SIEMENS

7668

Combination Gas Valves VGU7xS... VGU8xS…

The combination gas valves type VGUxxS have been developed for use in gas-fired domestic central heating boilers and water heating appliances with automatic ignition systems and premix burners. The controls are also suited for use on a wide variety of gas-fired appliances such as catering equipment, warm air furnaces and back boilers.

The VGUxxS and this Data Sheet are intended for use by OEMs which integrate the combination gas valves in their products!

Use

- Compact design suitable for installation in small modern boilers and heaters
- Specially designed for gas appliances with DBI system to light the main burner
- Servo pressure regulator ensures stable outlet pressure

VGU7xS

Gas / air ratio 1:1

- 2 shutoff valves
- Servo pressure regulator
- Inlet / outlet pressure test points
- All adjustments are accessible from the top of combination gas valve
- A fine-mesh screen is integrated at the inlet side
- Setting parallel shift

VGU8xS

Gas / air ratio 1:1 with main flow throttle

- Same as VGU7xS
- Test point for gas pressure on ratio regulator
- Adjustment of gas volume

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

Do not open, interfere with or modify the combination gas valve!

- All activities (mounting, installation and service work, etc.) must be carried out by qualified staff
- Before making any wiring changes in the connection area, completely isolate the plant from mains supply (all-polar disconnection). Ensure that the plant cannot be inadvertently switched on again and that it is indeed dead. If not observed, there is a risk of electric shock hazard
- Ensure protection against electric shock hazard by providing adequate protection for the connection terminals
- 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
- Fall or shock can adversely affected the safety functions. Such valves must not be put into operation even if the unit does not exhibit any damage
- Use a suitable screwdriver to open or close manually the screws of the pressure test points. Observe the permissible tightening torque (refer to «Technical Data»). If this is not observed, the threaded connections of the pressure test points might get damaged, which can lead to loss of tightness

Ensure that the relevant national safety regulations are complied with.

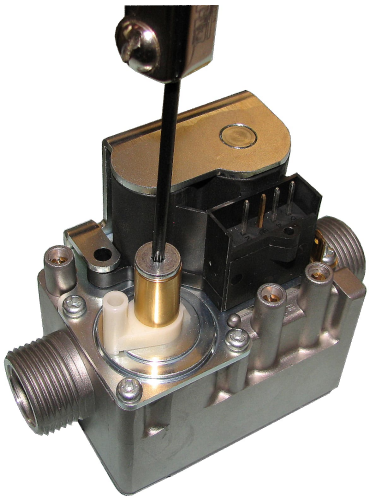
Note!
To adjust, use a TORX T15 screwdriver.

VGUxxS

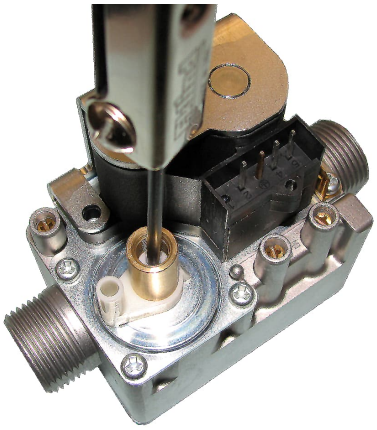
Adjustment of parallel shift for gas / air ratio

1. Check the inlet and outlet pressure using the pressure test points provided

2. Remove the protective cap



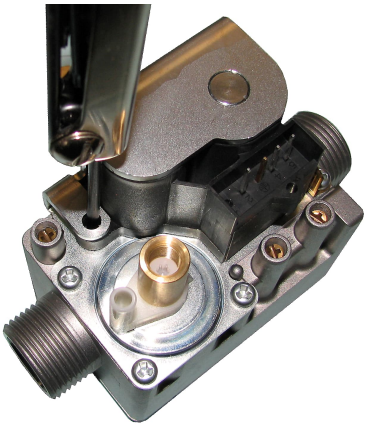
3.
- Rotate the screw (white color) **clockwise** to **increase** the outlet pressure (10 %)
- Rotate the screw (white color) **counterclockwise** to **decrease** the outlet pressure (10 %)
- Ensure that the outlet pressure is correctly adjusted before replacing the protective cap



Only VGU8xS

Adjustment of main gas flow throttle

- Rotate the screw (metallic color) **clockwise** to **increase** the gas flow
- Rotate the screw (metallic color) **counterclockwise** to **decrease** the gas flow



Installation notes

Main gas connection

- To prevent distortion and / or damage of the external thread, take care not to tighten the pipe fitting too far
- Ensure that the gasket is properly placed in the right position
- Ensure that the gas flow is in the same direction as the arrow on the valve body

Pressure test points

- The combination gas valve is provided with an inlet and outlet pressure test point
- When checking the pressure, undo the screw one half turn and slip the tube over the nipple

Note!
Make sure the screw is retightened after making the test.

Electrical connections

Warning!
Switch off power supply before making the electrical connections. Wiring must be in accordance with local regulations. Follow the instructions supplied by the manufacturer.

- Install power in accordance with the required pin connections (refer to «Function»)
- When making connections to the terminals of the combination gas valve, use wires and connectors which are suited for temperatures up to 105 °C

Checkout and installation

After each adjustment, put the control into operation, run it through several complete cycles and check to ensure that all burner components function correctly.

Standards and certificates

Applied directives:

- Low-voltage directive 2014/35/EU
- EU gas appliance regulation (EU) 2016/426
- Electromagnetic compatibility EMC (immunity) *) 2014/30/EU

*) The compliance with EMC emission requirements must be checked after the combination gas valve is installed in the 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 — BS EN 126
- Automatic electrical controls for household and similar use
  Part 1:
  General requirements — DIN EN 60730-1

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

EAC Conformity mark (Eurasian Conformity mark)

ISO 9001:2015
ISO 14001:2015
OHSAS 18001:2007

China RoHS
Hazardous substances table:
http://www.siemens.com/download?A6V10883536

Only VGU86S.K0209

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Service notes

Important!
Follow the appliance manufacturer's service and maintenance instructions!

Gas leakage test

- Combination gas valves are factory-tested for gas leakage
- After any activity in the field (mounting, installation, service work, etc.), make a safety check including valve proving test

Life cycle

Combination gas valves has a designed lifetime* of 500,000 burner startup cycles which, under normal operating conditions in heating mode, correspond to approx. 10 years of usage (starting from the production date given on the type field).

This lifetime is based on the endurance tests specified in 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 Combination Gas Valves according to the manufacturer's Data Sheet.
After reaching the designed lifetime in terms of the number of burner startup cycles, or the respective time of usage, the Combination Gas Valves is to be replaced by authorized personnel.

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

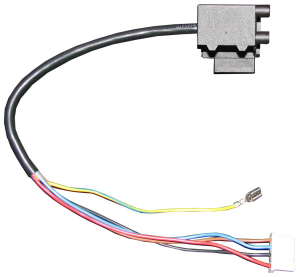
Disposal

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

Type reference

Article no.	Type	Type class of shutoff valve	Power supply	For direct burner ignition	Versions of terminal arrangement	¾" inlet / outlet thread, gas line straight	Gas-air ration controller	
							With main flow throttle	Without main flow throttle
BPZ:VGU76S.C0209	**VGU76S.C0209**	B and C	AC 230 VR	●	0	●	---	●
BPZ:VGU76S.H0209	**VGU76S.H0209**	B and C	DC 24 V	●	0	●	---	●
BPZ:VGU86S.A0209	**VGU86S.A0209**	B and C	AC 230 V	●	1	●	●	---
BPZ:VGU86S.H0209	**VGU86S.H0209**	B and C	DC 24 V	●	0	●	●	---
BPZ:VGU86S.K0209	**VGU86S.K0209**	B and C	AC 120 VR	●	0	●	●	---

Accessories



Ignition Equipment TQG4, combined with connecting cable
The TQG4 consists of a cable for connection to the safety shutoff valves of the VGUxxS combination gas valves and electronic ignition equipment for use on gas boilers with single- or double-pole ignition.
Refer to Data Sheet N7630.

Gas / air mixing unit AGU3.7, for compact gas control loops in connection with combination gas valves VGUxxS
Suited for gas-fired appliances of low capacity (wall-hung and floor-standing models) with modulating premix burners.
Refer to Data Sheet N7214.

Technical data

General unit data	Type selection	See *Type reference*
	Mounting position	Vertical or horizontal ±5°
	Types of gas	Gas families II and III
	Gas inlet pressure	Max. 6 kPa
	Operating voltage tolerance	Combination gas valve operates correctly between 85 % and 110 % of rated voltage
	Degree of protection	IP44 according to EN 60529:1991 + A1:2000 + A2:2013 With optional connector
	Dimensions	Refer to «Dimensions»
	Inlet filter	No. 100 fine mesh
	Pipe connections	Refer to «Type code»
	Connection for inlet and outlet pressure	9 mm outside dia. tube
	Connection for air pressure supply	6.5 mm outside dia. tube
	Regulation capacity	Min. 0.30 m³/h air
	Outlet pressure range	0.05…1.5 kPa
	Perm. tightening torque for screws of pressure test points	Max. 2 Nm **Recommendation:** Use a Torx screwdriver
	Valve class - 1st safety valve - 2nd safety valve	EN 126:2012 Class B Class C
	Class of regulator	EN 126:2012, class B
	Closing time of safety shutoff valves	Within 1 s
	Maximum pressure difference with closed shut-off valve	Gas outlet pressure minus air signal ±1.2 kPa
	Capacity in m³/h air at pressure drop flow rate at pressure drop of 0.5 kPa	3.6 m³/h air
	Weight	Approx. 640 g
Electrical connections	Safety shutoff valves	Molex contact 3003 Molex, suitable for jack Molex series 3001

Electrical data

Power consumption and current:

Type	Pin connection	1st and 2nd shut off valve		
		Supply voltage	Power consumption	Current
VGUxxS.A…	1	230 VAC	12 VA	52 mA
VGUxxS.C…	0	230 VRAC	12 VA	52 mA
VGUxxS.H…	0	24 VDC	12 VA	500 mA
VGUxxS.K...	0	120 VRAC	12 VA	100 mA

Technical data (cont´d)

Environmental conditions	**Storage**	
	Temperature range	-30...+70 °C
	Humidity	<95 % r.h.
	Transport	
	Temperature range	-20...+60 °C
	Humidity	<95 % r.h.
	Operation	
	Temperature range	-20...+60 °C
	- VGU86S.H...	-20...+70 °C
	Humidity	<95 % r.h.
	Installation altitude	Max. 2,000 m above sea level

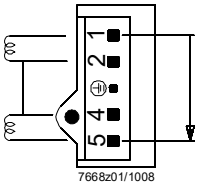
Caution!
Condensation, formation of ice and ingress of water are not permitted!

Function

Pin connections

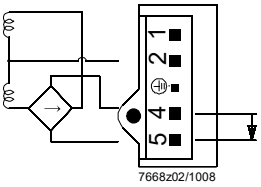
3 types of terminal arrangements are available for using different types of cable connectors.

Variant 0



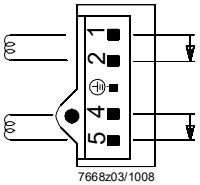
VRAC or VDC

Variant 1



VAC
(Full wave rectifier is integrated in the terminal for electrical connection)

Variant 2



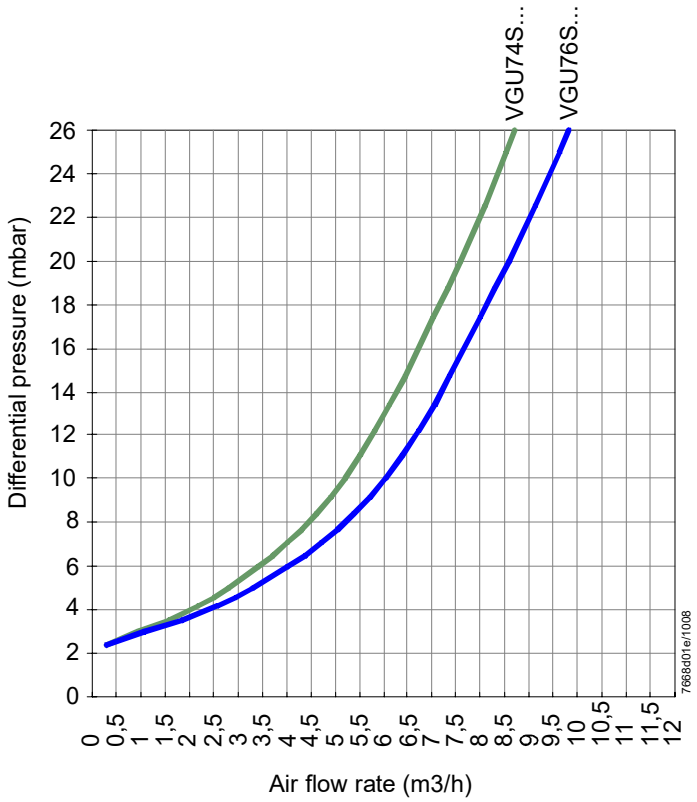
VRAC or VDC (2nd shutoff valve)

VRAC or VDC (1st shutoff valve)

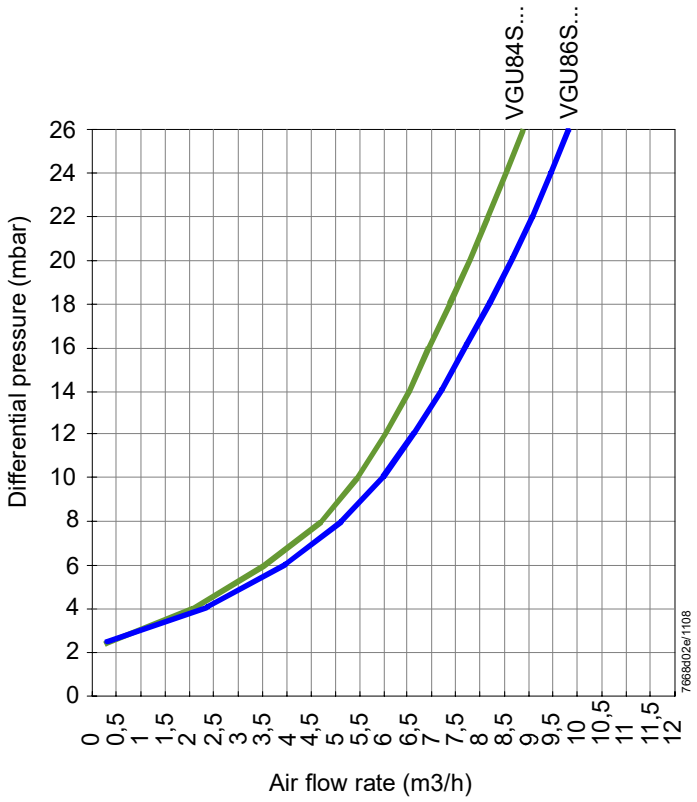
Note!
The coils for safety shutoff function of the gas combination valves VGUxxS are designed for direct current (DC).

Flow chart for classes B and C

VGU74S
VGU76S

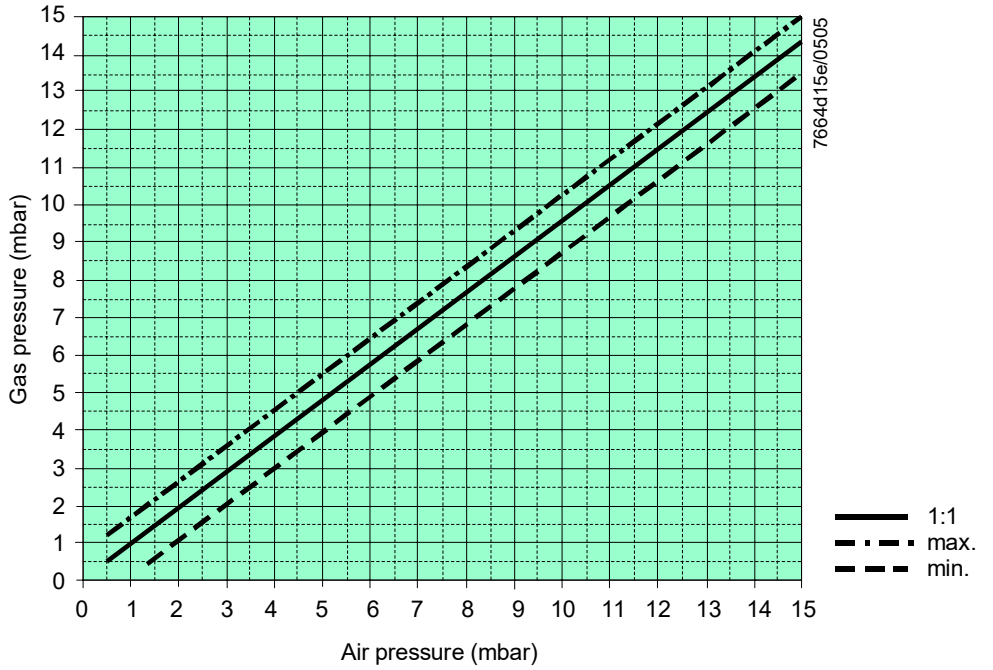


VGU84S
VGU86S

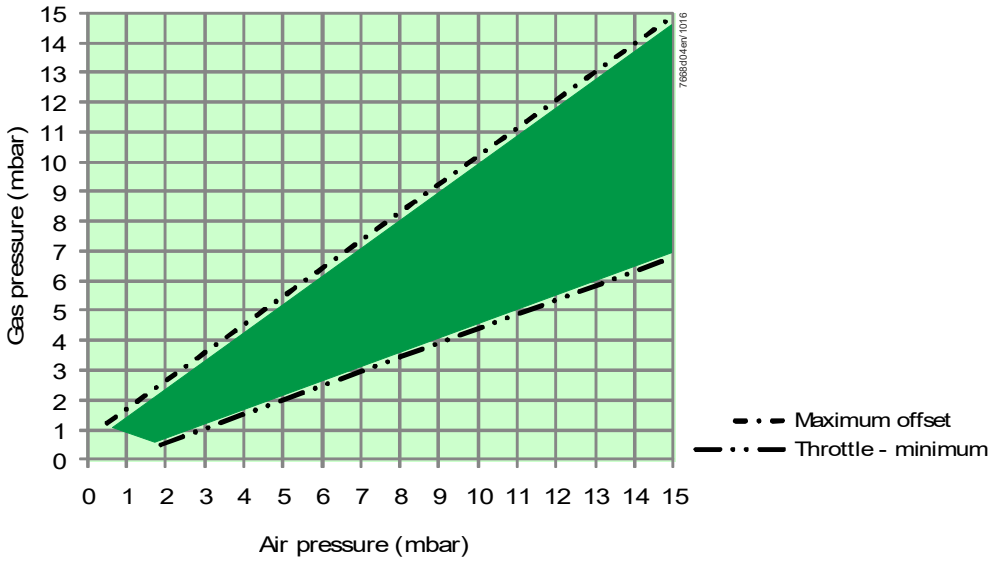


Performance characteristics

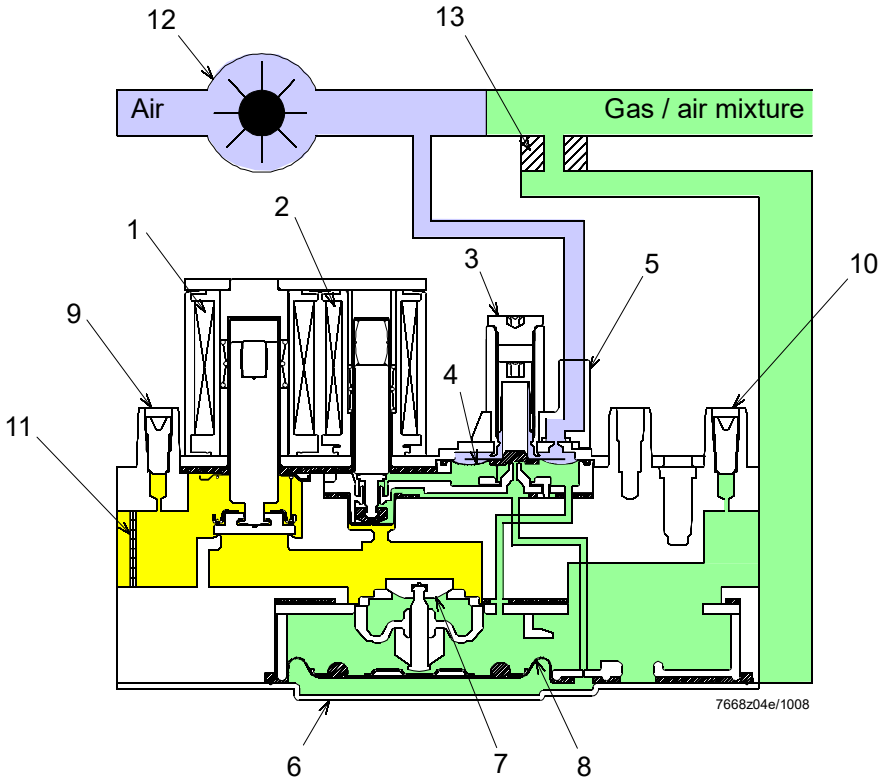
Parallel shift can be adjusted with a screw on the servo pressure regulator.



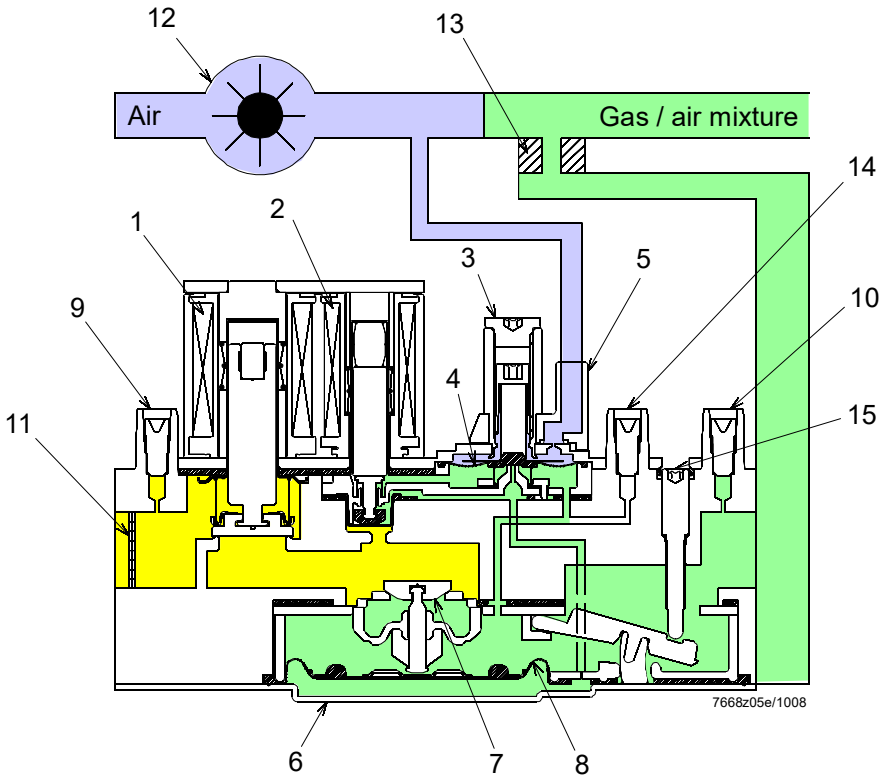
Adjustment of gas flow with main flow throttle.



Sectional view of VGU7xS



Sectional view of VGU8xS

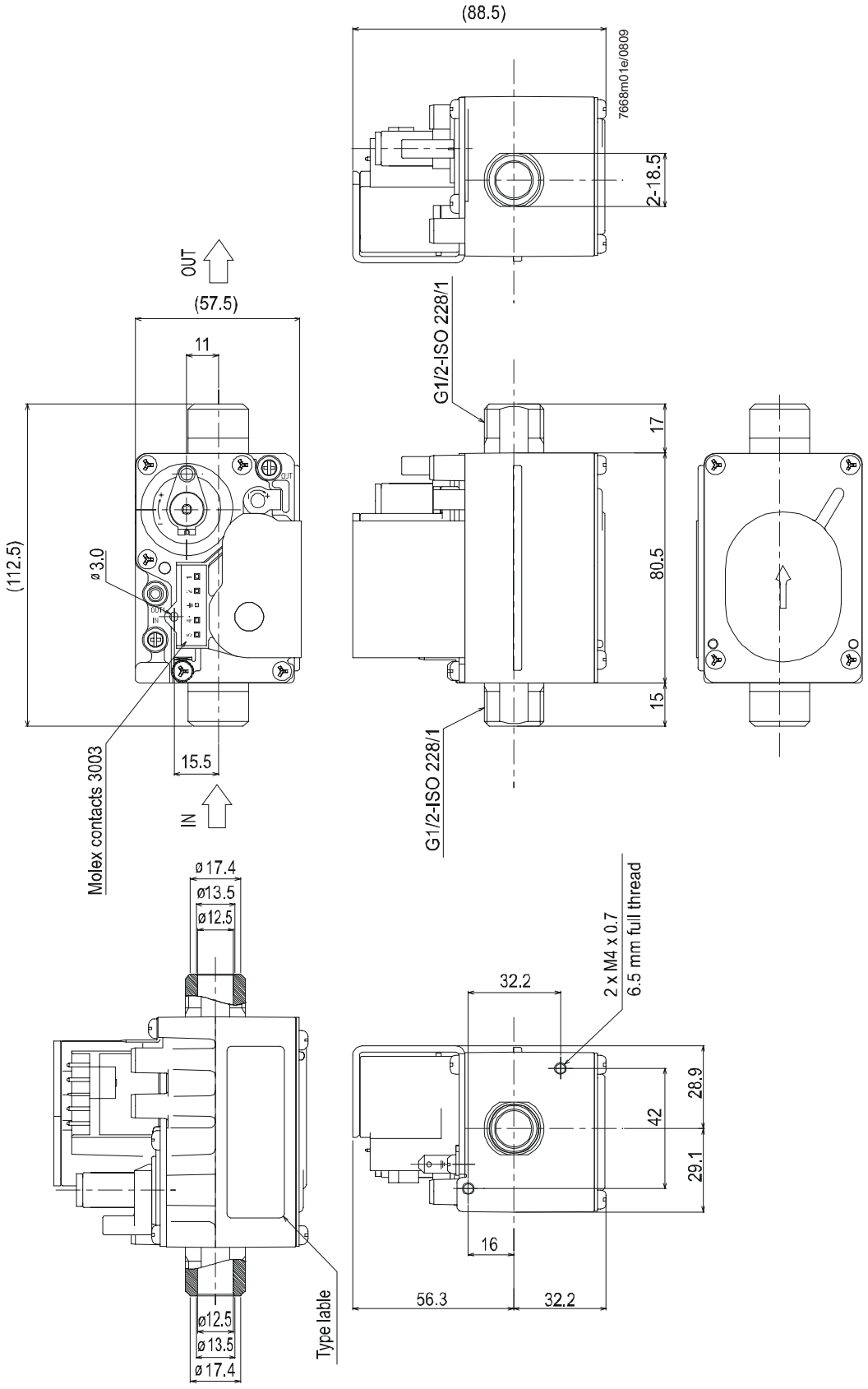


Legend

1	Main safety shutoff valve (class B)	9	Inlet pressure
2	Operating valve	10	Outlet pressure
3	Gas / air ratio regulator	11	Filter
4	Servo diaphragm	12	Fan for combination air
5	Connection for air pressure	13	Gas nozzle
6	Gas inlet governor (class C)	14	Gas pressure at ratio regulator
7	2nd shutoff valve (control cone)	15	Main gas flow throttle
8	Main diaphragm		

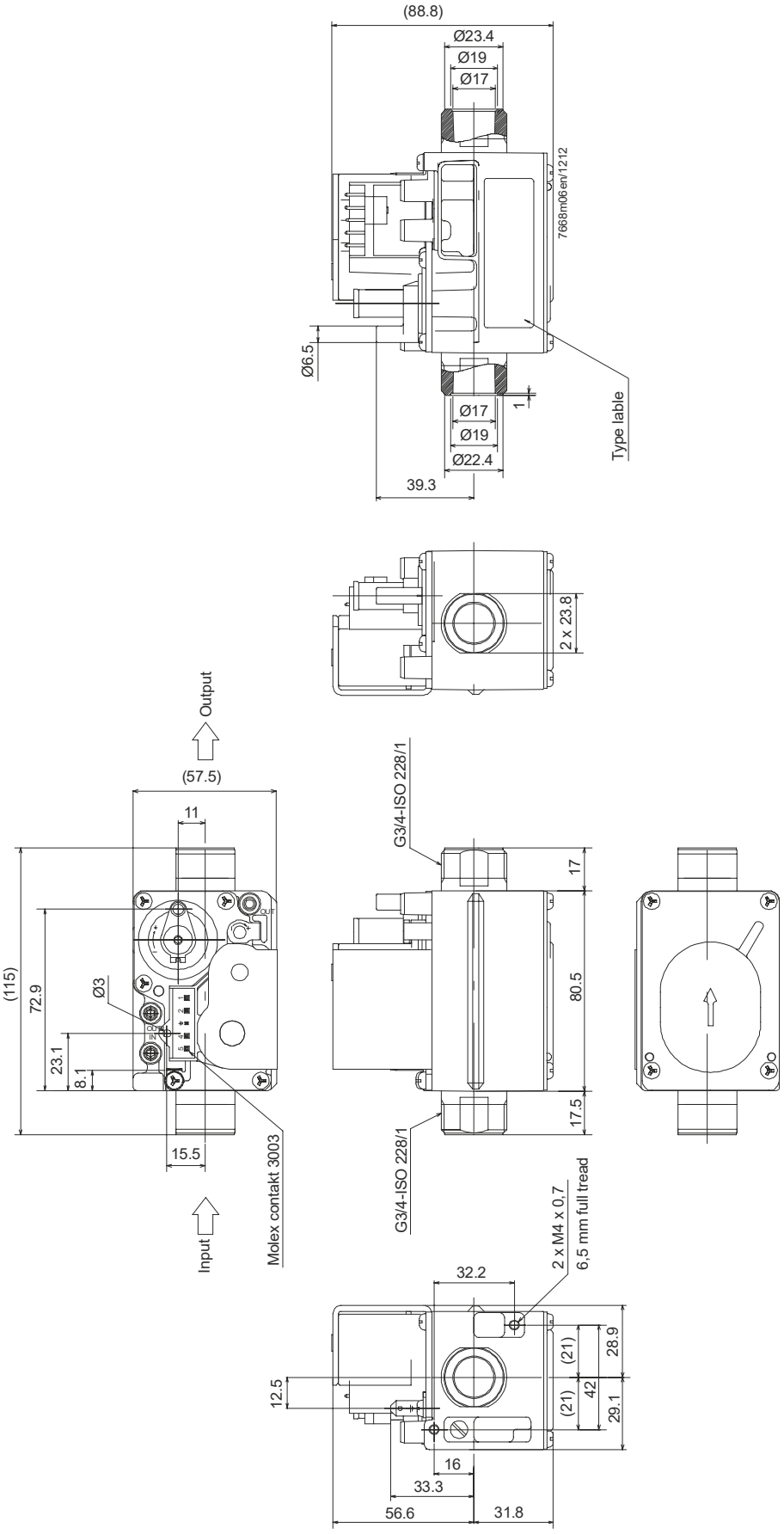
Dimensions in mm

VGU74S



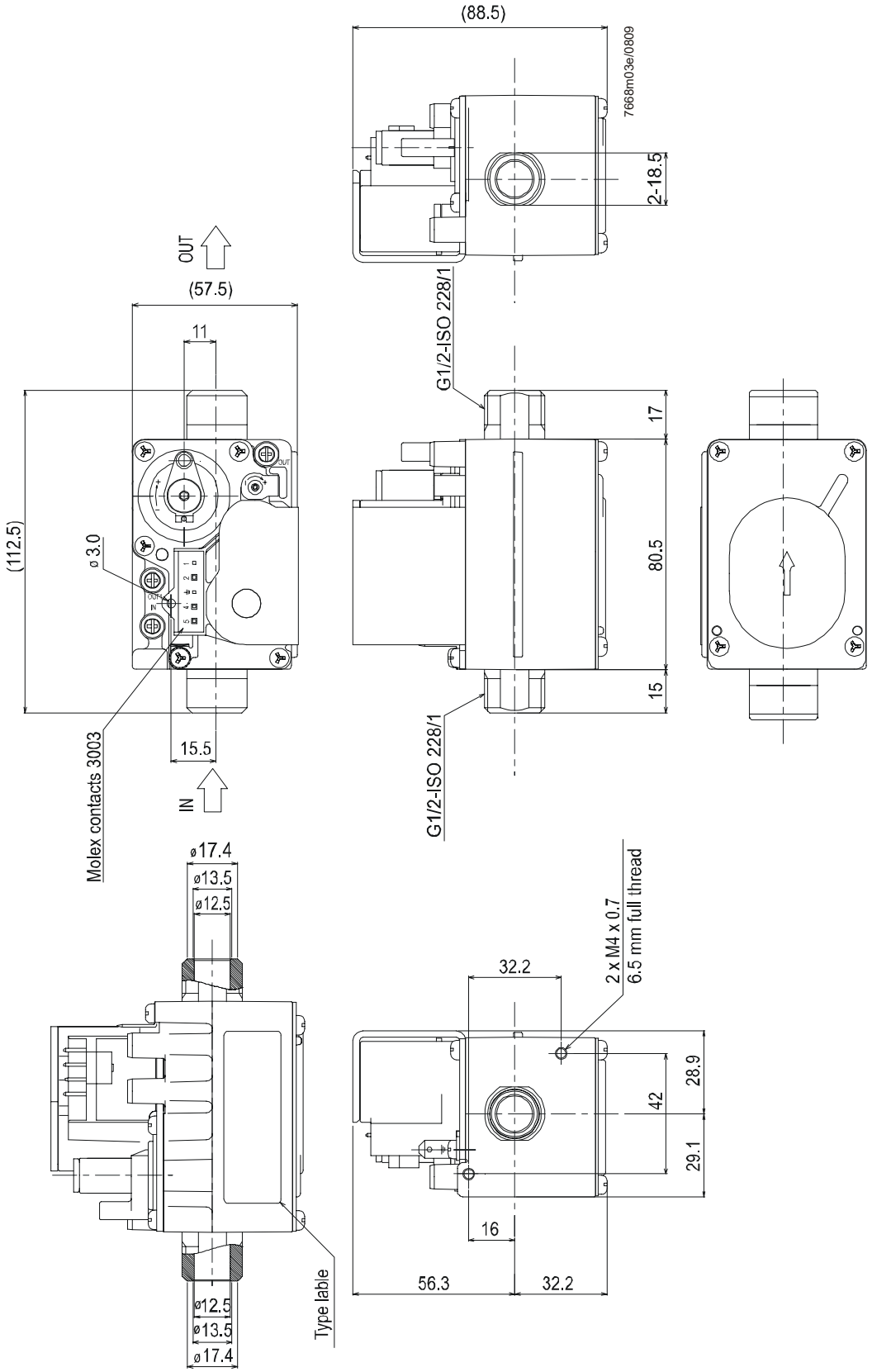
Dimensions in mm

VGU76S



Dimensions in mm

VGU84S



Dimensions in mm

VGU86S