The JSAV measures the pressure downstream of the gas pressure regulator via an external impulse line.

The JSAV closes once the set trip pressure has been reached. The valve plate is pressed onto the valve seat and thus shuts off the gas supply safely.

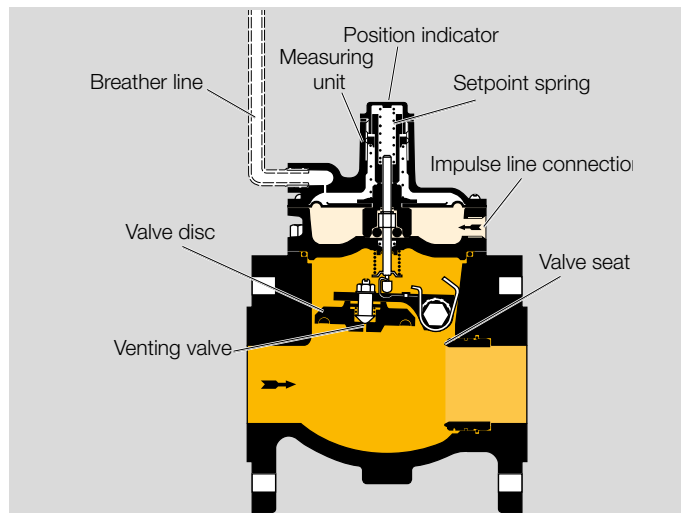
The position of the valve plate can be seen through the transparent reset cap.

The JSAV is manually reset. To do so, the pressure in the impulse line must be between the upper and lower trip pressure.

First, unscrew and remove the breather screw plug. Then loosen the reset cap. By pulling the reset cap slightly, the pressure is equalized via an internal hole in the valve plate. Once pressure equalization is complete, the reset cap can be lifted easily and the valve plate is engaged in the open position.

In the case of a JSAV../2 (Class A device according to the Pressure Equipment Directive (2014/68/EU) with over-pressure and under-pressure shut-off), a relief line is not required on the measuring unit, as a maximum of 30 l/h can escape via the hole in the breather screw plug.

### 3.2 JSAV 50–100



The trip pressure is set using the setpoint spring in the measuring unit. The JSAV measures the pressure downstream of the gas pressure regulator via an external impulse line.

The JSAV closes once the set trip pressure has been reached. The valve plate is pressed onto the valve seat and thus shuts off the gas supply safely.

The device can simply be manually reset. The pressure in the impulse line must be distinctly below the trip pressure.

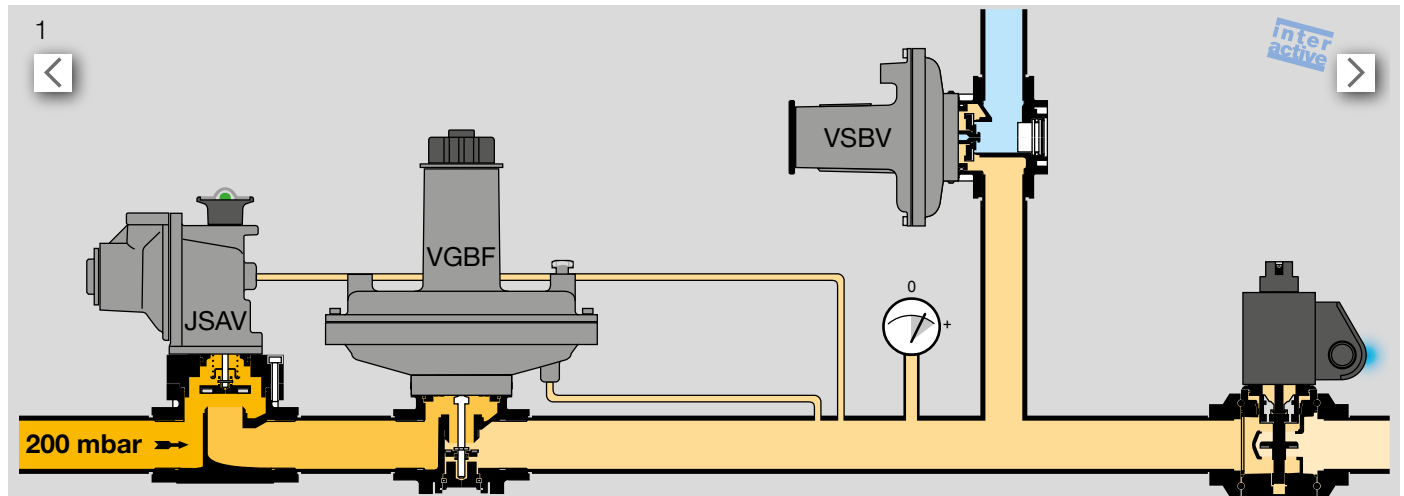
To begin with, a pressure equalization is carried out via the integrated venting valve in the valve plate using the supplied reset lever. Afterwards, the valve plate is fully opened and finally engages.

In the case of a JSAV../1 (Class B device according to the Pressure Equipment Directive (2014/68/EU) with over-pres-

sure shut-off), a breather line must be connected to the measuring unit to ensure that the closing function is activated as soon as the trip pressure is exceeded. A visual position indicator to show the current position of the device can be implemented by means of an electric switch as an option, see page 16 (7.2 Position switch for remote indication).

The free-flow valve design allows for a very large flow rate despite a compact design.

## 3.3 Slide show – combination of JSAV, VGBF and VSBV



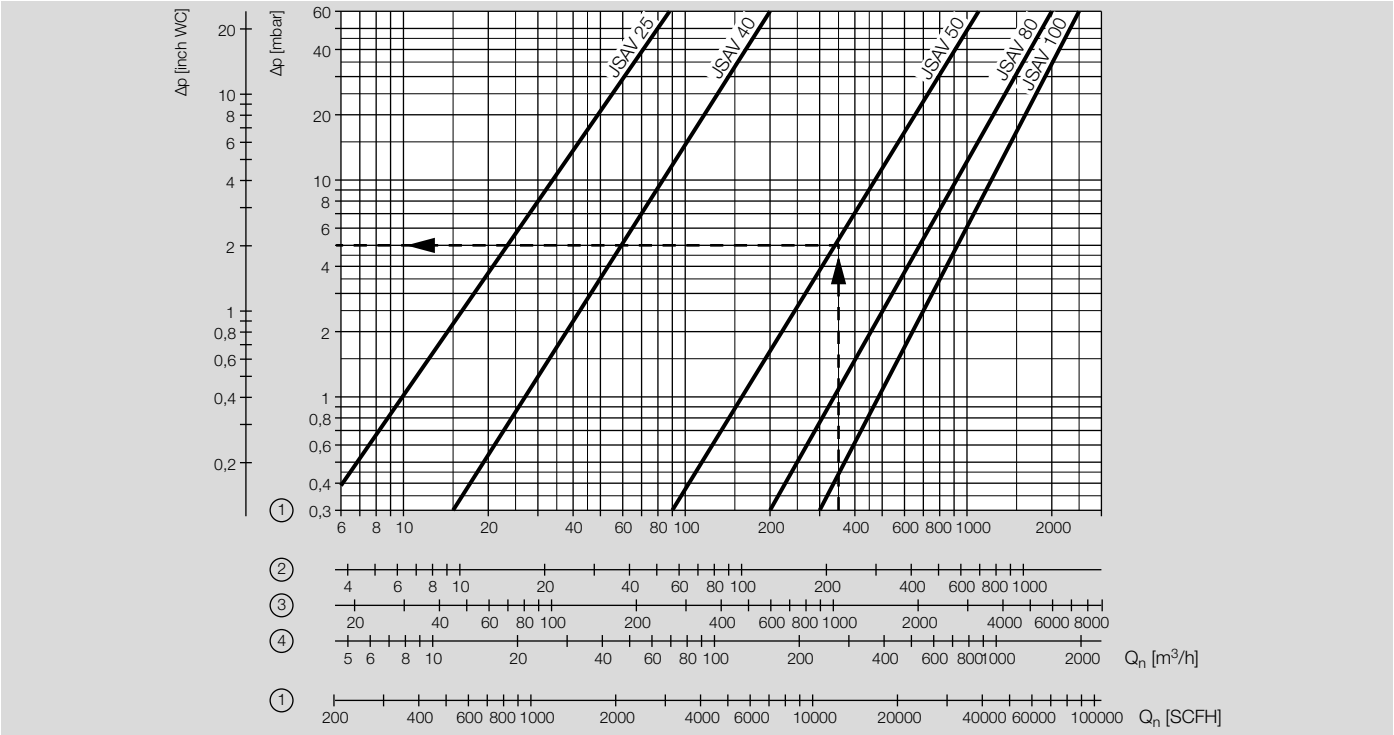
- 1 The gas pressure regulator VGBF keeps the outlet pressure constant when the gas flow rate fluctuates due to varying capacity requirements. The safety shut-off valve JSAV protects downstream fittings against excessive gas inlet pressure. The safety relief valve VSBV is designed to eliminate brief pressure surges to prevent the undesired actuation of safety shut-off valve JSAV.
- 2 Specimen setting values using the pressure level diagram: VGBF: 60 mbar, VSBV: 100 mbar, JSAV: 180 mbar. The gas train therefore has reliable protection up to a maximum operating pressure of 200 mbar, see "- Pressure levels for setting GPR, SRV and SSV" app.
- 3 The gas solenoid valve is closed.
- 4 The pressure downstream of the VGBF rises and is reduced by the VSBV when it reaches the set value.
- 5 The VSBV opens until the pressure falls below the set value.
- 6 As no more gas is flowing, the VGBF closes (zero shut-off) and prevents the outlet pressure rising again.
- 7 New example with a large pipe volume:
- 8 With a large pipe volume, it is possible that the VSBV cannot reduce the pressure quickly enough. In this case, the JSAV will trip.
- 9 The gas solenoid valve is closed.
- 10 The pressure downstream of the VGBF rises and is reduced by the VSBV when it reaches the set value.

### 3 Function

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- 11** As the pressure cannot be reduced quickly enough, it will continue to rise until the JSAV trips.
- 12** The JSAV must then be reset manually.

4 Flow rate



- 1 = natural gas ( $\rho = 0.80 \text{ kg/m}^3$ )
- 2 = propane ( $\rho = 2.01 \text{ kg/m}^3$ )
- 3 = hydrogen ( $\rho = 0.09 \text{ kg/m}^3$ )
- 4 = air ( $\rho = 1.29 \text{ kg/m}^3$ )

Reading instructions

When determining the pressure loss, operating cubic metres must be entered. Then the pressure loss  $\Delta p$  read must

be multiplied by the absolute pressure in bar (positive pressure + 1) to account for the change in the medium's density.

Example

inlet pressure  $p_u$  (positive pressure) = 4 bar,  
gas type: natural gas,  
operating flow rate  $Q_b = 350 \text{ m}^3/\text{h}$ ,  
selected in the diagram: JSAV 50,  
 $\Delta p$  from diagram = 5 mbar,  
 $\Delta p = 5 \text{ mbar} \times (1 + 4) = 25 \text{ mbar}$  on JSAV 50

### 4.1 Calculating the nominal size

A web app for calculating the nominal size is available at [www.adlatus.org](http://www.adlatus.org).

# 5 Selection

## 5.1 ProFi

A web app selecting the correct product is available at [www.adlatus.org](http://www.adlatus.org).

## 5.2 JSAV

| Description                                                  | Code   | JSAV 25 | JSAV 40 | JSAV 50–100 | Condition                                                                                  |
|--------------------------------------------------------------|--------|---------|---------|-------------|--------------------------------------------------------------------------------------------|
| Safety shut-off valve                                        | JSAV   | •       | •       | •           |                                                                                            |
| Nominal size                                                 | 25–100 | 25      | 40      | 50, 80, 100 |                                                                                            |
| Pipe connection                                              |        |         |         |             |                                                                                            |
| Rp internal thread                                           | R      | •       | •       |             |                                                                                            |
| Flange to ISO 7005                                           | F      |         | •       | •           |                                                                                            |
| Inlet pressure                                               |        |         |         |             |                                                                                            |
| p <sub>U</sub> max. 4 bar                                    | 40     | •       | •       |             |                                                                                            |
| p <sub>U</sub> max. 5 bar                                    | 50     |         |         | •           |                                                                                            |
| Monitoring                                                   |        |         |         |             |                                                                                            |
| Over-pressure shut-off p <sub>do</sub>                       | /1     | •       | •       | •           |                                                                                            |
| Over-pressure and under-pressure shut-off p <sub>do/du</sub> | /2     | •       | •       |             |                                                                                            |
| Pressure test point                                          |        |         |         |             |                                                                                            |
| No pressure test point                                       | -0     | •       |         | •           |                                                                                            |
| Screw plug at the inlet and outlet                           | -3     |         | •       |             |                                                                                            |
| Trip pressure                                                |        |         |         |             |                                                                                            |
| Special adjusting range                                      | Z      | •       | •       | •           | When ordering a JSAV..Z, be sure to specify the desired trip pressure and adjusting range. |

## Order example

JSAV 40F40/2-3

5.3 JSAV..T

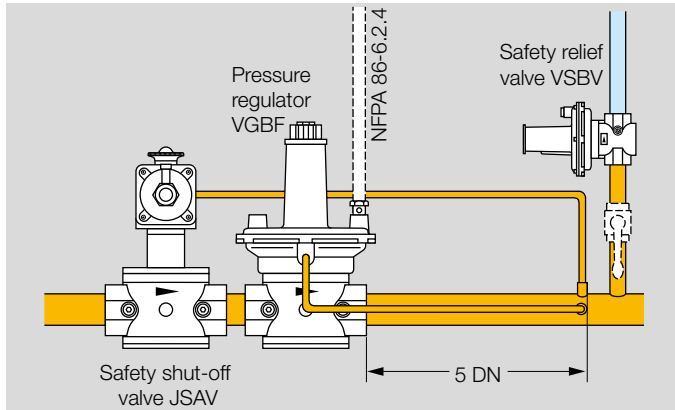
| Description                            | Code   | JSAV 25T | JSAV 40T | JSAV 50T–100T | Condition                                                                                  |
|----------------------------------------|--------|----------|----------|---------------|--------------------------------------------------------------------------------------------|
| Safety shut-off valve                  | JSAV   | •        | •        | •             |                                                                                            |
| Nominal size                           | 25–100 | 25       | 40       | 50, 80, 100   |                                                                                            |
| Pipe connection                        |        |          |          |               |                                                                                            |
| NPT internal thread                    | N      | •        | •        |               |                                                                                            |
| ANSI flange                            | A      |          |          | •             |                                                                                            |
| Inlet pressure                         |        |          |          |               |                                                                                            |
| p <sub>u</sub> max. 4 bar              | 40     | •        | •        |               |                                                                                            |
| p <sub>u</sub> max. 5 bar              | 50     |          |          | •             |                                                                                            |
| Monitoring                             |        |          |          |               |                                                                                            |
| Over-pressure shut-off p <sub>do</sub> | /1     | •        | •        | •             |                                                                                            |
| Pressure test point                    |        |          |          |               |                                                                                            |
| No pressure test point                 | -0     | •        |          | •             |                                                                                            |
| Screw plug at the inlet and outlet     | -3     | •        |          |               |                                                                                            |
| Trip pressure                          |        |          |          |               |                                                                                            |
| Special adjusting range                | Z      | •        | •        | •             | When ordering a JSAV..Z, be sure to specify the desired trip pressure and adjusting range. |

Order example

JSAV 25TN40/1-3

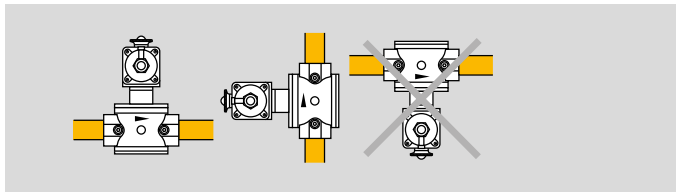
## 6 Project planning information

### 6.1 Installation

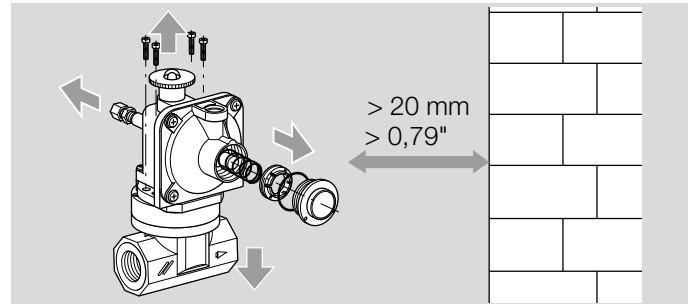


If the controls downstream of the gas pressure regulator are not resistant to the supply pressure, EN 746-2 prescribes a safety shut-off valve upstream and a safety relief valve downstream of the gas pressure regulator – regardless of how high the inlet pressure is.

Ensure that there is sufficient tube length for the impulse line.

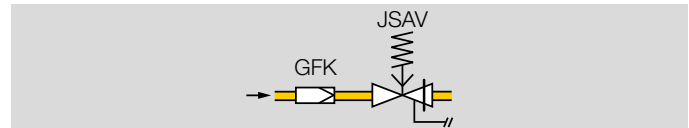


Installation in the vertical or horizontal position, never upside down.



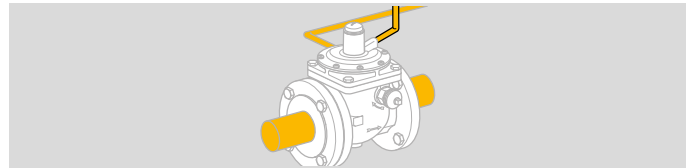
Install the unit free of mechanical stress and so that it is not in contact with masonry (min. clearance 20 mm (0.79")).

Ensure that there is sufficient space for installation, adjustment and maintenance work.



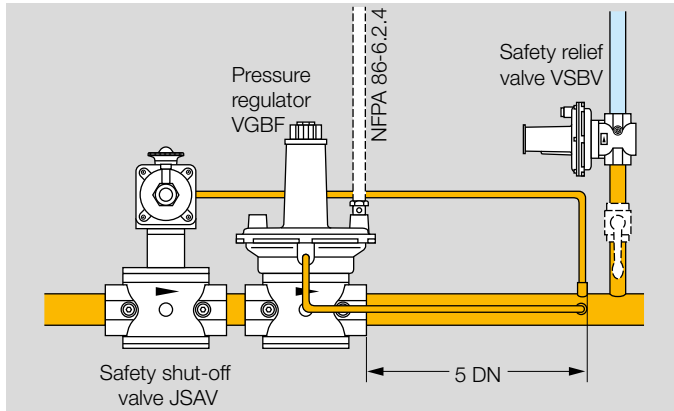
Sealing material and thread cuttings must not be allowed to get into the valve housing. Install a filter upstream of every system.

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



A breather line must be connected to the measuring unit to maintain the function of the JSAV.

### 6.2 Pressure levels



The opening pressure of the safety relief valve (VSBV) and trip pressures for the safety shut-off valve (JSAV) are calculated on the basis of the outlet pressure set on the pressure regulator.

The “Pressure levels for setting GPR, SRV and SSV” app helps to calculate the various setting values, see [www.ad-latus.org](http://www.ad-latus.org).

### 6.3 Hydrogen

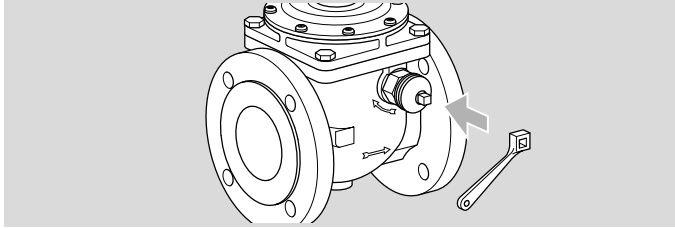


Other hydrogen-compatible products can be found here: [Technical Information, Products for hydrogen](#).

## 7 Accessories

### 7.1 Reset lever

Reset lever to reset JSAV 50 – 100:



Order No.: 03151140.

### 7.2 Position switch for remote indication

The position switch can be used for electronic position checks.



Order No.: 03151185.

## 8 Technical data

### 8.1 Ambient conditions

Icing, condensation and dew in and on the unit are not permitted.

Avoid direct sunlight or radiation from red-hot surfaces on the unit. Note the maximum medium and ambient temperatures!

Avoid corrosive influences, e.g. salty ambient air or  $\text{SO}_2$ .

The unit may only be stored/installed in enclosed rooms/buildings.

Ambient temperature:  $-20$  to  $+60^\circ\text{C}$  ( $-4$  to  $+140^\circ\text{F}$ ).

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  $+40^\circ\text{C}$  ( $-4$  to  $+104^\circ\text{F}$ ).

Transport temperature:  $-20$  to  $+60^\circ\text{C}$  ( $-4$  to  $+140^\circ\text{F}$ ).

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

This unit is not suitable for cleaning with a high-pressure cleaner and/or cleaning products.

8.2 Mechanical data for JSAV 25–40

Gas type: natural gas, town gas, LPG (gaseous), hydrogen, biogas (max. 0.02 %-by-vol. H<sub>2</sub>S) = Group 1 fluids pursuant to Directive 2014/68/EU or air.

Medium temperature = ambient temperature.

Max. inlet pressure p<sub>u</sub>: 4 bar (58 psig).

Max. test pressure for testing the JSAV:  
inlet and outlet: temporarily < 15 min: 6 bar (87 psig),  
impulse line: temporarily < 15 min:  
750 mbar (10.8 psig).

Trip pressures p<sub>do</sub>/p<sub>du</sub> preset at the factory:  
upper trip pressure p<sub>do</sub>: 120 mbar (48.2 "WC),  
lower trip pressure p<sub>du</sub>: 10 mbar (3.9 "WC).

Trip pressure ranges, see page 18 (8.2.1 Spring table for JSAV 25–40../1, JSAV 25–40../2).

Accuracy group: AG 10.

Connection for housing:  
JSAV..R: Rp internal thread to ISO 7-1,  
JSAV..N: NPT internal thread,  
JSAV..F: PN 16 flange to ISO 7005,  
JSAV..A: ANSI flange.

Connection for impulse line: DN 8 (1/8 NPT) (Ermeto coupling installed).

Housing: AISi.

Diaphragm: NBR.

Valve seat: aluminium.

Valve stem: stainless steel.

Valve plate: steel with vulcanized NBR seal.

8.2.1 Spring table for JSAV 25–40../1, JSAV 25–40../2

Various trip pressure ranges can be achieved by using different springs.

Upper trip pressure p<sub>do</sub>

| [mbar]    | ["WC]     | Marking    | Order No.  |
|-----------|-----------|------------|------------|
| 18–60*    | 7–23.4*   | black      | 03089068*  |
| 50–80     | 19.5–31.2 | orange     | 03089069   |
| 60–110    | 23.4–42.9 | red        | 03089070   |
| 100–210** | 39–81.9** | dark green | 03089071** |
| 200–350   | 78–136.5  | yellow     | 03089072   |
| 280–500   | 109.2–195 | white      | 03089073   |

Lower trip pressure p<sub>du</sub>

| [mbar] | ["WC]       | Marking    | Order No.  |
|--------|-------------|------------|------------|
| 8–16** | 3.12–6.24** | light blue | 03089082** |
| 16–60  | 6.24–23.4   | brown      | 03089083   |
| 60–150 | 23.4–58.5   | violet     | 03089084   |

\* Approved for pressures of 40 mbar and higher

\*\* Standard spring

8.3 Mechanical data for JSAV 50–100

Gas type: natural gas, town gas, LPG (gaseous), biogas (max. 0.02 %-by-vol. H<sub>2</sub>S) = Group 1 fluids pursuant to Directive 2014/68/EU or air.

Medium temperature = ambient temperature.

Max. inlet pressure p<sub>U</sub>: 5 bar (72.5 psig).

Max. test pressure for testing the JSAV:  
inlet and outlet: temporarily < 15 min: 7.5 bar (109 psig),  
impulse line: temporarily < 15 min:  
750 mbar (10.8 psig).

Trip pressure p<sub>do</sub> preset at the factory: 120 mbar (46.8 "WC).

Trip pressure ranges, see page 19 (8.3.1 Spring table JSAV 50–100../1).

Accuracy group: AG 10.

Connection for housing:  
JSAV..F: PN 16 flange to ISO 7005,  
JSAV..A: ANSI flange.

Connection for impulse and breather lines: Rp 1/4 (1/4 NPT).

Housing: GGG 40.

Diaphragm: NBR.

Valve seat: aluminium.

Valve stem: stainless steel.

Valve plate: aluminium with vulcanized NBR seal.

8.3.1 Spring table JSAV 50–100../1

Various trip pressure ranges can be achieved by using different springs.

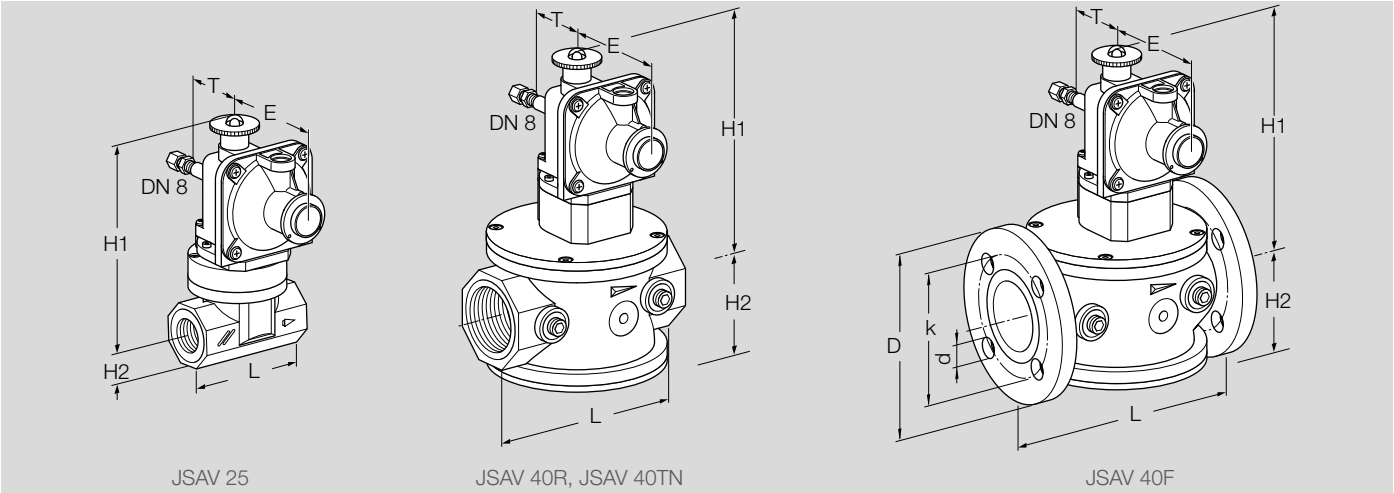
Upper trip pressure p<sub>do</sub>

| [mbar]  | ["WC]     | Marking       | Order No. |
|---------|-----------|---------------|-----------|
| 35–70   | 14.1–28.1 | light blue    | 03089063  |
| 60–170* | 24.1–68.3 | reddish brown | 03089064* |
| 120–220 | 48.2–88.4 | crimson       | 03089065  |
| 190–400 | 76.4–161  | orange/yellow | 03089066  |
| 330–550 | 133–221   | orange/green  | 03089067  |

\* Standard spring

9 Dimensions

9.1 JSAV 25–40



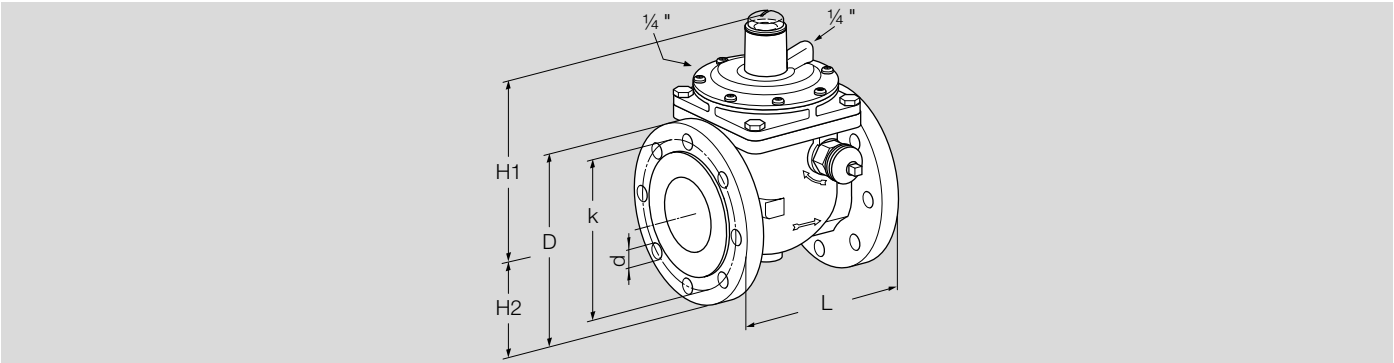
With Rp internal thread or with ISO flange

| Type       | Connection | Dimensions [mm] |    |     |    |    | Flange [mm] |     | Drillings |        | Weight |
|------------|------------|-----------------|----|-----|----|----|-------------|-----|-----------|--------|--------|
|            |            | H1              | H2 | L   | T  | E  | D           | k   | d [mm]    | Number | [kg]   |
| JSAV 25R40 | Rp 1       | 159             | 23 | 91  | 43 | 87 | –           | –   | –         | –      | 1      |
| JSAV 40R40 | Rp 1½      | 206             | 51 | 150 | 43 | 87 | –           | –   | –         | –      | 2.3    |
| JSAV 40F40 | DN 40      | 187             | 75 | 200 | 43 | 87 | 150         | 110 | 18        | 4      | 3.1    |

With NPT internal thread

| Type        | Connection | Dimensions [inch] |      |      |      |      | Weight |  |
|-------------|------------|-------------------|------|------|------|------|--------|--|
|             |            | H1                | H2   | L    | T    | E    | [lbs]  |  |
| JSAV 25TN40 | 1 NPT      | 6.26              | 0.91 | 3.58 | 1.70 | 3.42 | 2.2    |  |
| JSAV 40TN40 | 1½ NPT     | 8.11              | 2.00 | 5.91 | 1.70 | 3.42 | 4.85   |  |

9.2 JSAV 50–100



With ISO flange

| Type        | Connection | Dimensions [mm] |     |     | Flange [mm] |     | Drillings |        | Weight |
|-------------|------------|-----------------|-----|-----|-------------|-----|-----------|--------|--------|
|             |            | H1              | H2  | L   | D           | k   | d [mm]    | Number | [kg]   |
| JSAV 50F50  | DN 50      | 187             | 83  | 180 | 165         | 125 | 18        | 4      | 13     |
| JSAV 80F50  | DN 80      | 200             | 100 | 220 | 200         | 160 | 18        | 8      | 17     |
| JSAV 100F50 | DN 100     | 226             | 110 | 270 | 220         | 180 | 18        | 8      | 24     |

With ANSI flange

| Type         | Connection | Dimensions [inch] |      |       | Flange [inch] |      | Drillings |        | Weight |
|--------------|------------|-------------------|------|-------|---------------|------|-----------|--------|--------|
|              |            | H1                | H2   | L     | D             | k    | d [inch]  | Number | [lbs]  |
| JSAV 50TA50  | DN 50      | 7.36              | 3.27 | 7.09  | 6.50          | 4.75 | 0.71      | 4      | 28.6   |
| JSAV 80TA50  | DN 80      | 7.87              | 3.94 | 8.66  | 7.87          | 6.00 | 0.71      | 4      | 37.4   |
| JSAV 100TA50 | DN 100     | 8.90              | 4.33 | 10.63 | 8.66          | 7.50 | 0.71      | 8      | 52.8   |

## **10 Converting units**

See [www.adlatus.org](http://www.adlatus.org)

### **11 Maintenance cycles**

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

## For more information

The Honeywell Thermal Solutions family of products includes Honeywell Combustion Safety, Eclipse, Exothermics, Hauck, Kromschroder and Maxon. To learn more about our products, visit [ThermalSolutions.honeywell.com](https://ThermalSolutions.honeywell.com) or contact your Honeywell Sales Engineer.

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