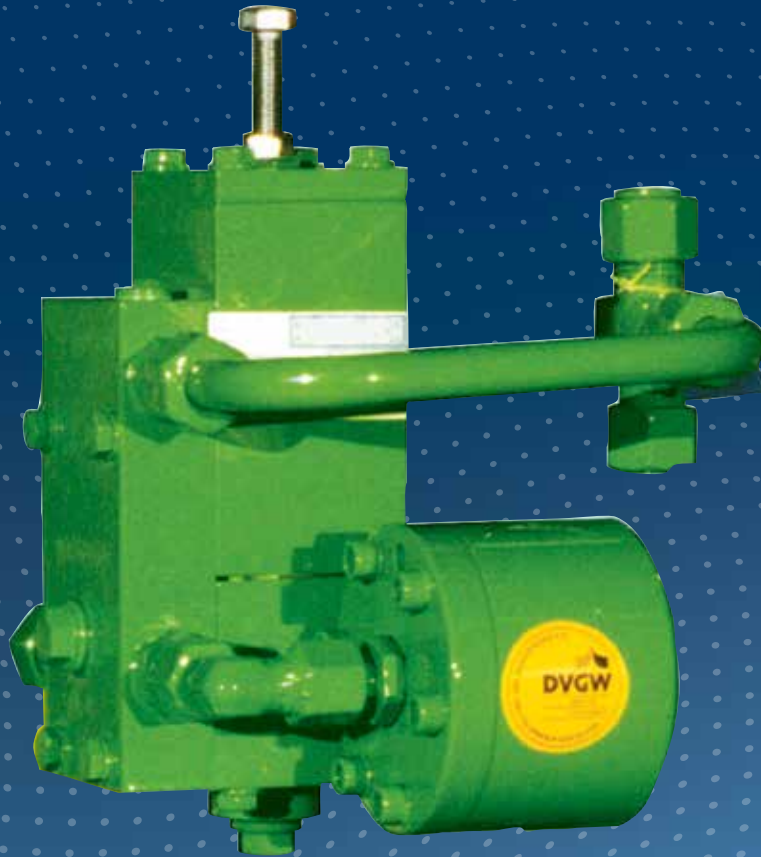


Actuator HON 670/671



PRODUCT INFORMATION

**Serving the Gas Industry
Worldwide**

Honeywell

Actuator HON 670 / HON 671

Applications, characteristics, technical data

Application

The actuators HON 670 (K16, K18) and HON 671 (K17) are used to trigger safety devices. They have the following tasks:

- For the safety shut-off valve (SSV), e. g. the HON 711, HON 721 or HON 731, the task of automatically closing the actuator and thus shutting off the flow into the gas pressure regulating station, as soon as the pressure in the system to be safeguarded reaches an upper or lower response pressure;
- For the safety relief valve (SRV), e. g. the HON 850, the task of automatically opening the actuator as soon as the pressure in the system to be safeguarded reaches an upper response pressure.

Characteristics

- High actuating accuracy
- Minimal difference between set pressure and pressure to be monitored
- Easy operation and maintenance
- Can be used for natural gas and all non-aggressive gases

TECHNICAL DATA									
Permissible pressure load p_{emax}	100 bar								
Version	K16/K17 for response pressures from 0.8 to 40 bar with diaphragm measuring unit K18/K19 for response pressures 20 to 90 bar with metal bellows measuring unit								
for SSV release	HON 670/K16, K18 upper adjustment range $W_{\text{ho}} = 0.8 \text{ bar to } 90 \text{ bar}$ HON 671/K17, lower adjustment range $W_{\text{hu}} = 2 \text{ bar to } 40 \text{ bar}$								
for SRV release	HON 670/K16/K18 adjustment range $W_{\text{h}} 0.8 \text{ bar to } 90 \text{ bar}$								
Line connection	Screwed pipe connection without brazing according to DIN 2353 for pipe diameters <table border="1"><tr><td>Measuring line</td><td>12 mm</td></tr><tr><td>Vent line</td><td>12 mm</td></tr><tr><td>Discharge line</td><td>12 mm</td></tr><tr><td>Switching pressure line</td><td>10 mm</td></tr></table>	Measuring line	12 mm	Vent line	12 mm	Discharge line	12 mm	Switching pressure line	10 mm
Measuring line	12 mm								
Vent line	12 mm								
Discharge line	12 mm								
Switching pressure line	10 mm								
Operating temperature class 2	-20 °C to +70 °C								
Materials	Body parts Aluminium alloy Internal parts Al allow, stainless steel O-rings Rubber-like plastic Diaphragms Rubber-like plastic								
Weight	Approx. 1.5 kg								
Function and strength	According to EN 14382								

The actuator consists of a measuring diaphragm stage with double diaphragm system, amplifier valve and setpoint spring and of a base plate that contains the function lines within the actuator. The sensitive diaphragm system used in the actuators offers the advantage of a high actuating accuracy; in addition, the response pressure can be brought very close to the pressure to be monitored.

– for SSV triggering:

The pressure of the system to be safeguarded is routed to the top side of the sensitive double diaphragm system via a measuring line, and compared with the setpoint value specified through the setpoint adjustment screw (force of the setpoint spring). In normal operating status the amplifier valve is closed. The downstream system, including the actuator of the SSV is depressurised. If with the HON 670, the upper response pressure is reached, or if with the HON 671 the lower response pressure is reached, the amplifier valve opens. Gas flows out of the system to be monitored to the actuator of the safety shut-off valve. The piston in the pressure/force converter is moved and triggers the switch device of the SSV via the piston rod; the safety shut-off valve closes.

If the cause for the triggering of the SSV is eliminated and if the pressure to be monitored has been underranged (for upper triggering, HON 670) or exceeded (for lower triggering, HON 671), the specified set point, the amplifier valve closes. The pressure upstream of the piston of the actuator dissipates via the restrictor integrated in the actuator, and the safety shut-off valve can be reopened.

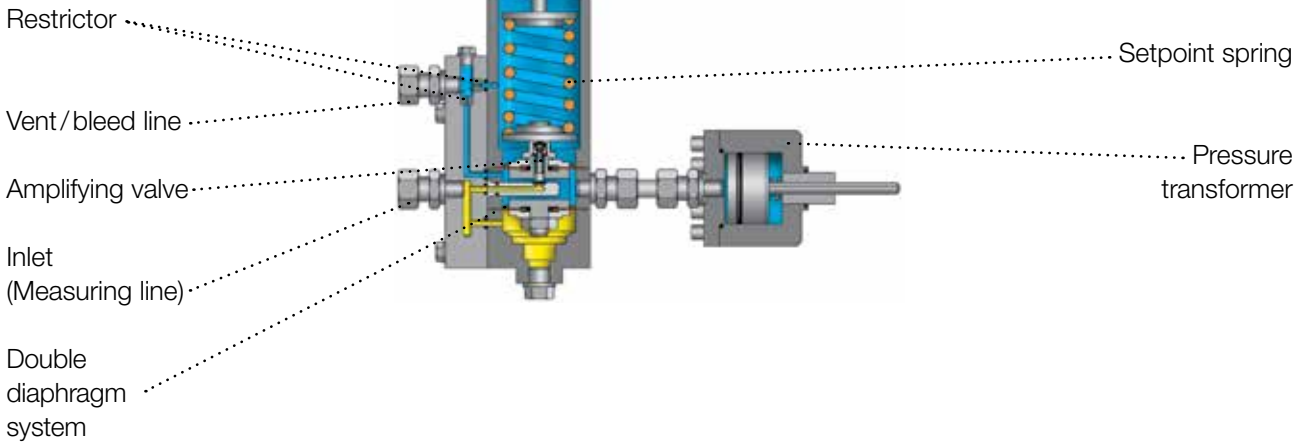
The HON 670 actuator also satisfies the requirement that the safety shut-off valve should trigger if the measuring diaphragm breaks: The outlet pressure to be monitored is applied on the top side of the double membrane system. A defect of the double membrane system in this upper diaphragm causes the outlet pressure to be further routed directly to the pressure/force converter and thus cause the triggering of the SSV.

Actuator HON 670 / HON 671

Structure and mode of operation

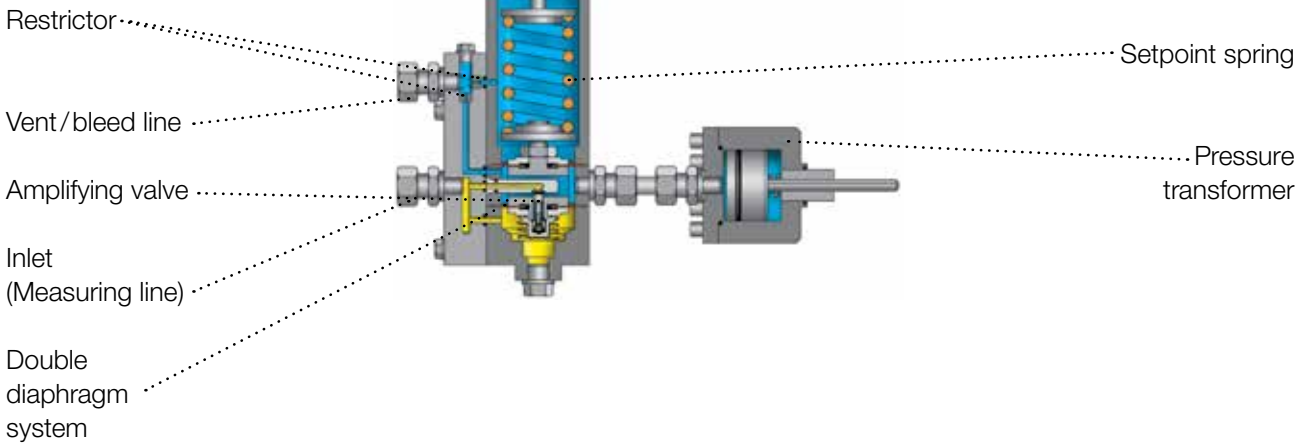
Actuator HON 670 K16

(for upper setting range)



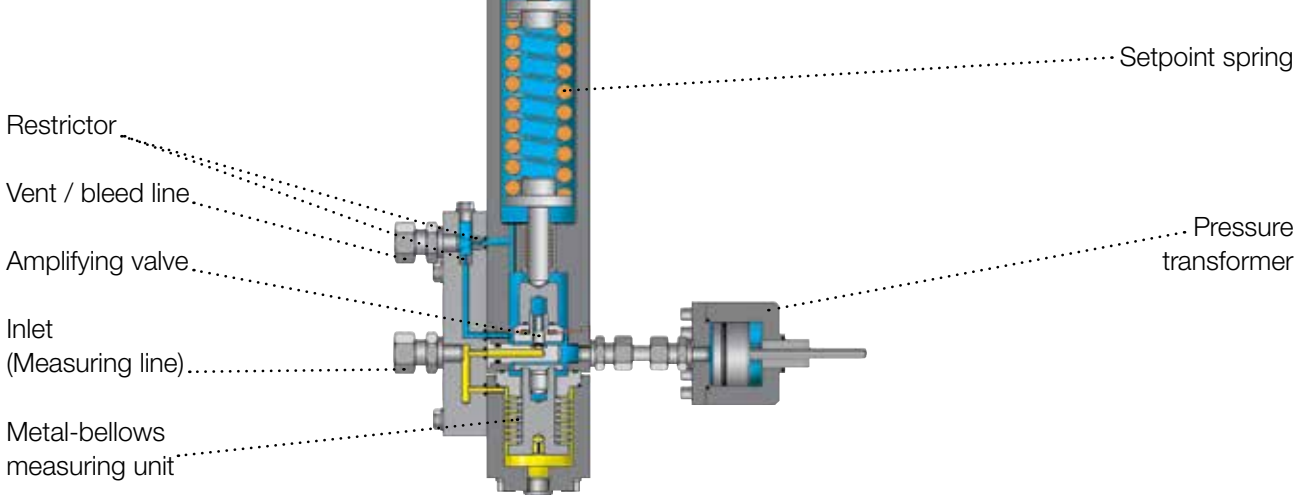
Actuator HON 670 K17

(for lower setting range)



Actuator HON 670 K18

(for upper setting range)
with metal-bellows measuring unit



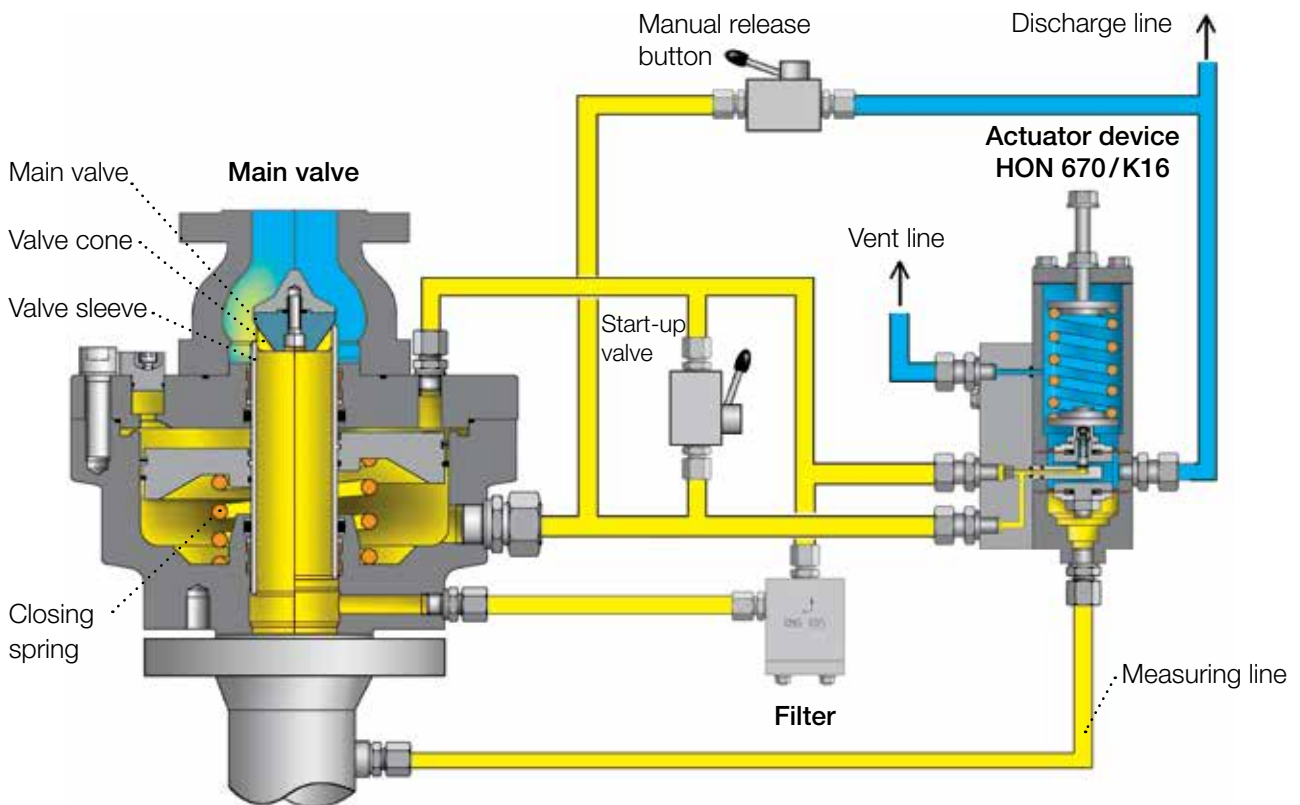
Mode of operation with SSV triggering:

The safety relief valve (e. g. the HON 850), has the task of automatically opening as soon as the pressure in the system to be safeguarded reaches the set response pressure. The safety relief valve consists of the main valve and the HON 670 actuator. To protect the actuator against fouling a fine mesh filter is installed upstream. For the safety relief valve HON 850 the main valve is formed by a movable sleeve and the valve cone that is arranged stationary in the body. The actuator is permanently connected to the valve sleeve of the main valve. The upper and lower actuator chamber are connected to the stationary restrictor integrated in the base plate of the HON 670 actuator, so that in these chambers normally the same pressure predominates and the main valve is held in closed position via the closing spring.

The pressure in the system to be safeguarded is routed into the actuator to the top side of the double diaphragm system via a measuring line, and compared with the setpoint value specified through the setpoint adjustment screw (force of the setpoint spring). In normal operating status the amplifier valve is closed; the pressures in the upper and in the lower actuator chamber of the HON 850 actuator are the same.

If the pressure to be monitored reaches the response value set on the HON 670 actuator, the valve in the double diaphragm system opens. This dissipates the pressure in the actuator chamber below the driving piston. The system pressure on the top side of the actuator moves the sleeve against the closing spring in the opening direction, and the blow-off procedure of the safety relief valve is enabled. Then if the pressure to be monitored again underranges the specified setpoint, the amplifier valve closes and thus the pressure in the lower actuator chamber increases. For pressure compensation between the lower and the upper actuator chamber the safety shut-off valve again seals tight automatically.

SRV HON 850 with actuator HON 670 / K16

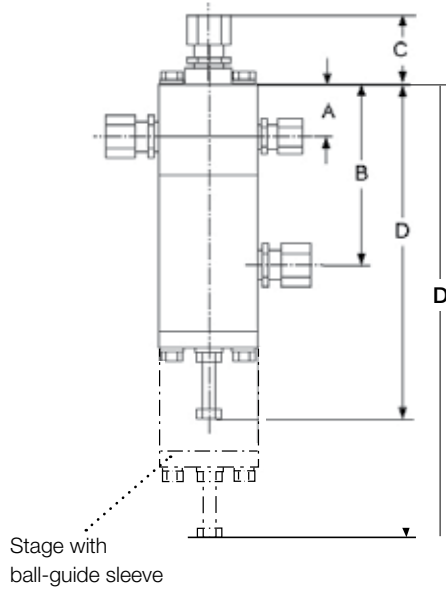


Actuator HON 670 / HON 671

Dimensions and setting ranges

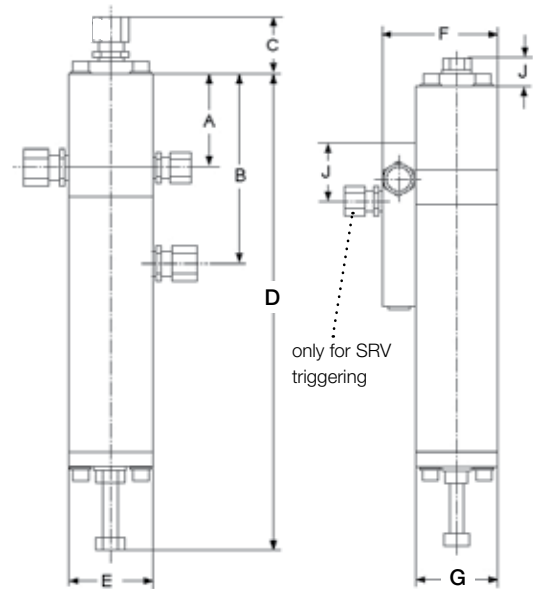
Actuator K16/K17

Measurement connection
only for SRV solution



Actuator K18

Measuring impulse connection
only for SRV solution



DIMENSIONS IN MM										
Version		A	B	C	D(max)	E	F	G	H	J
SSV version	K16/K 17	26	100		195	60	75	50	20	
	K16KF/K 17KF*	26	100		260	60	75	50	20	
	K18	60	131		340	60	85	60	18	
SRV version	K 16	26	100	40	195	60	75	50		38
	K 18	60	131	37	340	60	85	60		38

* Stage with ball-guide sleeve

SETTING RANGES OF THE ACTUATORS									
Actuator	Setpoint spring			SSV overpressure		SSV underpressure		for SSV	
	No.	Colour	Wire ø in mm	Setting range W_{a0} (bar)	Least difference between response pressure and normal operating pressure Δp (bar)	Setting range W_{au} (bar)	Least difference between response pressure and normal operating pressure Δp (bar)	Overpressure least difference between response pressure & normal operating pressure Δp (bar)	Accuracy group** AG
K16	0	blue	3.2	0.800 ... 1.500	0.100			-	2.5
	1	black	4.5	1.000 ... 5.000	0.200			0.5	2.5/1
	2	grey	5.0	2.000 ... 10.00	0.400			0.6	1
	3	brown	6.3	5.000 ... 20.00	0.800			1.0	1
	4	red	7.0	10.00 ... 40.00	1.200			1.5	1
K17	2	grey	5.0			2.000 ... 10.00	0.400		5
	3	brown	6.3			5.000 ... 20.00	0.800		5
	4	red	7.0			10.00 ... 40.00	1,200		5
K18	1		9.0	20.00 ... 90.00	1,500			2,0	1

***) The higher accuracy group (AG) applies for the first half, the lower accuracy group applies for the second half of the setting range.

HON 670 - A - 3 - So

Example:

TYPE OF PILOT			
Type of pilot	HON 670 HON 671		
VERSION			
SSV SRV	A B		
SETTING RANGES			
Actuator	Setting range in bar		
	W_{ho}	W_{hu}	
K16	0.8 ... 1.5	-	0
K16	1.0 ... 5.0	2.0 ... 10.0	1
K16/K17	2.0 ... 10.0	5.0 ... 20.0	2
K16/K17	5.0 ... 20.0	10.0 ... 40.0	3
K16/K17	10.0 ... 40.0	-	4
K18*	20.0 ... 90.0	-	5
SPECIAL VERSION			
Special design (must be explained in more detail)			So

*) With metal-bellows measuring unit

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For More Information

To learn more about Honeywell's
Advanced Gas Solutions, visit
www.honeywellprocess.com or contact
your Honeywell account manager

GERMANY**Honeywell Process Solutions**

Honeywell Gas Technologies GmbH
Osterholzstrasse 45
34123 Kassel, Deutschland
Tel: +49 (0)561 5007-0
Fax: +49 (0)561 5007-107

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