

# Valve Series V2001 Globe Valve Type 3321



*Fig. 1 · Type 3321 Valve with mounted rod-type yoke for pneumatic or electric actuators (partial view)*

## Mounting and Operating Instructions

**EB 8111/8112 EN**

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Contents	Page
<b>1 Design and principle of operation</b> . . . . .	4
1.1 Technical data . . . . .	5
<b>2 Installation</b> . . . . .	6
2.1 Assembling valve and actuator . . . . .	6
2.2 Mounting position . . . . .	6
2.3 Strainer, bypass . . . . .	6
<b>3 Operation</b> . . . . .	6
<b>4 Maintenance – Replacing parts</b> . . . . .	7
4.1 Packing . . . . .	7
4.2 Plug . . . . .	8
4.3 Seat . . . . .	8
<b>5 Description of the nameplate</b> . . . . .	9
<b>6 Dimensions and weights</b> . . . . .	9
<b>7 Customer inquiries</b> . . . . .	10

**Note!**

Non-electrical control valves, whose valve bodies are not lined with an **insulating material coating**, do not have their own potential ignition source according to the risk assessment stipulated in EN 13463-1: 2001, paragraph 5.2, even in the rare incident of an operating fault. Therefore, such valve versions do **not** fall within the scope of Directive 94/9/EC. Refer to paragraph 6.3 of EN 60079-14:1977 VDE 0165 Part 1 concerning connection to equipotential bonding system.



### **General safety instructions**

- ▶ *The control valve may only be mounted, started up or serviced by fully trained and qualified personnel, observing the accepted industry codes and practices. Make sure employees or third persons are not exposed to any danger. All safety instructions and warnings in these instructions, particularly those concerning installation, start-up, and maintenance, must be observed.*
- ▶ *The control valve fulfills the requirements of the European Pressure Equipment Directive 97/23/EC. Valves with a CE marking have a declaration of conformity that includes information on the applied conformity assessment procedure. The declaration can be viewed and downloaded on the Internet at <http://www.samson.de>.*
- ▶ *For appropriate operation, make sure that the control valve is only used in areas where the operating pressure and temperatures do not exceed the operating values based on the valve sizing data submitted in the order. The manufacturer does not assume any responsibility for damage caused by external forces or any other external influence!  
Any hazards which could be caused in the control valve by the process medium, operating pressure, signal pressure or by moving parts are to be prevented by means of the appropriate measures.*
- ▶ *Proper shipping and appropriate storage are assumed.*

### **Important!**

- ▶ *For installation and maintenance work on the valve, make sure the relevant section of the pipeline has been depressurized and, depending on the process medium used, drained as well. If necessary, allow the control valve to cool down or warm up to reach ambient temperature prior to starting any work on the valve.*
- ▶ *When working on the valve, make sure that the supply lines for the air supply as well as the control signal are disconnected to prevent any hazards that could be caused by moving parts.*
- ▶ *Special care is needed with pneumatic control valves when the actuator springs are pretensioned. These actuators are labeled correspondingly and can also be identified by three long bolts at the bottom of the actuator. Prior to starting any work on the valve, you must relieve the compression from these pretensioned springs.*

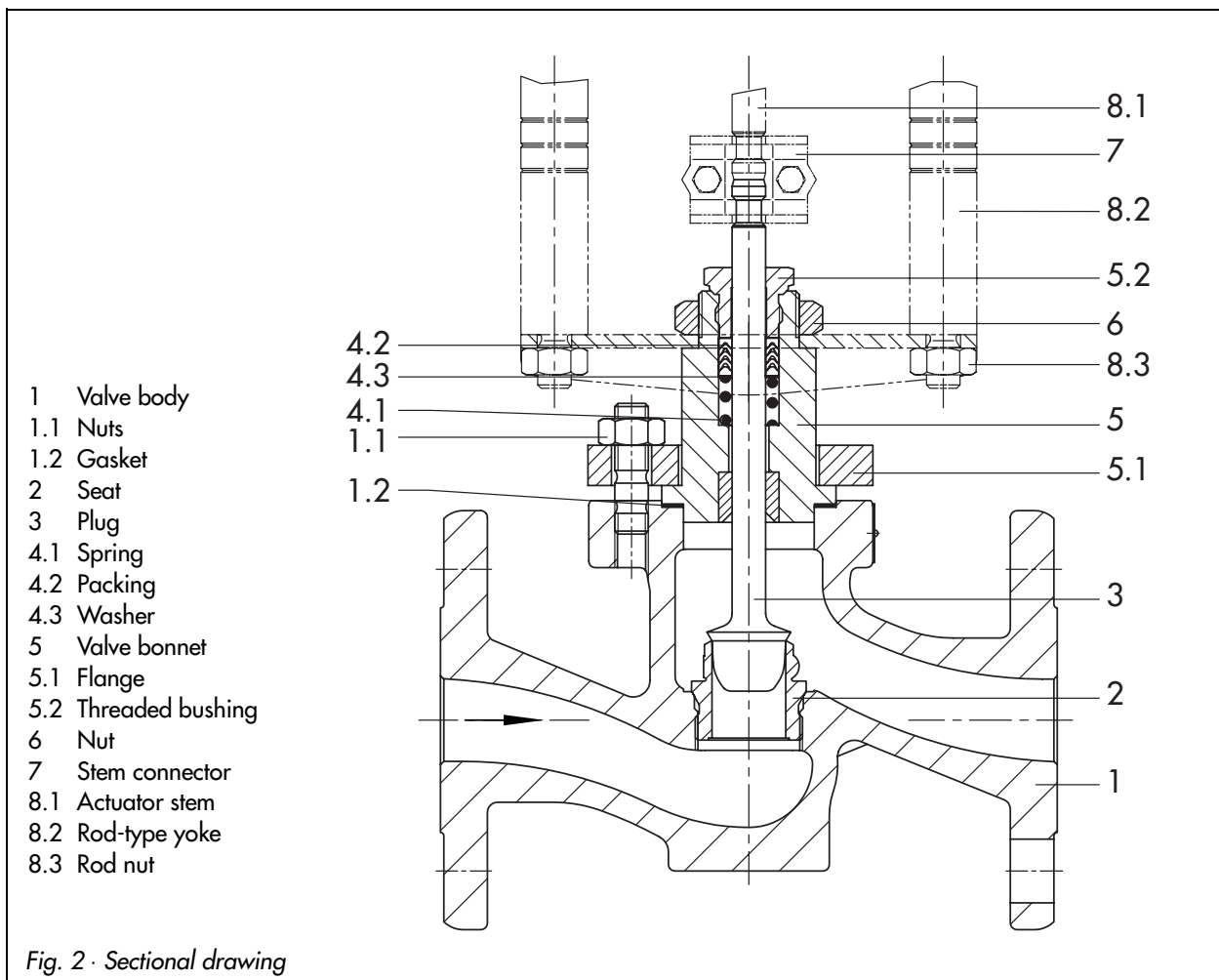
## 1 Design and principle of operation

The Type 3321 Single-seated Globe Valve is based on the modular principle and can be combined with pneumatic as well as electric actuators:

- ▶ Type 3372-04xx Actuator attached to the V 2001-P Pneumatic Control Valve
- ▶ Type 3372-05xx Actuator attached to the V 2001-IP Electropneumatic Control Valve
- ▶ Type 5824 or 3374 Actuator attached to the V 2001-E1 or V 2001-E3 Electric Control Valve (also refer to T 8111 EN).

The process medium flows through the valve in the direction indicated by the arrow. The valve plug position determines the cross-sectional area of flow between the seat (2) and the plug (3). The position of the plug is changed by the control signal acting on the actuator.

The plug stem is sealed by a spring-loaded PTFE ring packing (4.2) and connected to the actuator stem (8.1) by means of a stem connector (7).



## 1.1 Technical data

Valve	DN 15 to 50					ANSI 1/2" to 2"	
Material	Cast iron			Cast steel			
Nominal pressure	10, 16		16, 25, 40		Class 150, Class 300		
Flange connection	Type B1 EN 1092-1				Raised face		
Seat-plug seal	Metal sealing or soft sealing:						
Leakage class acc. to IEC 534-4	Metal sealing: IV (0.01 % K <sub>VS</sub> ) Soft sealing: VI (bubble-tight)						
Characteristic	Equal percentage						
Rangeability	50 : 1						
Temperature range	-10 to 220 °C					15 to 430 °F	
DN	15 / 1/2" <sup>1)</sup>	15 / 1/2"	20 / 3/4"	25 / 1"	32	40 / 1 1/2"	50 / 2"
K <sub>VS</sub> values m <sup>3</sup> /h	0.63 · 0.25	1.6 · 4	2.5 · 6.3	4.0 · 10	6.3 · 16	10 · 25	16 · 35
C <sub>V</sub> values	0.75 · 0.3	2 · 5	3 · 7.5	5 · 12		12 · 30	20 · 40
Seat diameter mm	6 · 3	12	12 · 24	12 · 24	12 · 32	24 · 38	32 · 48
<b>Materials</b>							
Valve body	Cast iron EN-JL1040 (GG-25) <sup>2)</sup>		Cast steel 1.0619 (GSC25) <sup>2)</sup>		ANSI A216 WCB		
Valve bonnet	1.0460 (C 22.8) <sup>2)</sup>				A105		
Seat and plug	1.4305/for seats in DN 32 and larger: 1.4104 Sealing ring of the soft seal: PTFE with glass fiber						
Guide bushing	1.4104						
Packing	PTFE V-ring packing with carbon; spring: 1.4310						
Body gasket	Metal graphite						

<sup>1)</sup> Special version

<sup>2)</sup> Former material designation

## 2 Installation

### 2.1 Assembling valve and actuator

The valve and the actuator are packed individually and must be assembled on site.

To do this, proceed as follows:

1. Remove the nut (6) from the valve bonnet.
2. Slightly retract the actuator stem (8.1) and place the actuator with its rod-type yoke on the valve bonnet. Secure with the nut (SW 36). Observe a tightening torque of min. 150 Nm.
3. Extend the actuator stem until it contacts the plug stem.
4. Position the stem connector clamps and screw tight.

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#### **Caution!**

*Under no circumstances must the rod nuts (8.3) of the rod-type yoke be unscrewed.*

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For further details, refer to the mounting and operating instructions of the respective actuator.

### 2.2 Mounting position

The valve can be mounted in any position. However, strictly observe the limitations resulting from the type of actuator used.

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#### **Caution!**

*The valve must be installed free of stress and free of excessive vibrations. If necessary, support the pipelines near the connections. Do not install supports on the valve or on the actuator. Thoroughly flush the pipeline prior to installation of the valve.*

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### 2.3 Strainer, bypass

We recommend that you install a SAMSON Type 2 Strainer upstream of the valve.

We also recommend that you install a shut-off valve both upstream of the strainer and downstream of the control valve as well as a bypass line so that the plant need not be shut down for maintenance routines.

## 3 Operation

As the operating instructions depend on the actuator used, refer to the corresponding mounting and operating instructions for detailed information.

## 4 Maintenance – Replacing parts

The control valve is subject to wear especially at the seat, plug, and packing. Depending on the application conditions that prevail, the valve must be inspected at appropriately scheduled intervals to prevent any problems before they occur.

If any leaks occur to the atmosphere, the packing may have become untight.

If the valve does not seal properly, this may be because tight shut-off is prevented by dirt or other impurities between the seat and plug or because the seating surfaces have been damaged.

We recommend removing the parts, thoroughly cleaning them, and replacing them with new parts, if necessary.



### **Caution!**

*If you intend carrying out maintenance work on the valve, first relieve the corresponding plant section of pressure and, depending on the process medium, drain it as well. Let the plant section cool down to reach ambient temperature, if necessary.*

*Prior to starting any work, disconnect the electric or pneumatic control signal for the actuator. On pneumatic actuators, additionally remove the signal pressure line.*

*As the process medium cannot drain completely out of the valve, be aware that some of the process medium could still be in the valve.*

*We recommend that you remove the valve from the pipeline.*

### **Note!**

*The tightening torques and special tools required for installing and removing the seat are listed in the table on page 8. For further details, refer to the SAMSON Special Tools WA 029 EN.*

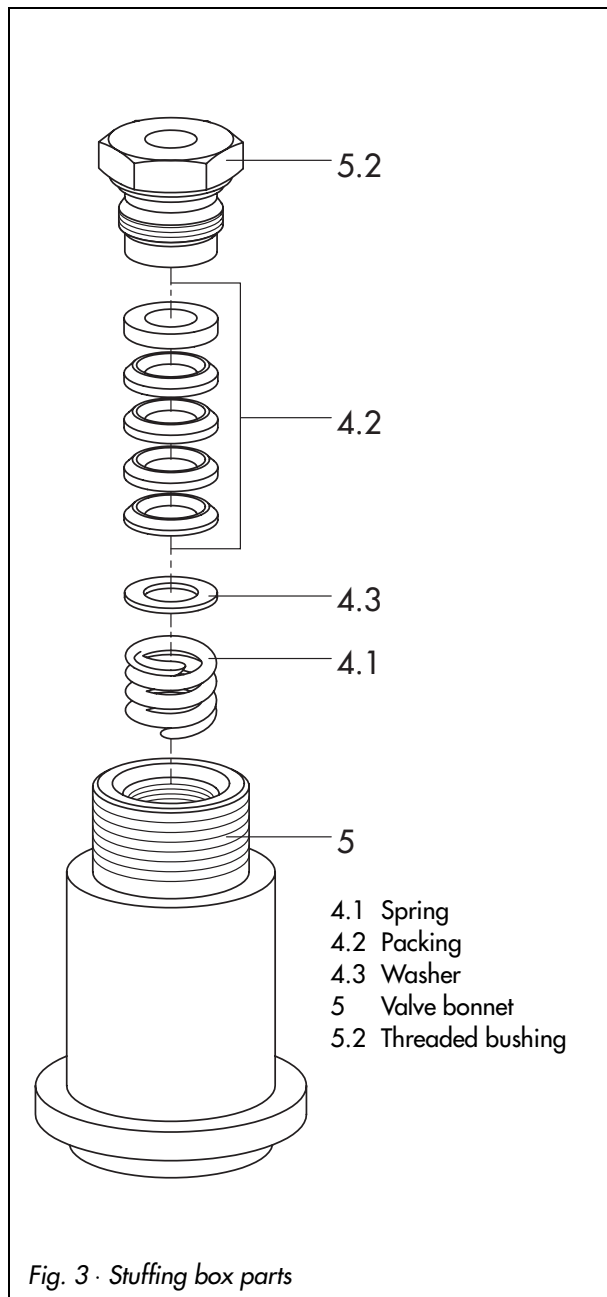
### **Important!**

*Always separate the actuator and the valve prior to carrying out repairs! Separate the actuator from the valve by removing the stem connector clamps (7) and the nut (6). Then lift the actuator off the valve. Note that the rod nuts (8.3) of the rod-type yoke must not be unscrewed under any circumstances.*

## 4.1 Packing

1. Unscrew the nuts (1.1) and remove the valve bonnet (5) and flange (5.1).
2. Check the gasket (1.2) in the valve body for damage. We recommend that you replace the gasket.
3. Screw off the threaded bushing (5.2) and pull out the plug (3).
4. Pull out the damaged packing (4.2) using an appropriate tool. Remove the washer (4.3) and spring (4.1) and clean the packing chamber.
5. Apply lubricant (order no. 8150-01111) to the individual parts of the new packing and the plug stem. Insert the plug (3) in the valve bonnet (5).
6. Place the valve bonnet with flange on the valve body and secure with nuts (1.1). Observe the tightening torques given in the table on page 8.

7. Insert the spring (4.1) and washer (4.3) and carefully slide the new packing (4.2) over the plug stem into the packing chamber. Screw in the threaded bushing (5.2) and tighten.



## 4.2 Plug

When replacing the plug, you should also replace the packing (4.2) and the gasket (1.2).

To exchange the plug, carry out the same steps as described in section 4.1. However, install a new plug instead of the used one. Apply lubricant (order no. 8150-0111) to the plug stem prior to installation.

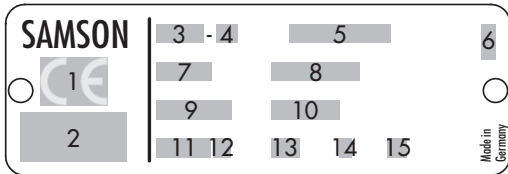
## 4.3 Seat

1. Unscrew the nuts (1.1). Lift the valve bonnet (5) and flange (5.1) off the valve body (1).
2. Unscrew the seat (2) using the appropriate seat wrench.
3. Apply lubricant (order no. 8150-0119) to the thread and the sealing cone of the new seat and screw in.
4. Place the valve bonnet with flange on the valve body and secure with nuts (1.1). Observe the tightening torques!

Sockets / seat wrenches / tightening torques		
DN (size)	15...25 (1/2...1")	32...50 (1 1/2...2")
Socket / seat wrench Order no.	9932-3330	1280-3009
Seat thread in mm Tightening torque ±10 %	M32 x 1.5 170 Nm	M58 x 1.5 500 Nm
Body nuts (1.1) Tightening torque +10 %	M10 10 Nm	M12 30 Nm



## 5 Description of the nameplates



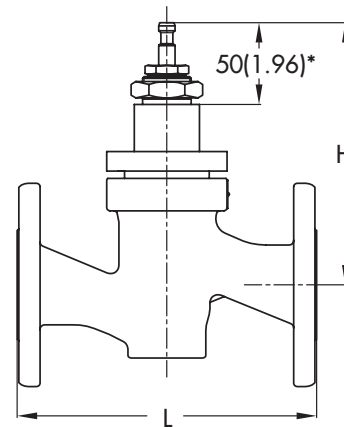
- 1 CE marking or "Art. 3, Abs. 3" (see Article 3, §3 of PED), where applicable
- 2 Identification number of notified body, fluid group, and category, where applicable
- 3 Type designation
- 4 Modification index of valve
- 5 Material
- 6 Year of manufacture
- 7 Valve size DIN: DN, ANSI: Size
- 8 Permissible excess pressure at room temperature  
DIN: PN, ANSI, CL
- 9 Order number with modification index
- 10 Item position in the order
- 11 Flow coefficient DIN: **Kvs** value, ANSI: **Cv** value
- 12 Characteristic: % Equal percentage, **Lin** Linear  
DIN: **A/Z**, ANSI: **O/C** (open/closed)
- 13 Seal  
**ME** Metal, **ST** Stellite, **Ni** Nickel-plated,  
**PT** Soft sealing with PTFE,  
**PK** Soft sealing with PEEK
- 14 Pressure balanced DIN: **D**, ANSI: **B**
- 15 Flow divider **I** or **III**

Fig. 4 · Nameplate

## 6 Dimensions and weights

DIN	DN (mm)	L mm		H mm
15	20	130		160
20	25	150		
25		160		
32	40	180		165
40	50	200		
50		230		
ANSI	Size (in)	L in		H in
		Class		
		150	300	
	1/2"	7.25	7.5	6.3
	3/4"	7.25	7.62	
	1"	7.25	7.75	
	1 1/2"	8.75	9.25	6.5
	2"	10.0	10.5	

\* Valve CLOSED



## **7 Customer inquiries**

If you have any questions, submit the following details:

- ▶ Type designation and order number (indicated on the nameplate)
- ▶ Production number, nominal size, and valve version
- ▶ Pressure and temperature of the medium
- ▶ Flow rate in m<sup>3</sup>/h
- ▶ Bench range (signal pressure range, e.g. 1.4 to 2.3 bar) of the pneumatic actuator
- ▶ Installation drawing





SAMSON AG · MESS- UND REGELTECHNIK  
Weismüllerstraße 3 · 60314 Frankfurt am Main · Germany  
Phone: +49 69 4009-0 · Fax: +49 69 4009-1507  
Internet: <http://www.samson.de>

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