

Open / Closed



SKP15...

Open / Closed
with constant pressure
governor



SKP25... / SKL25...

Open / Closed
with differential pressure
governor



SKP55...

Open / Closed
with ratio pressure governor



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
- Stroke indication
- Supplementary Data Sheets on valves (refer to «Use»)

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 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 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 governor and electric adjustment of the setpoint spring (SKP25.7...)

SKL25...

The SKL25... actuators are of the same design as the SKP25..., but close more slowly (3...6 seconds).

The SKL25... do **not** conform to the standards for gas applications and, for this reason, are only suited 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!

SKP15.1...

- For the end switch and AUX switch, safety extra-low voltage (SELV) is not permissible

SKP25.2...

- The magnet can reach high temperatures if activated for longer periods of time. But protection against contact is not required.

- 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 >10 mbar).
- 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.
- Recommendations:
- The gas pressure should be acquired at a distance of 5 times the nominal pipe size downstream from the valve
 - Do not use the lateral test points on the valve body 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.

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
- Follow the Mounting Instructions included with the actuators:

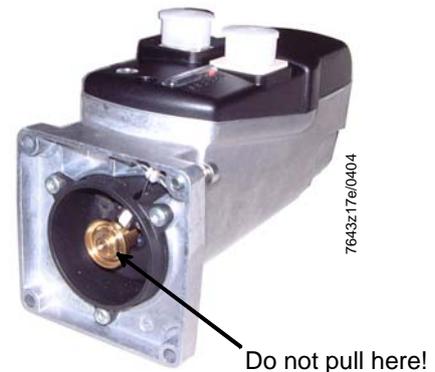
Type reference	Mounting instruction
SKL25...	M7643 (74 319 0419 0)
SKP15...	M7643 (74 319 0419 0)
SKP15.1...	M7643.5 (74 319 0578 0)
SKP25...	M7643 (74 319 0419 0)
SKP25.2...	M7643.4 (74 319 0552 0)
SKP25.7...	M7643 (74 319 0419 0) M7643.3 (4 319 1979 0)
SKP55...	M7643 (74 319 0419 0)
SKP75...	M7643 (74 319 0419 0)
NEMA-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



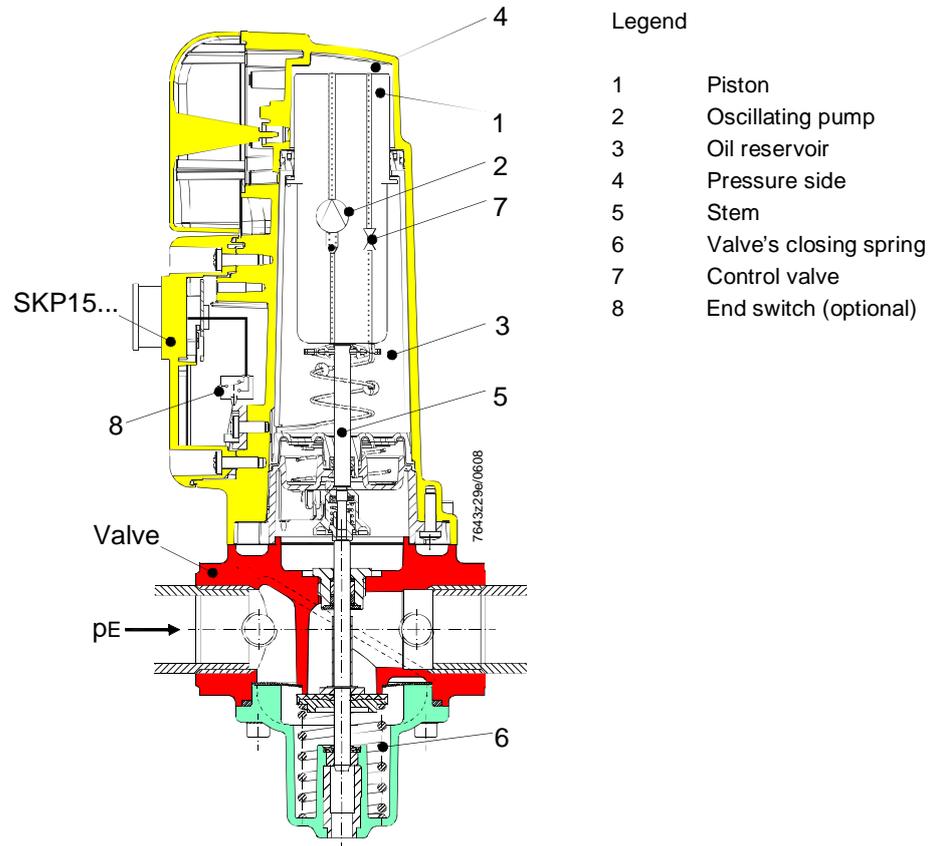
Installation and commissioning notes

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)

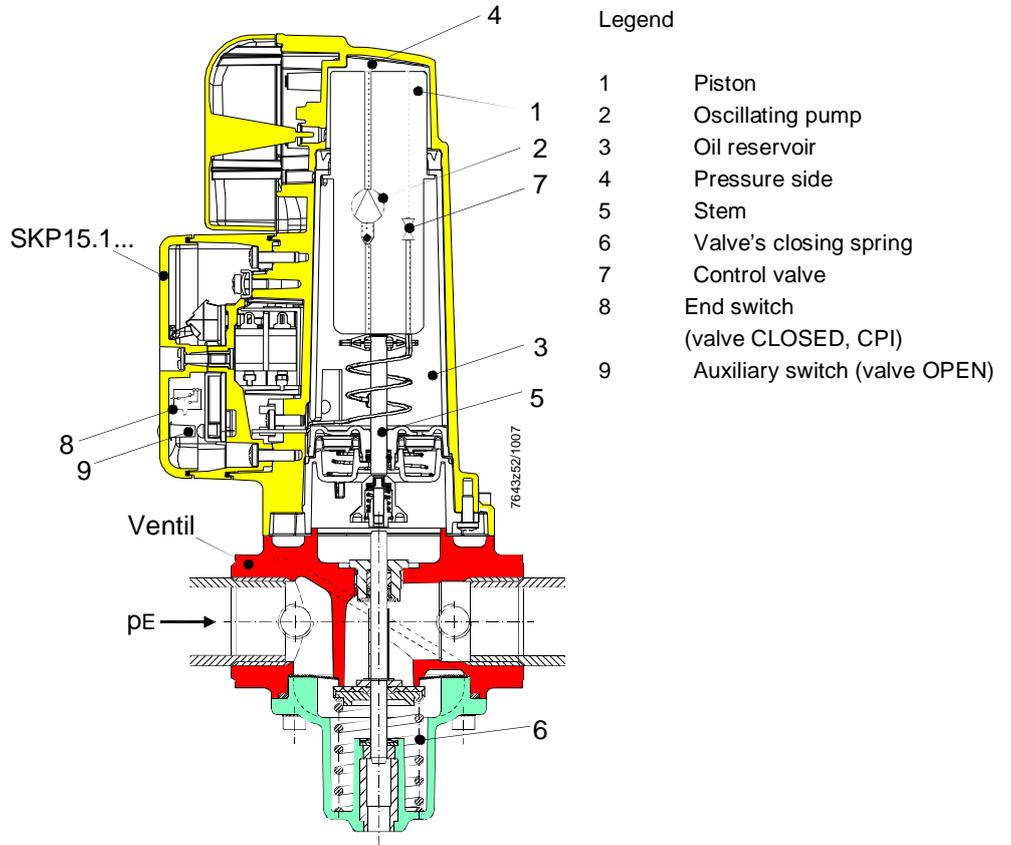


Installation and commissioning notes (cont'd)

SKP15.1... The functioning principle is identical to that of the SKP15..., but with pump switch-off (for saving of energy) thus the valve's opening position.

Typical use Isolations valve (central valve in shared gas feed pipe) which remain opened very long.

SKP15.1... complete (Schematic drawing)
with valve



Setting 9 enabled the adaption from maximum stroke of SKP15.1... up to maximum possible stroke of combined valve.
The adjustment of the pump shutdown has to be close to the maximum stroke of the valve.

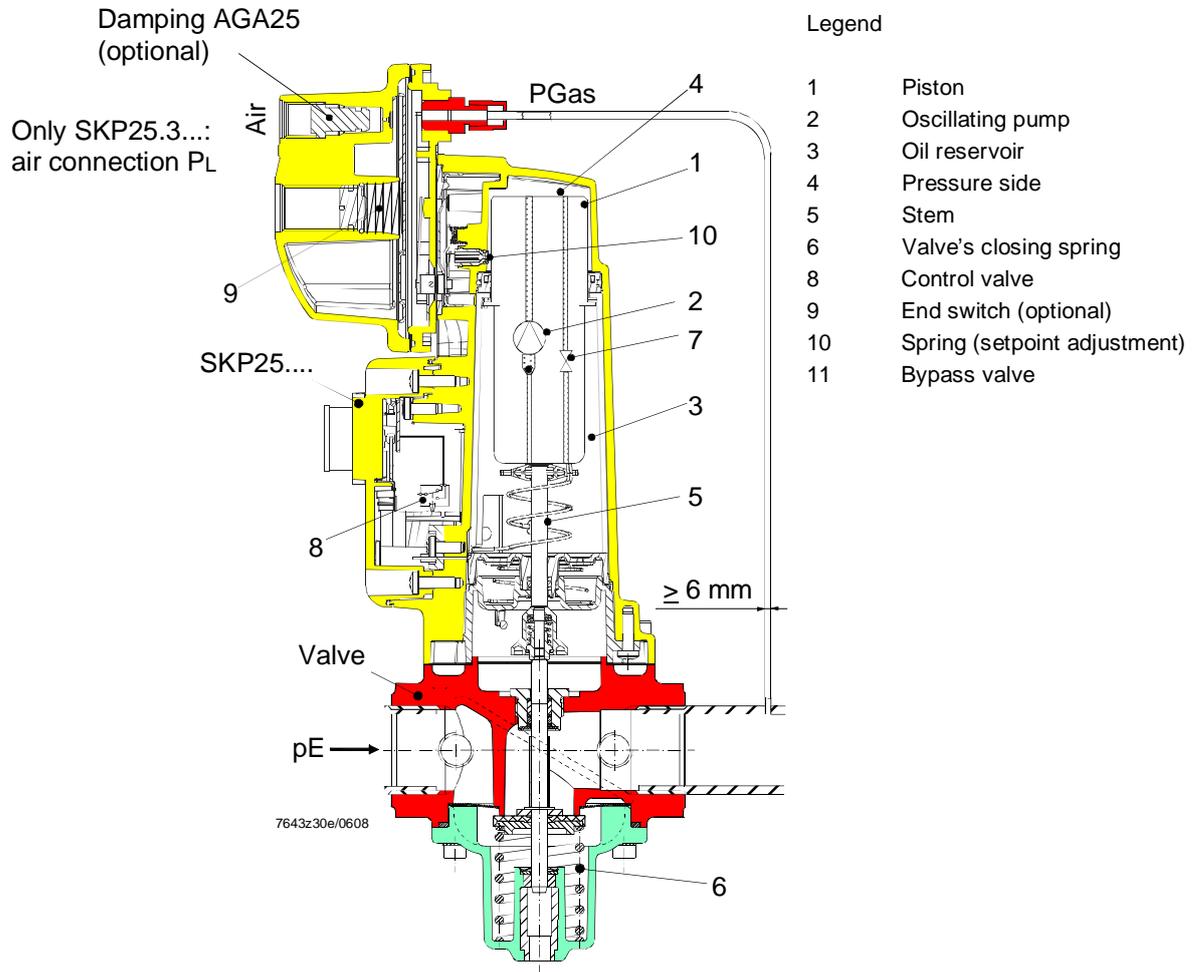
Installation and commissioning notes (cont'd)

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.

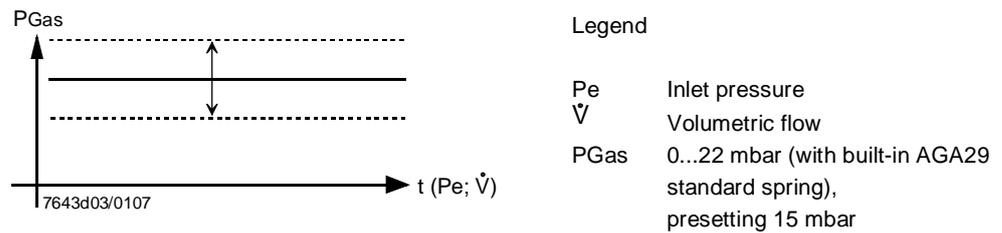
SKP25... complete with valve

(Schematic drawing)



SKP25... / SKL25...

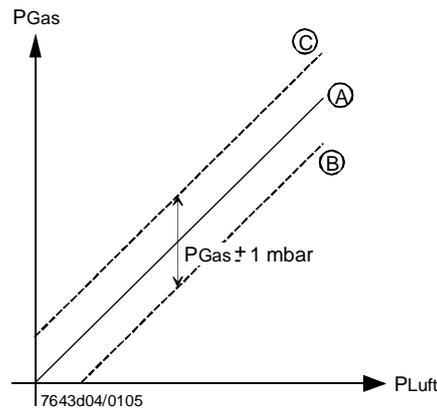
Setpoint adjustment «PGas» is made manually by turning the setting screw, which acts on the setpoint spring (for setpoint springs, refer to «Accessories»).



Installation and commissioning notes (cont'd)

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.

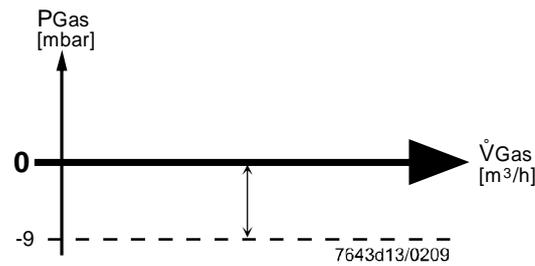


- Ⓐ Gas / air ratio for stoichiometric combustion
- Ⓑ / Ⓒ The governor permits one parallel displacement in both directions: «gas pressure lowering» Ⓑ and «gas pressure elevation» Ⓒ

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
- \dot{V} Volumetric flow
 - PGas Offset spring 0...9 mbar
 - 0** **Atmospheric pressure**

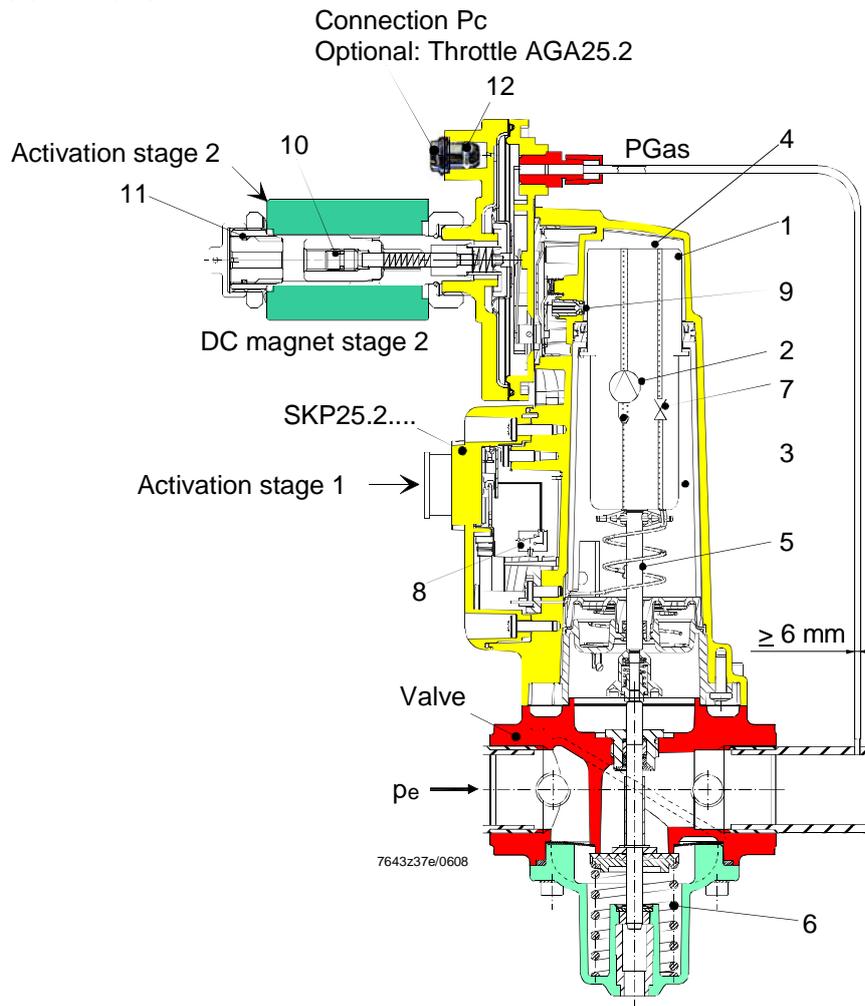
Installation and commissioning notes (cont'd)

SKP25.2...

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

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

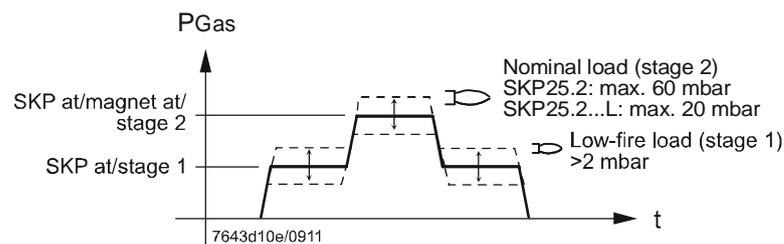
(Schematic drawing)



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 <3 mbar)
- If PC is not connected, a damping throttle AGA25.2 must be fitted if Pe >20 mbar (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 (\cup +PGas).
2. Set the high-fire (stage 2):
Activate stage 2 and set the high-fire screw (10) to the required pressure value (\cup +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: 12 mbar / high-fire: 55 mbar

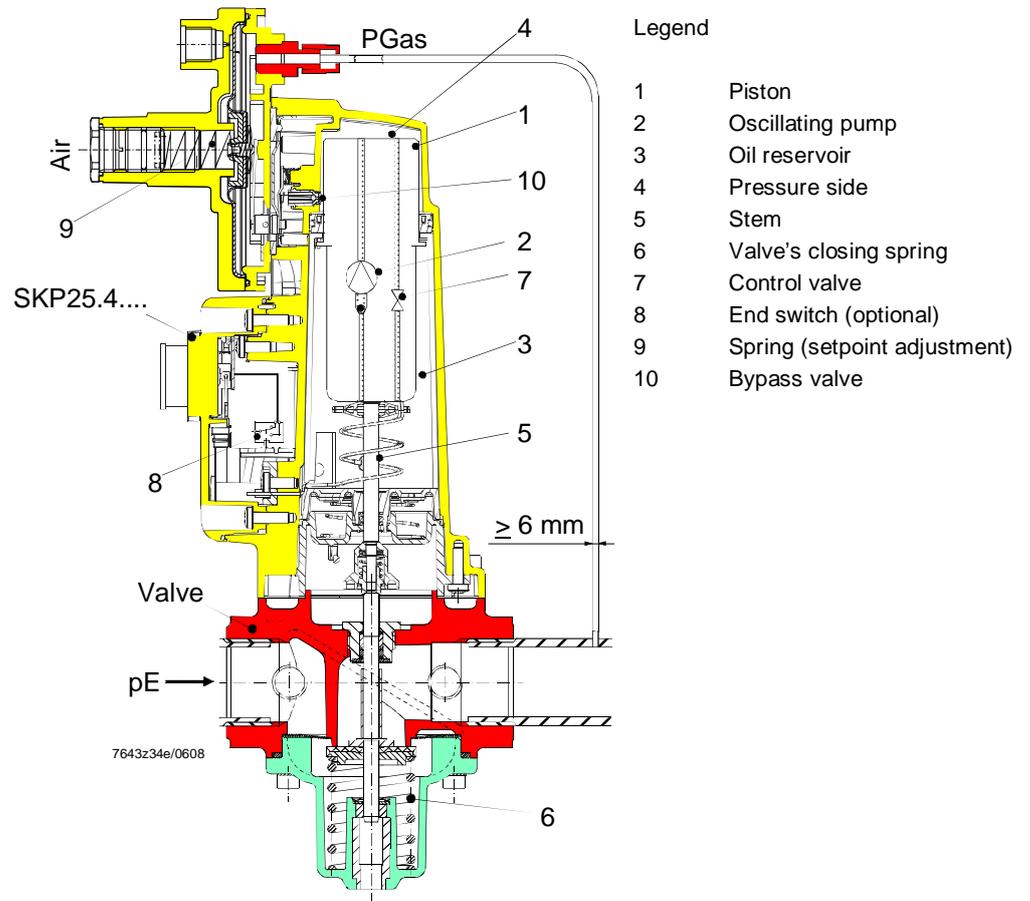
Installation and commissioning notes (cont'd)

SKP25.4...

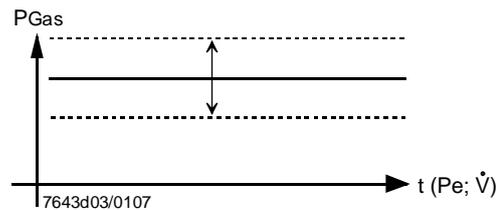
The SKP25.4... is suited for the control of higher pressures.
Standard spring 0...1,500 mbar.

SKP25.4... complete with valve

(Schematic drawing)



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 |
| \dot{V} | Volumetric flow |
| PGas | 0...1,500 mbar
(with built-in standard
spring AGA23), presetting
1,200 mbar |

Installation and commissioning notes (cont'd)

SKP25.7...

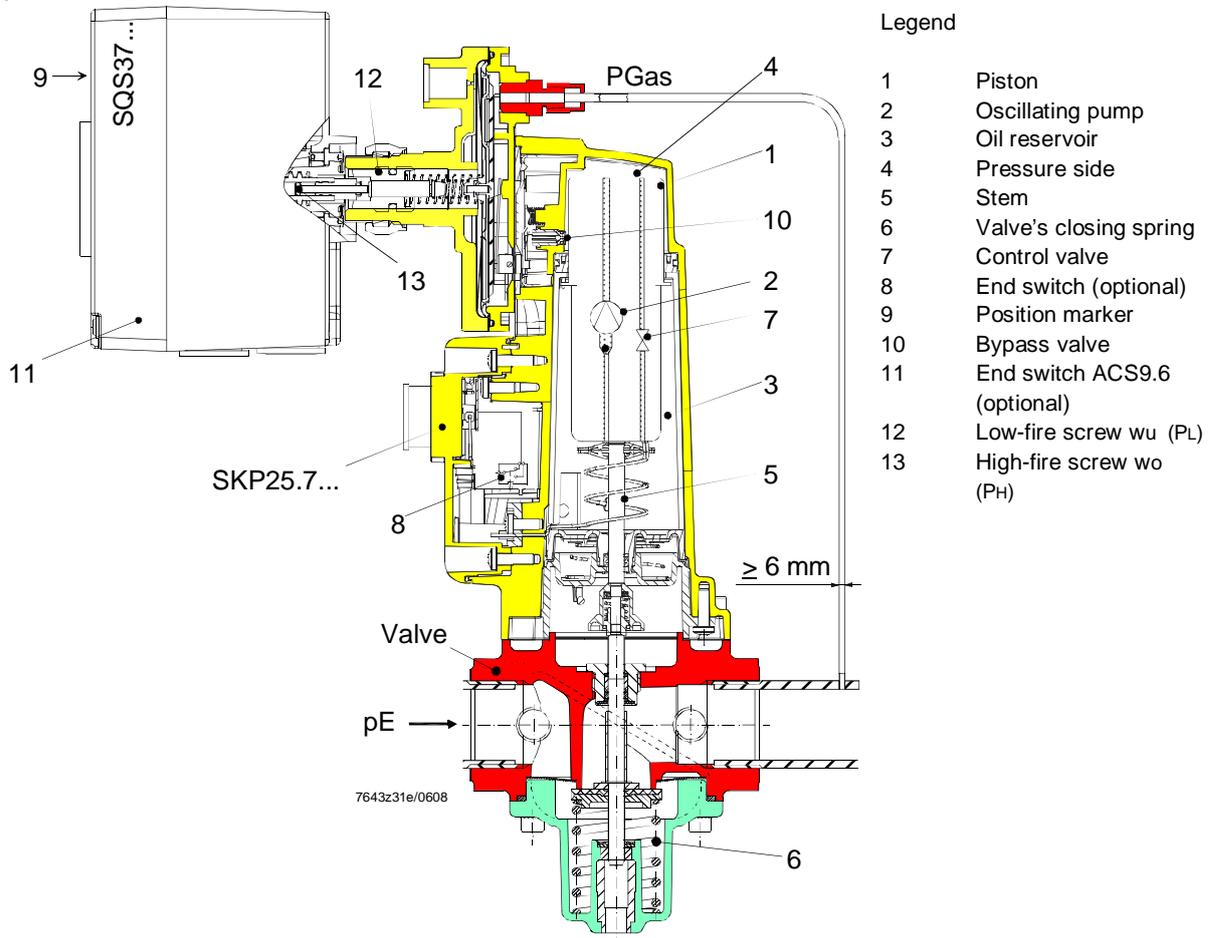
The SKP25.7... works like the constant pressure governor SKP25..., but with electrical adjustment of the setpoint spring.

Its field of use is primarily

- atmospheric burners (modulating or multistage operation)
- single burners or groups of burners on industrial furnaces
- changes to the air ratio from a remote location in the case of burners using fixed ratio control

SKP25.7... complete with valve

(Schematic drawing)



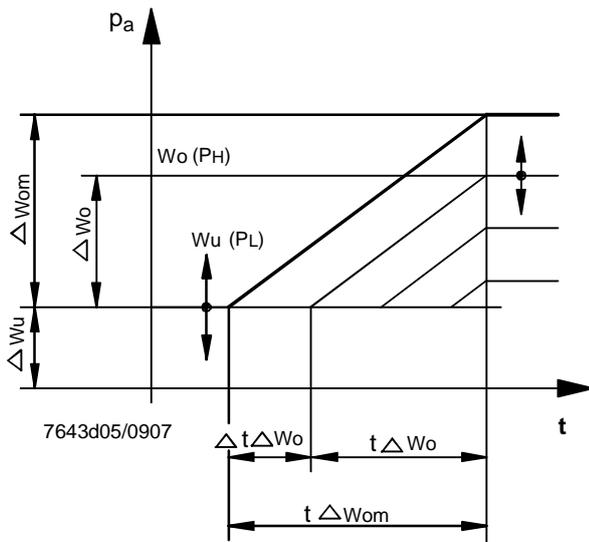
Setting example:

The low-fire pressure value (minimum pressure wu) must be set with the SQS37... removed, using the low-fire screw (12). The maximum high-fire setting must be made with the stem of the SQS37... fully extended via high-fire screw (13).



Note!
Refer to Mounting Instructions M7643.3 (4 319 1979 0)

Functioning principle of gas pressure governor with SQS37... motorized setpoint adjuster:



On the gas outlet side, the gas pressure governor maintains the pressure at the required setpoint. The electrical signal fed to the SQS37... changes the pre-adjusted setpoint in proportion to the length of the electrical pulse, either increasing or decreasing, depending on the direction of the pulse signal. When the preset maximum or minimum setpoint is reached, the outlet pressure will remain at a constant level. The time required to traverse the upper setpoint range « Δwo » is the same in both directions. Running time « $t\Delta wo$ » changes in proportion to the change of the upper setpoint range « Δwo ». At the lower setpoint limitation « Δwu », the SQS37... runs idle during the period of time « $\Delta t\Delta wo$ », which means that a certain part of it can occur as dead time.

Legend

- pa Outlet pressure
- wo Upper setpoint limitation
- wu Lower setpoint limitation
- Δwo Upper setpoint range, **adjustable**
- Δwom Max. possible upper setpoint range
- Δwu Lower setpoint limitation range, **adjustable**
- $\Delta t\Delta wo$ Dead time
- $t\Delta wo$ Running time accordant of setpoint range Δtwo
- $t\Delta wo = \frac{\Delta wo}{\Delta wom} \cdot t\Delta wom$
- $t\Delta wom$ Running time with max. setpoint range Δwom

Setpoint springs for SKP25.7...

- Delivery ex works for the following setpoint ranges:
- Δwu 0.5...4 mbar $\pm 15\%$
 - Δwo 0...18 mbar $\pm 15\%$

For springs required for other pressure ranges, please refer to the following table.

Setpoint ranges other than the standard range can be selected by changing the springs. Each SKP25.7... is supplied with 9 additional springs in a plastic bag, which can be fitted on site, if required.

Spring			Spring		
Color	Dia. mm	Δwu mbar $\pm 15\%$	Color	Dia. mm	Δwo mbar $\pm 15\%$
Steel-colored *	12	0.5...4	White	7	0...10
Green	12.5	2...15	Steel-colored *	7	0...18
Yellow	12.5	15...120	Red	7.5	0...45
Blue	13	10...30	Green	8	0...90
Red	13	100...250			

* The steel-colored springs are fitted in the SKP25.7...

Setpoint springs for « Δwo » cannot be used for « Δwu », and vice versa (refer to spring dia. in the table). All combinations of « Δwo » and « Δwu » are possible.

Installation and commissioning notes (cont'd)

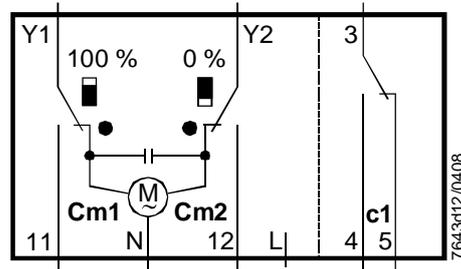
SQS37...

Synchronous motor in the SQS37... will be controlled via a 3-step control signal and triggers via a non-blocking gear the desired stroke. SQS37... will be mounted directly at the actuator SKP25.7...

Features

- Function extension with auxiliary switch optional
- With position indicator

Unit diagram



Function with 3-stepp control at the terminals Y1 or Y2:

- Voltage at Y1: Valve tappet retract, pass open
- Voltage at Y2: Valve tappet extends, pass closes
- No voltage at Y1 or Y2: Valve tapped remains in the respective position

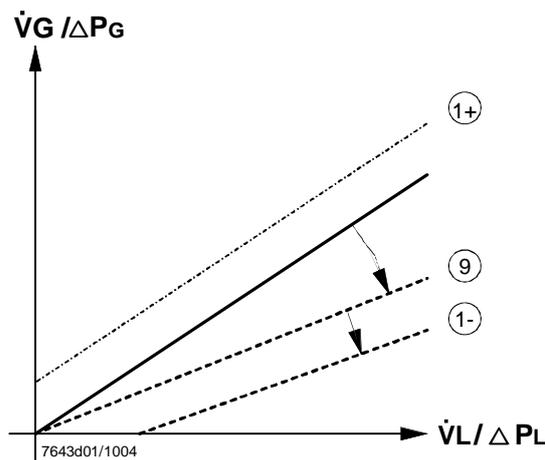
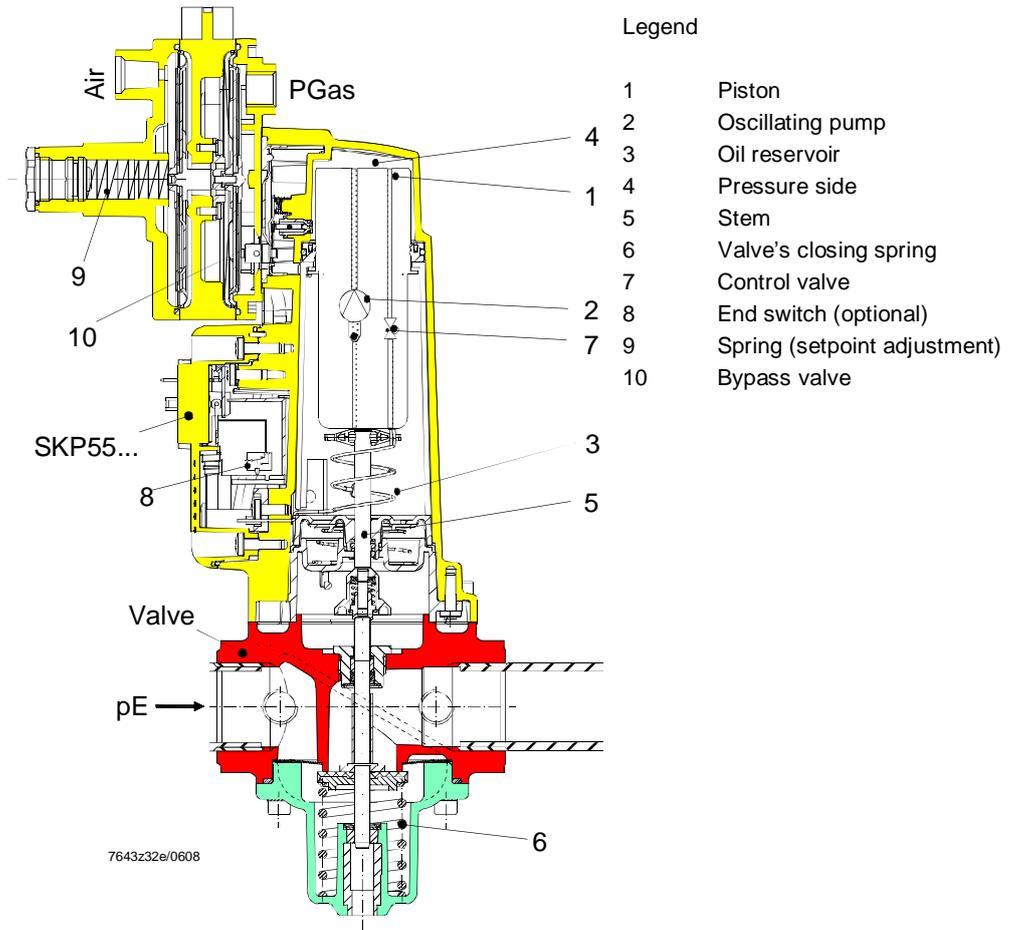
Legend

Y1	Terminal
Y2	Terminal
Cm1	End switch 100 % stroke
Cm2	End switch 0 % stroke
c1	Auxiliary switch ACS9.6 installable
L	Potential-free back-up terminal

Installation and commissioning notes (cont'd)

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

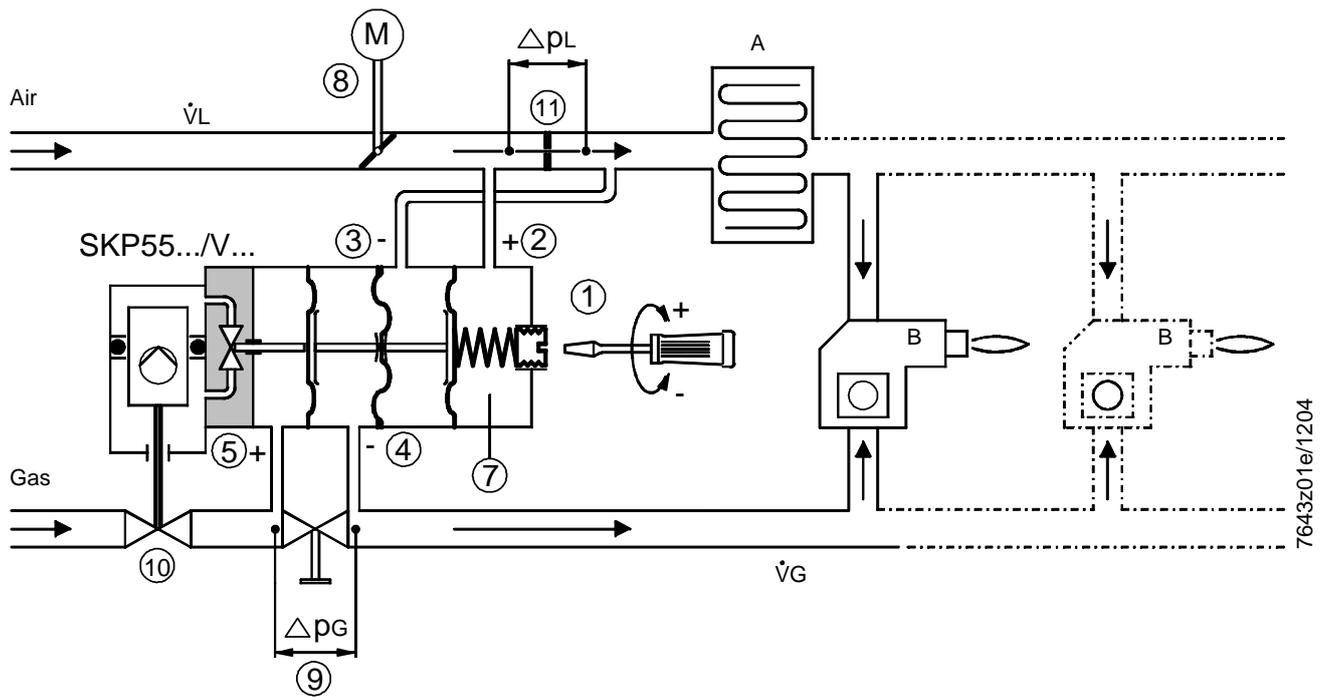
SKP55... complete with valve (Schematic drawing)



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

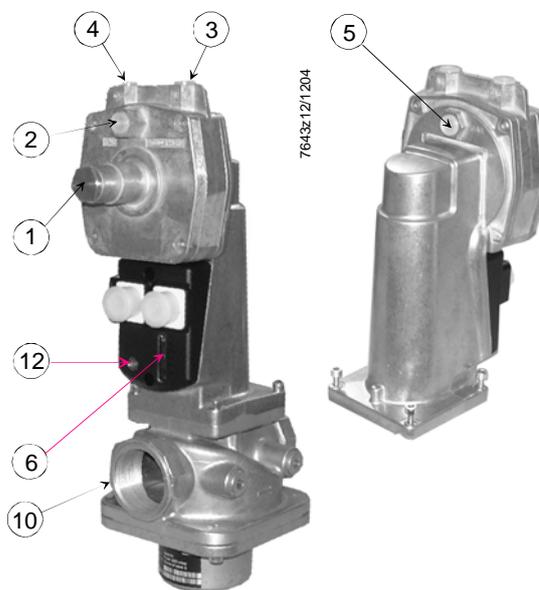
\dot{V}_L Volumetric air flow
 \dot{V}_G Volumetric gas flow



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 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...

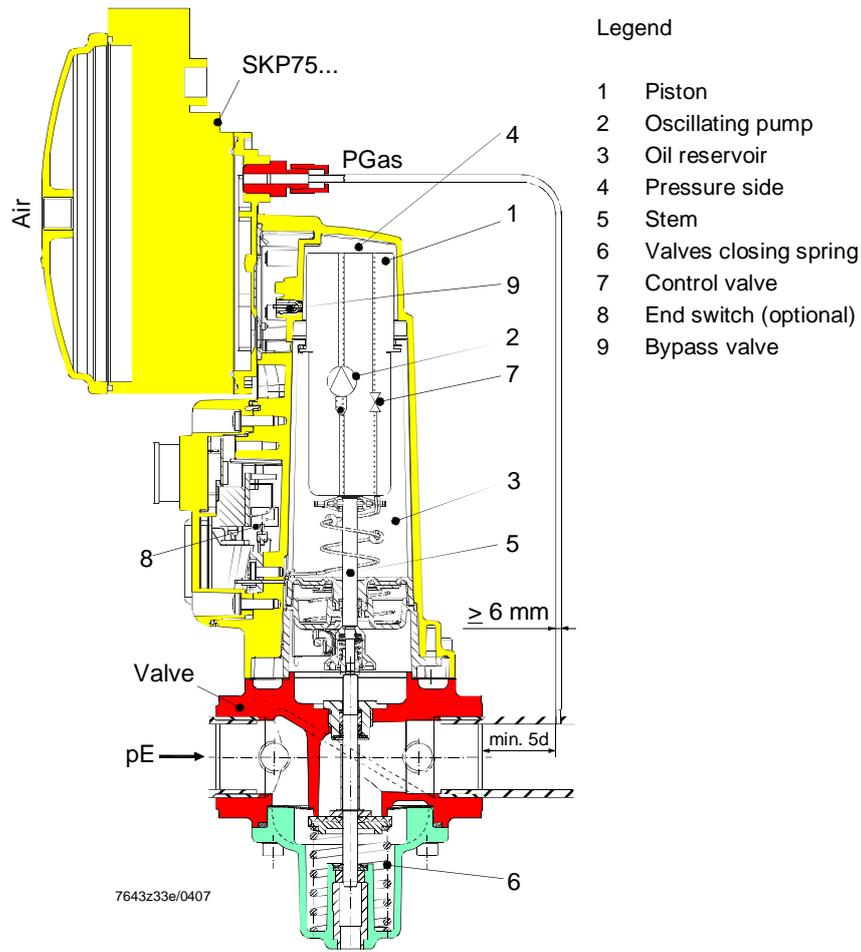
Installation and commissioning notes (cont'd)

SKP75...

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

SKP75... complete with valve

(Schematic drawing)



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 / 
- Limit the air damper position for low-fire operation

Meaning of setting screw markings:

- + More gas
- Less gas

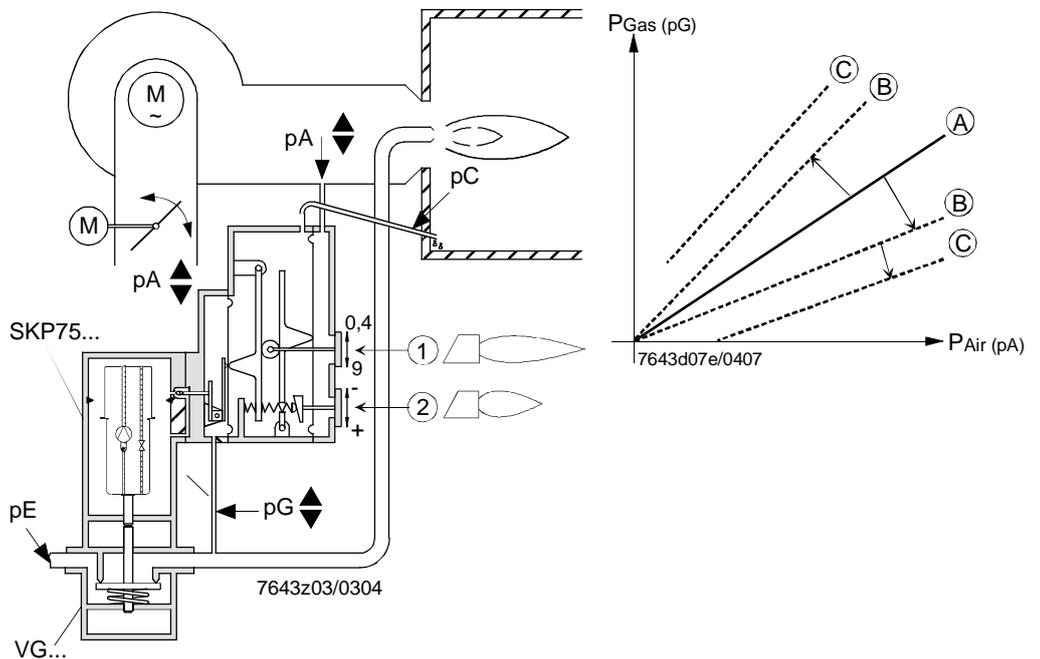
If a significant parallel displacement of the working characteristic was required to obtain optimum CO₂ or O₂ values in low-fire operation, the adjustment of the pressure ratio at high-fire or 90 % of the high-fire must be checked again and readjusted, if required.

- 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

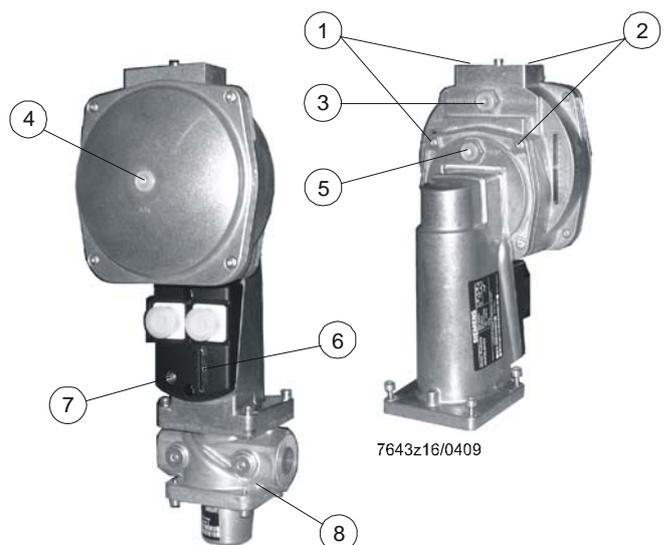
If readjustments are required:

- 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 Stroke indication
- ⑦ Operation indicator (LED)
- ⑧ Valve

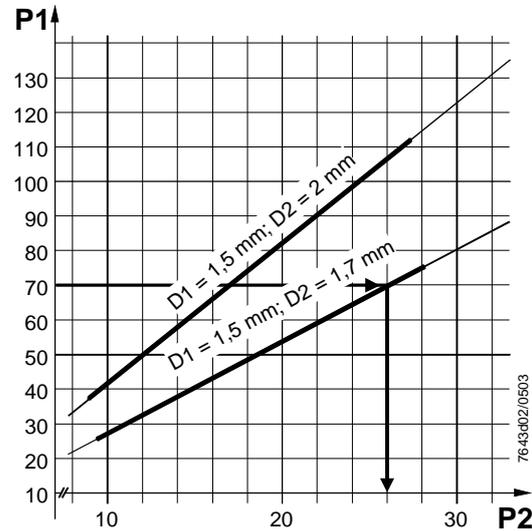


Function

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

- 30 mbar with a P_{Gas} / P_{Air} ratio of ≥ 2
- 50 mbar with a P_{Gas} / P_{Air} ratio of ≤ 2

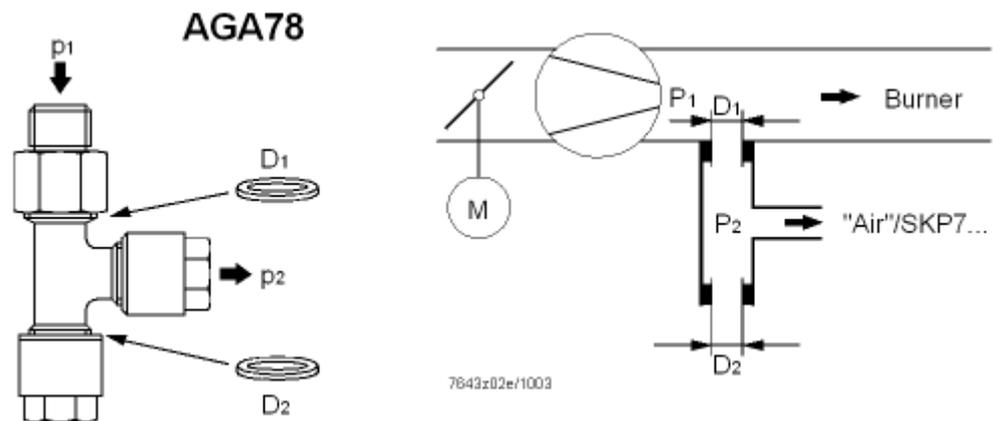
permitted for the governor, the pressure must be lowered with a reducing T-piece AGA78 (also refer to «Technical data»).



Example:
 $p_1 = 70$ mbar
 $D_1 = 1.5$ mm
 $D_2 = 1.7$ mm

Wanted: Air pressure signal «p2» for SKP75...
 $p_2 = 26$ mbar

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 $D_1 = 1.5$ mm and $D_2 = 1.7$ mm.

D_2 with a diameter of 2 mm is included as a loose item.

Standards and certificates



ISO 9001: 2010
Cert. 00739



ISO 14001: 2010
Cert. 38233



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

In combination with
valves



Conformity to EEC directives

- Electromagnetic compatibility EMC (immunity)
- Directive for gas appliances
- Directive for pressure devices

2004/108/EC
2009/142/EC
97/23/EC

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 EN437 (or DVGW specification G260).

This lifetime is based on the endurance tests specified in standard EN161 and the table containing the relevant test documentation as published by the European Association of Component Manufacturers (Afecon) (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 100...110 V	AC 220...240 V
	1-stage opening and closing, without end switch, without stroke indication	SKP15.000E1	SKP15.000E2
	1-stage opening and closing, with end switch	SKP15.001E1	SKP15.001E2
	1-stage opening and closing, with end switch, adjustable pump shutdown in open position	SKP15.112F1	SKP15.112F2

SKP25...	1-stage opening and closing, with end switch, with pressure governor up to 22 mbar, other pressure ranges via change setpoint spring possible → refer to accessories	SKP25.001E1 ²⁾	SKP25.001E2 ²⁾
	1-stage opening and closing, without end switch, with pressure governor up to 22 mbar, other pressure ranges via change setpoint spring possible → refer to accessories	SKP25.003E1 ²⁾	SKP25.003E2 ²⁾
	2-stage opening and closing, with end switch, with pressure governor up to 60 mbar	SKP25.201E1 ¹⁾	SKP25.201E2 ¹⁾
	2-stage opening and closing, without end switch, with pressure governor up to 60 mbar	SKP25.203E1 ¹⁾	SKP25.203E2 ¹⁾
	2-stage opening and closing, without end switch, with pressure governor up to 20 mbar	SKP25.203E1L	SKP25.203E2L
	1-stage opening and closing, without end switch, proportionate governor version	SKP25.303E1	SKP25.303E2
	1-stage opening and closing, with end switch, with pressure governor up to 1,500 mbar, high-pressure version, other pressure ranges via change setpoint spring possible → refer to accessories	SKP25.401E1 ¹⁾ ³⁾	SKP25.401E2 ¹⁾ ³⁾
	1-stage opening and closing, without end switch, with pressure governor up to 1,500 mbar, high-pressure version, other pressure ranges via change setpoint spring possible → refer to accessories	SKP25.403E1 ³⁾	SKP25.403E2 ³⁾
	1-stage opening and closing, with end switch, for zero pressure governor version	---	SKP25.601E2 ¹⁾
	1-stage opening and closing, without end switch, for zero pressure governor version	---	SKP25.603E2
	1-stage opening and closing, negative offset, with end switch (valve closed), with stroke indication, zero pressure governor version	---	SKP25.611E2
	1-stage opening and closing, with end switch, for electric setpoint adjustment	---	SKP25.701E2 ¹⁾
	1-stage opening and closing, without end switch, for electric setpoint adjustment	---	SKP25.703E2 ¹⁾

¹⁾ On request

²⁾ Factory setting 15 mbar

³⁾ Factory setting 1200 mbar

Type summary (other types of actuators on request)

SKL25...	1-stage opening and closing, with end switch, with pressure governor up to 22 mbar, 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 22 mbar, other pressure ranges via change setpoint spring possible → refer to accessories	SKL25.003E1	SKL25.003E2 ²⁾
SKP55...	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...	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	SKP75.501E1	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 15 mbar

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

Connector valve actuator (plug)
Connector end switch (plug)

SKP15.001E2
AGA64
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

Connector valve actuator (plug)

SKP25.003E2
AGA64

Combination of gas pressure governor / valve consisting of:

- Valve
- SKP25.003E2 actuator
- Accessories, e.g. AGA25 (damping throttle)



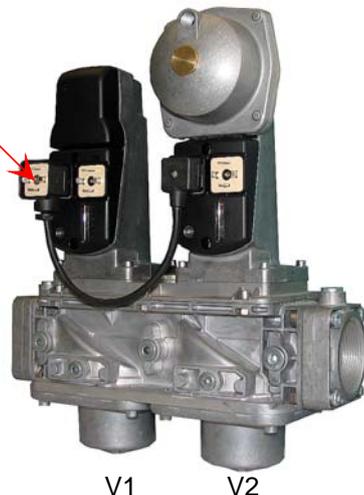
Adapter plug

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

AGA62.000A000

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 proving via pressure switch between the valves or ignition via pilot burner



V1 V2

7643z49e/0407



Adapter plug for SKP25.2...

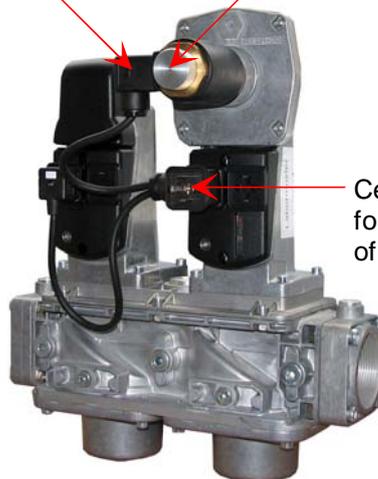
- For powering both actuators and the magnet (stage 2) via plug (AGA64)
Both valves are activated simultaneously
- Including rectifier for DC coil (activation stage 2)

AGA62.2

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

Integrated rectifier

Stage 2 (DC coil)



Central connection via AGA64 for the common control of valves 1 and valves 2

V1 V2

7643z41e/0407



Heating element

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

AGA63.5A27



Contact box for valve actuator (power supply)

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

AGA64

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



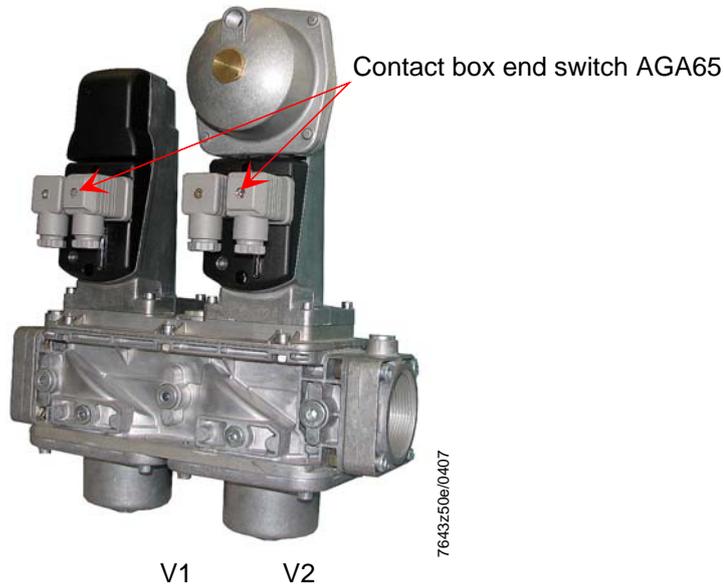


Contact box for end switch

AGA65

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

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



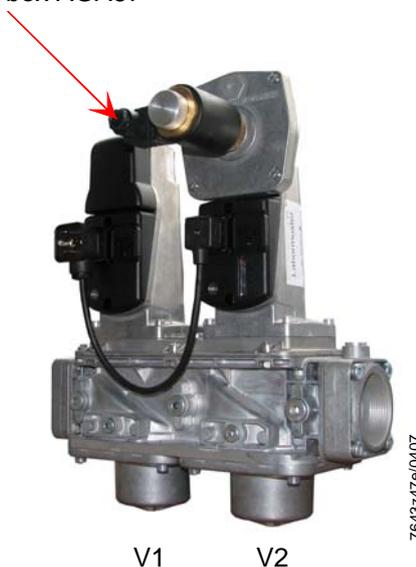
Contact box

AGA67

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

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

Contact box AGA67



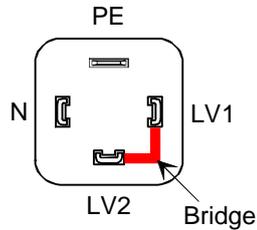


Adapter plug for AGA62.000A000
- For common valve control

AGA68

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

Adapter plug AGA68



Motorized setpoint adjuster for SKP25.7...
- 35 s
- For 5.5 mm stroke
- Refer to Mounting Instructions M7643.3 (4 319 1979 0)

SQS37...



Auxiliary switch for SQS37...
- Mounting in the SQS37... possible
- Switching point adjustable to 0...100 % stroke

ASC9.6

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



Setpoint spring (blank) for SKP25.2...L **AGA17**
- Equivalent built-in standard spring
- 2...20 mbar

Setpoint spring (yellow) for SKP25... **AGA22**
- Optional for built-in standard spring AGA29
- 15...120 mbar at SKP25.0...
- 70...700 mbar at SKP25.4... (optional for AGA23)

Setpoint spring (red) for SKP25... **AGA23**
- Optional for built-in standard spring AGA29
- 100...250 mbar at SKP25.0...
- 150...1,500 mbar at standard spring SKP25.4...

Setpoint spring (blank) for SKP25.3... **AGA28**
- Equivalent built-in standard spring
- ±1.5 mbar

Setpoint spring (blank) for SKP25.0... **AGA29**
- Equivalent built-in standard spring
- 0,5...22 mbar



Damping throttle for SKP25.0... and SKP25.3... **AGA25**
- Optional



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



Damping throttle for SKP55.../SKP75... **AGA75**
- Optional, pipe connection for 8 mm dia.
- Refer to Mounting Instructions 4 319 2078 0

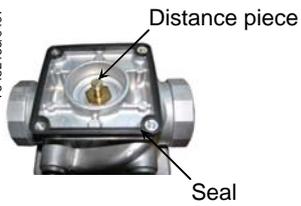


Damping throttle for SKP55.../SKP75... **AGA75E**
- Optional
(same as damping throttle AGA75 but with ¼" threaded connection on both sides)
- Refer to Mounting Instructions 4 319 9601 0



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

76432456/0407



Gasket set

- 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)

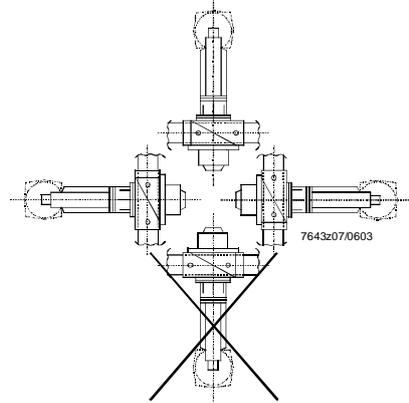


Technical Data

General unit data	Mains voltage	AC 220 V –15 %...AC 240 V +10 % AC 100 V –15 %...AC 110 V +10 %
	Mains frequency	50...60 Hz ±6 %
	Power consumption	
	- SKPx5...	Max. 13.5 VA
	- SKP15.1...	Max. 13.5...23 VA
	- SKP25.2...	Max. 3 VA (in open position) Max. 38 VA
	Closing time	
	- SKPx5...	<0.8 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)
	Opening time for full stroke	6...13 s (depending on valve nominal size) (longer opening times below 0 °C)
	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
	Control class	A to DIN EN 88-1
	Control accuracy	
	- SKP25.3... / SKP75...	<10 % at « Δp_{min} », <2 % at « Δp_{max} »
	- SKP55...	<10 % at « Δp_{min} », <1 % at « Δp_{max} »
	Inlet pressure	Like valve
	Control variable gas pressure	
	- SKP25... / SKL25...	0.5...250 mbar (3 setpoint springs)
	- SKP25.2...	2...60 mbar
	- SKP25.2...L	2...20 mbar
	- SKP25.3...	0.5...50 mbar
	- SKP25.4...	70...1500 mbar (2 setpoint springs)
	- SKP25.6...	<0 mbar (atmosphere)
	- SKP25.7...	Refer to table in chapter Installation and commissioning notes «Setpoint springs for SKP25.7...»
	- SKP55...	Difference pressure PG+ / PG- 0.3...200 mbar
	- SKP75... / SKP75.5...	Difference pressure PG-PF or PG-PAir 0.8...120 mbar
	Absolute / difference pressure of combustion air (reference variable)	
	- SKP25.3...	0.5...50 mbar
	- SKP55...	Difference pressure PL+ / PL- 0.3...200 mbar
	- SKP75... / SKP75.5...	With circuit-entering combustion space pressure of PAir-PCombustion space >0.5 mbar
	Air pressure / difference pressure	
	- at «PGas / PAir» ≥ 2	Max. 30 mbar
	- at «PGas / PAir» ≤ 2	Max. 50 mbar
	- Upper pressures refer to AGA78 «Accessories»	Max. 150 mbar

Difference pressure ratio (gas / air) adjustable	
- SKP25.3... / SKP55...	1:1
- SKP75... / SKP75.5...	0.4...9
Permissible combustion space pressure	
- SKP75...	<PAir / <PGas
Parallel translation P _{Gas}	
- SKP25.3... / SKP55... / SKP75...	±1 mbar
- SKP25.6...	0 mbar / -9 mbar
- SKP75.5...	+1 mbar / -4.5 mbar
Setpoint ranges Δw _o / Δw _u	
- SKP25.7...	Refer to «Functions diagrams»
End switch (if built-in)	As closed position switch factory-made justified
	Position valve closed
- Switching load	4 (2 A, cosφ = 0.3)
On-time	100 %
Opening speed (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
- SKP25.2...	Approx. 2.1 kg
- SKP25.7...	Approx. 1.6 kg (without SQS37...)
- SKL25...	Approx. 1.6 kg
- SKP55...	Approx. 1.9 kg
- SKP75...	Approx. 2.3 kg
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»	1000 mbar
Permissible under pressure «PG»	200 mbar

Technical data (cont'd)**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 AGA63.5)
- SKP25.7...	-5...+50 °C (limited by SQS37...)
Humidity	<95 % r.F.

Motorized setpoint adjuster SQS37...

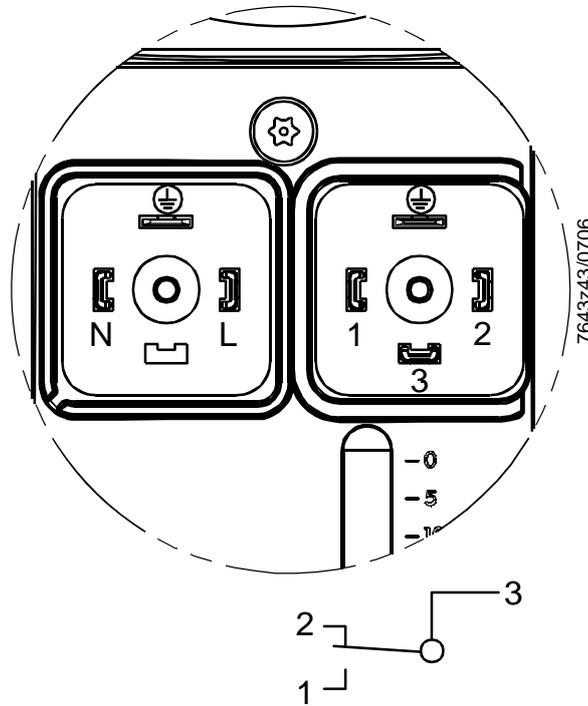
Mains voltage (control voltage)	AC 230 V +10 % / -15 %
Mains frequency	50...60 Hz ±6 %
Power consumption	2.5 VA
Running time $\Delta t_{\Delta w_{om}}$	5.5 mm / 35 s
Degree of protection	IP54
Safety class	II VDE 0631
Environmental conditions	Vmax environment 50 °C
Control signal	3-step
Regulating power	400 N
Stroke	5.5 mm

Auxiliary switch ASC9.6

Switching capacity	AC 250 V 3 A Ω 3 A inductive
--------------------	---

Contact assignment device connector

Connection of actuator
(front-view)



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

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

(Only with SKPxx.xx1xx)

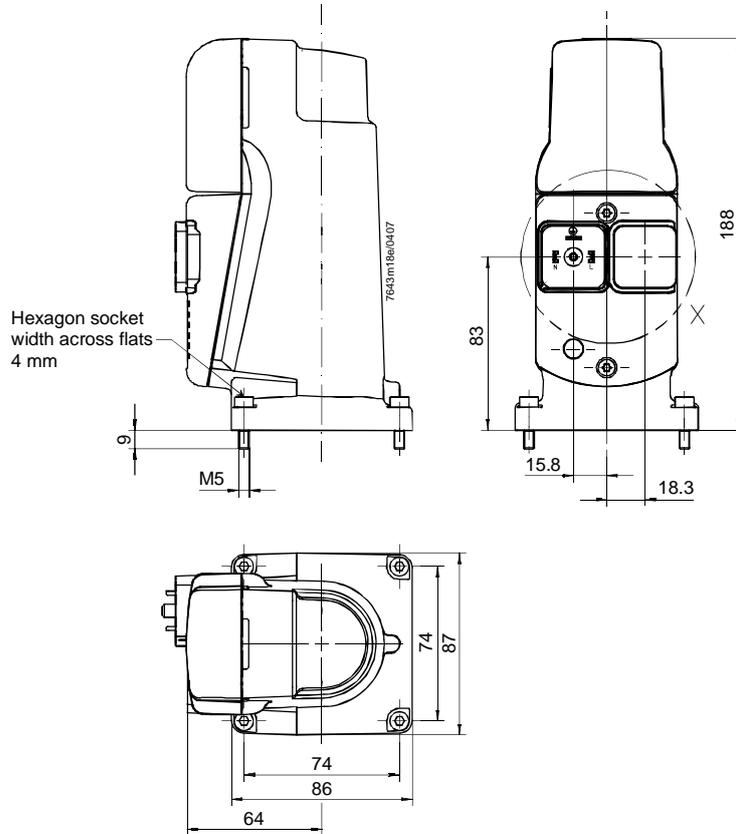


Dimensions

Dimensions in mm

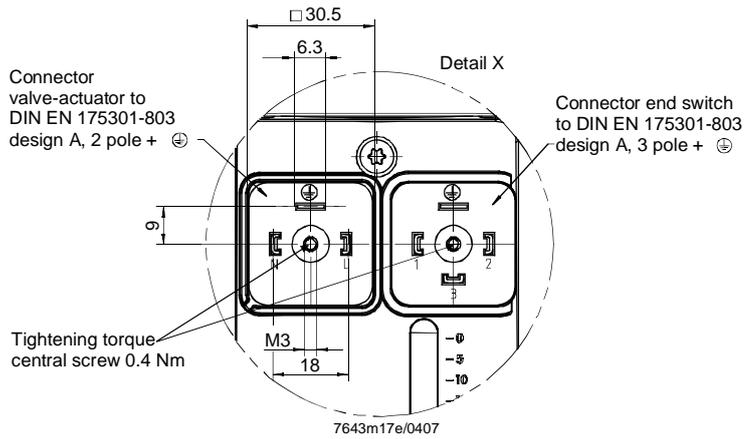
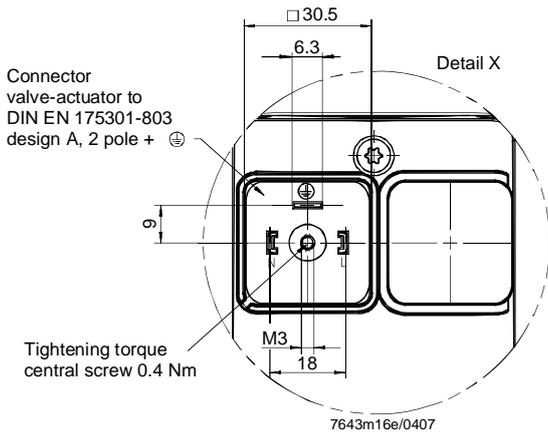
Actuators SKP15...

Example: SKP15.000...



SKP15.000... (no stroke indication)

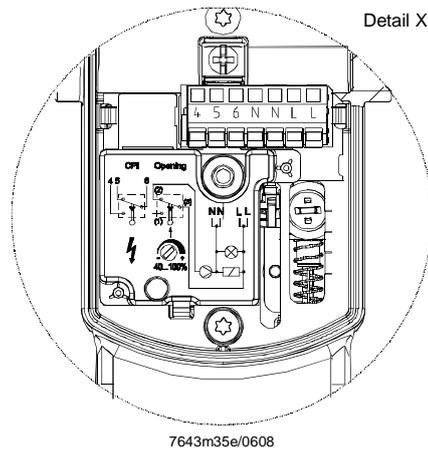
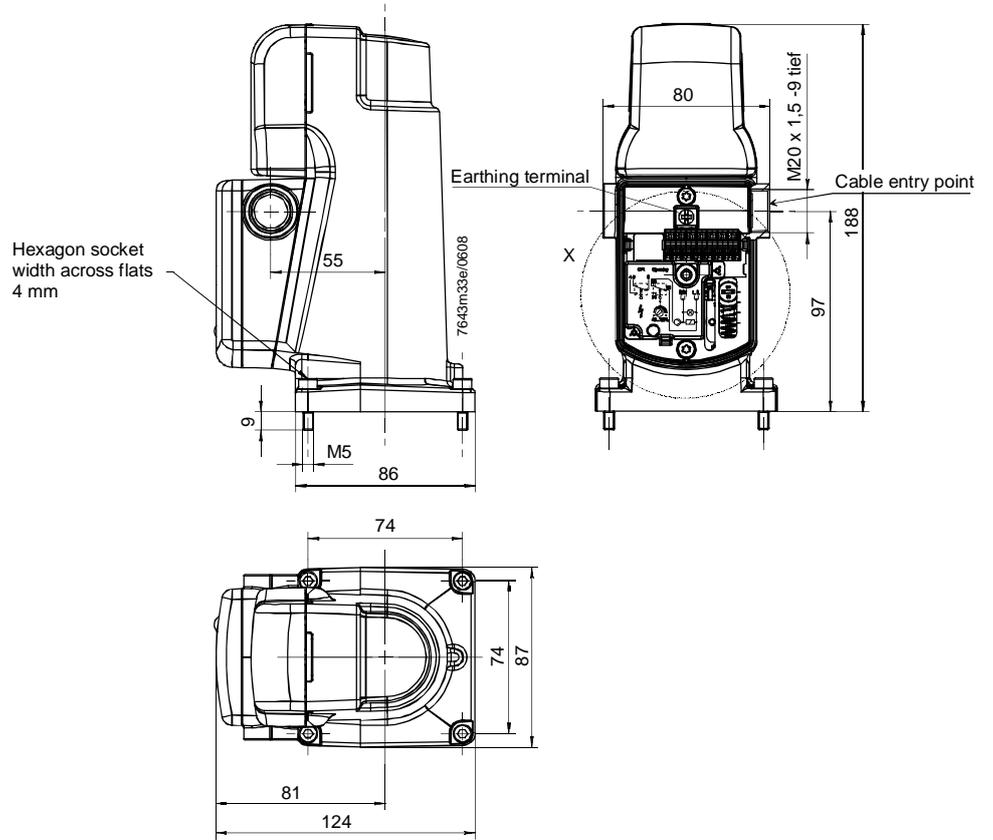
SKP15.001...



Dimensions (cont'd)

Dimensions in mm

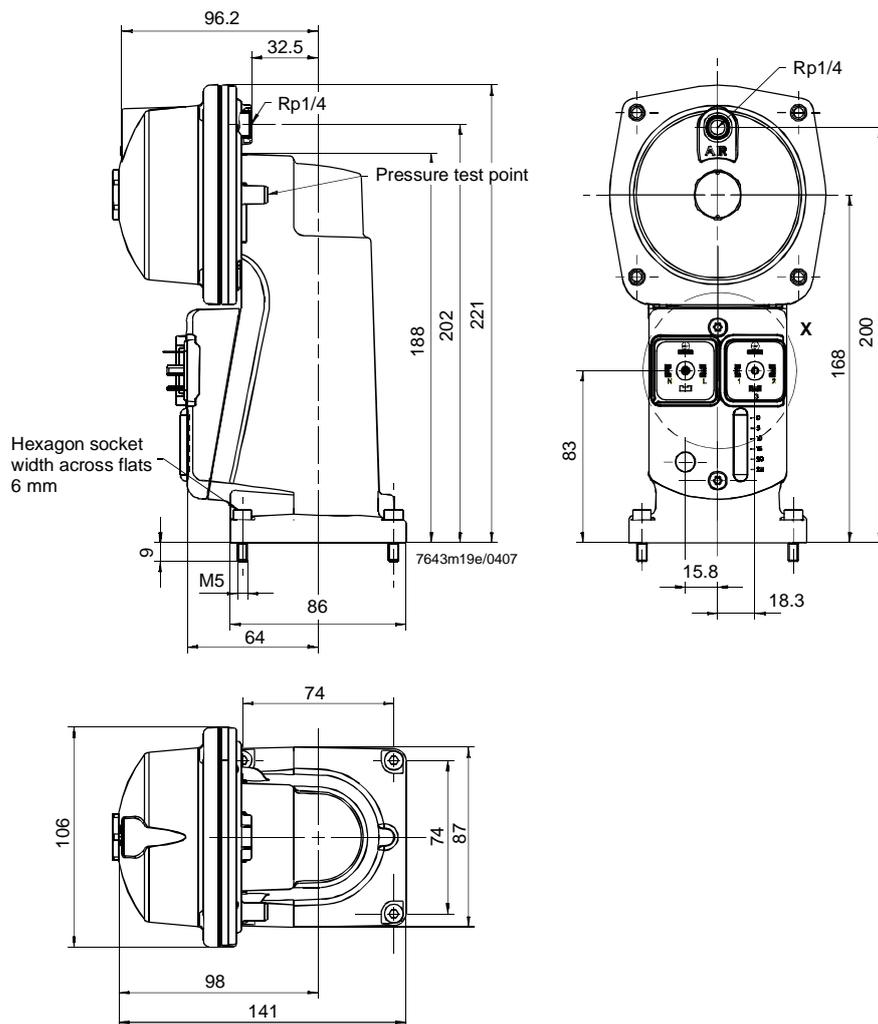
Actuator SKP15.1...



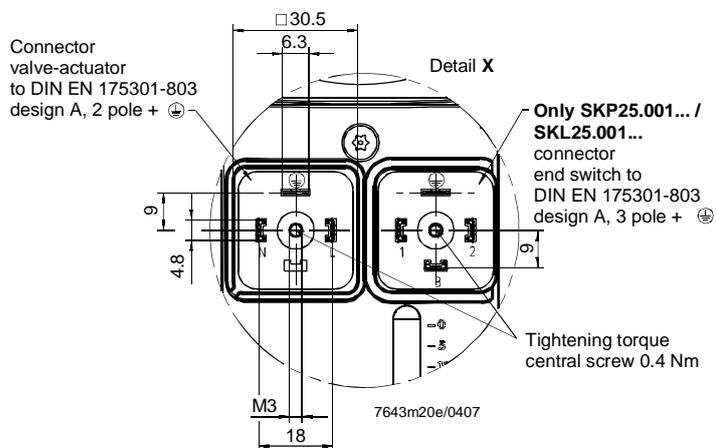
Dimensions (cont'd)

Dimensions in mm

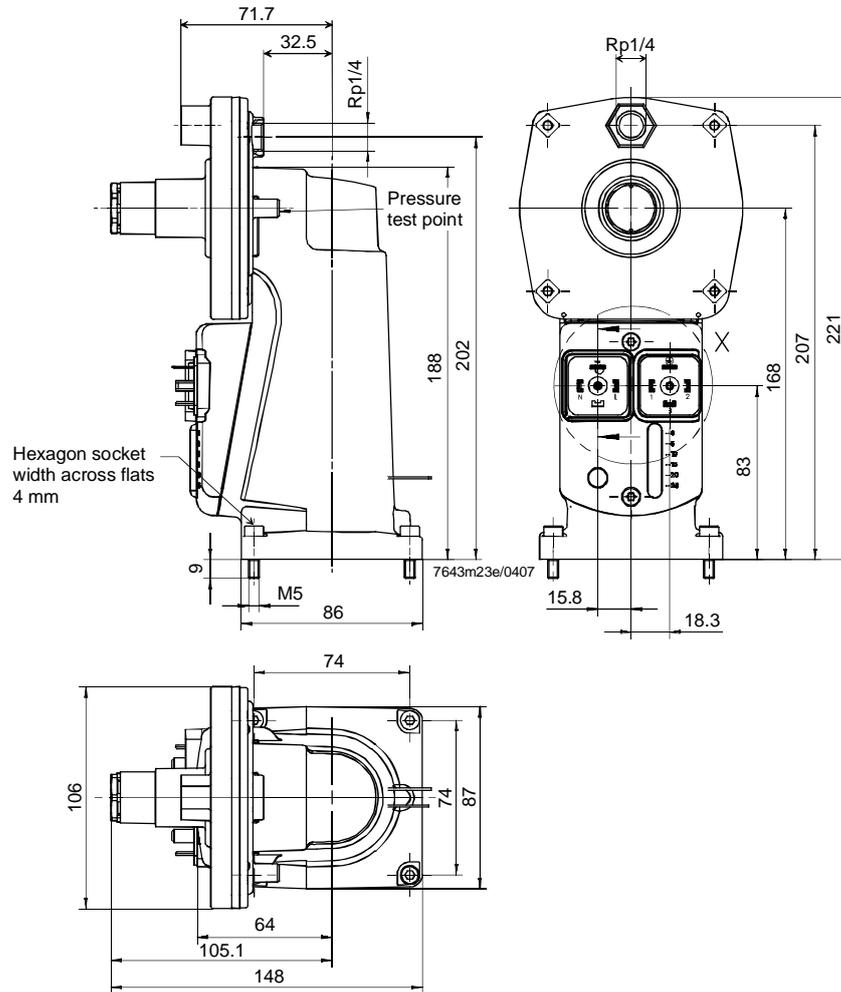
Actuator SKP25.0... /
SKP25.3... / SKP25.6...
/ SKL25...



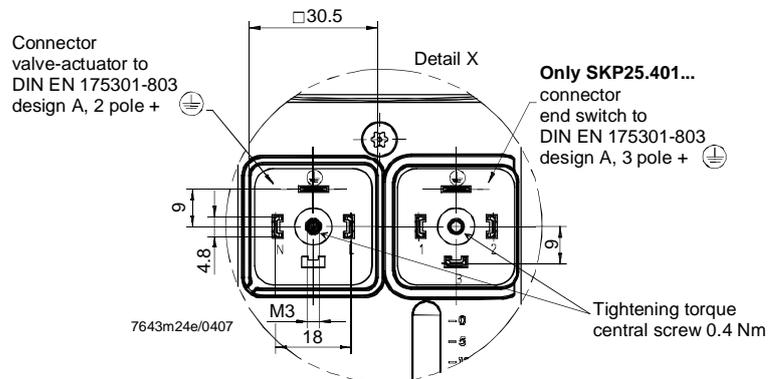
SKP25.001... / SKL25.001...



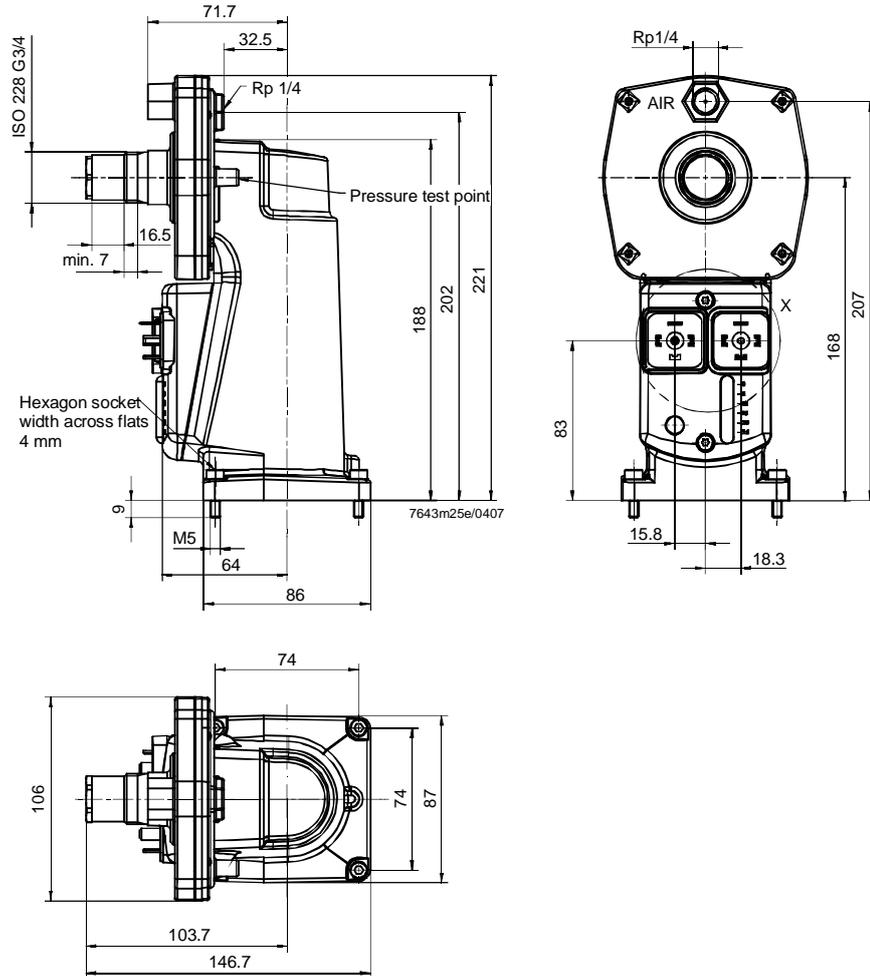
Actuators SKP25.4...



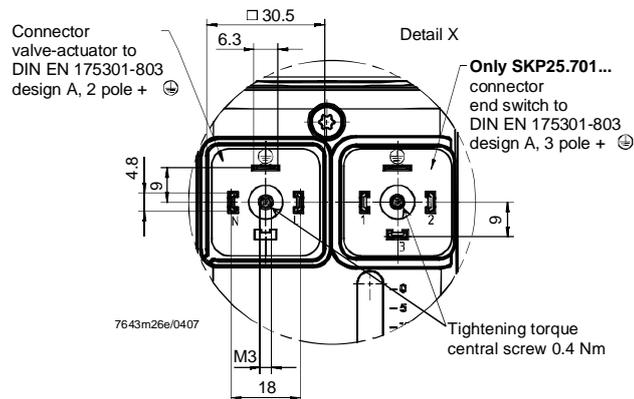
SKP25.401...



Actuator SKP25.7...
without SQS37...



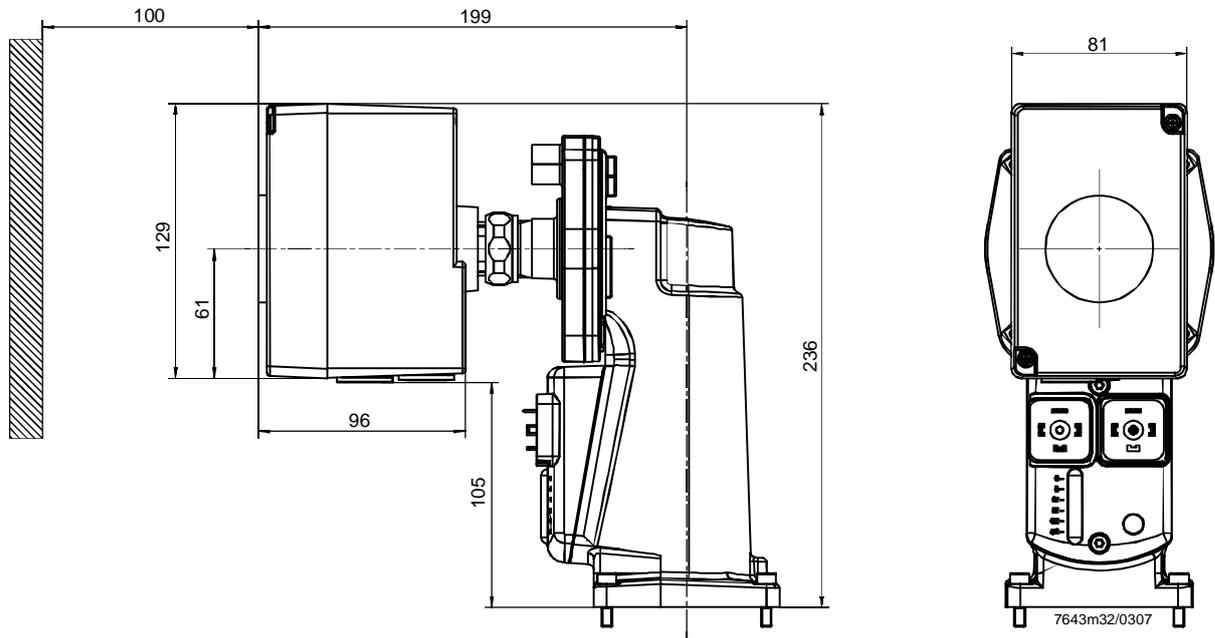
SKP25.701...



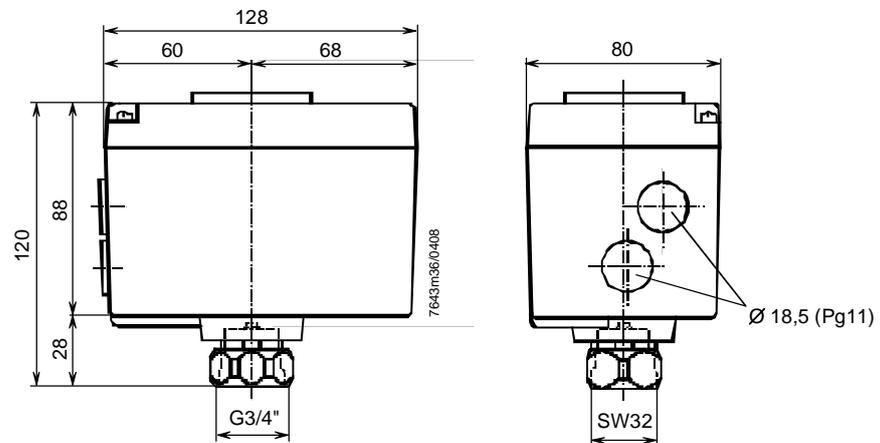
Dimensions (cont'd)

Dimensions in mm

Actuator SKP25.7...
with SQS37...



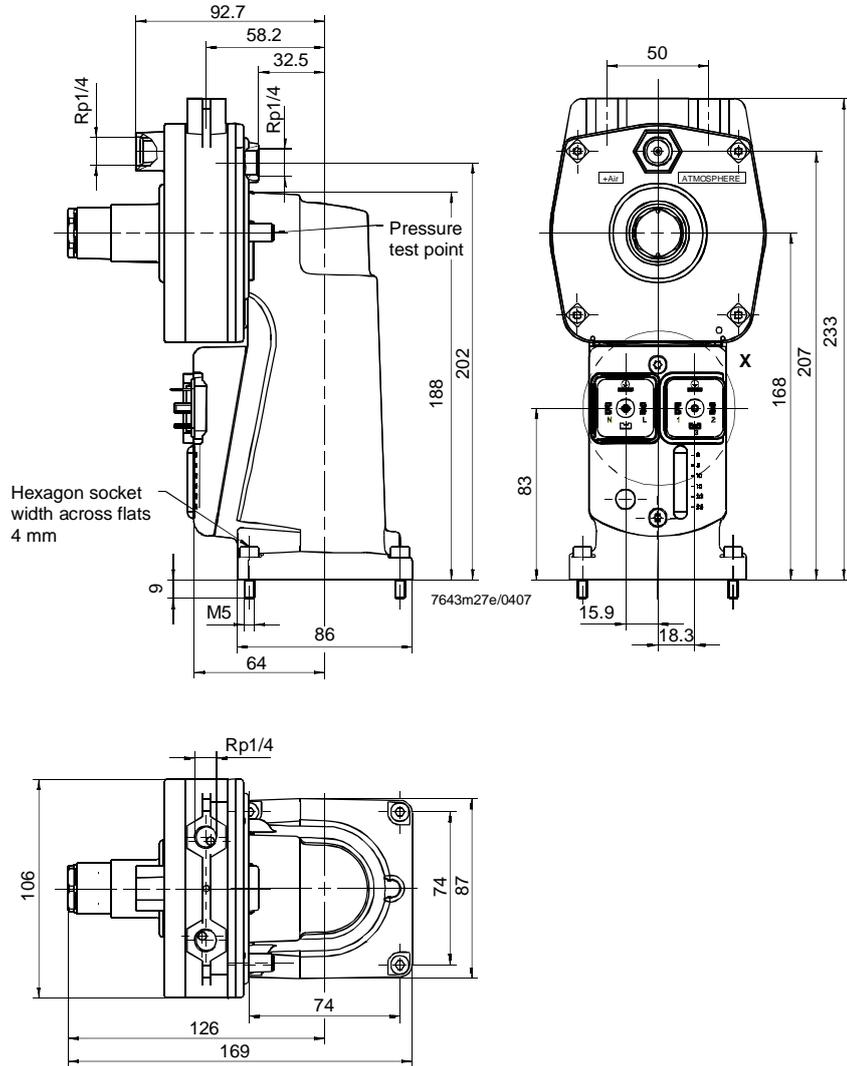
Motorized setpoint ad-
juster SQS37...



Dimensions (cont'd)

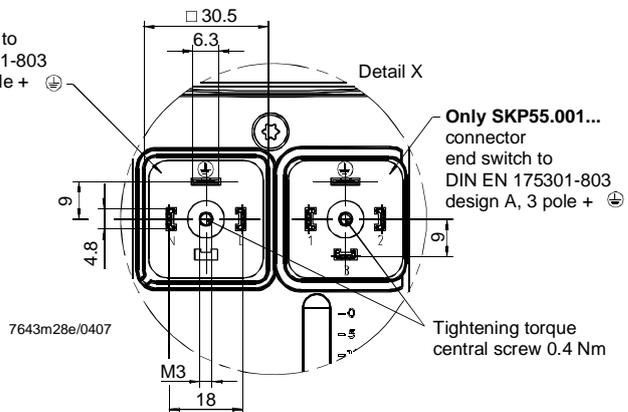
Dimensions in mm

Actuators SKP55...

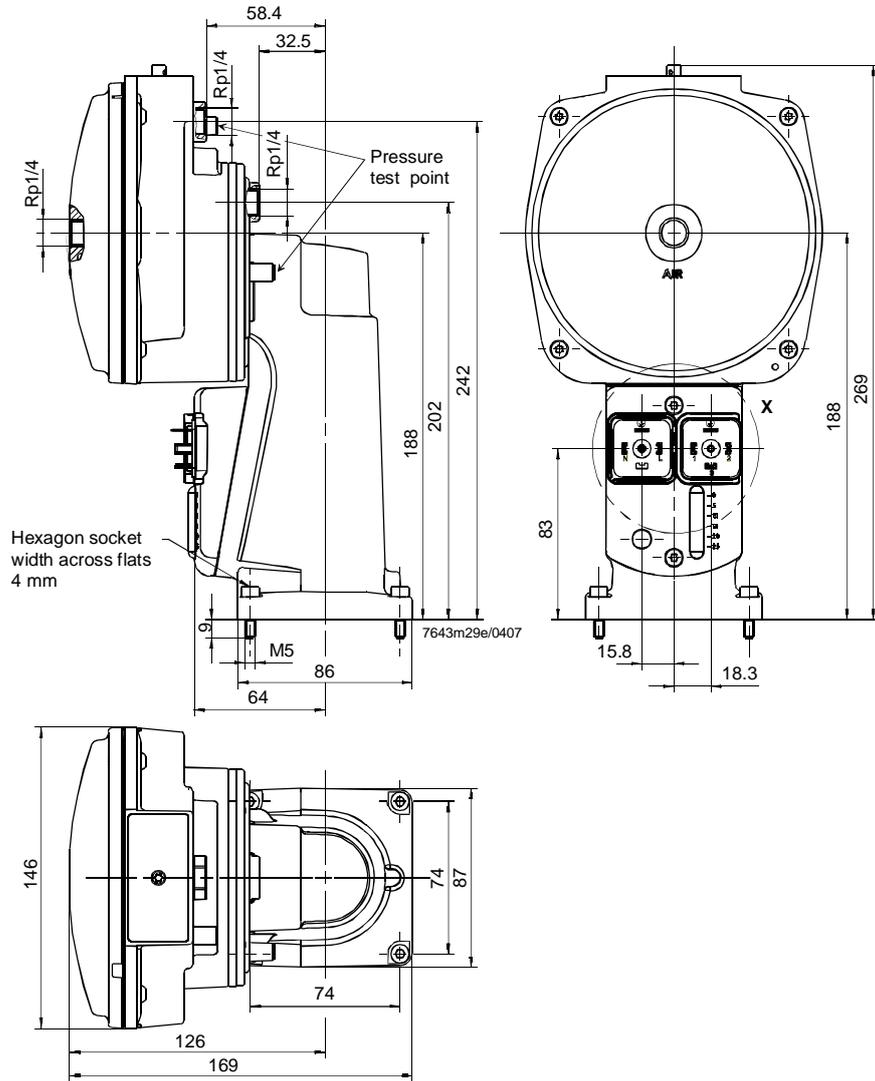


SKP55.001...

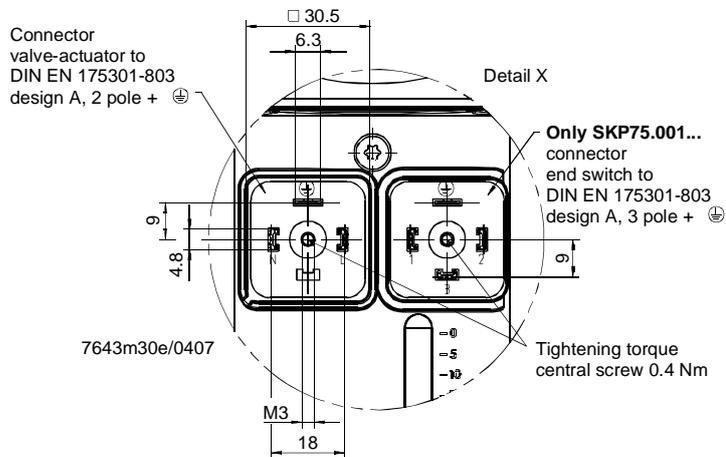
Connector valve-actuator to DIN EN 175301-803 design A, 2 pole + ⊕



Actuators SKP75...



SKP75.001...

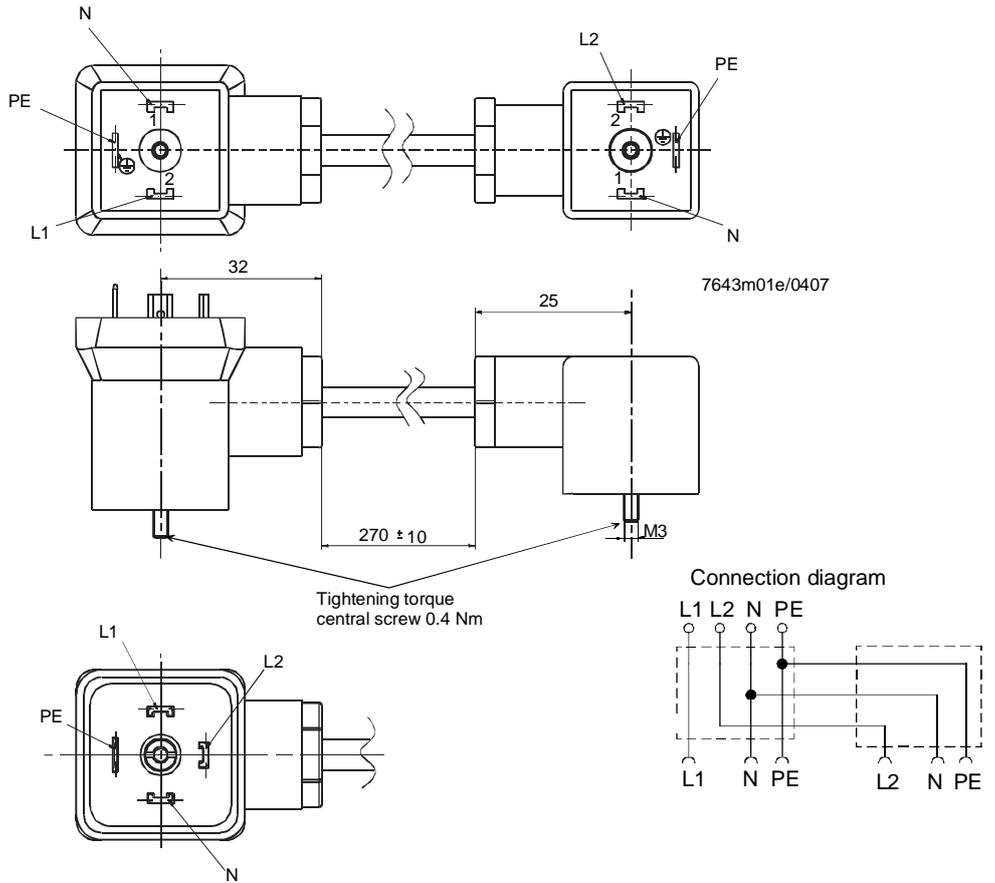


Dimensions (cont'd)

Adapter plug
AGA62.000A000

Dimensions in mm

- For 2 actuators mounted on one double valve



Adapter plug
AGA62.2...
(only SKP25.2...)

- For 2 actuators mounted on one double valve

