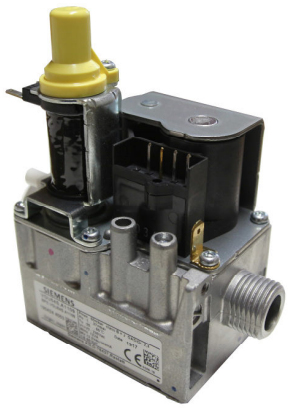
SIEMENS

7667



Combination Gas Valves VGU5xS...

The combination gas valves type VGU5 have been developed for use in gas-fired domestic central heating boilers and water heating appliances with automatic ignition systems. 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 VGU5 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 gas boilers and gas heaters
- Specially designed for gas appliances with DBI system to light the main burner
- Servo pressure regulator ensures stable outlet pressure
- Pressure feedback ensures constant burner pressure

Functional options

- Modulating control for more comfort and energy savings

Mechanical options

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



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

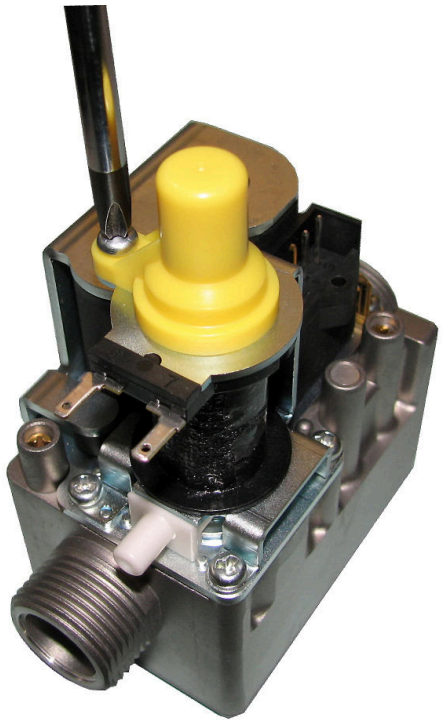
Do not open, interfere with or modify the valve!

- All activities (mounting, installation and service work, etc.) must be performed 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 affect 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

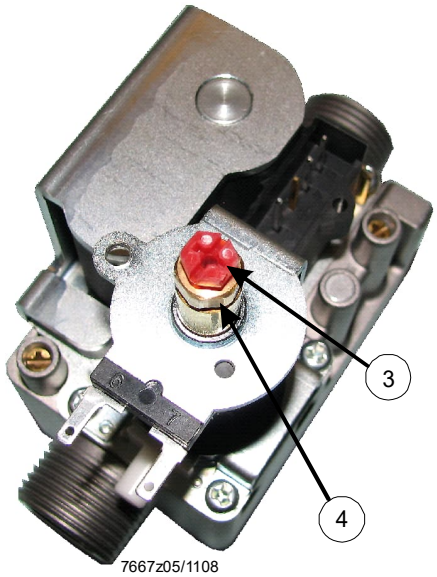
Mounting notes

- Ensure that the relevant national safety regulations are complied with

Outlet pressure of servo pressure regulator – modulating control of VGU5



- Remove the protective cap



7667z05/1108

- Check the inlet and outlet pressure using the pressure test points provided. Remove the protective cap (yellow).
  If the inlet pressure is the nominal pressure, the voltage must be applied to the modulating coil, so that the maximum modulating current flows.
  To set the maximum outlet pressure:
  - Turn the brass screw ④ clockwise to increase the outlet pressure
  - Turn the brass screw ④ counterclockwise to decrease the outlet pressure
  - Ensure that after achieve of state «outlet pressure ≤ inlet pressure - ΔP valve» the setting screw for the outlet pressure must not longer turned clockwise.
- To set the minimum outlet pressure:
  If the inlet pressure is the nominal pressure, disconnect the terminals of the modulating coil (modulating current = 0 mA)
  - turn the plastic screw ③ clockwise to increase the outlet pressure
  - turn the plastic screw ③ counterclockwise to decrease the outlet pressure
- Ensure that the outlet pressure is correctly adjusted, check minimum and maximum setting several times, then tighten the protective cap for protection

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 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 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!
After checking the pressure, ensure that the screw is tightened again and valve proving effected.

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 valve, use wires and connectors which are suited for temperatures up to 105 °C

Checkout and installation

Make sure that all burner components function correctly, therefore the unit must be put into operation after each setting, must be observed during several operation cycles and must be served one safety test.

Standards and certificates

Applied directives:

- Low-voltage directive 2014/35/EC
- Gas Appliances Regulation (EU) 2016/426
- Electromagnetic compatibility EMC (immunity) *) 2014/30/EC

*) 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:

- Multifunctional controls for gas burning appliances BS EN 126
- Automatic electrical controls for household and similar use DIN EN 60730-1
  Part 1:
  General requirements

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

EAC Conformity mark (Eurasian Conformity mark)

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

Service notes

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

Gas leakage test

The gas valves are factory-tested for gas leakage. Only the main burner connection needs to be checked for gas leakage.

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 and the table containing the relevant test documentation as published by the European Association of Component Manufacturers (Afecor) (www.afecor.org).

The designed lifetime is based on use of the Combination Gas Valves according to the 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

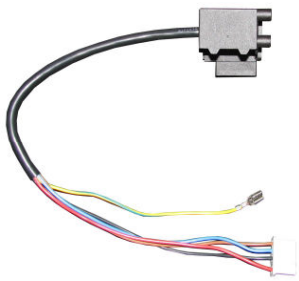
The unit contains electrical and electronic components and must not be disposed of together with household waste. Local and currently valid legislation must be observed.

Type code

Article no.	Type	Type class of shutoff valve	Modulation coil	Power supply and terminal arrangement	Valve body
BPZ:VGU54S.A11xx	VGU54S.A11xx	Class B and J	165 mA	AC 230 V for DBI / version 1	½“ inlet / outlet flange, gas line straight
BPZ:VGU54S.J11xx	VGU54S.J11xx	Class B and J	165 mA	AC 120 V for DBI / version 1	½“ inlet / cutlet flange, gas line straight
BPZ:VGU56S.A11xx	VGU56S.A11xx	Class B and J	165 mA	AC 230 V for DBI / version 1	¾“ inlet / cutlet flange, gas line straight

Note
Other housing types, voltage variants, or specifications for the 310 mA circulation sphere available on request.

Accessories



Ignition Equipment TQG4, combined with connecting cable
The TQG4 consists of a cable for connection to the safety shutoff valves of the VGU5 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 VGU5.
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	Refer to «Type code»
	Mounting position	Vertical or horizontal ±5°
	Types of gas	Gas families II and III
	Gas inlet pressure	Max. 60 mbar
	Operating voltage tolerance	Gas valve operates correctly between 85% and 110% of the nominal 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 inlet and outlet	Refer to «Type code»
	Pressure feedback connection	6.5 mm outside dia. for tube connection
	Regulation capacity	Min. 0.31 m³/h air
	Outlet pressure range for modulating controller	1...37 mbar
	Perm. tightening torque for screws of pressure test points	Max. 2 Nm **Recommendation:** Use a Torx screwdriver
	Valve class • 1st safety shutoff valve • 2nd safety shutoff valve	EN 126:2012 Class B Class J
	Class of regulator	EN 126:2012, class B
	Closing time of safety valves	Within 1 s
	Weight	Approx. 710 g
Electrical connections	Safety shutoff valves	Molex contact 3003, suitable for Molex series 3001
	Electrical modulating coil	Quick connectors suitable for Faston jack 2,8 mm

Technical data (cont´d)

Electrical data

Power consumption and current

Type	Pin connection	1st shutoff valve			2nd shutoff valve			1st and 2nd shut off valve		
		Supply voltage	Power consumption	Current	Supply voltage	Power consumption	Current	Supply voltage	Power consumption	Current
VGU5xS.Ax	1	---	---	---	---	---	---	230 VAC	12 VA	52 mA
VGU5xS.Bx	1	---	---	---	---	---	---	24 VAC	12 VA	---
VGU5xS.Cx	0	---	---	---	---	---	---	230 VRAC	12 VA	52 mA
VGU5xS.Dx	0	---	---	---	---	---	---	---	---	---
VGU5xS.Ex	2	230 VRAC	---	---	230 VRAC	---	---	---	---	---
VGU5xS.Fx	2	24 VRAC	---	---	24 VRAC	---	---	---	---	---
VGU5xS.Hx	0	---	---	---	---	---	---	24 VDC	12 VA	500 mA
VGU5xS.Ix	2	24 VDC	---	---	24 VDC	---	---	---	---	---
VGU5xS.Jx	1	---	---	---	---	---	---	120 VAC	12 VA	100 mA
VGU5xS.Kx	0	---	---	---	---	---	---	120 VAC	12 VA	100 mA

Electrical modulating pressure regulator:

Operating voltage	Current	Resistance
Max. 13.2 V	Max. 165 mA	80 Ω
Max. 9.2 V	Max. 310 mA	30 Ω



Note!
The coils for safety shutoff function of the gas combination valves VGU5xS are designed for direct current (DC).

Environmental conditions

Storage	
Temperature range	-20...+60 °C
Humidity	<95% r.h.
Transport	
Temperature range	-20...+60 °C
Humidity	<95% r.h.
Operation	
Temperature range	0...+60 °C
	-20...+60 °C
Humidity	<95% r.h.
Installation altitude	Max. 2,000 m above sea level



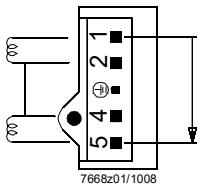
Caution!
Condensation, formation of ice and ingress of water are not permitted!

Function

Pin connections

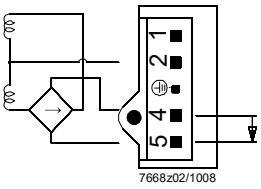
3 types of terminal arrangements are available for using different types of cable connectors.

Variant 0



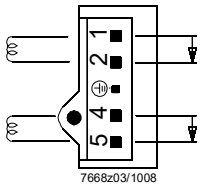
VRAC or VDC

Variant 1



VAC
(Full wave rectifier is integrated in the terminal)

Variant 2



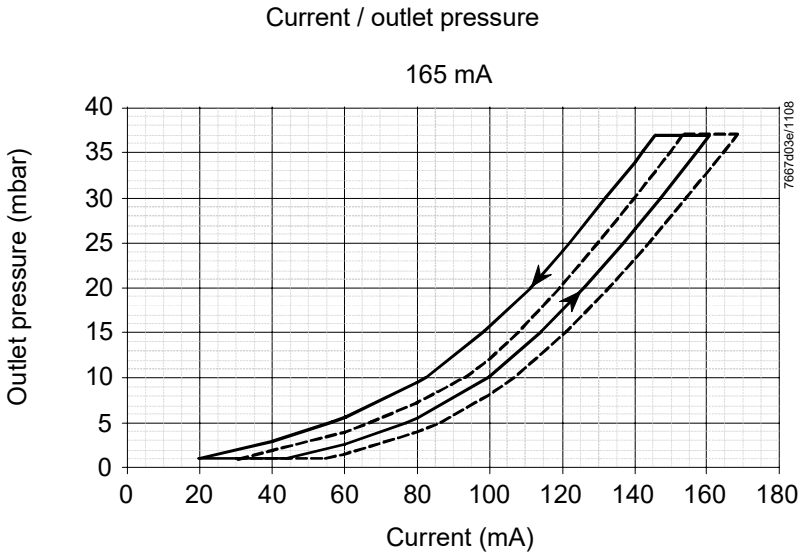
VRAC or VDC (2nd shutoff valve)

VRAC or VDC (1st shutoff valve)

Note!
The coils for safety shutoff function of the gas combination valves VGU5xS are designed for direct current (DC).

Modulating control characteristics of VGU5

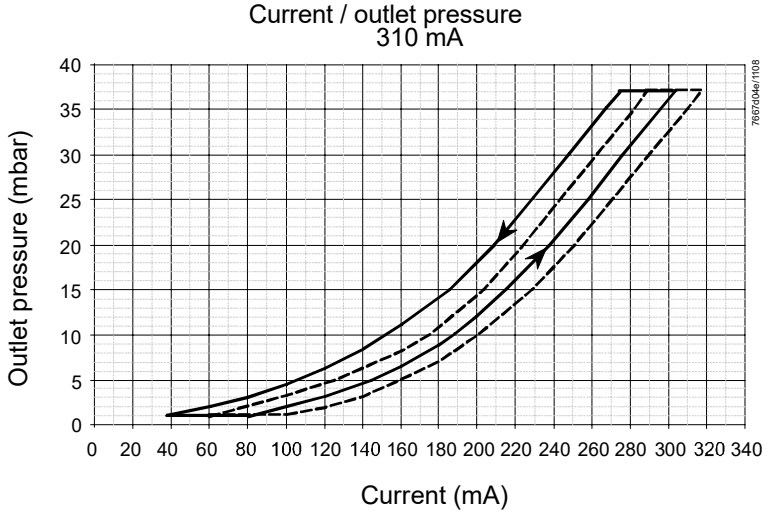
Modulating coil: 13.2 V / 165 mA



—— Increasing and decreasing arrow line indicates the max. hysteresis of I-P2 curve

------ Max. tolerance of increasing I-P2 curve

Modulating coil: 9 V / 310 mA



—— Increasing and decreasing arrow line indicates the max. hysteresis of I-P2 curve

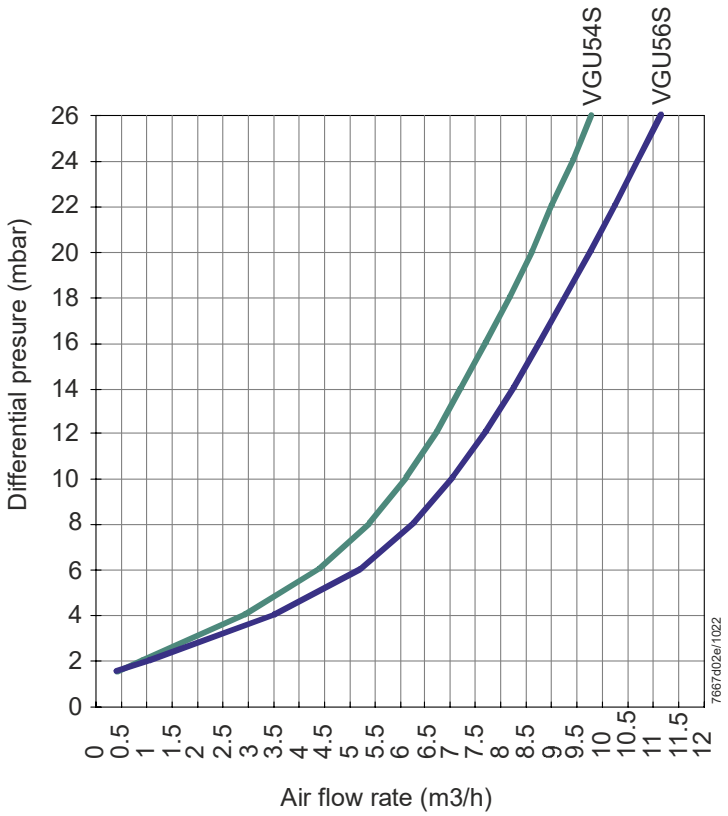
------ Max. tolerance of increasing I-P2 curve

Function (cont'd)

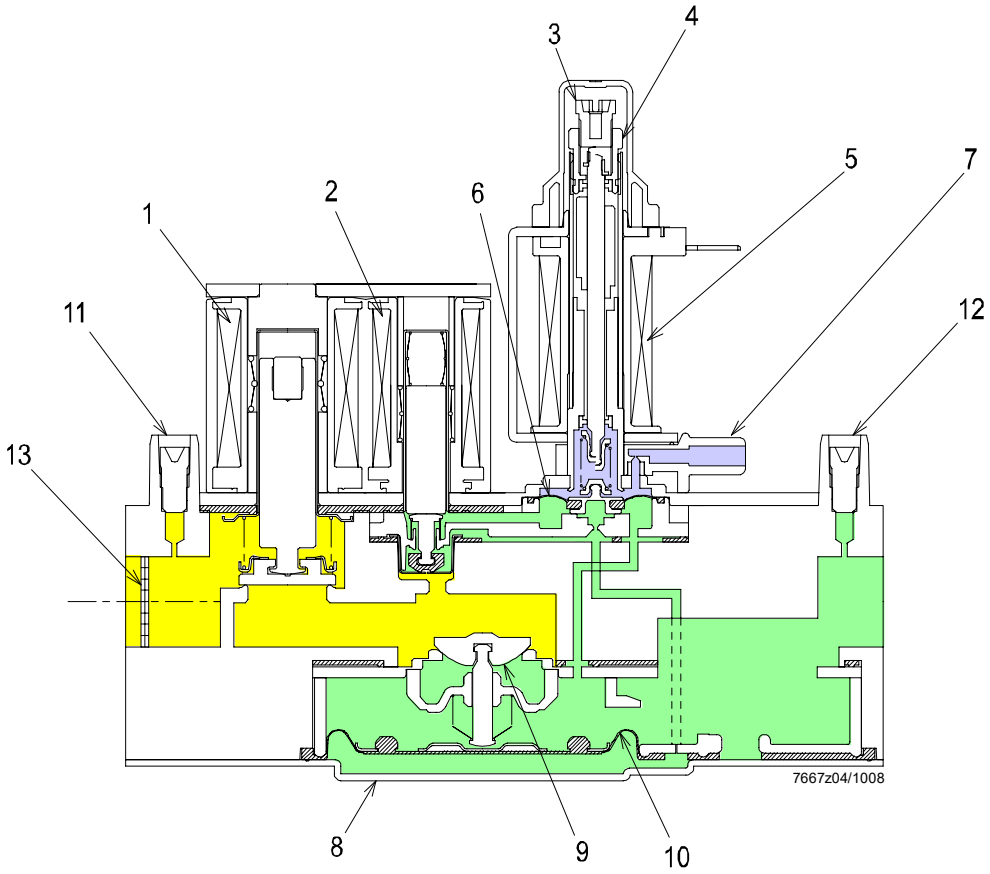
Capacity in m³/h air at pressure differential	Solenoid valve class	B + D (J)
	Flow rate at a pressure drop of 5 mbar	4.3 m³/h air

Flow rate chart of classes B and J

VGU54
VGU56



Sectional view of VGU5



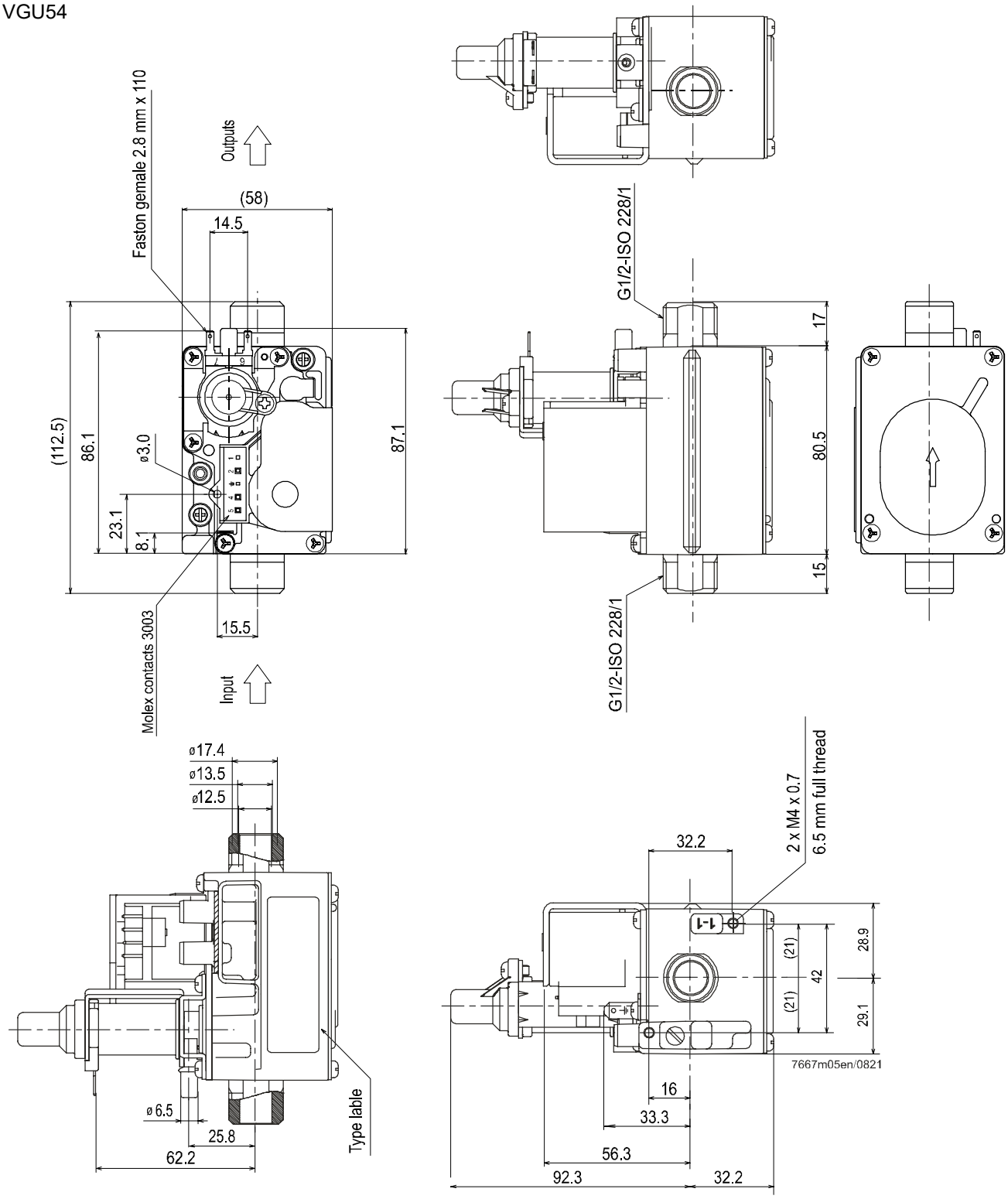
Legend

1 1st shutoff valve (class B)
2 Operating valve
3 Setting screw minimum outlet pressure
4 Setting screw maximum outlet pressure
5 Modulating coil
6 Servo diaphragm
7 Pressure feedback combustion chamber
8 Gas inlet governor
9 2nd shutoff valve (control cone)
10 Main diaphragm
11 Inlet pressure
12 Outlet pressure
13 Filter

Dimensions

Dimensions in mm

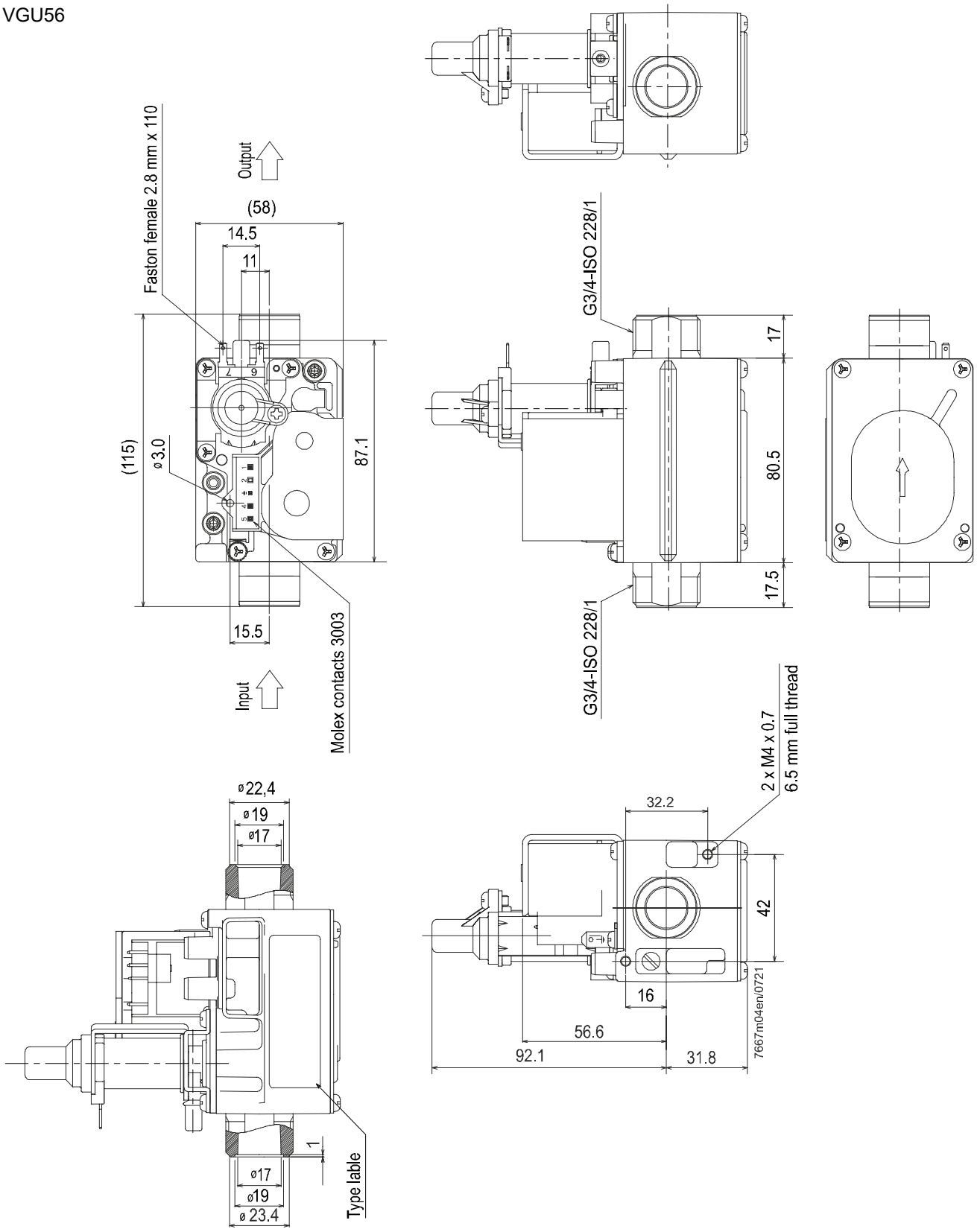
VGU54



Dimensions (cont´d)

Dimensions in mm

VGU56



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Subject to change!