

## Electromotive 2/2 way globe valve



Type 3321 can be combined with...



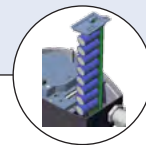
**Type 3320**  
Globe valve



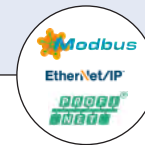
**Type 3360**  
Control valve



**Type 3361**  
Control valve



**SAFEPOS**  
energy-pack



**Fieldbus**



- Fail-safe position by energy storage
- Rapid flow shut off
- Weather and impact resistant design
- Designed according to hygienic demands
- Many diagnostic functions

The innovative Bürkert process On/Off valve Type 3321 is the solution when it comes to shut-off tasks under demanding operating conditions. The electromotive actuator with ball screw moves the swivel plate at a particularly high rate of 6 mm/s to its end position. Thereby it reacts almost instantaneously to process signals. If necessary, the safety position can be approached by an optional energy storage in case of power failure. The actuator and shut-off globe valve are adapted perfectly to each other with closed design and robust surface. This ensures the hygienic requirements of a fast and residue-free cleaning. Harsh environments are no problem for the Type 3321 because of the protection class IP65 / IP67 and its high impact and vibration resistance. Unrivalled cycle life and sealing integrity is guaranteed by the proven self adjusting spindle packing with exchangeable V-seals. The fieldbus suitable for Type 3321 provides many helpful functions for process monitoring, valve diagnostics and predictive maintenance and thus offers the decisive advantage of a modern process automation.

Technical data	
<b>Port size</b>	DN15 to DN50
<b>Nominal pressure (max.)</b>	PN25 (valve body)
<b>Port connections</b>	
<b>Flange</b>	DIN EN 1092-1, ANSI B 16.5, JIS 10K
<b>Thread</b>	G, RC, NPT (EN ISO 228-1, ISO 7/1 / DIN EN 10226-2, ASME B 1.20.1)
<b>Welded</b>	EN ISO 1127 / ISO 4200, DIN 11850 R2, ASME BPE, BS 4825-1, SMS 3008
<b>Clamp</b>	DIN 32676 A, DIN 32676 B, ASME BPE, BS 4825
<b>Medium</b>	neutral gases, water, alcohol, oils, fuel, hydraulic mediums, salt solution, alkali solutions, organic solvents, steam
<b>Viscosity</b>	max. 600 mm <sup>2</sup> /s
<b>Medium temperature</b>	-10 to +185 °C (seat seal PEEK) -10 to +130 °C (seat seal PTFE)
<b>Ambient temperature</b>	-25 to +65 °C * (without SAFEPOS energy storage) -25 to +55 °C * (with SAFEPOS energy storage) * Note: Derating see temperature chart
<b>Safety position at power failure</b>	with SAFEPOS energy-pack: opened, closed or free programmable without SAFEPOS energy-pack: blocked in last position
<b>Power supply</b>	24 V DC ±10 % (max. residual ripple 10 %)
<b>Closure time</b>	<2.3...4.3 sec.. (depending on stroke)
<b>Travel speed</b>	6 mm/s
<b>Duty cycle</b>	100 %
<b>Protection class</b>	IP65 / IP67
<b>Binary control</b>	0...5 V (log. 0) 10...30 V (log. 1)
<b>Fieldbus communication</b>	büS (Bürkert-System-Bus) (Standard) CANopen, EtherNet/IP, Modbus/TCP, PROFINET (optional)
<b>Vibration, sinusoidal</b>	5 g according to IEC 60068-2-6 Test Fc
<b>Shock, mechanical</b>	50 g according to IEC 60068-2-27 Test Ea
<b>Approval and Conformity</b>	EGV 1935/2004 (standard) FDA (optional) ATEX / IECEx (optional) cULus Cert. No. 238179 (optional)
<b>Ignition protection</b>	II 3G Ex ec IIC T4 Gc II 3D Ex tc IIIC T135 °C Dc

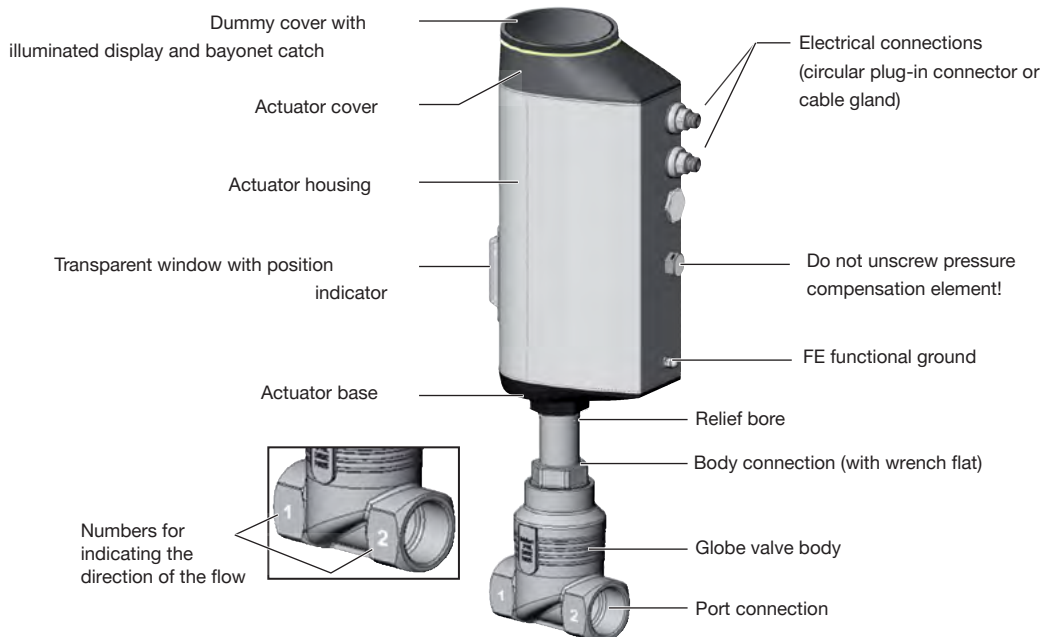
## Structure and function

The electromotive linear actuator consists of a brushless direct current motor, gears and a threaded spindle. The valve spindle, which is connected to the threaded spindle, transfers the force to the swivel plate. The electronic control system is actuated either via a standard signal (digital) or via a fieldbus (digital). Optionally there is the energy pack (SAFEPOS energy-pack) for the device. If the supply voltage fails, the energy pack supplies the actuator with the required energy to move the valves into the required position which can be adjusted via a menu.

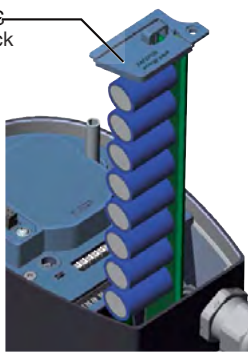
The valve position can be manually changed in 2 ways. Either over an electrical manual control or over mechanical manual control, if no supply voltage applied. The device can be set and operated either via 2 capacitive buttons and 4 DIP switches. There is also the option of setting the device via the bus Service interface and by using the PC software "Bürkert-Communicator".

The intelligent process valve Type 3321 offers the operator options for process monitoring, valve diagnostics and predictive maintenance. Internal measurements for the operating state are evaluated and, if issued as a warning or error message. This signal, for example, undue environmental and process conditions, functional deviations of components or the state of the energy accumulator. Internal measurements for operating state are evaluated and, if possible a warning or error message is issued. This signal indicates, for example, bad environmental and process conditions, functional deviations of components or the state of the energy accumulator.

### Structure, electromotive globe valve Type 3321



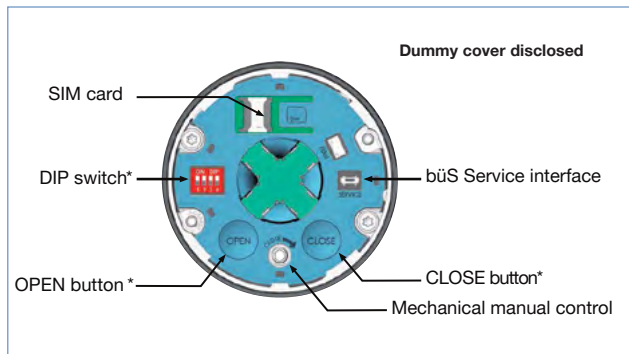
SAFEPOS energy-pack



### Safety position with energy storage (Option)

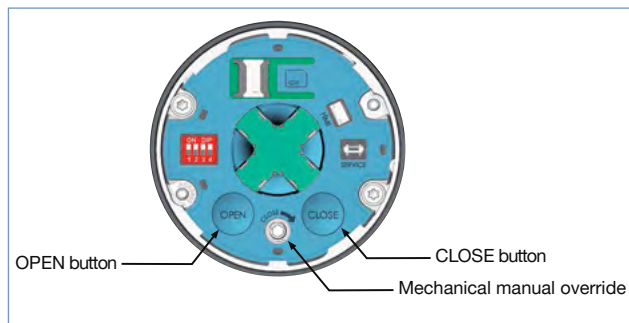
The safety starting positions in case of power interruption is realized with the optional energy storage SAFEPOS energy-pack. The desired position (NO/NC) is adjusted from the menu. The energy storage has a lifespan of up to 10 years, depending on the operating conditions. The power of the energy storage is monitored and a warning is displayed to indicate its life is coming to an end. The memory is designed as a plug-in module making it easy to exchange. Without energy storage, the valve remains in the last position. The energy storage is fully charged after maximum 100 seconds (depending on the operating conditions) and ready to use.

## Controls and indicators



### Control elements

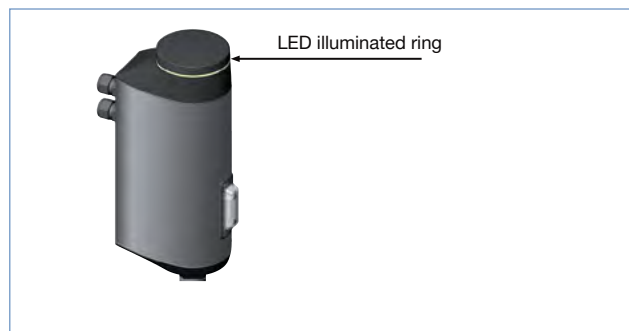
The basic functions are operated by 4 DIP switches and 2 push-buttons. These are located under the dummy cover which can be removed manual by turning. Through the büS service access, the device can also be configured in detail with the Bürkert communicator software. For this, the optional USB-büS interface kit is required.



### Manual and electrical operation

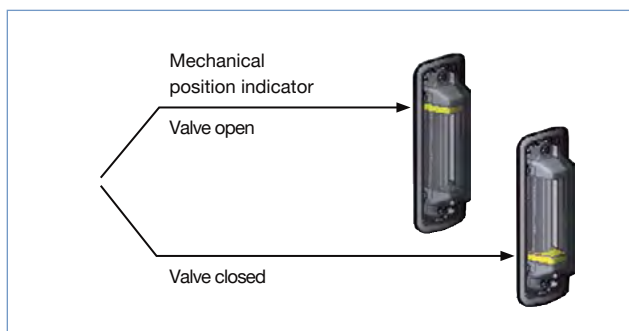
The manual override for mechanical operation of the valve is located under the dummy cover.

Electrical manual override for the procedure is carried out by two buttons below the dummy cover.



### 360°- LED Illuminated ring

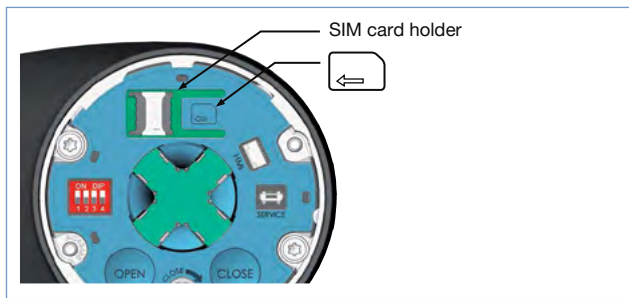
To display the device status, the valve end position and the operating condition, a visible 360° LED illuminated ring is mounted around the dummy cover. The LED ring lights up, flashes or flashes in one or different colors. Depending on customer requirements 4 different LED modes can be selected (Namur mode, valve mode without warnings, valve mode with warnings, LED off)



### Mechanical position indicator

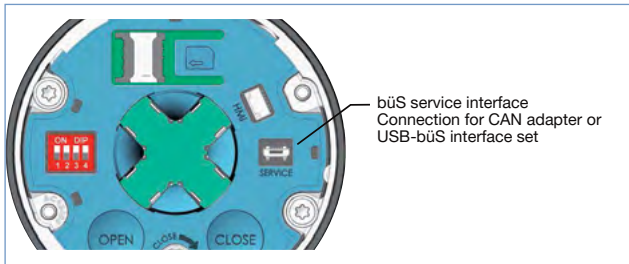
The mechanical position indicator also indicates when the supply voltage of the current valve position fails

## Controls and indicators, continued



### SIM card as data storage (option)

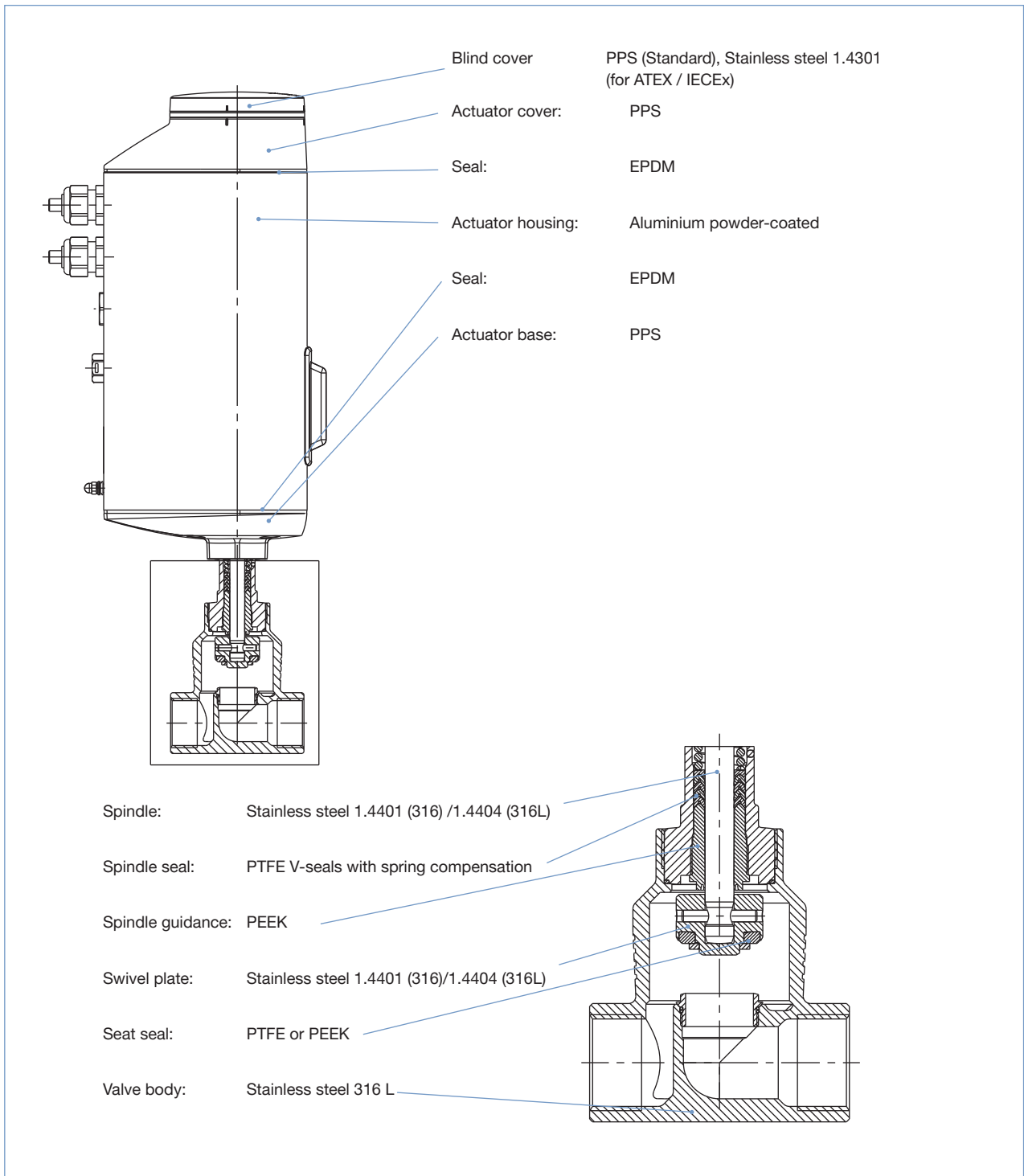
With the SIM card optional device-specific values and user settings can be saved and quickly transferred to another device.



### bÜS service interface

The bÜS service interface connects the device to the communicator software on a PC, laptop or smartphone. From there, a configuration of the device or failure diagnosis can be performed.

Design and materials view

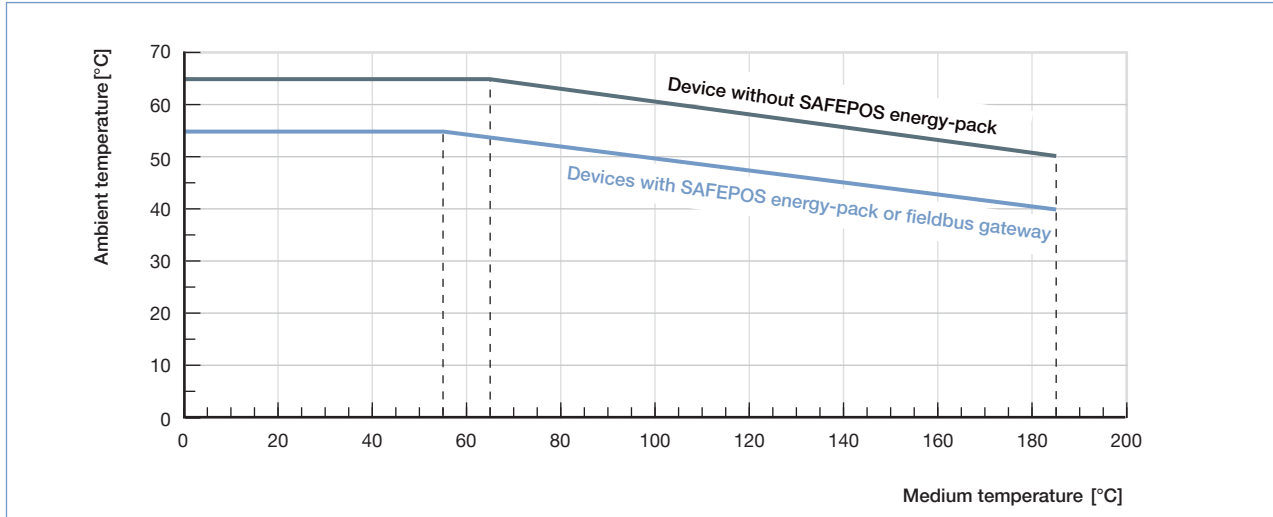


Note: The globe seat shut-off valve **Type 3321** could be delivered with miscellaneous port connection (flange, thread, welded and clamp), there are not represented in the picture, but are made with same material as the valve body.

## Technical data

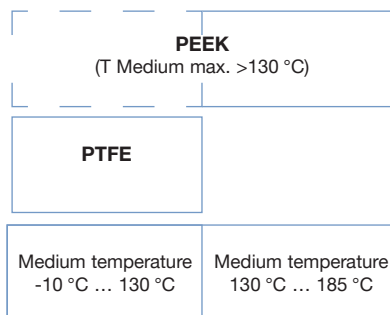
### Temperature chart

The maximum allowable ambient temperature and temperature of the medium influence each other. The maximum allowable temperature curves of different device variants can be seen in the temperature chart. The curves were determined for maximum operating conditions (max. operating pressure and motor power). For deviating operating conditions an individual verification can be performed. Please contact your Bürkert office for more information.



### Selection chart for seat seal

Seat seal with PTFE is used, if temperature of the medium is <math><130\text{ }^\circ\text{C}</math>. If the maximum temperature of the medium exceeds



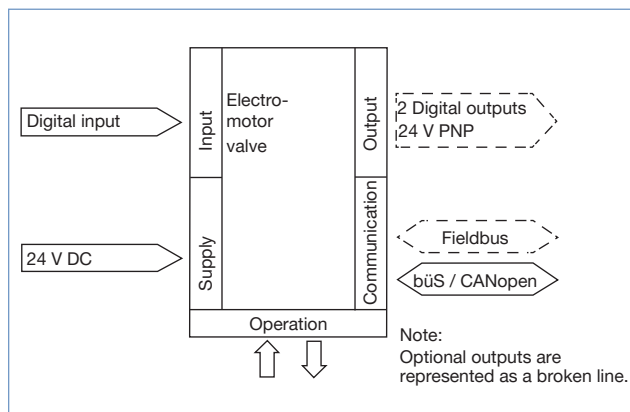
### Flow direction below seat

Port size (pipe)		Operating pressure / valve seat seal		$K_v$ value water [m <sup>3</sup> /h]
[DN]	[inch]	PTFE [bar]	PEEK [bar]	
15	½	16	16	4.7
20	¾	16	16	8.1
25	1	16	16	13
32	1¼	16	10	18
40	1½	10	8	31
50	2	6	5	45

## Electrical control

Electrical data	
Protection class	3 acc. to DIN EN 61140
Electrical connections	Cable gland, 2 x M20 or 2 circular plug-in connector M12, 5 pin and 8 pin
Operating voltage	24 V DC $\pm 10\%$ max. residual ripple 10 %
Operating current [A] <sup>1.)</sup>	max. 3 A including actuator at max. load and charging current of the optional SAFEPOS energy-pack (charging current approx. 1 A)
Lifelong energy storage SAFEPOS energy-pack	up to 10 years (depending on operating conditions)
Average power electronics without drive [W] <sup>1.)</sup>	min. 2 W, max. 4 W
Control	
Output digital	current limit 100 mA
Input digital	0...5 V = log "0", 10...30 V = log "1" inverted input reversed accordingly
Communication interface (būS)	Connection to PC via USB būS interface set (connection terminals, circular connectors or būS service interface)
Communication Software (būS)	Bürkert communicator Type 8920

1.) All values refer to a supply voltage of 24 V at 25 °C



### Electrical control and interface

The position of the actuator is regulated according to the digital input. The setting is made either by an external standard signal (digital) or via a fieldbus (digital).

### Digital Control

For digital control 2 variants are available for the inputs and outputs and the connection interface

### Input and output:

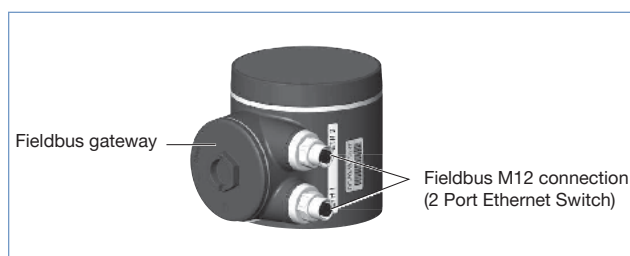
- 1 digital input, 2 digital output

### Interface:

- Cable gland with connection terminal
- M12 circular connectors (optional)

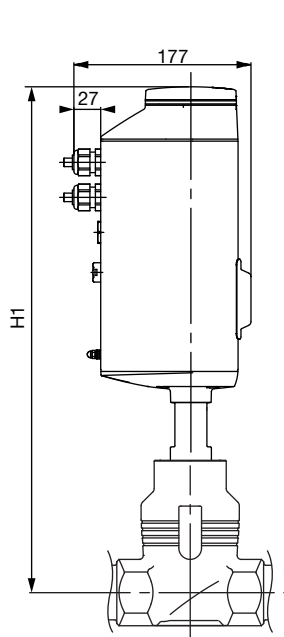
### Fieldbus: EtherNet/IP, PROFINET, Modbus TCP (option)

The Fieldbus Gateway for EtherNet / IP, PROFINET and Modbus TCP is integrated into a special module. It has 2 fieldbus connections with 4 pin M12 circular connectors. Under the gateway housing cover are the interfaces for the fieldbus connection and status LEDs. If there is a need to be include it in a network then the configuration of the Ethernet can be performed via the web server.

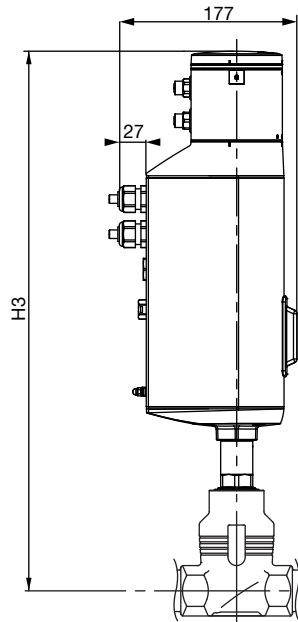


Dimensions [mm] - valve Type 3321 and valve system

Version with blind cover

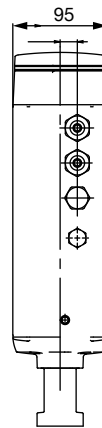


Version with fieldbus gateway and blind cover



Port size (pipe) [DN]	Height [mm]	
	H1	H3
10	417	489
15	417	489
20	423	496
25	446	518
32	474	546
40	479	551
50	485	557

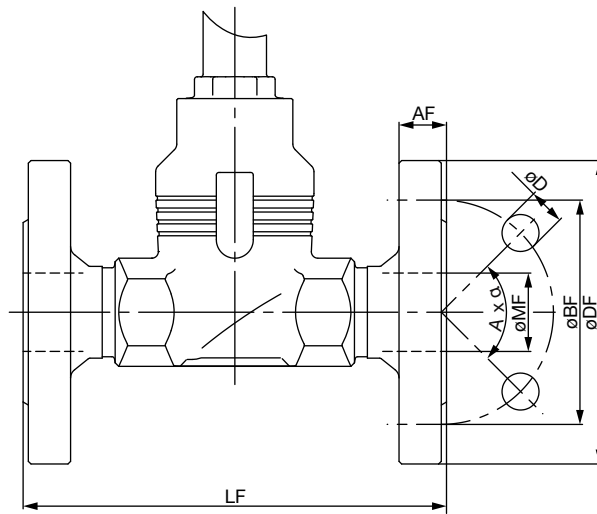
Side view





## Dimensions [mm] - body valve Type 3321

## Flange connection



## DIN EN 1092, JIS 10K

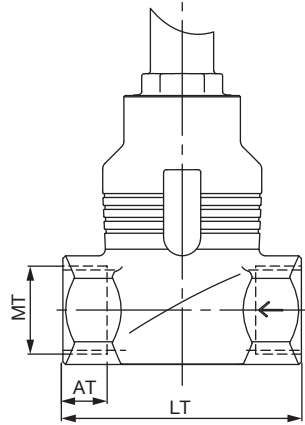
Port size (pipe) [DN]	DIN EN 1092 FTF series 1 acc. to DIN EN 558-1						JIS 10K FTF series 10 acc. to DIN EN 558-2					
	Ø DF	LF	Ø BF	AF	Ø D	Ø MF	Ø DF	LF	Ø BF	AF	Ø D	Ø MF
10	90	130	60	16	14	13.6	-	-	-	-	-	-
15	95	130	65	16	14	18.1	95	108	70	12	15	18.1
20	105	150	75	18	14	23.7	100	117	75	14	15	23.7
25	115	160	85	18	14	29.7	125	127	90	14	19	29.7
32	140	180	100	18	18	38.4	135	140	100	16	19	38.4
40	150	200	110	18	18	44.3	140	165	105	16	19	44.3
50	165	230	125	20	18	56.3	155	203	120	16	19	56.3

## ANSI B 16.5

Port size (pipe) [inch]	ANSI B 16.5 Class 150 FTF series 37 acc. to DIN EN 558-2					
	Ø DF	LF	Ø BF	AF	Ø D	Ø MF
½	89	184	60.5	11.2	15.7	15.7
¾	99	184	69.9	12.7	15.7	20.8
1	108	184	79.2	14.2	15.7	26.7
1½	127	222	98.6	17.5	15.7	40.9
2	152	254	120.7	19.1	19.1	52.6

## Dimensions [mm] - valve body of Type 3321

Threaded connection

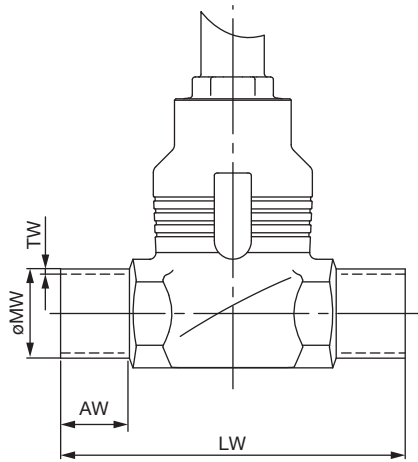


G, RC, NPT (EN ISO 228-1, ISO 7/1 /DIN EN 10226-2, ASME B 1.20.1)

Port size (pipe) [DN]	MT G / NPT / RC [inch]	LT	AT		
			G	NPT	Rc
10	3/8	65	12	10.3	10.1
15	1/2	65	14	13.7	13.2
20	3/4	75	16	14	14.5
25	1	90	18	16.8	16.8
32	1 1/4	110	20	17.3	19.1
40	1 1/2	120	22	17.3	19.1
50	2	150	24	17.6	23.4

## Dimensions [mm] - valve body of Type 3321

Welded connection



EN ISO 1127 series 1/ISO 4200/DIN 11866 series B, DIN 11850 series 2/DIN 11866 series A/DIN EN 10357 series A

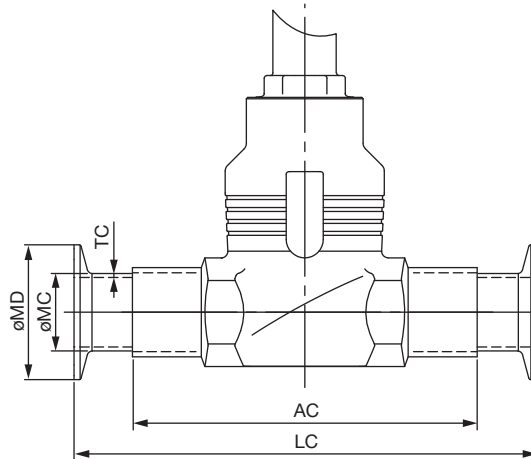
Port size (pipe) [DN]	AW	LW	EN ISO 1127 series 1/ ISO 4200/DIN 11866 series B		DIN 11850 series 2/DIN 11866 series A/DIN EN 10357 series A	
			Ø MW	TW	Ø MW	TW
10	20	90	17.2	1.6	13	1.5
15	20	90	21.3	1.6	19	1.5
20	20	100	26.9	1.6	23	1.5
25	26	130	33.7	2.0	29	1.5
32	26	140	42.4	2.0	35	1.5
40	26	150	48.3	2.0	41	1.5
50	26	175	60.3	2.0	53	1.5

BS4825 Part 1, ASME BPE/DIN 11866 series C

Port size (pipe) [inch]	AW	LW	BS 4825 Part 1		ASME BPE/ DIN 11866 series C	
			Ø MW	TW	Ø MW	TW
½	20	90	12.7	1.2	12.7	1.65
¾	20	90	19.05	1.2	19.05	1.65
1	20	100	25.4	1.6	25.4	1.65
1½	26	140	38.1	1.6	38.1	1.65
2	26	150	50.8	1.6	50.8	1.65

## Dimensions [mm] - valve body of Type 3321

Clamp connection















## DIN 32676 series A, ASME BPE/DIN 32676 series C oder BS4825-3

Port size (pipe) [DN]	AC	LC	Clamp: DIN 32676 series A, tube: DIN 11850 series 2/ DIN 11866 series A/ DIN EN 10357 series A			Clamp: ASME BPE/ DIN 32676 series C, tube: ASME BPE/ DIN 11866 series C			Clamp: BS4825-3, tube: BS4825-1		
			Ø MC	Ø MD	TC	Ø MC	Ø MD	TC	Ø MC	Ø MD	TC
15	90	126	19	34.0	1.5	12.7	25.0	1.65	12.7	25.0	1.2
20	100	136	23	34.0	1.5	19.05	25.0	1.65	19.05	25.0	1.2
25	10	173	29	50.5	1.5	25.4	50.5	1.65	25.4	50.5	1.65
32	140	179	35	50.5	1.5	-	-	-	-	-	-
40	150	193	41	50.5	1.5	38.1	50.5	1.65	38.1	50.5	1.65
50	175	218	53	64.0	1.5	50.8	64.0	1.65	50.8	64.0	1.65

## DIN 32676 series B

Port size (pipe) [DN]	AC	LC	Clamp: DIN 32676 series B, tube: EN ISO 1127 series 1/ ISO 4200/DIN 11866 series B		
			Ø MC	Ø MD	TC
15	90	146	21.3	50.5	1.6
20	100	136	26.9	50.5	1.6
25	130	164	33.7	50.5	2.0
32	140	178	-	-	-
40	150	193	48.3	64.0	2.0
50	175	218	60.3	77.5	2.0

## Ordering chart for accessories

Accessories	Article no.
<b>Connection cable:</b>	
Connection cable with M12 socket, 4 pin, (length 5 m) for operating voltage	918038 
Connection cable with M12 socket, 8 pin, (length 2 m) for input and output signals	919061 
<b>USB-büS interface set:</b>	
büS stick set 1 (including power supply unit, bus-stick, terminating resistor, Y-distributor, 0.7 m cable with M12 connector)	772426 
büS stick set 2 (including bus-stick, terminating resistor, Y-distributor, 0.7 m cable with M12 connector)	772551 
büS adapter for büS interface set (M12 on büS service interface Micro-USB)	773254 
<b>büS cable extensions from M12 plug to M12 socket:</b>	
Connecting cable, length 1 m	772404 
Connecting cable, length 3 m	772405 
Connecting cable, length 5 m	772406 
Connecting cable, length 10 m	772407 
<b>Miscellaneous</b>	
Bürkert Communicator	Infos at <a href="http://www.burkert.com">www.burkert.com</a>
SIM card	291773 
Holding device for line connection DN15 to DN20	693770 
Holding device for line connection DN25 to DN50	693771 

## Valve system – request for quotation

## Note

You can fill out the fields directly in the PDF file before printing out the form.

▶ Please fill out and send to your nearest Bürkert office\* with your inquiry or order

Company:	Contact person:
Customer no.:	Department:
Address:	Tel./Fax.:
Postcode/town:	E-Mail:

= mandatory fields to fill out

Quantity:

Required delivery date:

## Operating data

Pipe line	DN <input type="text"/>	PN <input type="text"/>
Pipe Material	<input type="text"/>	
<input checked="" type="checkbox"/> Process medium	<input type="text"/>	
<input checked="" type="checkbox"/> Type of medium	<input type="checkbox"/> Liquid	<input type="checkbox"/> Steam <input type="checkbox"/> Gas

## Valves features

Valve seat seal	<input type="checkbox"/> PTFE	<input type="checkbox"/> PEEK
Nominal pressure	PN <input type="text"/>	
Seat size (orifice)	DN <input type="text"/>	
Type of connection	<input type="checkbox"/> Threaded	<input type="checkbox"/> Welded <input type="checkbox"/> Clamp
Specify connection	<input type="text"/>	
Control function	<input type="checkbox"/> with energy storage (delivey status NO)	<input type="checkbox"/> without energy storage (blocked in last position)
	<input type="checkbox"/> with energy storage (delivey status NC)	

## Valve system – request for quotation, continued

## Control unit features

## Communication

- Binary
   
  Digital (Fieldbus)
- 1 binary IN
   
  EtherNet/IP
- 2 binary OUT
   
  PROFINET
- Modbus TCP

## Electrical connection

- Cable gland  
(without Fieldbus)
   
  Multipol

## SIM card

- with
- without

## Approval and Conformity (optional)

- ATEX II Cat 3G/D / IECEx
- cULus Cert. No. 238179

Article no. (if known):

## Notes

To find your nearest Bürkert office, click on the orange box →

[www.burkert.com](http://www.burkert.com)

In case of special application conditions,  
please consult for advice.

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