SIEMENS

7643

Open / Closed	Open / Closed with constant pressure governor	Open / Closed with differential pressure governor	Open / Closed with ratio pressure governor
			
SKP15...	SKP25... / SKL25…	SKP55...	SKP75...

Actuators for air and gas valves

SKPx5... SKL25…

- **Open / closed safety shutoff function conforming to EN161 in combination with valves supplied by Siemens**
- **Damped opening (rapid closing)**
- **Very low power consumption**
- **Suitable for use with gases of gas families I...III**
- **Optionally with / without end switch (factory-set)**
- **Plug-in connection facility**
- **Electrical indication of operation**
- **Valve stroke indication**
- **Supplementary Data Sheets on valves (refer to «Use»)**
- **Models for USA on request**

The SKPx5... / SKL25… and this Data Sheet are intended for use by OEMs which integrate the actuators in their products.

Use

Modular concept

Actuators are designed for use with the following types of valves:

Type of valve	Medium	Data Sheet
VGG... VGF... VGH...	Natural gas Gases of gas families I...III	N7636
VGD2... VGD4...	Natural gas Gases of gas families I...III	N7631
VRF... VRH...	Biogas (with SKP15..., other actuators on request)	N7633
VLF...	Hot air	N7637

Actuators SKPx5... in general

The combination of actuator and valve provides the following functions:
- Safety shutoff valve (SKP15...)
- Safety shutoff valve with gas pressure governor (SKP25..., SKP55..., SKP75...)

The electrohydraulic actuators together with the valves are designed for use with gases of gas families I...III and air. They are used primarily on gas-fired combustion plant. The actuators open slowly and close rapidly. The actuator can be supplied with end switch (for indicating the fully closed position). For information about valve sizing, refer to the «Valve sizing chart» in the Data Sheet of the relevant valve.

If the actuators are used with gases other than those of gas families I...III, **Siemens AG** assumes no responsibility for the actuator's durability and life expectancy.

All types of actuators can be combined with any of these valves.

SKP15…

The electrohydraulic operated gas fittings SKP15... together with VG... valves works exclusively as a safety shutoff valve (Open / Closed). They are used primarily on gas-fired combustion plant. The actuators open slowly and close rapidly.

A valve stroke indication at actuator can only be delivered with end switch.

SKP25...

The SKP25... operates with a gas pressure governor and controls the gas pressure according to the setpoint preselected with the setpoint spring or air pressure signal.

Its field of use is primarily forced draft gas burners
- with mechanical air / fuel ratio control (SKP25.0...)
- with electronic air / fuel ratio control (SKP25.0...)
- with 2-stage setpoint changeover (SKP25.2…)
- with proportionate governor (SKP25.3…)
- with high pressure governor (SKP25.4…)
- with zero pressure governor (SKP25.6...)
- with constant pressure control, but with electric pressure setpoint adjustment (SKP25.0 with AGA30.7 and SAS)

Use (cont´d)

SKP25.0 with AGA30.7 and SAS

The SKP25.0 with AGA30.7 and SAS solution enables motorized pressure setpoint adjustment

- for motorized setting or correction of the setpoint
- for atmospheric and comparable burner operating conditions, typical output modulation multistage or shifting < 1 : 5
- not for gas-air ratio combined systems (e.g. class C in accordance with EN 12067-2)
- SKP25.0 (with AGA30.7 and SAS) must not be used in applications that require mechanical operating conditions higher than class 3M1 (EN 60721-3-3). Vibrations are not permitted. Corrective measures must be implemented on the plant in individual cases.

SKL25...

The SKL25... actuators are of the same design as the SKP25…, but close more slowly (3…6 seconds).
The SKL25 actuators do **not** conform to the standards for gas applications and, for this reason, are only suitable for use with air.

SKP55...

The SKP55... operates with a differential pressure governor and controls a differential gas pressure according to a differential air pressure. The ratio of the differential pressures is 1-to-1 and constant across the entire air range.

Its field of use is predominantly

- combustion plant with combined heat recovery systems
- plant where pressure conditions in the burner and combustion chamber do not change in proportion to load changes
- burners with adjustable air / fuel mixing devices in the burner head
- plant with negative pressure levels on the gas or air side

SKP75...

The SKP75... operates as a ratio pressure governor and provides control of the gas pressure depending on the pressure of the combustion air, ensuring that the adjustable gas / air ratio remains constant across the entire load range.
Its field of use is primarily modulating forced draft gas burners.

Warning notes

For additional safety notes, refer inside of Data Sheet!

To prevent injury to persons, damage to property or the environment, the following warning notes must be observed!

- Do not open, interfere with or modify the actuators!
- Any opening of the actuator, replacement of parts or modifications to the original product is the user's responsibility and carried out at his own risk
- All activities (mounting, installation and service work, etc.) must be performed by qualified staff
- When used in connection with gas, the actuators constitute part of the safety equipment
- In combination with gas valves, the SKL25... actuators must **not** be used as safety devices
- Not suitable gases or gas components causes loss of the safety shutoff function
- Check to ensure that the impulse pipes are correctly fitted and tight (SKP25..., SKP55..., SKP75...)
- Fall or shock can adversely affect the safety functions. Such actuators must not be put into operation, even if they do not exhibit any damage
- Each time work has been carried out (mounting, installation, service work, etc.), check to ensure that wiring is in an orderly state and make the safety checks as described in «Commissioning notes»
- If mains voltage is fed to the end switch (CPI), protective earth must be connected to the actuator via the same plug (AGA65)
- Use of connectors conforming to DIN EN 175301-803-A is mandatory
- The connectors used must feature cable strain relief
- Solar radiation or formation of ice are not permitted!

SKP25.2...

The magnet can reach high temperatures if activated for longer periods of time.

The SKPx5.xx1xx are supplied with the end switch factory-set.

Design of the gas train

If the available gas pressure exceeds the maximum permissible operating pressure of the valve (VG... / VR...) / actuator (refer to the Data Sheet of the relevant valve), it must be lowered by an upstream pressure controller. The pressure switch for lack of gas must always be fitted upstream of the valve when used in combination with the actuator.

SKP25..., SKL25…, SKP55..., SKP75...

The impulse pipes must be installed such that the differential pressure can be acquired with no disturbance (unfavorable flow conditions). Pressure test points must not protrude and be flush with the inside diameter of the pipe or duct wall. The impulse lines to the governor should be as short as possible, enabling the governor to respond quickly should sudden load changes occur. The inside diameter of the impulse pipes must be a minimum of 6 mm.
In connection with the SKP25..., the 1/4“ nozzles on the outlet side of the VG... valves can be used as pressure test points (prerequisite: gas control pressure setpoint >1 kPa).

SKP75...

- Installation of impulse pipes:
  In the case of unsafe combustion chamber pressure pipes (e.g. resulting from potential leaks). The setting must also be checked during operation without having the combustion chamber pipe connected, especially with respect to maximum burner capacity. The impulse pipes must be fitted such that the differential pressure can be acquired with no disturbance. With gas / air ratios >3, the impulse pipes for the combustion air and the combustion chamber pressure must have an inside diameter of at least 8 mm. The impulse pipe for the combustion chamber pressure must be fitted such that the gases will cool down in the vicinity of the impulse pipe and condensing gases cannot enter the governor but will return to the combustion chamber.

Warning!
If there is a risk of the impulse pipes being exposed to heat, all impulse pipes must be made from suitable metal material

Recommendations:
– The gas pressure should be acquired at a distance of 5 times the nominal pipe size downstream from the valve
– that the lateral pressure test points on the valve should not be used for picking up the pressure.

- Considering the combustion chamber pressure:
  If the resistance value of the combustion chamber / heat exchanger / stack system is constant, the combustion chamber pressure changes in proportion to the gas and combustion air pressure as the burner’s output changes. In that case, the combustion chamber pressure need not be fed to the SKP75... as a disturbance variable. However, if the combustion chamber pressure does not change to the same extent as the gas and air pressure – as this is the case in plants with flue gas fan or modulating flue gas damper – the combustion chamber pressure must be fed to the SKP75... as a disturbance variable, enabling the governor to counteract.
- If the SKPx5 are operated until the end of their lifecycle, the decreasing drive power can result in a lower gas quantity or gas pressure on the outlet of the gas fitting. If the use requires a minimum pressure behind the gas fitting, the minimum pressure must be monitored

Mounting notes

- Ensure that the relevant national safety regulations are complied with
- The quadratic arrangement of the fixing holes allows the actuator to be fitted in 4 different positions on the VG… valve, each step being 90° (depending on the type of VG... valve)
- The actuator can be mounted or replaced while the system is under pressure; sealing material is not required
- SKP25... / SKP55... / SKP75... / SKL25...:
  SKPx5 with pressure control function have a vent opening on the pressure governor. Measures must be taken in the application to prevent the vent opening from being blocked

Warning!
Condensation, formation of ice and ingress of water are not permitted. If this is not observed, there is a risk of loss of safety functions and a risk of electric shock.

- Follow the Mounting Instructions included with the actuators:

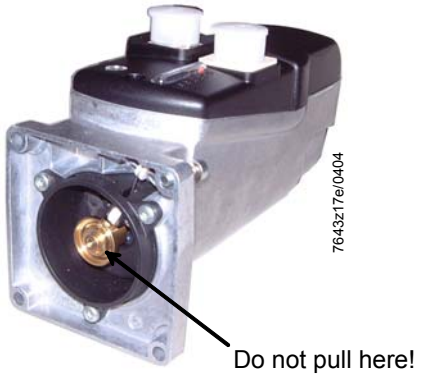
Type reference	Mounting instruction
SKL25...	M7643 (74 319 0419 0)
SKP15...	M7643 (74 319 0419 0)
SKP25...	M7643 (74 319 0419 0)
SKP25 with AGA30.7 and SAS	M7643 (A5W00000658)
SKP55...	M7643 (74 319 0419 0)
SKP75...	M7643 (74 319 0419 0)
AGA66-IP65-Kit for SKPx5... / VG...	M7643.2 (74 319 0421 0)

Sealing / tightness

- Check the tightness when all components are connected

Actuators in general

- Electrical commissioning may only be performed when the actuator is fitted to the valve; otherwise, the actuator can be damaged
- Power is supplied and connection of the end switch is made directly via a connecting cable (conforming to DIN EN 175301-803-A)
- The end switch is factory-set
- The pump's stem must not be pulled out using the over stroke element since that part could become loose



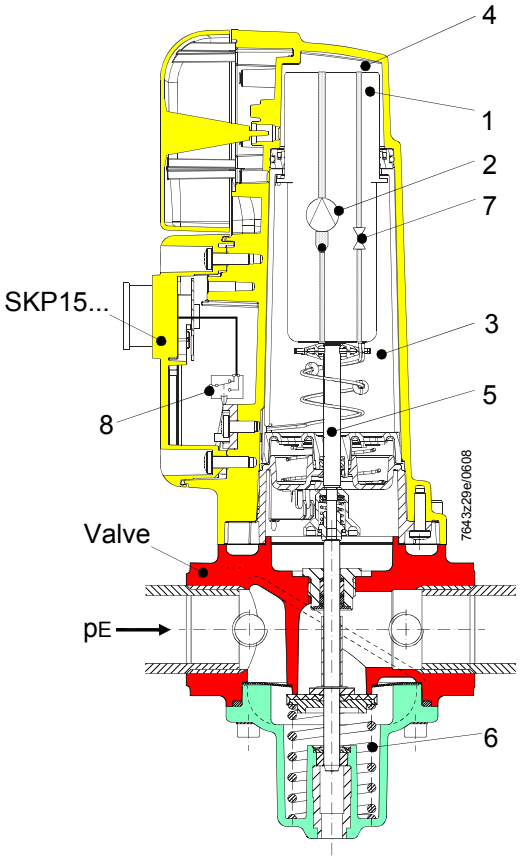
Installation and commissioning notes

Functioning principle of 1-stage actuator SKP15... with safety shutoff feature

When power is applied, the pump will be activated and the control valve closed. Oil is now pumped from the chamber below the piston to the stroke chamber above the piston. The oil pressure causes the piston to move downward, thereby opening the valve – against the pressure of the closing spring. The pump remains energized until the closing command is given. When power is removed, or in the event of a power failure, the pump will be deactivated and the control valve opened so that the closing spring pushes the piston back. The return flow system is sized such that the counter-stroke required for reaching the fully closed position is completed within about 0.6 seconds.

SKP15... complete with valve

(Schematic drawing)



Legend

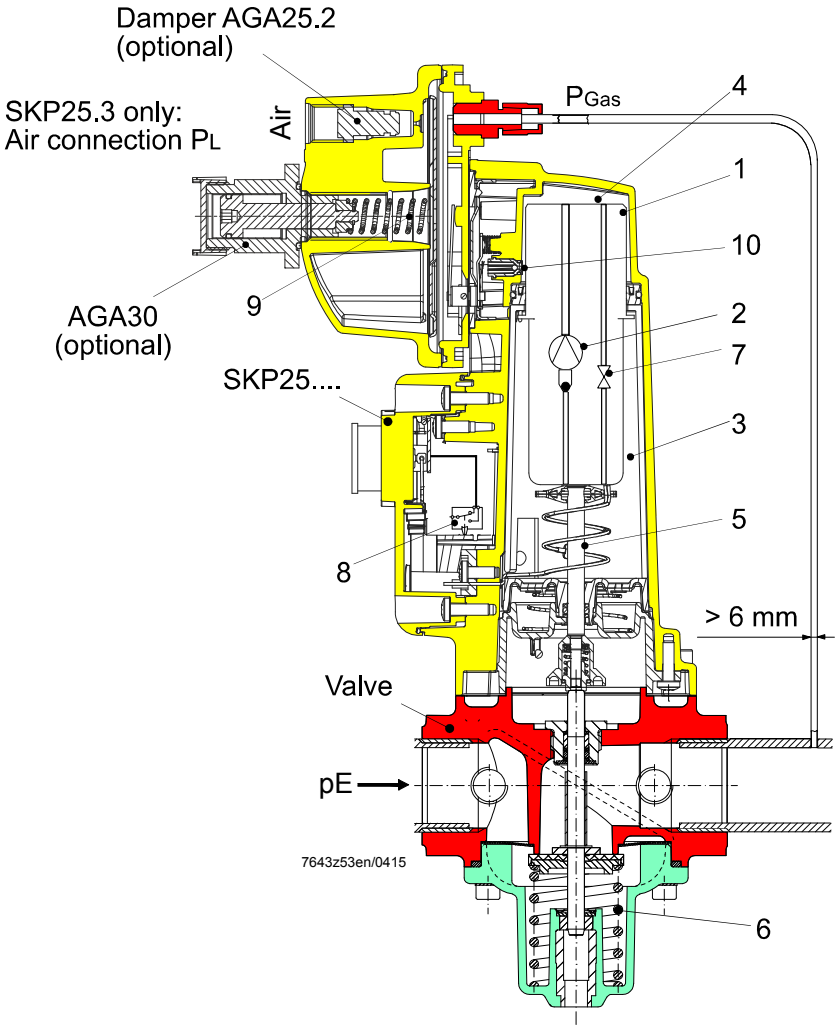
1	Piston
2	Oscillating pump
3	Oil reservoir
4	Pressure side
5	Stem
6	Valve's closing spring
7	Control valve
8	End switch (optional)

SKP25..., SKP55... and SKP75...

The functioning principle (safety shutoff feature) is identical to that of the SKP15…, but with the help of their pneumatic governor, the SKP25…, SKP55… and SKP75… also control a bypass valve in the hydraulic circuit and thus the valve‘s opening position.

SKP25... complete with valve

(Schematic drawing)

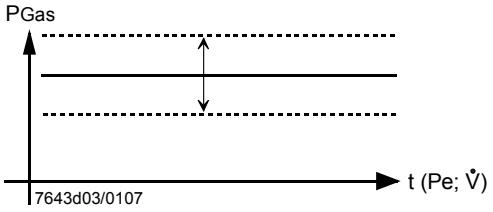


Legend

1	Piston
2	Oscillating pump
3	Oil reservoir
4	Pressure side
5	Stem
6	Valve’s closing spring
7	Control valve
8	End switch (optional)
9	Spring (setpoint adjustment)
10	Bypass valve

SKP25... / SKL25...

Setpoint adjustment «PGas» is made manually by turning the setting screw, which acts on the setpoint spring (for setpoint springs, refer to «Accessories»).

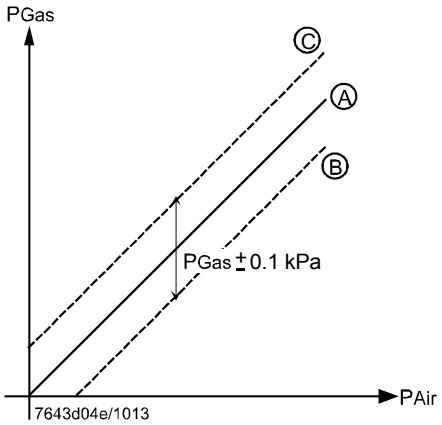


Legend

Pe	Inlet pressure
V̊	Volumetric flow
PGas	0...2,2 kPa (with built-in AGA29 standard spring), presetting 1,5 kPa

SKP25.3...

The SKP25.3... operates based on the proportionate pressure principle «PL» : «PG» = 1:1.
By feeding fan pressure «PL» to the air connection, gas pressure «PGas» follows in a fixed 1-to-1 ratio.



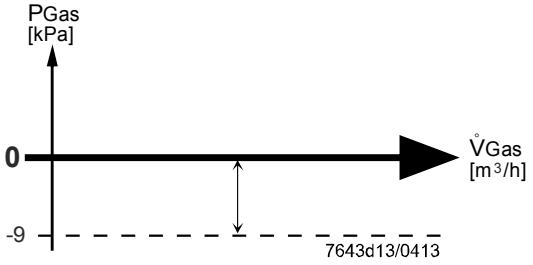
Ⓐ Gas / air ratio for stoichiometric combustion

Ⓑ / Ⓒ The governor permits one parallel displacement in both directions: «gas pressure lowering» Ⓑ and «gas pressure elevation» Ⓒ

Note!
Fit cap again before measuring the combustion value and after the setting is made.

SKP25.6...

SKP25.6... zero pressure governor works like SKP25.3..., but enabled a larger parallel displacement towards gas pressure lowering.



Legend

V̊	Volumetric flow
PGas	Offset spring 0...0,9 kPa
0	**Atmospheric pressure**

SKP25 with AGA30.7 and SAS

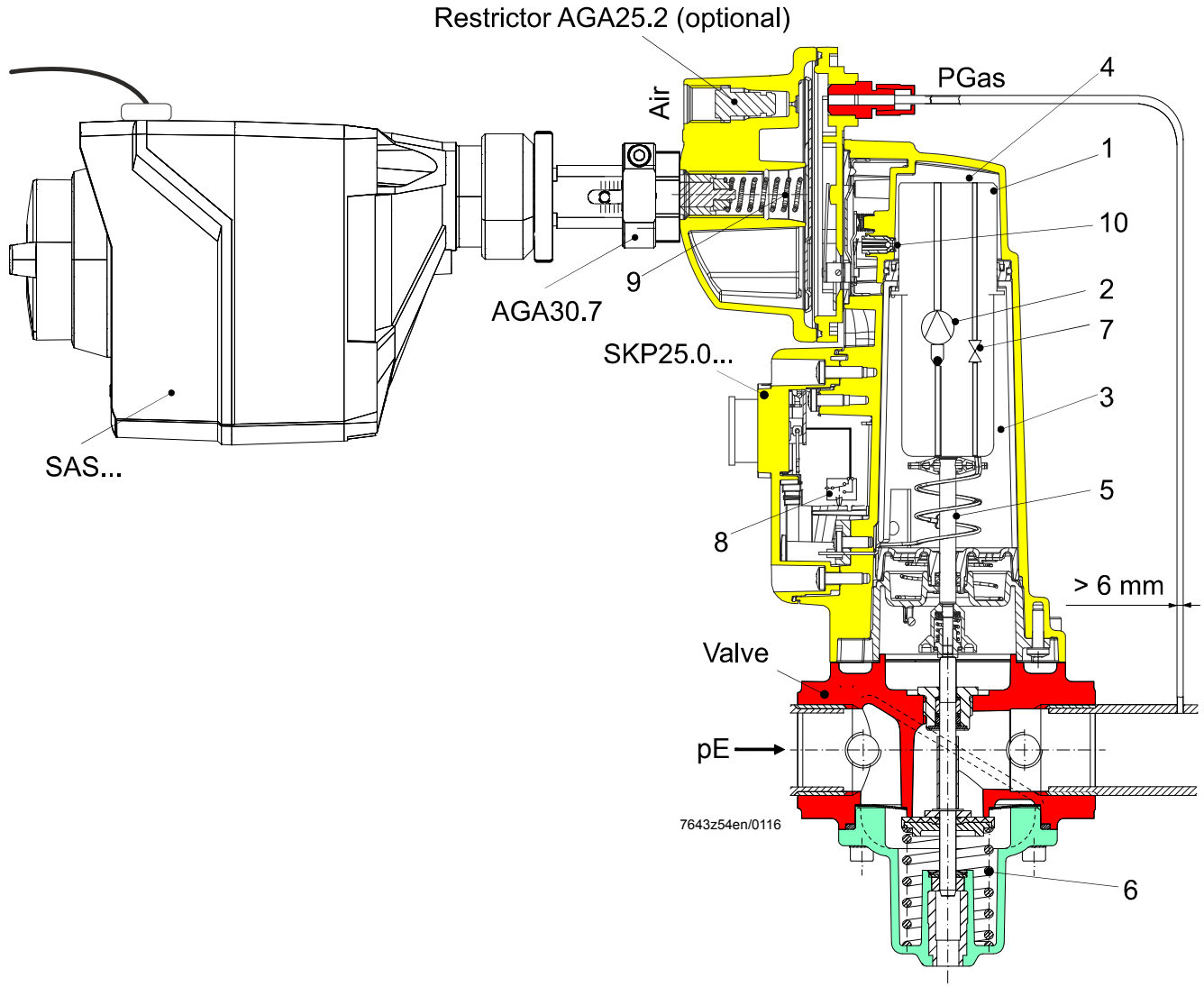
The SKP25.0 (with AGA30.7 and SAS) operates like the SKP25 constant pressure governor, but features electromotoric adjustment of the setpoint spring.

It is used primarily in

- atmospheric or comparable burners in modulating or multistage operation
- individual burners or groups of burners on industrial furnaces (gas pressure correction and disturbance variable compensation)
- not approved for gas-air ratio combined solutions (e.g. class C in accordance with EN 12067-2)

SKP25.0 complete with valve

(simplified sectional view)



Key

1	Piston	6	Closing spring of valve
2	Oscillating pump	7	Control valve
3	Oil reservoir	8	End switch (optional)
4	Pressure side	9	Position indication
5	Stem	10	Bypass valve

Setting example::

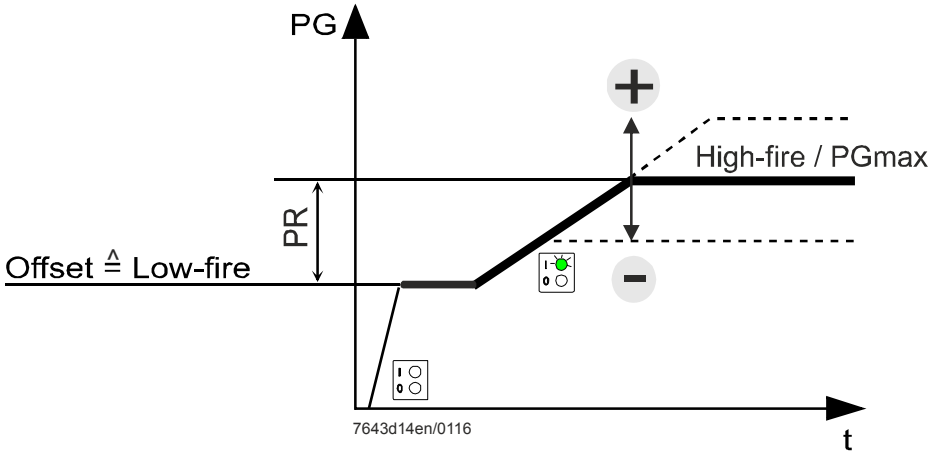
The low-fire pressure value (offset) is adjusted by screwing in the AGA30.7 on SKP25.0. The maximum high-fire limitation (maximum pressure (PGmax)) is set with the stem of the SAS extended via the lock nut on AGA30.7.

The desired pressure ranges are determined using the setpoint springs (AGA22, AGA23).

Note!
See Mounting Instructions A5W00000658 (M7643).

Functioning principle of the gas pressure governor with SAS motorized setpoint adjuster:

On the gas outlet side, the gas pressure governor maintains the pressure at the required setpoint. An electric signal on the SAS changes the specified setpoint (PR) proportionally. If the SAS motor stops, the outlet pressure remains constant.

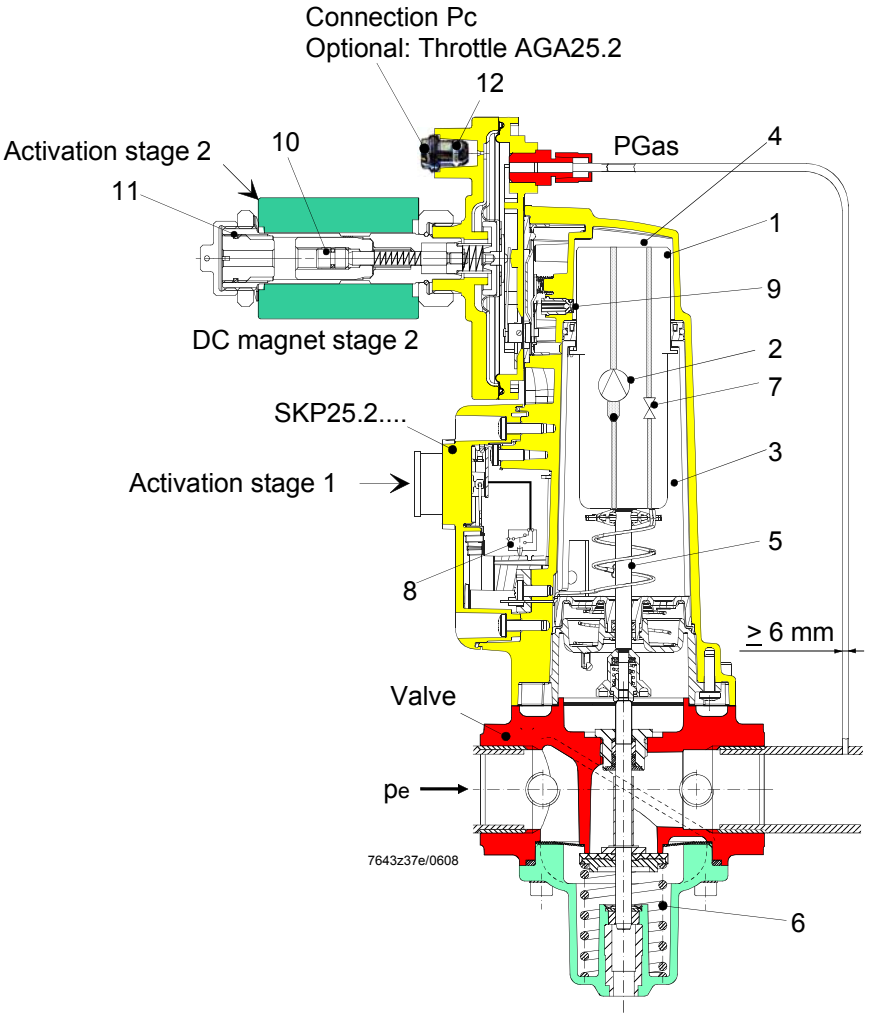


SAS... Different SAS motors can be used depending on the required function (e.g. electric control signal), see Data Sheet N4581.

SKP25.2... The SKP25.2... features 2-stage setpoint changeover for 2-stage gas burners.

Assembly of **SKP25.2...** complete with valve

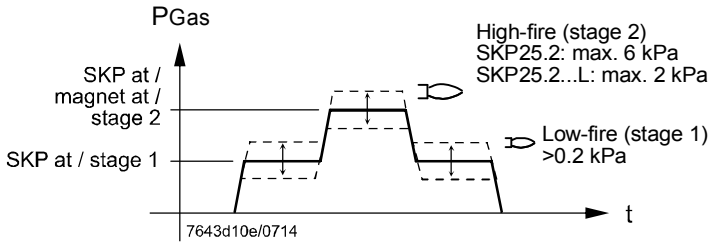
(Schematic drawing)



Legend

1 Piston
2 Oscillating pump
3 Oil reservoir
4 Pressure side
5 Stem
6 Valve's closing spring e
7 Control valve
8 End switch (optional)
9 Bypass valve
10 High-fire screw (stage 2)
11 Low-fire screw (stage 1)
12 - Connection for combustion chamber pressure PC (recommended in case of PGas stage 1 <0,3 kPa)
- If PC is not connected, a damping throttle AGA25.2 must be fitted if Pe >2 kPa (application test)

Setpoint adjustment «PGas» is made manually by turning the setting screws (10 and 11), which act on the setpoint spring.



Setting example:

1. Set the low-fire load (stage 1):
   Set the low-fire screw (11) to the required pressure value (↻ +PGas).
2. Set the high-fire (stage 2):
   Activate stage 2 and set the high-fire screw (10) to the required pressure value (↻ +PGas).
3. After setting the high-fire, the low-fire load need be readjusted. Every high-fire setting / readjustment changes the low-fire setting!

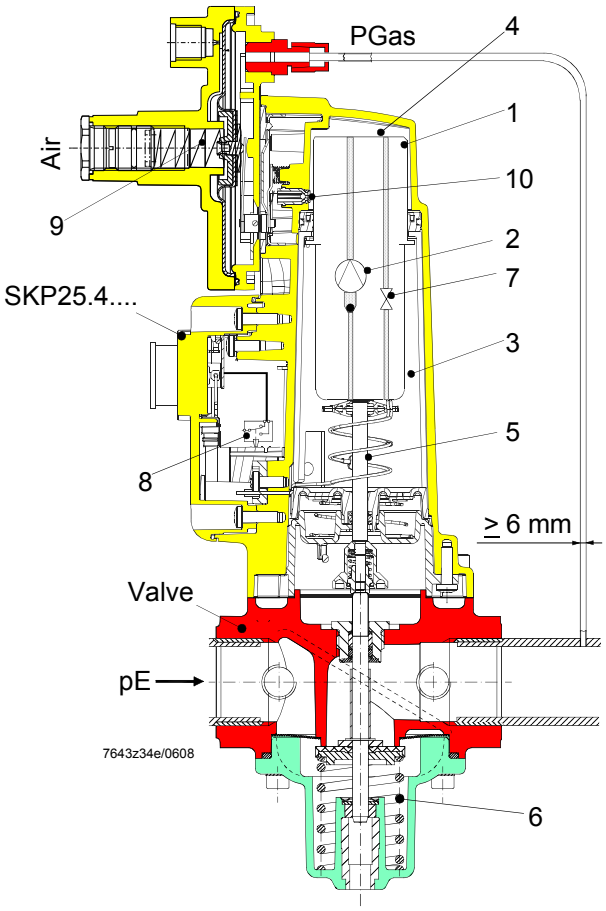
☞ Note!
Refer to Mounting Instructions M7643.4 (74 319 0552 0)
Default settings: Low-fire: 1,2 kPa / high-fire: 5,5 kPa

SKP25.4...

The SKP25.4... is suited for the control of higher pressures.
Standard spring 0...150 kPa.

SKP25.4... complete with valve

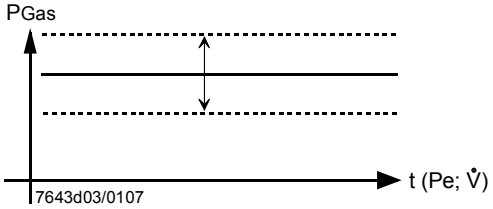
(Schematic drawing)



Legend

1	Piston
2	Oscillating pump
3	Oil reservoir
4	Pressure side
5	Stem
6	Valve's closing spring
7	Control valve
8	End switch (optional)
9	Spring (setpoint adjustment)
10	Bypass valve

Setpoint adjustment «PGas» is made manually by turning the setting screw, which acts on the setpoint spring (for setpoint springs, also refer to «Accessories»).



Legend

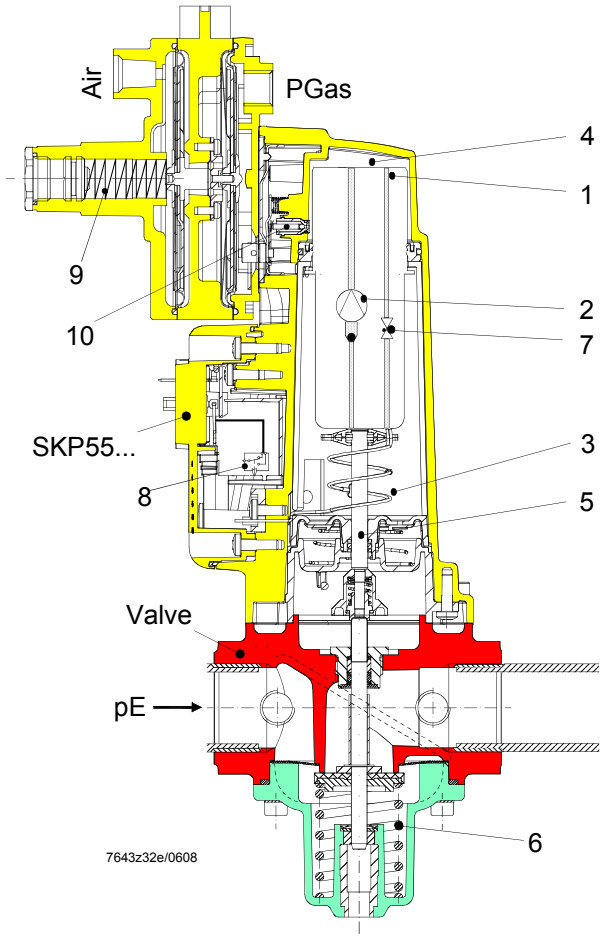
Pe	Inlet pressure
V̊	Volumetric flow
PGas	0...150 kPa (with built-in standard spring AGA23), presetting 120 kPa

SKP55...

The SKP55... operates with a differential pressure governor and a fixed differential pressure ratio of 1-to-1.

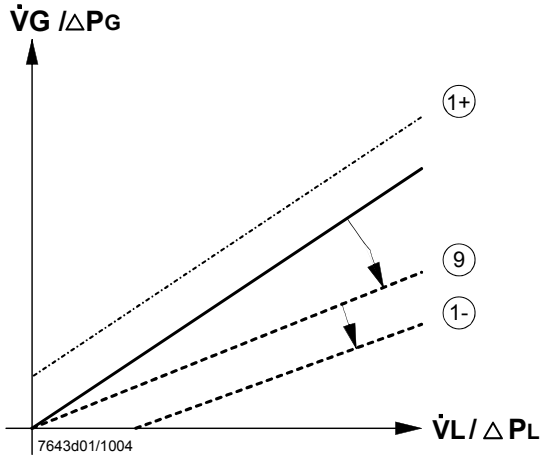
SKP55... complete with valve

(Schematic drawing)



Legend

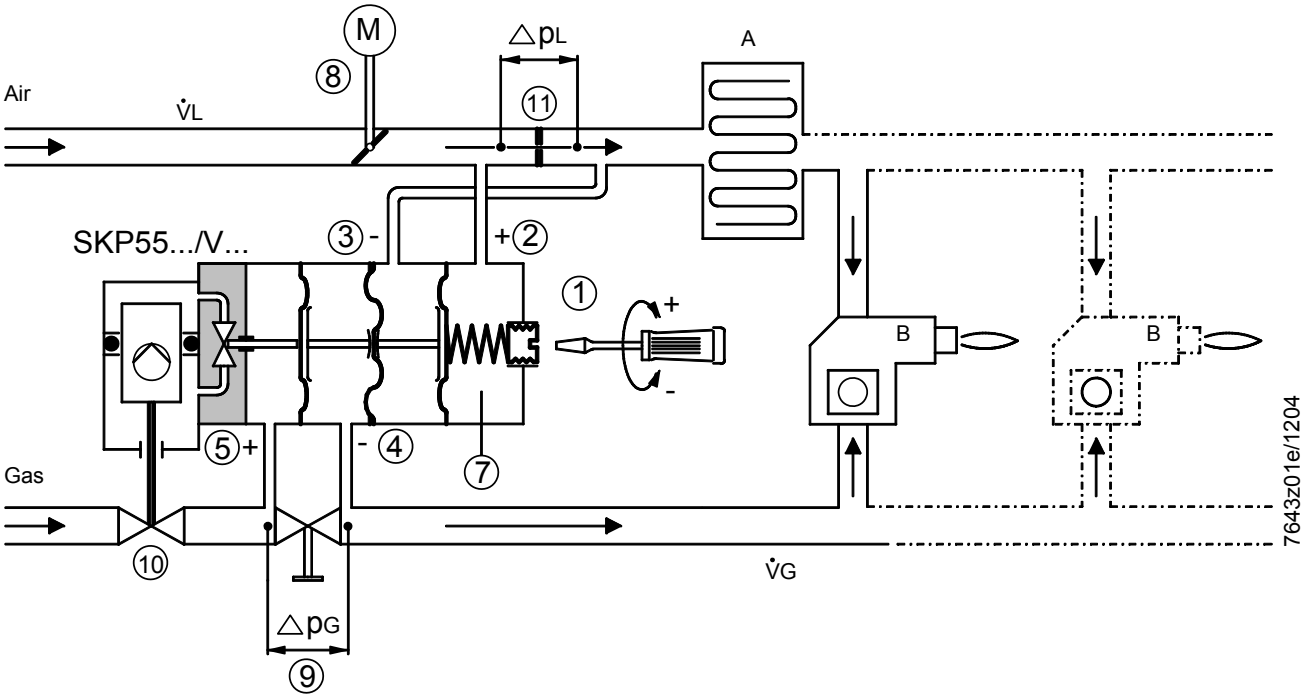
1	Piston
2	Oscillating pump
3	Oil reservoir
4	Pressure side
5	Stem
6	Valve's closing spring
7	Control valve
8	End switch (optional)
9	Spring (setpoint adjustment)
10	Bypass valve



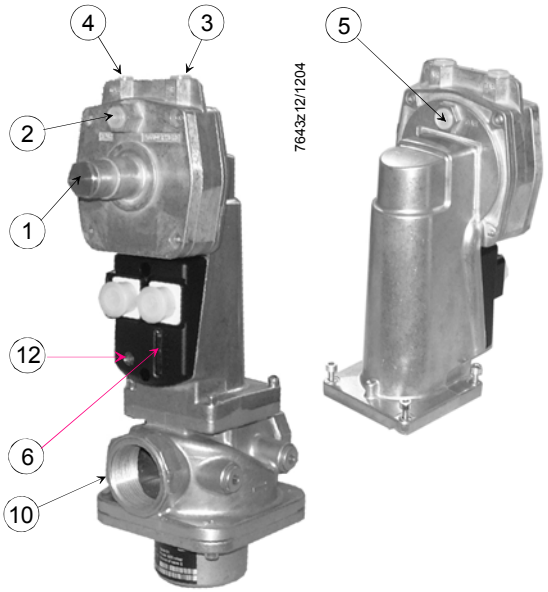
Example:
Adjusted gas / air ratio for burner operation with gas pressure elevation (1+). The percentage of gas pressure lowering is constant across the entire load range. Gas / air ratio adjustment with the adjustable orifice on the gas side (see position ⑨).

Legend

$\dot{V}_L$	Volumetric air flow
$\dot{V}_G$	Volumetric gas flow



Safety notes:
Arrangement air damper ⑧ / orifice ⑪ must always be located as shown, which means that orifice ⑪ must be installed downstream from the air damper ⑧.
Arrangement valve ⑩ (VG...) / orifice ⑨ must always be located as shown, which means that orifice ⑨ must be installed downstream from the valve ⑩.



① Adjustment of parallel displacement of working characteristic
* Check combustion values with cap fitted
② Test point for air pressure (+)
③ Test point for air pressure (-)
④ Test point for gas pressure (-)
⑤ Test point for gas pressure (+)
⑥ Valve stroke indication
⑦ Spring (parallel displacement)
⑧ Actuating device (air)
⑨ Orifice (gas)
⑩ Valve
⑪ Orifice (air)
⑫ Indication of operating state (LED)

Legend

ΔpG	Differential pressure across orifice on the gas side
ΔpL	Differential pressure across orifice on the air side
A	Air heating coil (recuperator)
B	Burner
M	Actuator

SKP55…

Adjustment of governor on modulating burners prior to startup:

- Setting screw ① on the SKP55... should be set to a gas / air ratio curve which passes through the neutral point. The SKP55... is supplied with that factory setting. Adjustment in the field can be made as follows:

Note:
Fit cap again before measuring the combustion value and after the setting is made.
Turn setting screw ① in counterclockwise direction until spring ⑦ is completely loose. Shut off the gas supply upstream of the SKP55... Switch on the SKP55... Turn setting screw ① in clockwise direction until valve opens

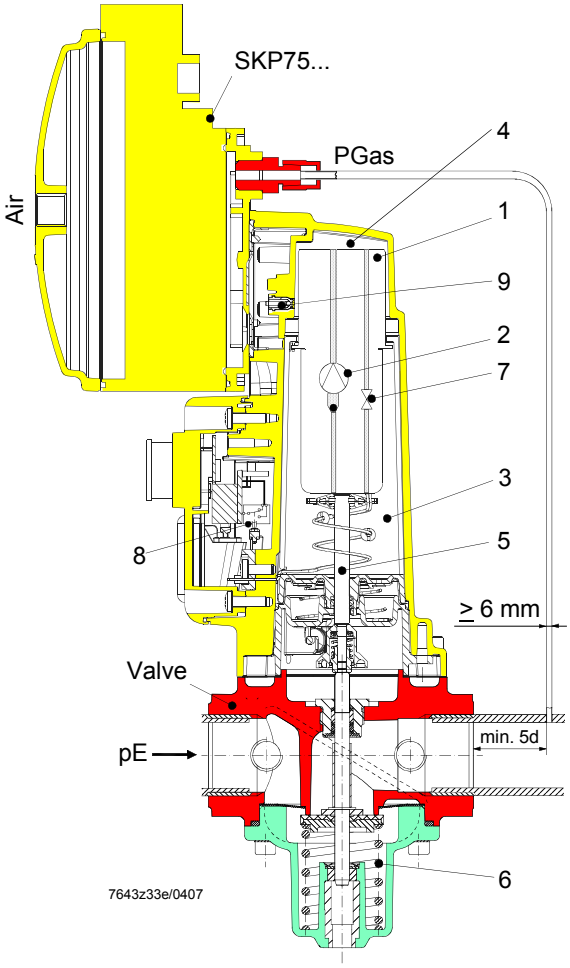
- Bring the adjustable orifice ⑨ to the precalculated value. That value with the same pressure differential on the air and gas side must lead to practically stoichiometric combustion
- Start the burner and run it to about 90 % of the high-fire
- Measure the combustion quality and make adjustments of the flow rate with the adjustable orifice ⑨ until optimum measured values are reached (fine adjustment)
- Return to low-fire operation. Check the combustion and readjust if necessary the position of the working characteristic with the setting screw ① on the SKP55... until optimum measured values are reached. Clockwise rotation → more gas. Counterclockwise rotation → less gas, that is, parallel displacement of the working characteristic towards gas pressure elevation or gas pressure lowering
- Limit the air damper ⑧ for low-fire operation
- If a significant parallel displacement of the working characteristic was required, the setting must be checked again at 90 % of the high-fire and then readjusted, if required
- Run the burner to the predefined high-fire with the help of the air damper ⑧ and limit the actuator position for that load
- Check the flue gas values at a few positions of the load range. Make readjustments in the high-fire range with the adjustable orifice ⑨, and in the low-fire range with setting screw ① on the governor of the SKP55...

SKP75...

The SKP75... operates with a ratio pressure governor and an adjustable gas / air ratio.

SKP75... complete with valve

(Schematic drawing)



Legend

1 Piston
2 Oscillating pump
3 Oil reservoir
4 Pressure side
5 Stem
6 Valves closing spring
7 Control valve
8 End switch (optional)
9 Bypass valve

Adjustment of governor on modulating burners

- Use setting screw ① / «PGAS» / «PAIR» to set the gas / air ratio to the required value (coarse setting) and the scale with setting screw ② to zero (refer to Fig. 7643z03)
- Start the burner and run it to about 90 % of the high-fire
- Measure the CO2 or O2 content of the flue gases and optimize the adjustment with setting screw ① / «PGAS» / «PAIR» (refer to Fig. 7643z03)
- Return to low-fire operation, check the CO2 or O2 content of the flue gases. If necessary, readjust position of the working characteristic with setting screw ②/ until optimum measured values are attained
- Limit the air damper position for low-fire operation

Meaning of setting screw markings:

\+ More gas

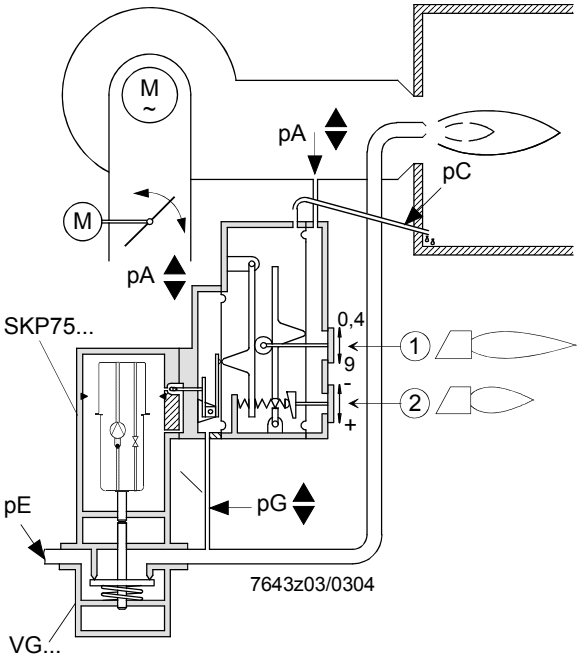
\- Less gas

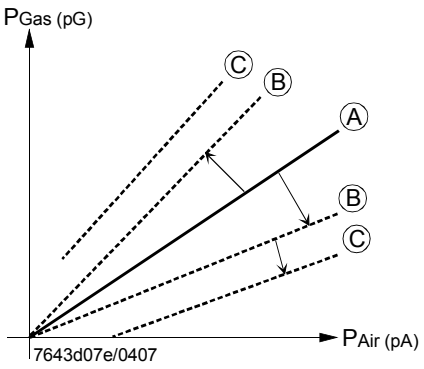
If a significant parallel displacement of the working characteristic was required to obtain optimum CO2 or O2 values in low-fire operation, the adjustment of the pressure ratio at high-fire or 90 % of the high-fire must be checked again and readjusted, if required.

- Run the burner to the required output and limit the high-fire air damper position
- Check the flue gas values at various positions of the load range

If readjustments are required:
- Use setting screw ① / «PGAS» / «PAIR» in the high-fire range
- Use setting screw ②/ to make parallel displacements of the characteristic in the flow-fire range

If the gas / air pressure ratio lies outside the setting range, an orifice in the gas or air flow can be used to adjust the pressure at the test points on the burner side. Prerequisite is that there is a sufficient gas or air pressure reserve on the inlet side.





① Setting and display of the gas / air ratio

② Setting and display of parallel displacement of the working characteristic

③ Test point for combustion chamber pressure

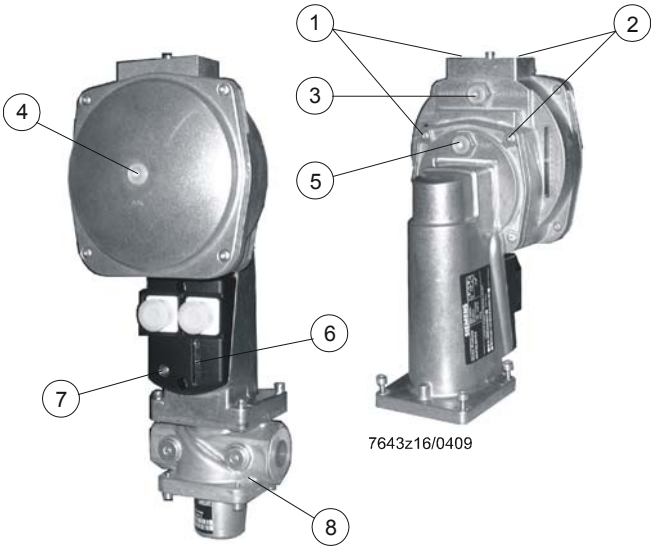
④ Test point for air pressure

⑤ Test point for gas pressure

⑥ Valve stroke indication

⑦ Operation indicator (LED)

⑧ Valve

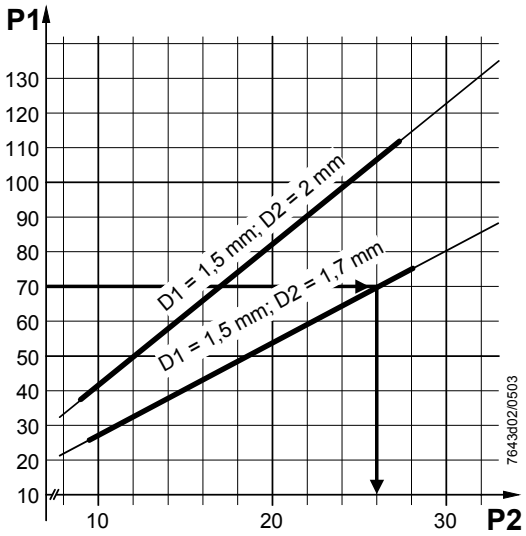


Function

If the air pressure (fan pressure) exceeds the maximum value of

- 3 kPa with a PGas / PAir ratio of ≥ 2
- 5 kPa with a PGas / PAir ratio of ≤ 2

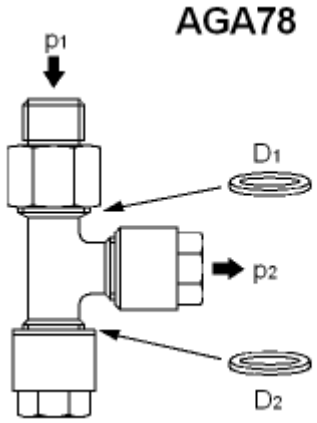
permitted for the governor, the pressure must be lowered with a reducing T-piece AGA78 (also refer to «Technical data»).

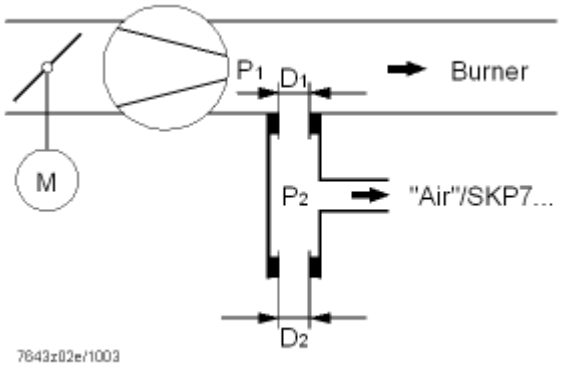


Example:
p1 = 7 kPa
D1 = 1.5 mm
D2 = 1.7 mm

Wanted: Air pressure signal «p2» for SKP75...
p2 = 2,6 kPa

Air is continuously vented to atmosphere via orifice «D2». The pressure of the following medium will be reduced via throttle «D1». The illustration below shows the correlations.





The reducing T-piece AGA78 is supplied ready for mounting, with D1 = 1.5 mm and D2 = 1.7 mm.
D2 with a diameter of 2 mm is included as a loose item.

Applied directives:

- Low-voltage directive 2006/95/EC
- Directive for gas-fired appliances 2009/142/EC
- Directive for pressure devices 97/23/EC
- Electromagnetic compatibility EMC (immunity) *) 2004/108/EC

*) Compliance with EMC emissions requirements must be checked after the actuator has been installed in the work equipment

Compliance with the regulations of the applied directives is verified by the adherence to the following standards / regulations:

- Pressure regulators and associated safety devices for gas appliances
  Part 1: Pressure regulators for inlet pressures up to and including 50 kPa — DIN EN 88-1
- Multifunctional controls for gas burning appliances — DIN EN 126
- Automatic shut-off valves for gas burners and gas appliances — DIN EN 161
- Safety and control devices for gas burners and gas burning appliances — DIN EN 13611
- Automatic electrical controls for household and similar use — DIN EN 60730

The relevant valid edition of the standards can be found in the declaration of conformity!

Note on **DIN EN 60335-2-102**
Household and similar electrical appliances - Safety - Part 2-102:
Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections. The electrical connections of the SKPx5 comply with the requirements of EN 60335-2-102.

EAC Conformity mark (Eurasian Conformity mark)

ISO 9001:2008
ISO 14001:2004
OHSAS 18001:2007

For use in the U.S. / Canada, the actuators carry type suffix «U» (see example) and are FM APPROVED, UL and CSA -listed (*Example:* SKP25.003U1, refer to separate Data Sheet [on request]).

Life cycle

The combination valve and actuator have a designed lifetime* of

Nominal size	Burner startup cycles
≤25 DN	200.000
25...80 DN	100.000
80...150 DN	50.000

which, under use of gases to EN 437 (or DVGW specification G260).

This lifetime is based on the endurance tests in the standard EN 161.
A summary of the conditions has been published by the European Control Manufacturers Association (Afecor) (www.afecor.org).

The designed lifetime is based on use of the valve and actuator according to the manufacturer's Data Sheet. When reaching the designed lifetime in terms of the number of burner startup cycles or the respective time of usage, valve and actuator must be checked by authorized personnel and, if necessary, replaced.

* The designed lifetime is not the warranty time specified in the Terms of Delivery.

Disposal notes

The actuator contains electrical and electronic components and hydraulic oil and must not be disposed of together with domestic waste.
Local and currently valid legislation must be observed.

Type summary (other types of actuators on request)

The complete gas shutoff assembly or pressure governor assembly consists of actuator and valve.

SKP15...	**Mains voltage**	**AC 120 V**	**AC 230 V**
	1-stage opening and closing, without end switch, without valve stroke indication	**SKP15.000E1**	**SKP15.000E2**
	1-stage opening and closing, with end switch	**SKP15.001E1**	**SKP15.001E2**

SKP25...	**Mains voltage**	**AC 120 V**	**AC 230 V**
	1-stage opening and closing, with end switch, with pressure governor up to 2,2 kPa, other pressure ranges via change setpoint spring possible → refer to accessories	**SKP25.001E1** [1])	**SKP25.001E2** [1])
	1-stage opening and closing, without end switch, with pressure governor up to 2,2 kPa, other pressure ranges via change setpoint spring possible → refer to accessories	**SKP25.003E1** [1])	**SKP25.003E2** [1])
	1-stage opening and closing, without end switch, with pressure governor up to 2,2 kPa, other pressure ranges via change setpoint spring possible, with integrated damping throttle AGA25.2 → refer to Accessories	**---**	**SKP25.003E2Y**
	2-stage opening and closing, with end switch, with pressure governor up to 6 kPa	**SKP25.201E1**	**SKP25.201E2**
	2-stage opening and closing, without end switch, with pressure governor up to 2 kPa	**SKP25.201E1L**	**SKP25.201E2L**
	2-stage opening and closing, without end switch, with pressure governor up to 6 kPa	**SKP25.203E1**	**SKP25.203E2**
	2-stage opening and closing, without end switch, with pressure governor up to 2 kPa	**---**	**SKP25.203E2L**
	1-stage opening and closing, with end switch, with stroke indication, proportionate governor version	**---**	**SKP25.301E2** *)
	1-stage opening and closing, without end switch, proportionate governor version	**---**	**SKP25.303E2**
	1-stage opening and closing, with end switch, with pressure governor up to 150 kPa, high-pressure version, other pressure ranges via change setpoint spring possible → refer to accessories	**SKP25.401E1** [2])	**SKP25.401E2** [3])*)
	1-stage opening and closing, without end switch, with pressure governor up to 150 kPa, high-pressure version, other pressure ranges via change setpoint spring possible → refer to accessories	**SKP25.403E1** [2])	**SKP25.403E2** [3])
	1-stage opening and closing, with end switch, for zero pressure governor version	**---**	**SKP25.601E2** *)
	1-stage opening and closing, without end switch, for zero pressure governor version	**---**	**SKP25.603E2** *)

[1]) Factory setting 1,5 kPa

[2]) Factory setting 120 kPa

*) On request

Type summary (other types of actuators on request)

SKL25...	**Mains voltage**	**AC 120 V**	**AC 230 V**
	1-stage opening and closing, with end switch, with pressure governor up to 2,2 kPa, other pressure ranges via change setpoint spring possible → refer to accessories	**SKL25.001E1** [2])	**SKL25.001E2** [2])
	1-stage opening and closing, without end switch, with pressure governor up to 2,2 kPa, other pressure ranges via change setpoint spring possible → refer to accessories	**SKL25.003E1**	**SKL25.003E2** [2])

SKP55...	**Mains voltage**	**AC 120 V**	**AC 230 V**
	1-stage opening and closing, with end switch, with differential pressure governor	**SKP55.001E1**	**SKP55.001E2**
	1-stage opening and closing, without end switch, with differential pressure governor	**SKP55.003E1**	**SKP55.003E2**

SKP75...	**Mains voltage**	**AC 120 V**	**AC 230 V**
	1-stage opening and closing, with end switch, with ratio pressure governor	**SKP75.001E1**	**SKP75.001E2**
	1-stage opening and closing, without end switch, with ratio pressure governor	**SKP75.003E1**	**SKP75.003E2**
	1-stage opening and closing, with end switch, with ratio pressure governor, with greater parallel displacement	---	**SKP75.501E2**
	1-stage opening and closing, without end switch, with ratio pressure governor, with greater parallel displacement	**SKP75.503E1**	**SKP75.503E2**

[2]) Factory setting 1,5 kPa

Ordering examples

When ordering, please give the complete type reference of the actuator (refer to «Type summary»). All components must be ordered as separate items.

Example of SKP15...

Actuator with safety shutoff function
- Open / closed
- With end switch
- For AC 230 V / 50 Hz **SKP15.001E2**

Connector valve actuator (plug) **AGA64**
Connector end switch (plug) **AGA65**

Combination of actuator / valve consisting of:
- Valve
- SKP15.001E2 actuator
- Accessories

Please order the required valves as separate items (refer to the relevant Data Sheets). Actuator and valve are supplied unassembled. Assembly is very straightforward and preferably made on the burner.

Example of SKP25...

Gas pressure governor with safety shutoff function:
- Without end switch
- For AC 230 V / 50 Hz **SKP25.003E2**

Connector valve actuator (plug) **AGA64**

Combination of gas pressure governor / valve consisting of:
- Valve
- SKP25.003E2 actuator

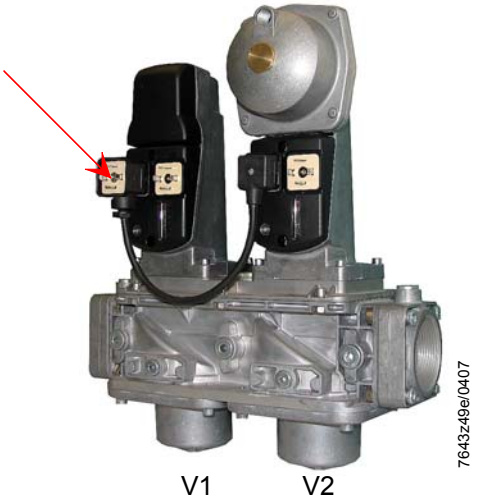
Accessories (not supplied as standard, to be ordered as separate items)

Adapter plug **AGA62.000A000**

For powering both actuators on the double valve VGD... via plug (AGA64)

Example: SKP15... / SKP25.2... with adapter plug AGA62.000A000

Central connection via AGA64
for the **separate** control
of valves 1 and valves 2
Facilitates valve prooving
via pressure switch between the
valves or
ignition via pilot burner



Heating element **AGA63.5A27**

- Refer to Data Sheet N7923
- For use at low ambient temperatures (< -10...-20 °C)

Contact box for valve actuator (power supply) **AGA64**

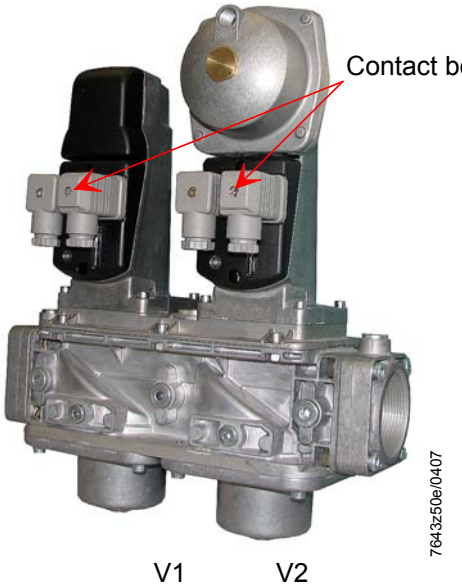
- Plug-in connector conforming to DIN EN 175301-803-A
- 3 pole + ⏚
- Dia. 6...9 mm / max. 1.5 mm²

Example: SKP15... / SKP25... with contact box AGA64

Contact box for end switch **AGA65**

- Plug-in connector conforming to DIN EN 175301-803-A
- 3 pole + ⏚
- Dia. 4.5...11 mm / max. 1.5 mm²

Example: SKP15... / SKP75... with contact box AGA65

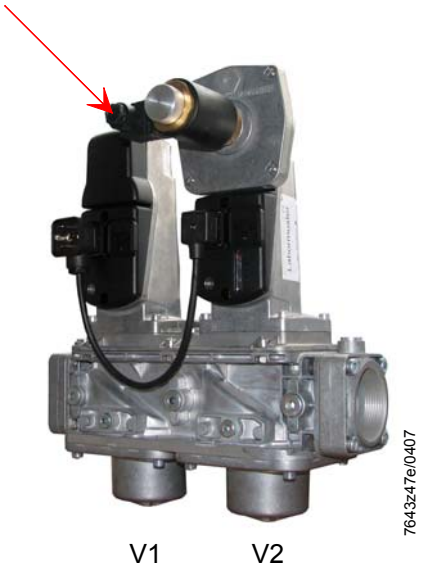


Contact box **AGA67**

- For powering the magnetic actuator SKP25.2…
- Plug-in connector conforming to DIN EN 175301-803-A
- With integrated bridge rectifier
- 2 pole +
- Dia. 6...8 mm / max. 1.5 mm²
- Including profile seal

Example: SKP15... / SKP25... with contact box AGA67

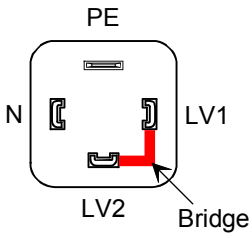
Contact box AGA67



Adapter plug for AGA62.000A000 **AGA68**
For common valve control

Example: SKP15... / SKP25... with adapter plug AGA68

Adapter plug AGA68



Accessories (not supplied as standard, to be ordered as separate items) (cont´d)

Motorized setpoint adjuster for SKP25.0 **SAS...**
- For 5.5 mm stroke
- See Data Sheet N4581 and Mounting Instructions A5W00000658 (M7643)

Setpoint spring (yellow) for SKP25... **AGA22**
- Optional for built-in standard spring AGA29
- 1,5...12 kPa at SKP25.0…
- 7…70 kPa at SKP25.4... (optional for AGA23)

Setpoint spring (red) for SKP25... **AGA23**
- Optional for built-in standard spring AGA29
- 10...25 kPa at SKP25.0…
- 15...150 kPa at standard spring SKP25.4...

Setpoint spring (blank) for SKP25.3... **AGA28**
- Equivalent built-in standard spring
- ±0,15 kPa

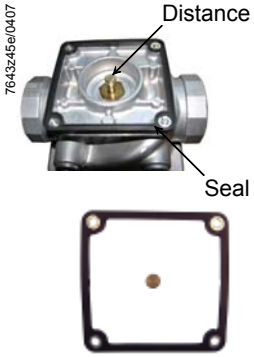
Setpoint spring (blank) for SKP25.0... **AGA29**
- Equivalent built-in standard spring
- 0,05...2,2 kPa

Damping throttle for SKP25... **AGA25.2**
Optional

Damping throttle for SKP55.../SKP75... **AGA75**
- Optional, pipe connection for 6 mm dia.
- Refer to Mounting Instructions 4 319 2078 0

Damping throttle for SKP55.../SKP75... **AGA75E**
- Optional
  (same as damping throttle AGA75 but with ¼“ threaded connection on both sides)
- Refer to Mounting Instructions 4 319 9601 0

Pressure reducing-T-piece for SKP75... **AGA78**
Optional

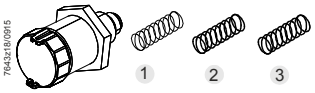


Gasket set **AGA66**

- For mounting between actuator and valve (VG… / VR…)
- Increases degree of protection from IP54 to IP65
- When using VGG… single valves, observe Data Sheet N7636
- Refer to Mounting Instructions M7643.2 (74 319 0421 0)

Setpoint fine adjustment to SKP25 **AGA30...**
Packaging version with one setpoint spring each
See Mounting Instructions M7643 (74 319 0926 0)

Type	Setpoint spring		
	1.5...12 kPa Color: Yellow 1	10...25 kPa Color: Red 2	10...36 kPa Color: Blank 3
AGA30.0	●		
AGA30.1		●	
AGA30.2			●



Adaptation to SKP25 **AGA30.7**
For motor pressure correction
Siemens part number: S55851-Z401-A100
See Mounting Instructions A5W00000658.

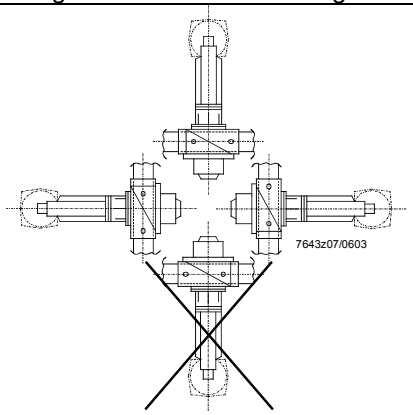
Note!
All typical technical information applies to nominal conditions.

General unit data

Mains voltage	
- Europe	
→ SKPx5.xxxE2	AC 230 V –15%/+10%
→ SKPx5.xxxE1	AC 120 V –15%/+10%
- Japan	
→ SKPx5.xxxF1	AC 100 V –15%/+10%
→ SKPx5.xxxF2	AC 200 V –7%/+10%
Mains frequency	
- Europe	50 / 60 Hz ±6%
- Japan	60 Hz ±6%
Power consumption	
European	
→ SKPx5.xxxE...	Max. 10 VA
→ SKP25.xxxE...	Max. 35 VA (in stage 2)
Japan	
→ SKPx5.xxxF...	Max. 13 VA
Closing time	
→ SKPx5…	<1 s (at shutdown)
→ SKL25…	3…6 s (depending on the type of valve)
Required time interval load change carried via air / fuel ration pressure between high-fire and low-fire	
→ SKP25.3... / SKP55... / SKP75...	Min. 4 s (depending on valve stroke)
Safety class	I
Degree of protection	
→ SKPx5...	**IP54** → only ensured when central screw at the connector is tightened **IP65** → only with gasket kit AGA66
→ SKP25... / SKP55...	→ only with screwed-on locking caps
Group 1	In accordance with DIN EN 88-1
Control class	A to DIN EN 88-1
Control accuracy	
→ SKP25.3... / SKP75...	<10 % at «Δpmin», <2 % at «Δpmax»
→ SKP55...	<10 % at «Δpmin», <1 % at «Δpmax»
Pressure impulse SKPx5	Static compressive strength as with valve VG
Control variable gas pressure	
→ SKP25.0... / SKL25.0...	0,05...25 kPa (3 setpoint springs)
→ SKP25.2...	0,2...6 kPa
→ SKP25.2xxxxL	0,2...2 kPa
→ SKP25.3...	0,05...5 kPa
→ SKP25.4...	7...150 kPa (2 setpoint springs)
→ SKP25.6...	<0 kPa (atmosphere)
→ SKP55...	Difference pressure PG+ / PG- 0,03...20 kPa
→ SKP75... / SKP75.5...	Difference pressure PG-PF or PG-PAir 0,08...12 kPa

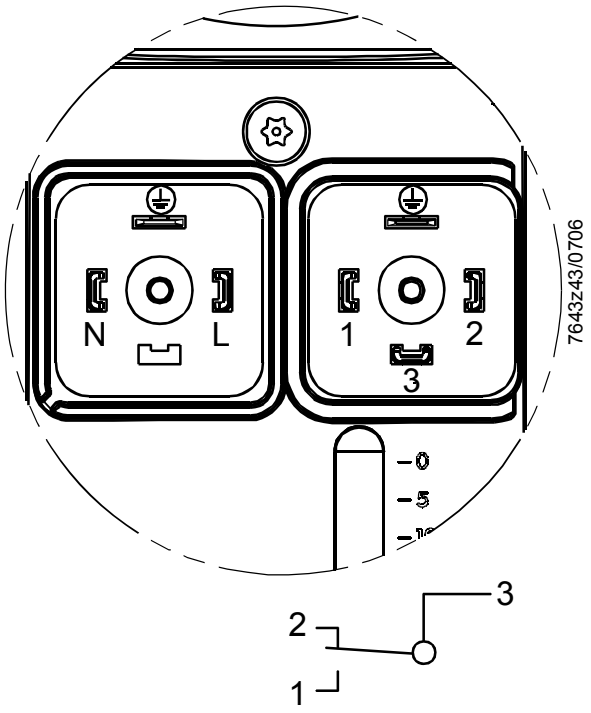
Absolute / difference pressure of combustion air (reference variable)	
→ SKP25.3...	0,05...5 kPa
→ SKP55...	Difference pressure P_{L+} / P_{L-} 0,03...20 kPa
→ SKP75... / SKP75.5...	P_{Air}-$P_{Combustion\ space}$ >0,05 kPa
Air pressure / difference pressure	
- at «P_{Gas} / P_{Air}» ≥ 2	Max. 3 kPa
- at «P_{Gas} / P_{Air}» ≤ 2	Max. 5 kPa
- Upper pressures refer to AGA78 «Accessories»	Max. 15 kPa
Difference pressure ratio (gas / air) adjustable	
→ SKP25.3... / SKP55...	1:1
→ SKP75... / SKP75.5...	0,4...9 (Factory supplied 1.3)
Permissible combustion space pressure	
→ SKP75...	30 mbar
Parallel translation P_{Gas}	
→ SKP25.3... / SKP55...	±0,1 kPa
→ SKP25.6...	0 kPa/-0,9 kPa
→ SKP75...	±0,1 kPa (Factory supplied 0)
→ SKP75.5...	+0,1 kPa/-0,45 kPa (Factory supplied 0)
Position switch (if built-in)	As closed position switch factory-made justified Position valve CLOSED or OPEN
- Switching load	4 (2 A, cosφ = 0.3)

Notice!
Safety extra-low voltage may not be connected.
If this is not observed, there will be a risk of electric shock!

On-time	100 %
Opening speed, typical (approx.. 2 mm/s)	Lower opening speeds due to low ambient temperatures can be compensated by fitting an AGA63.5A27 heating element
Permissible mounting positions	 Always with the diaphragms in the vertical position
Stroke	Max. 26 mm (valve limits max. stroke)

	Weight	
	→ SKP15...	Approx. 1.1 kg
	→ SKP25...	Approx. 1.6 kg
	→ SKP25.0...	Approx. 1.6 kg
	→ SKP25.2...	Approx. 2.1 kg
	→ SKL25…	Approx. 1.6 kg
	→ SKP55...	Approx. 1.9 kg
	→ SKP75...	Approx. 2.3 kg
	→ AGA64	Approx. 30 g
	→ AGA65	Approx. 36 g
	→ AGA62.000A000	Approx. 66 g
	Permissible media	Depending on used valve
	Media inlet pressure «PE»	Depending on used valve
	Permissible media temperature	Depending on used valve
	Flow rate	Depending on used valve
	Permissible test pressure «PG»	100 kPa
	Permissible under pressure «PG»	20 kPa
	Gas family	I...III
Environmental conditions	**Storage**	DIN EN 60721-3-1
	Climatic conditions	Class 1K3
	Mechanical conditions	Class 1M2
	Temperature range	-15...+60 °C
	Humidity	<95 % r.h.
	Transport	DIN EN 60721-3-2
	Climatic conditions	Class 2K2
	Mechanical conditions	Class 2M2
	Temperature range	-15...+60 °C
	Humidity	<95 % r.h.
	Operation	DIN EN 60721-3-3
	Climatic conditions	Class 3K3
	Mechanical conditions	Class 3M3
	Temperature range	-10...+60 °C (longer opening times below 0 °C) -20…+60 °C (with heating element AGA63.5A27)
	Humidity	<95 % r.F.
	→ SKP25.0 with AGA30.7 and SAS	Restricted operating conditions:
	Temperature range	-5…+55 °C
	Mechanical conditions	See *Use* No classification «-M-»

Connection of actuator
(front-view)



← If valve closed

Valve actuator
Connection via AGA64
DIN EN 175301-803-A

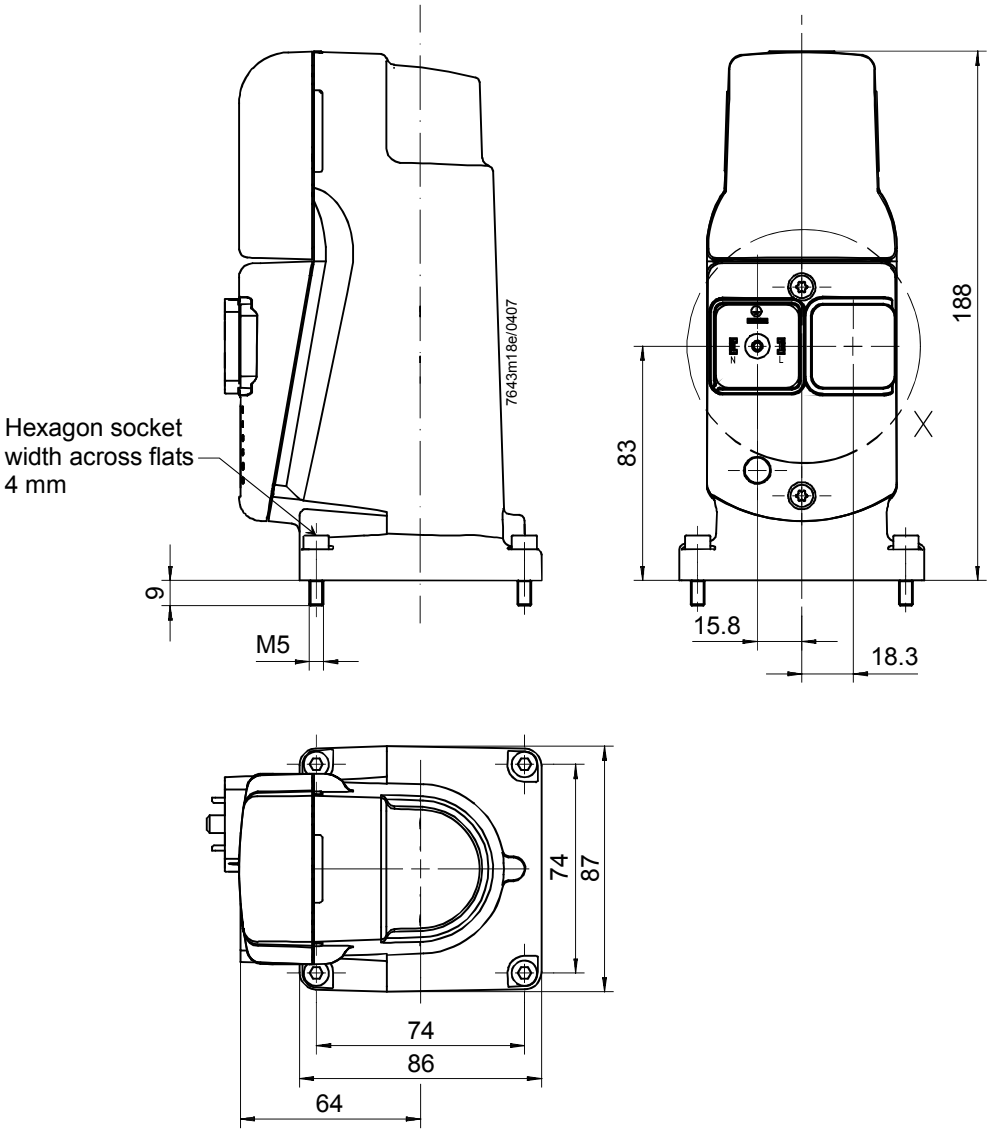
End switch
Connection via AGA65
DIN EN 175301-803-A

(Only with SKPxx.xx1xx)

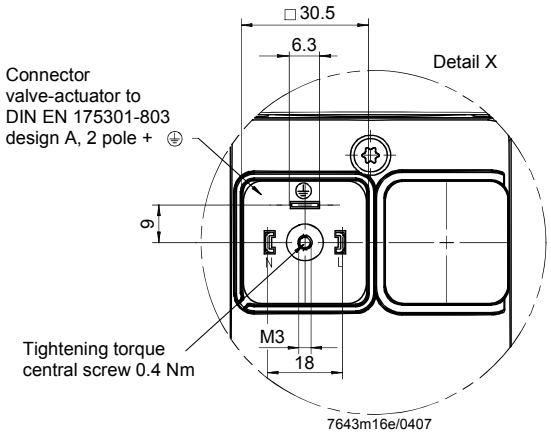
Dimensions in mm

Actuators SKP15...

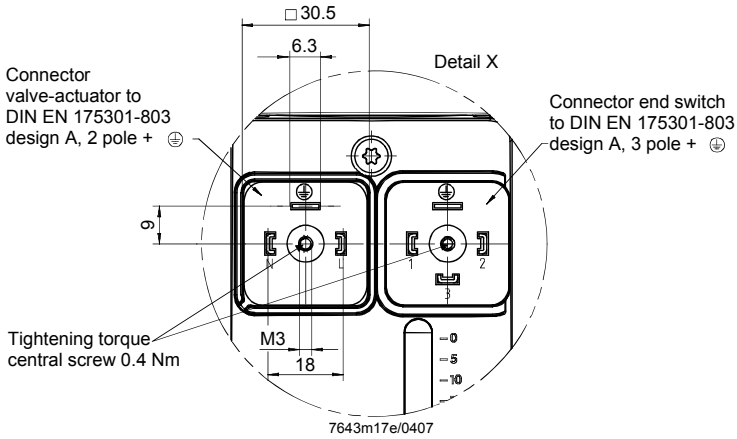
Example: SKP15.000…



SKP15.000… (no valve stroke indication)

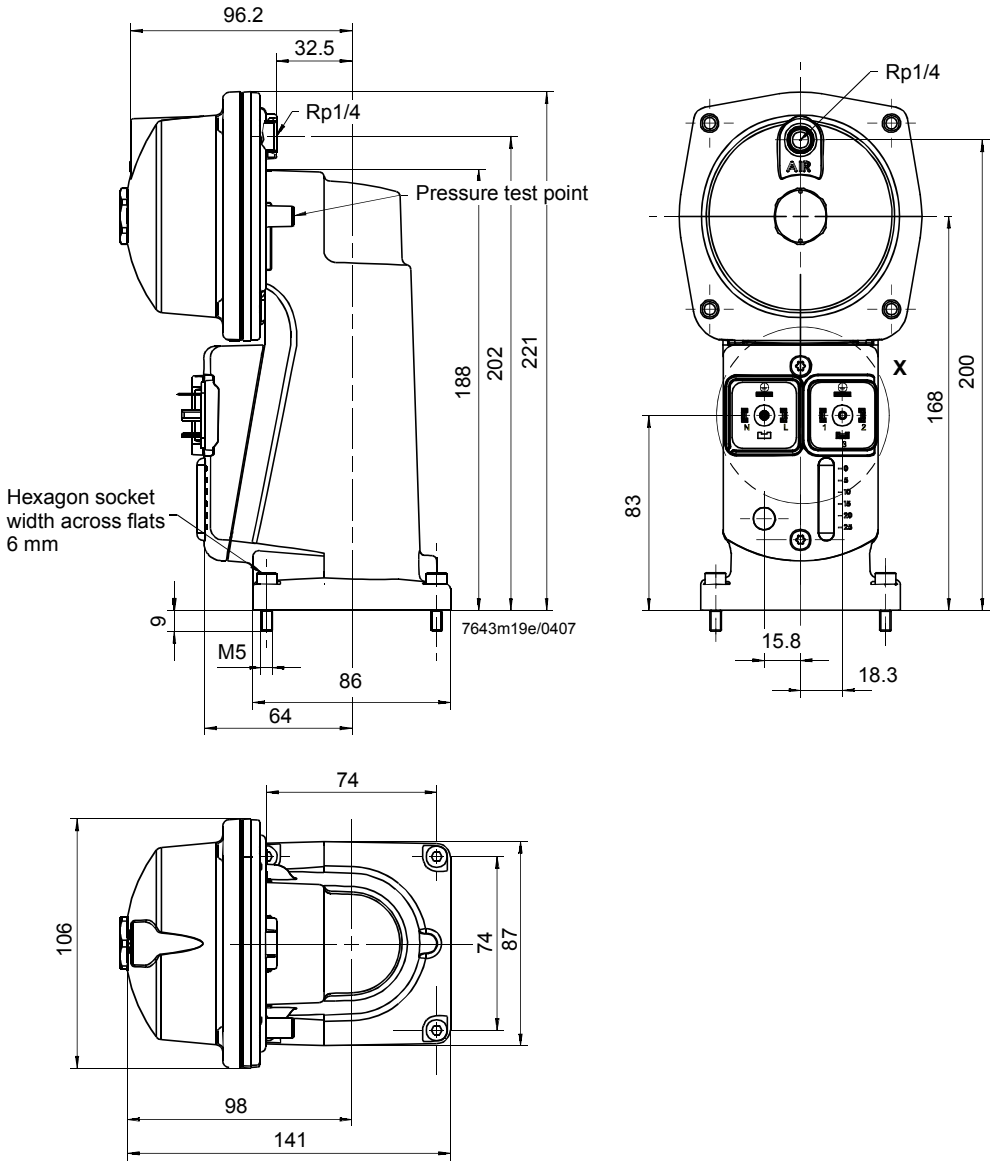


SKP15.001…

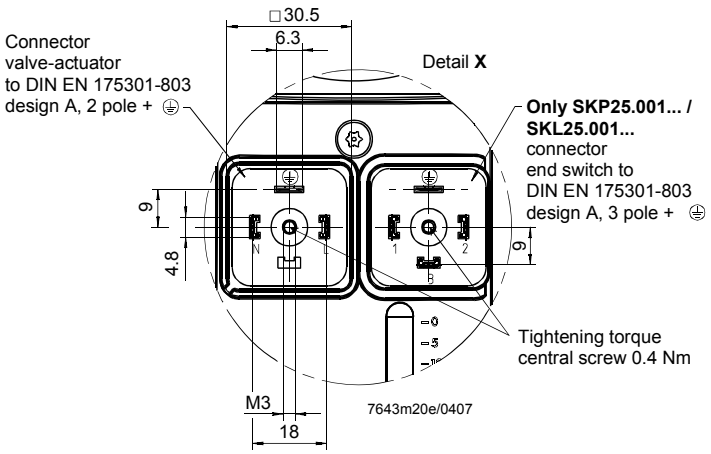


Dimensions in mm

Actuator SKP25.0... / SKP25.3... / SKP25.6... / SKL25...

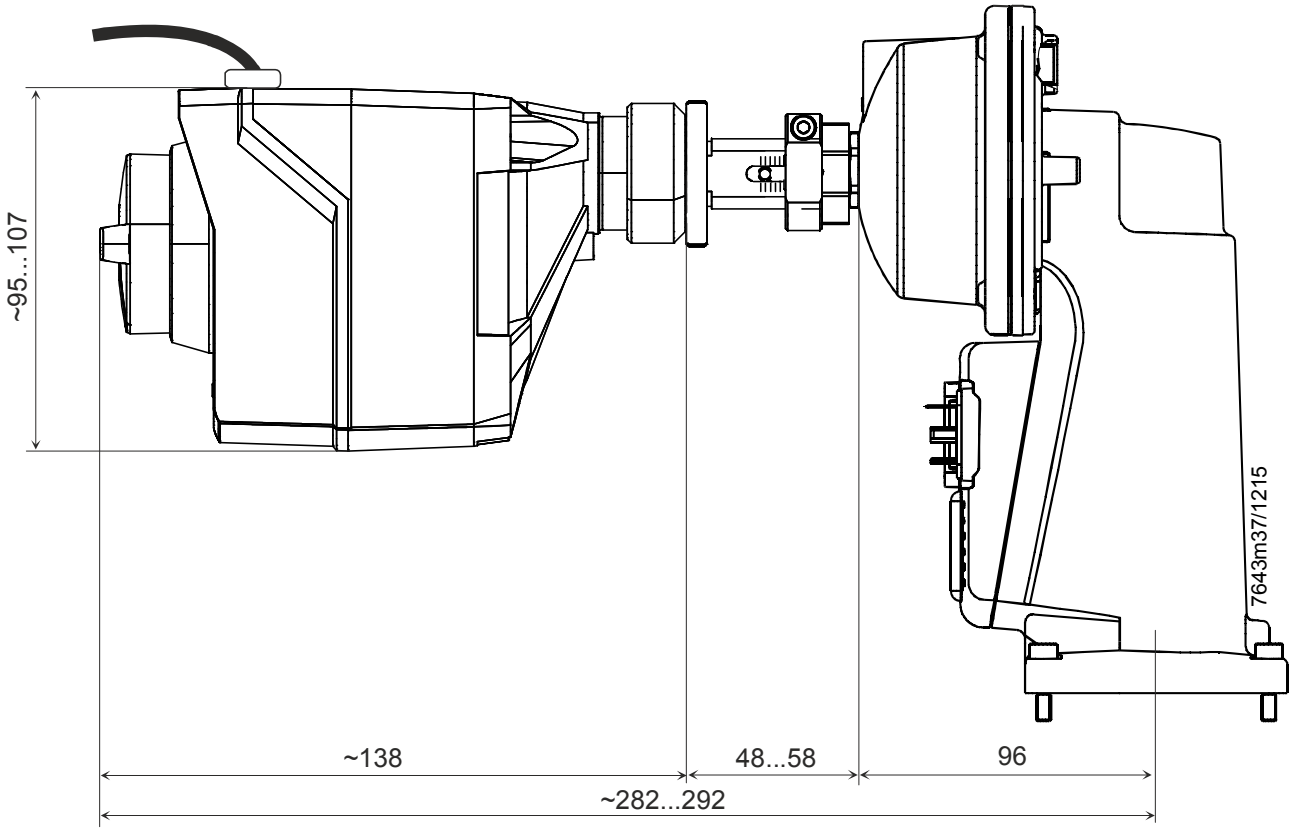


SKP25.001… / SKL25.001…



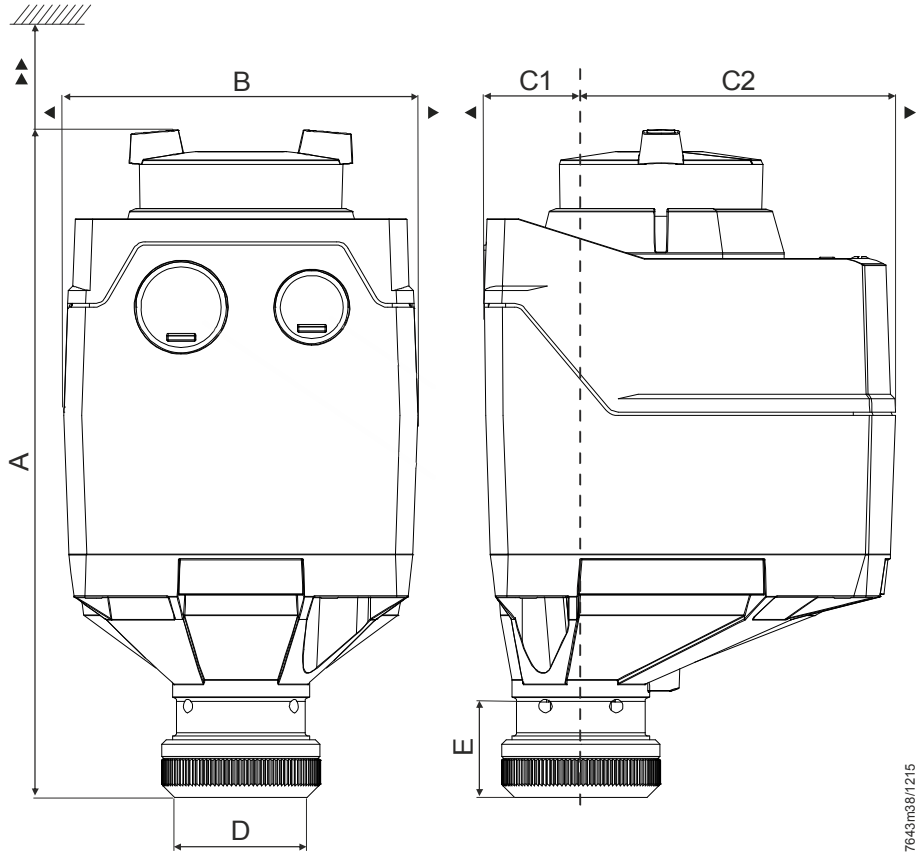
Dimensions in mm

Actuator SKP25.0 with
AGA30.7 and SAS)



Dimensions in mm

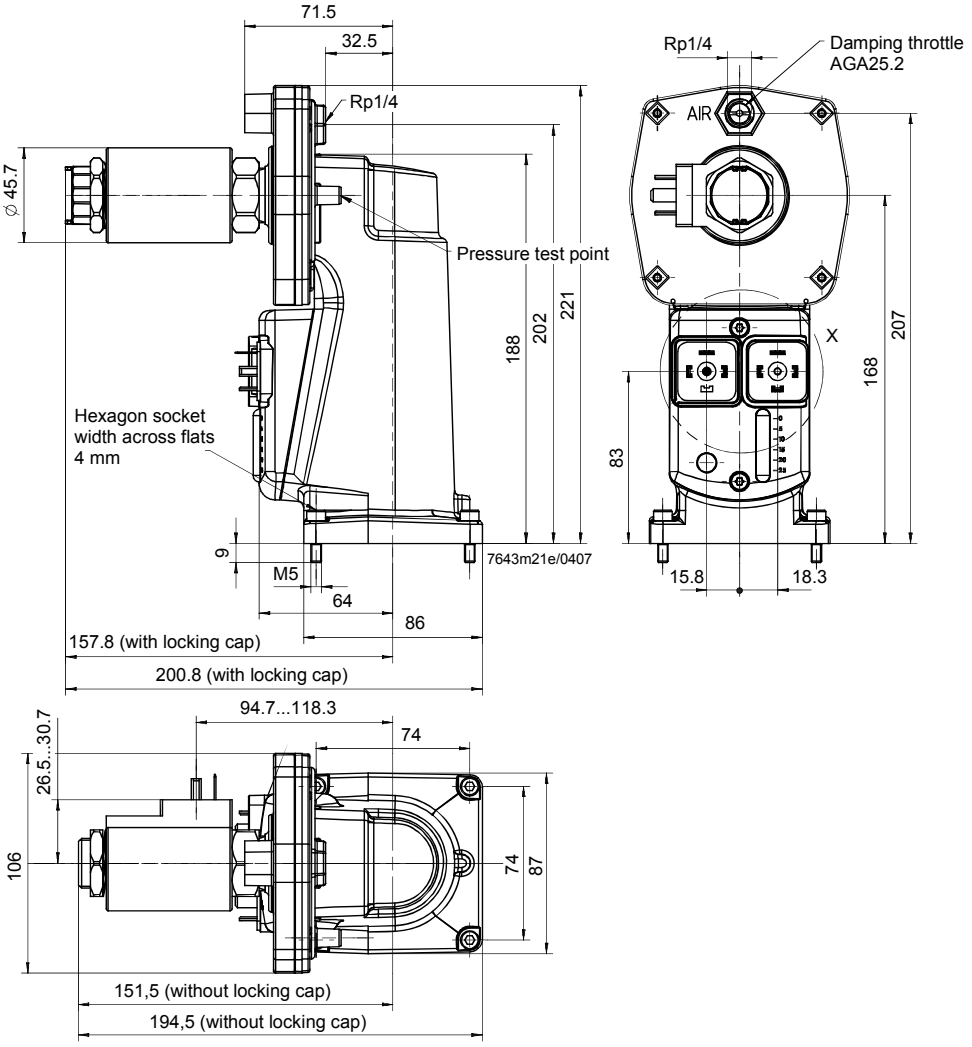
SAS motorized setpoint adjuster



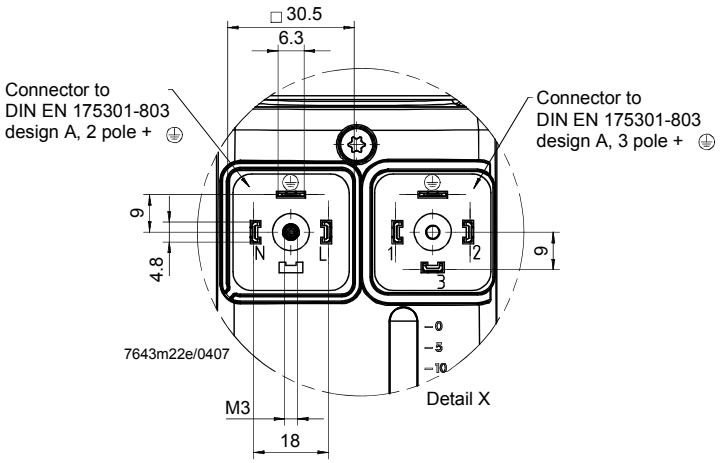
Type	A	B	C	C1	C2	D	E	►	►►	Kg
Without ASK39.2	137.6 [1)] 151 [2)]	80	106.5	21.9	84.6	29.9	21.8	100	200	0.68

Dimensions in mm

Actuator SKP25.2...

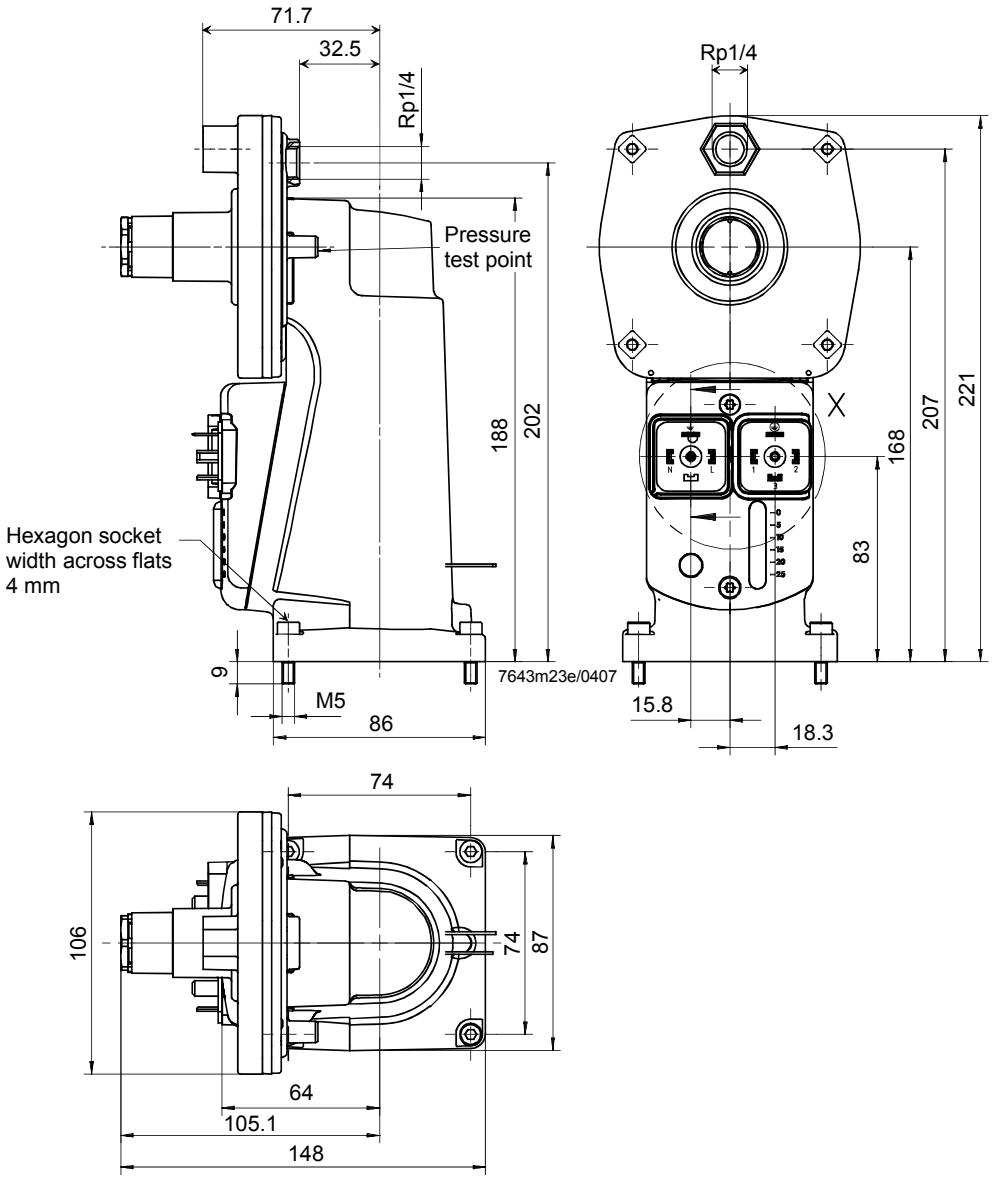


SKP25.201…

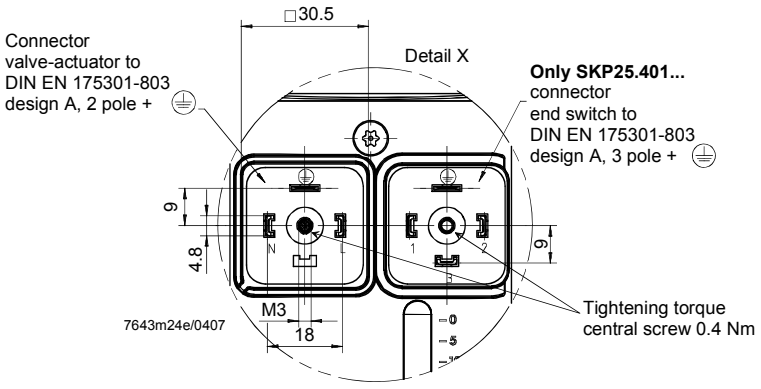


Dimensions in mm

Actuators SKP25.4...

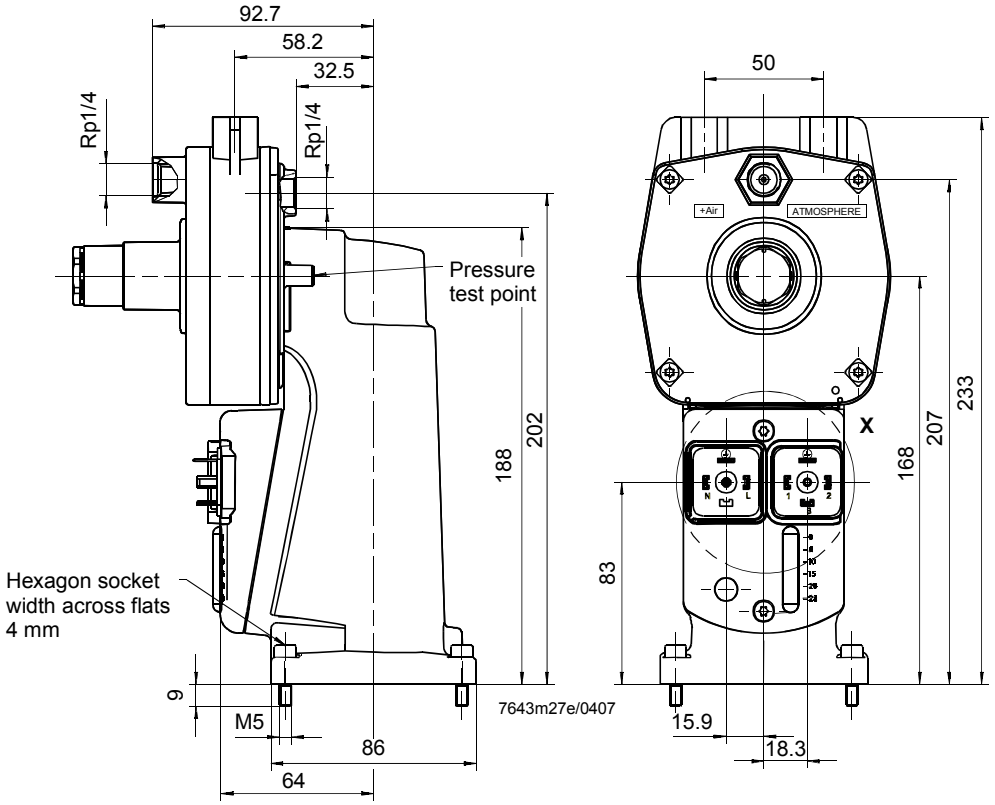


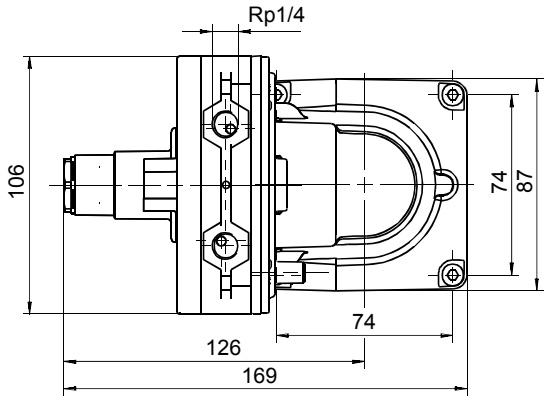
SKP25.401…



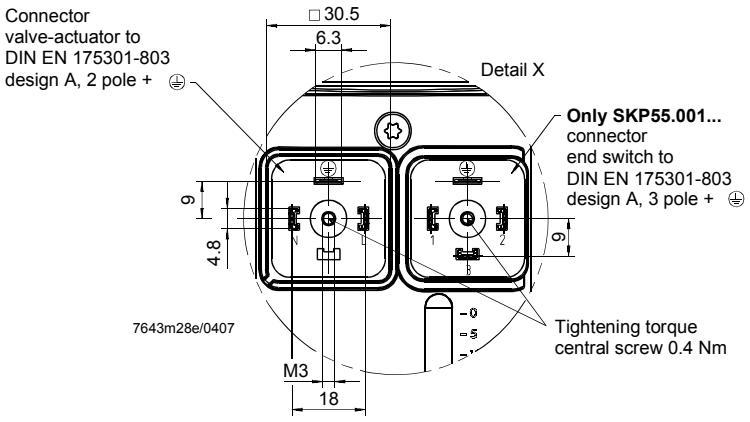
Dimensions in mm

Actuators SKP55...



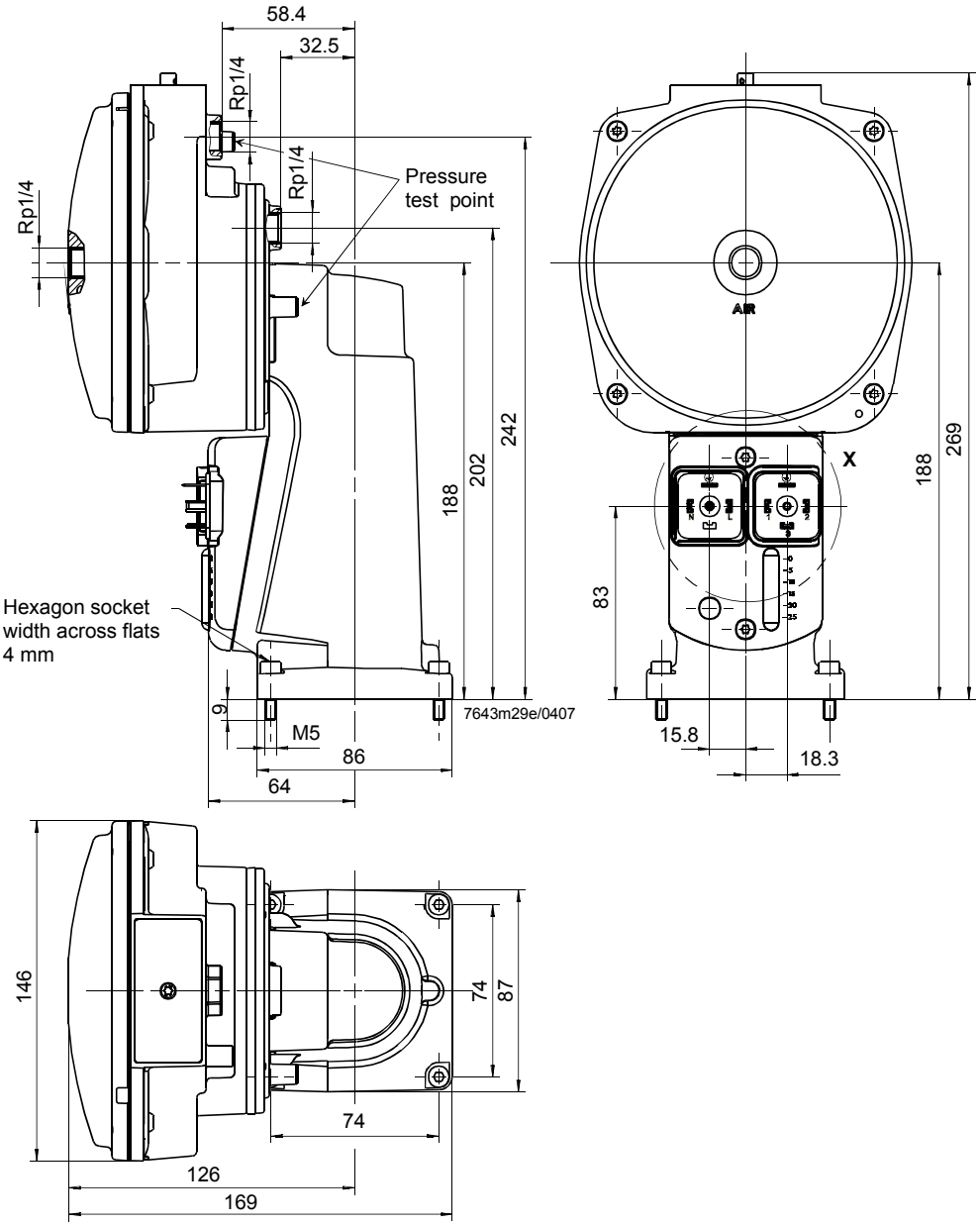


SKP55.001…

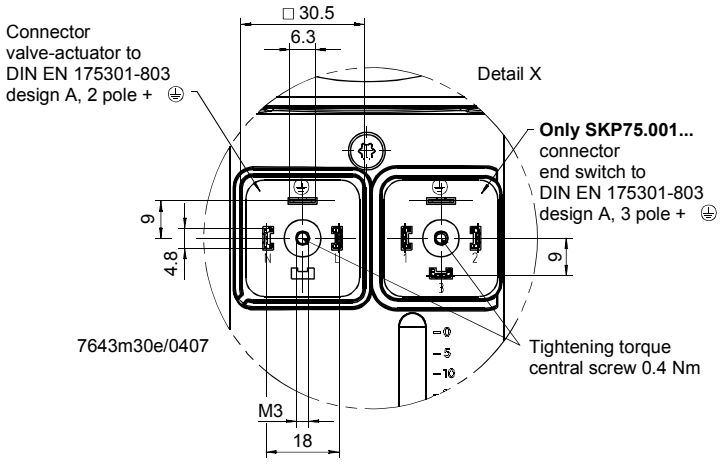


Dimensions in mm

Actuators SKP75...



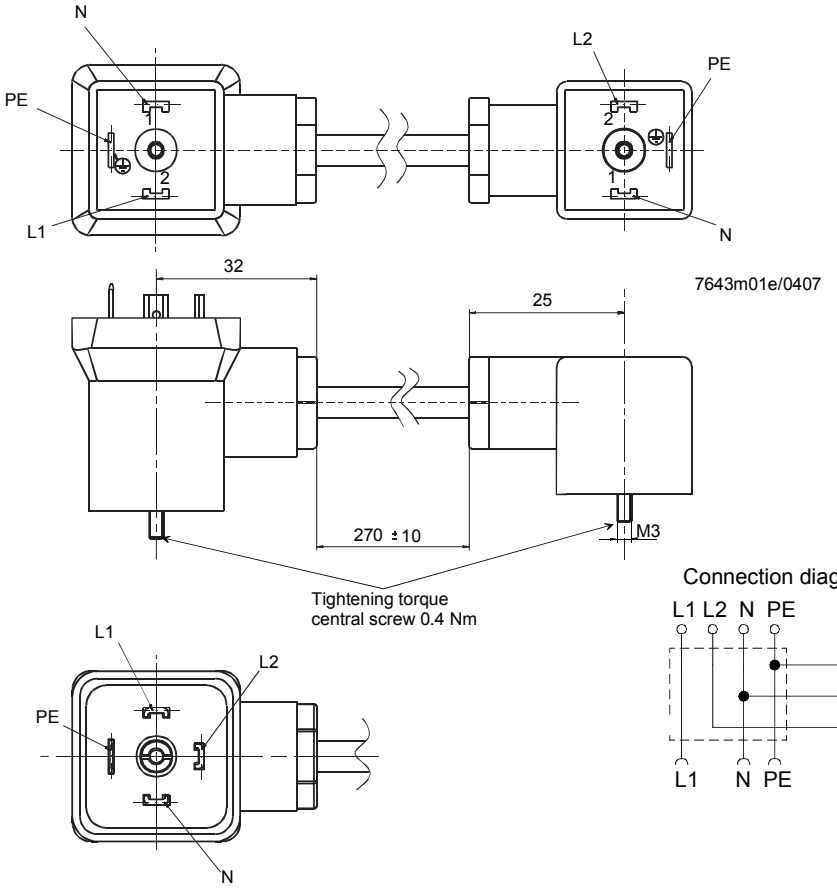
SKP75.001…



Dimensions in mm

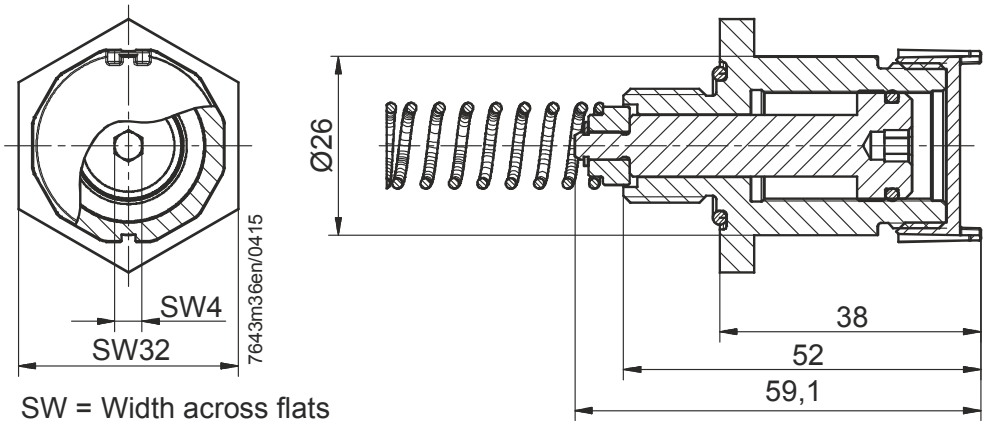
Adapter plug
AGA62.000A000

- For 2 actuators mounted on one double valve



Connection diagram

AGA30



SW = Width across flats