burkert
FLUID CONTROL SYSTEMS

Electromotive process valve - 2-way angle-seat control valve



- good and fast control
- weather, impact and vibration resistant design
- easy cleaning by its design according hygienic demands
- position controller und process controller available

options



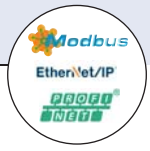
Rugged Display
with operating buttons



SAFEPOS
energy-pack



Type 3361
for highest control accuracy



Fieldbus

FDA

powered by EDIP

The innovative process controller Bürkert valve Type 3360 is the solution when it comes to control tasks under demanding operating conditions. The electromotive actuator with ball screw positions the control come with highest precision. A unique feature is its high positioning speed of 6 mm/s, that reacts quasi delay-free to process signals, and can be varied according to customer demands. Pressure variations or shocks in the medium aren´t transferred to the valve position. If necessary, the safety position can be approached by an optional energy storage in case of power failure. Actuator and 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 environment are no problem for the Type 3360 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 Type 3360 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	
Kvs values	5 ... 53 m³/h
Port size	DN 15 ... DN 50
Operating pressure	16 bar / 1600 kPa / 232 psi
Port connections ▪ thread ▪ weld ends ▪ clamp	 ▪ G, RC, NPT (EN ISO 228-1, ISO 7/1 /DIN EN 10226-2, ASME B 1.20.1) ▪ EN ISO 1127 / ISO 4200, DIN 11850 R2, ASME BPE, BS 4825-1, SMS 3008 ▪ ISO 2852, DIN 32676, ASME BPE, BS 4825
Medium	Neutral gases, water, alcohol, oils, fuel, hydraulic mediums, salt solution, alkali solutions, organic solvents, steam
Viscosity	max. 600 mm²/s
Media temperature	-10...+185 °C (seat sealing steel/steel) -10...+185 °C (seat sealing PEEK/steel) -10...+130 °C (seat sealing PTFE/steel)
Ambient temperature	-25 °C ... +65 °C (without touch display) -25 °C ... +60 °C (with touch display) -25 °C ... +55 °C (with SAFEPOS energy storage) Note: Derating see temperature chart
Seat leakage according IEC 534-4/EN 1349	Shut-off class III and IV for steel/steel Shut-off class VI for PTFE/steel and PEEK/steel
Safety position at power failure	with SAFEPOS energy-pack: opened, closed or free programmable without SAFEPOS energy-pack: blocked in last position
Power supply	24 V DC +/- 10% (max. residual ripple 10%)
Closing time	2.3 ... 4.3 s (depending on stroke)
Travel speed	6 mm/s
Duty cycle	100%
Protection class	IP65 / IP67
Controller type	Position controller or process controller
Analogue control	Setpoint: 0-20 mA, 4-20 mA, 0-5 V, 0-10 V actual value optional
Digital control (fieldbus)	EtherNet/IP, Modbus/TCP, Profinet (on request)
Approval and Conformity	EGV 1935/2004 (standard) FDA (optional)

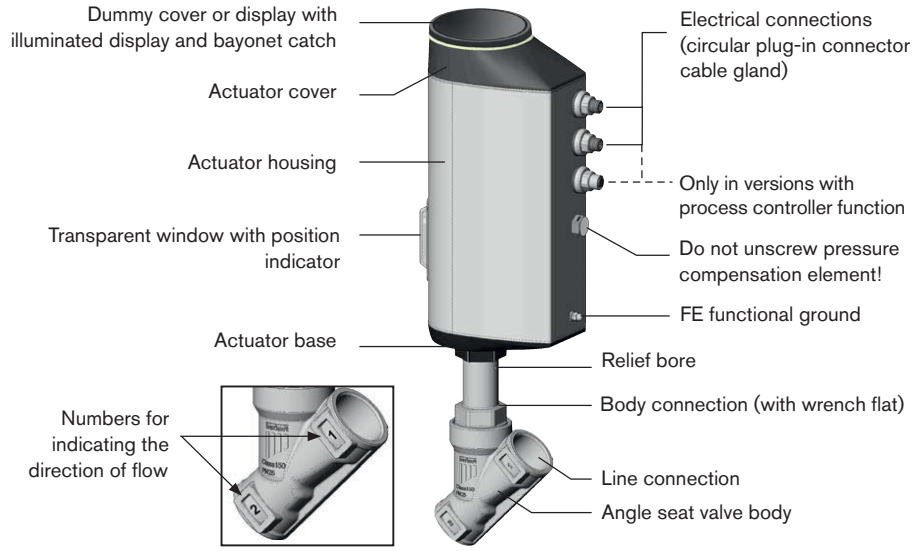
DTS 1000273502 EN Version: C Status: RL (released | freigegeben | validé) printed: 24.06.2016

Structure and function

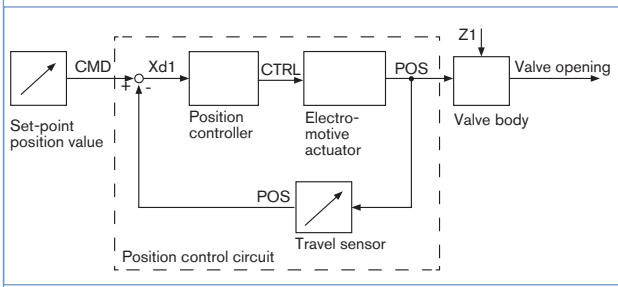
The electromotive linear actuator consists of a brushless direct current motor, gears and a threaded spindle. The valve spindle, which is connected to the threaded spindle, transfers the force to the control cone. The electronic control system is actuated either via standard signals (analog) or via a field bus (digital). Available controller types are a position controller or a process controller. 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 or optionally on a display with touch-screen. There is also the option of setting the device via the büs Service interfache and by using the PC software "Bürkert-Communicator".

The intelligent process valve Type 3360 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, 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.

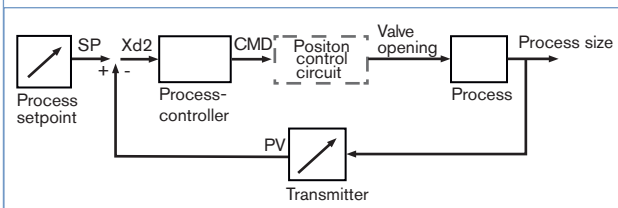


Structure, electromotive angle seat control valve Type 3360



Integrated position controller

The position of the actuator (stroke) is regulated according to the set-point position value. The set-point position value is specified either by an external standard signal (analog) or via a field bus (digital). The travel sensor records the actual position (POS) of the electric linear actuator. The position controller compares this actual position value with the set-point position value (CMD) which is defined as standard signal. If there is a control difference (Xd1), the electromotive actuator is controlled via the CTRL variable and the actual position value is changed accordingly.

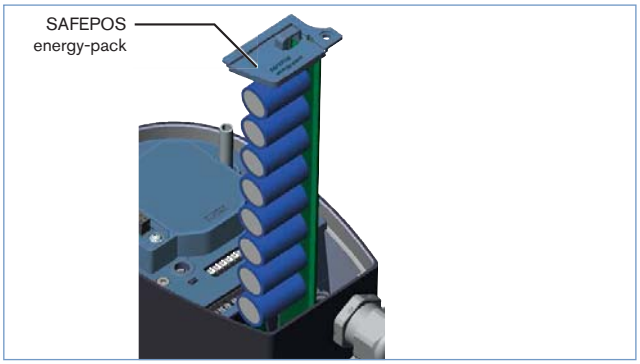


Integrated process controller

By implementing a PID controller can a process control be carried out. From the external signal (z.B. level, pressure, flow , temperature) the process setpoint and the actuals process value is calculated on the control parameters (PID controller) for the target postion of the valve.

DTS 1000273502 EN Version: C Status: RL (released | freigegeben | validé) printed: 24.06.2016

Structure and function, continued

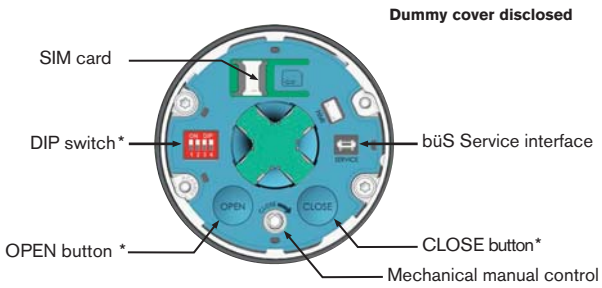


Safety position with energy storage (Option)

The safety starting positions in case of power interruption is realized with the optional energy storage SAFEPOS energy-pack. The desired position is adjusted from the menu. Here any intermediate position can be defined in addition to the end positions (NO / NC). 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.

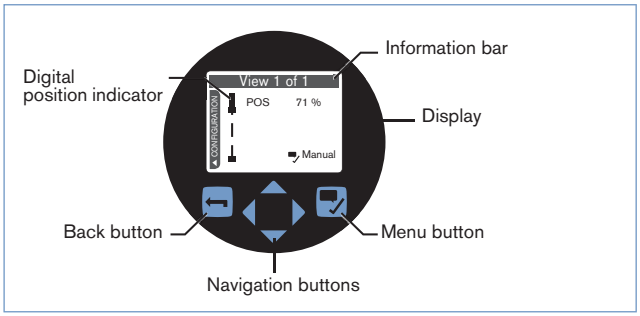
DTS 1000273502 EN Version: C Status: RL (released | freigegeben | validé) printed: 24.06.2016

Controls and indicators



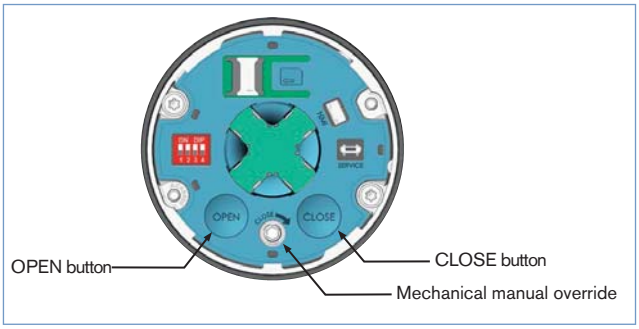
Devices without display module

In the version without control display the basic functions are operated by 4 DIP switches and 2 pushbuttons. 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.



Robust display with control buttons (optional)

The robust display module is easy to use, it configurates and displays all the required functions. In addition to the start screen you can also switch to the configuration view and user-specified views as needed. All functions of the device without display module like büS-Service interface are available, too.



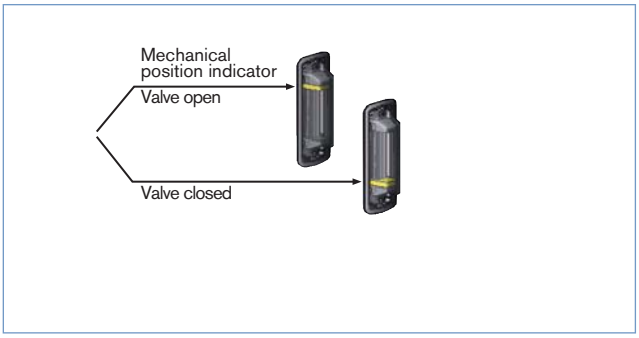
Manual and electrical operation

The manual override for mechanical operation of the valve is located under the dummy cover or the display module.
Electrical manual override for the procedure is carried out directly on the touch screen, or in the version without a display 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 or the display module. 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)

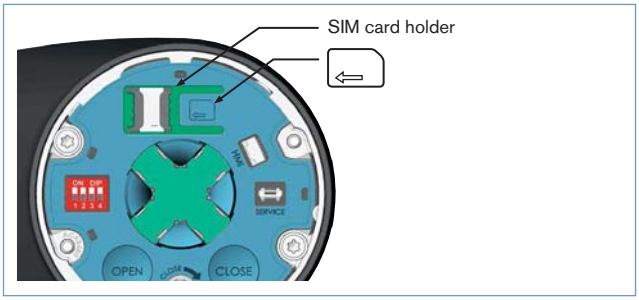


Mechanical position indicator

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

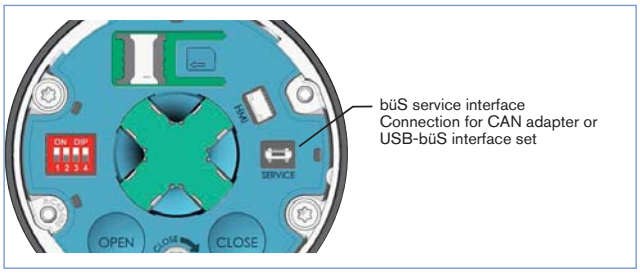
DTS 1000273502 EN Version: C Status: RL (released | freigegeben | validé) printed: 24.06.2016

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.

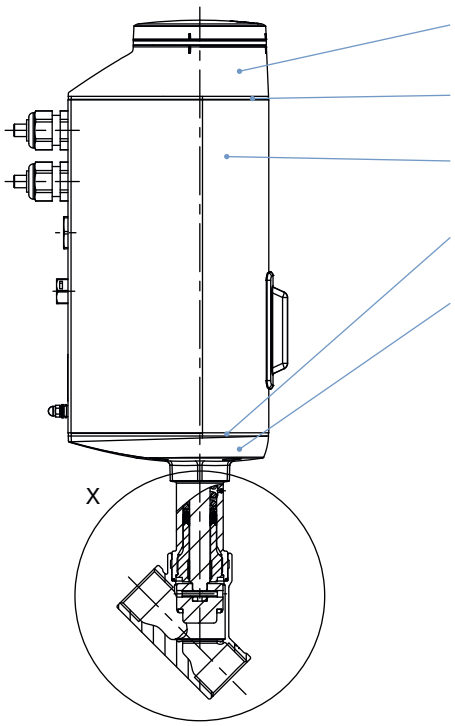


büS service interface

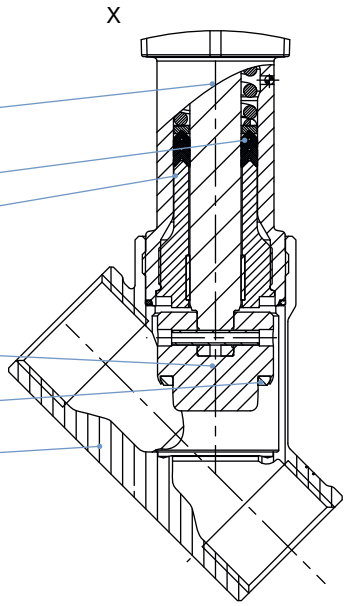
The büS service interface connects the device to the communicator software on a PC, laptop or smartphone. From there, a configuration of the device or failure diagnosis can be performed.

DTS 1000273502 EN Version: C Status: RL (released | freigegeben | validé) printed: 24.06.2016

Design and materials view



Actuator top part:	PPS
Sealing:	EPDM
Actuator housing:	Aluminium powder-coated
Sealing:	EPDM
Actuator bottom part:	PPS



Spindle:	Stainless steel 1.4401 (316) /1.4404 (316L)
Spindle packing:	PTFE V-seals with spring compensation
Spindle guidance:	Stainless steel 1.4404 / 316L
Control cone:	Stainless steel 1.4571
Control cone seal:	Stainless steel 1.4571 / PTFE or PEEK disc for soft seat sealing
Valve body:	Stainless steel 316 L

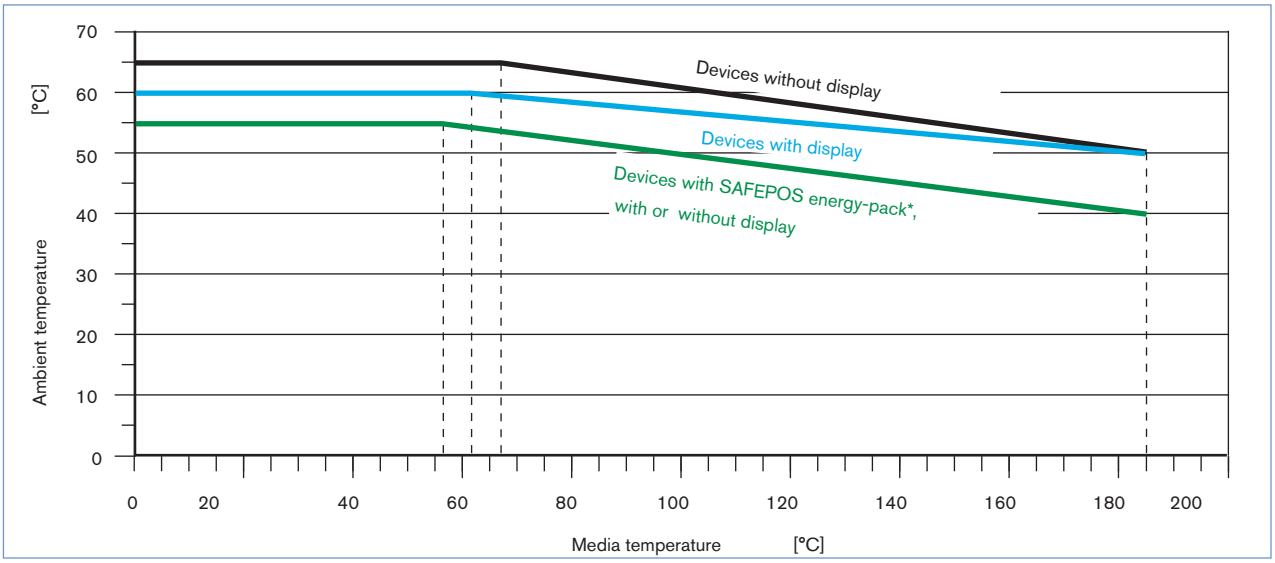
Note: The angle-seat control valve **type 3360** could be delivered with miscellaneous port connection (thread, weld ends and clamp), there are not represented in the picture, but are made with same material as the valve body.

DTS 1000273502 EN Version: C Status: RL (released | freigegeben | validé) printed: 24.06.2016

Technical data

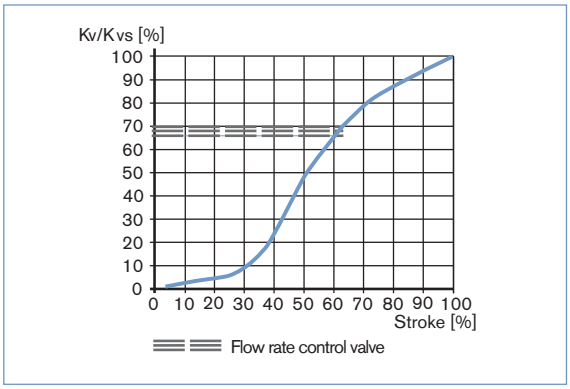
Temperature chart

The maximum allowable ambient temperature and media temperature influence each other. The maximum allowable temperature curves of different device variants can be seen in the temperature chart.



Flow characteristic

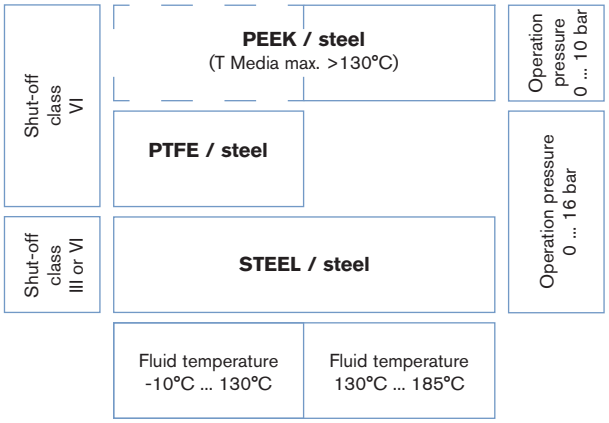
Modified equi-percentile flow characteristic, engineered for a quick response during peak flow demand and fine control at lower flow.
Theoretical control ratio (KvS : Kv0): 50:1
KvR-value at 5% of stroke



Selection chart for seat sealing

Seat sealing type steel / steel is recommended for shut-off class III and IV.

Seat sealing with PTFE is used for shut-off class VI, if fluid temperature is <130 °C. If the maximum fluid temperature exceeds 130°C temporarily or permanently, then PEEK is used for seat sealing.



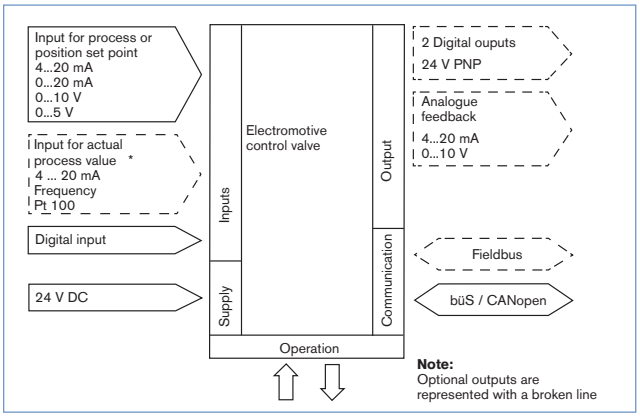
Port connection (tube)		Media pressure / seat sealing		Leakage class / seat sealing		Kv-values with stroke [m3/h]						Kvs-value
		Stainless steel o. PTFE Stainless steel	PEEK / Stainless steel	PTFE o. PEEK / Stainless steel	Stainless steel / Stainless steel							
[mm]	[inch]	[bar]	[bar]			5%	10%	30%	50%	70%	90%	[m³/h]
15	1/2	16*	-	VI	IV	0.16	0.17	0.4	2.7	4.0	4.8	5.0
20	3/4	16	10	VI	IV	0.26	0.27	1.1	5.9	8.3	9.6	10.0
25	1	16	10	VI	IV	0.34	0.36	1.5	8.9	13.0	15.4	16.0
32	1.25	16	10	VI	IV	0.40	0.46	2.5	13.9	19.5	23.4	25.0
40	1.5	10	6	VI	III	0.48	0.66	5.1	20.0	28.3	34.5	36.0
50	2	6	-	VI	III	0.87	1.2	4.0	26.0	40.3	48.0	53.0

* Port connection 15 only available in stainless steel/stainless steel

DTS 1000273502 EN Version: C Status: RL (released | freigegeben | validé) printed: 24.06.2016

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, 1 circular plug-in connector M12, 5-pin (only by process controller)
Operating voltage	24 V DC ± 10 % max. residual ripple 10 %
Operating current [A]*	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)
Electronic without actuator [W]*	min. 2 W, max. 5 W
Control	
Analogue input setpoint:	galvanically isolated from the supply voltage and analog output 0/4...20 mA (input resistance 60 Ω) 0...5/10 V (input resistance 22 kΩ)
Analogue actual value input	
4...20 mA	Input resistance: 60 Ω Resolution: 12 bits
Frequency	Measurement range: 0...1000 Hz Input resistance: > 30 kΩ Resolution: 1‰ of measurement value Input signal: > 300 mVss Waveform: Sine wave, rectangle wave, triangle wave
Pt 100	Measurement range: −20 to +220 °C Resolution: < 0.1 °C Measurement current: 1 mA
Output analogue:	Max. current 10 mA (for voltage output 0...5/10 V) Bürde (Last) 0...560 Ω (for current output 0/4...20 mA)
Output digital:	current limit 100 mA
Input digital:	0...5 V = log „0“, 10...30 V = log „1“ inverted input reversed accordingly
Communication interface:	Connection to PC via USB büS interface set
Communication Software:	Bürkert communicator





Electrical control and interface

The position of the actuator is regulated according to the set-point position value. The set-point position value is specified either by an external standard signal (analog) or via a field bus (digital).

Analogue Control

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

Input and output:
* 1 analogue input, 1 binary input
* 1 analogue input, 1 binary input, 1 analogue output, 2 binary output (option)
  1 input for process actual value (for process controller version)

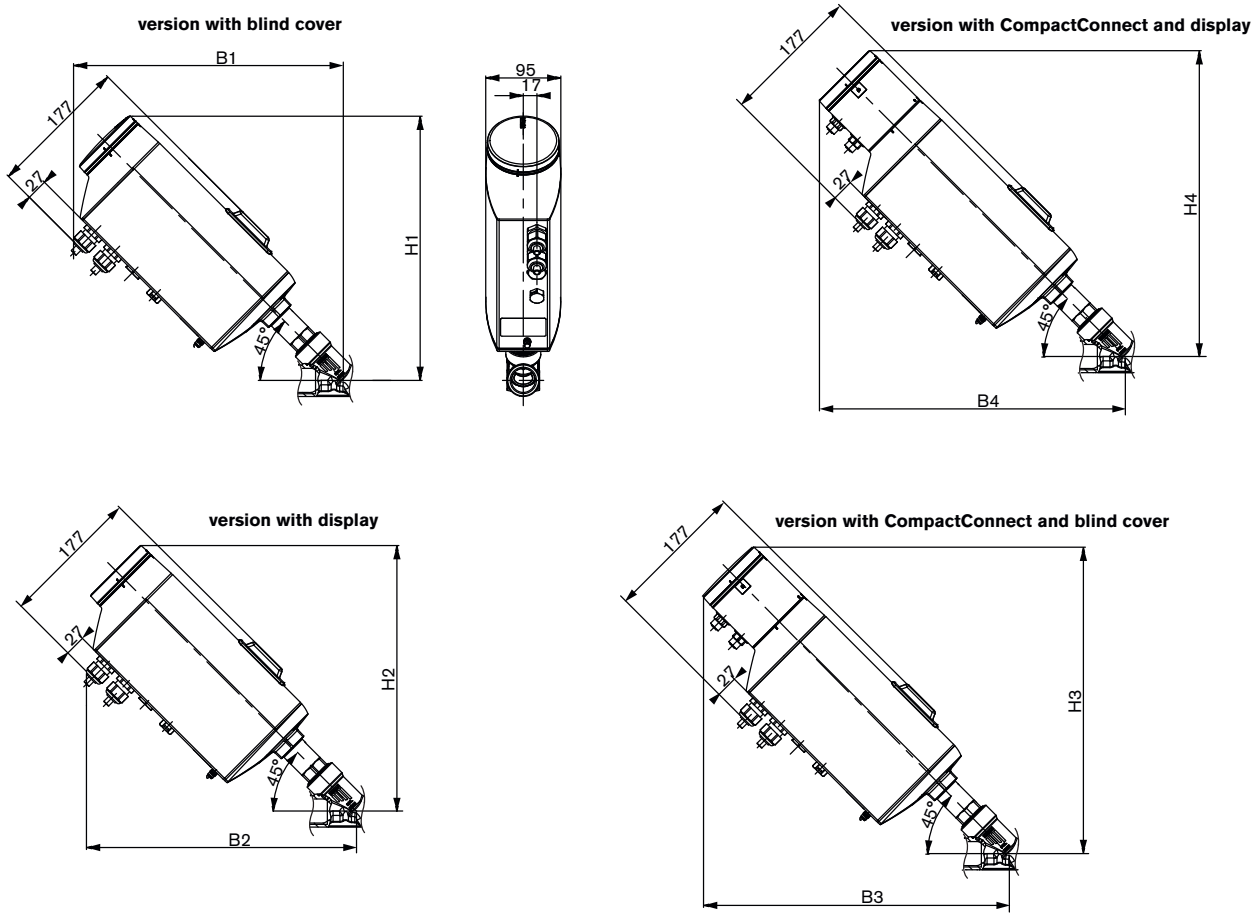
Interface:
* cable gland with connection terminal
* M12 circular connectors M12 (option)

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.

DTS 1000273502 EN Version: C Status: RL (released | freigegeben | validé) printed: 24.06.2016

Dimensions [mm] - valve type 3360 and valve system

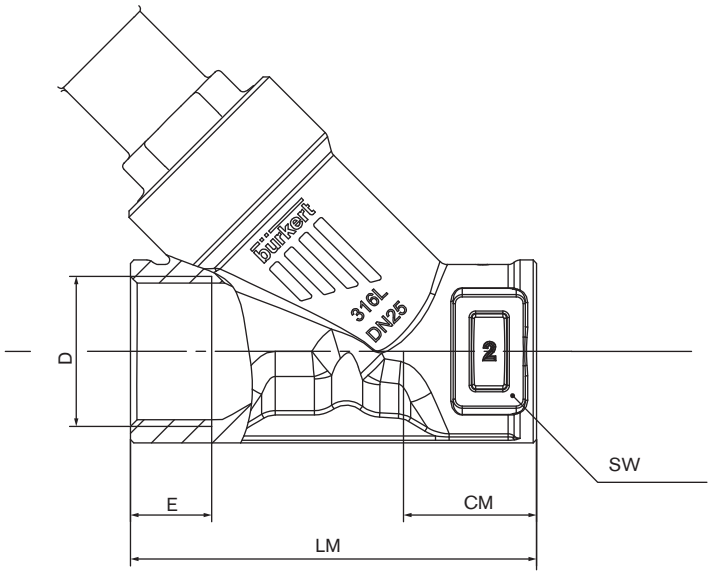


Port connection	Height [mm]				Width [mm]			
[mm]	H1	H2	H3	H4	B1	B2	B3	B4
15	306	308	359	359	314	314	359	359
20	314	316	367	367	321	321	367	367
25	333	336	387	387	341	341	387	387
32	347	349	400	400	354	354	400	400
40	349	351	402	402	356	356	402	402
50	362	364	416	416	370	370	416	416

DTS 1000273502 EN Version: C Status: RL (released | freigegeben | validé) printed: 24.06.2016

Dimensions [mm] - body valve type 3360

Threaded connection



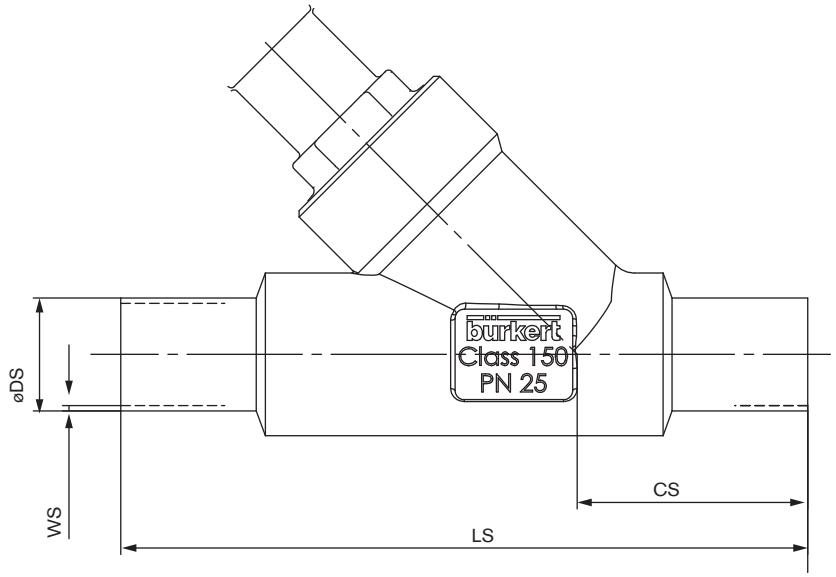
G, RC, NPT (EN ISO 228-1, ISO 7/1 /DIN EN 10226-2, ASME B 1.20.1)

Port size [mm]	CM [mm]	LM [mm]	SW [mm]	G		NPT		RC	
				D [mm]	E [mm]	D [mm]	E [mm]	D [mm]	E [mm]
15	24	65	27	G 1/2	14	NPT 1/2	13.7	RC 1/2	13.2
20	27	75	34	G 3/4	16	NPT 3/4	14.0	RC 3/4	14.5
25	29.5	90	41	G 1	18	NPT 1	16.8	RC 1	16.8
32	36	110	50	G 1 1/4	16	NPT 1 1/4	17.3	RC 1 1/4	19.1
40	35	120	55	G 1 1/2	18	NPT 1 1/2	17.3	RC 1 1/2	19.1
50	45	150	70	G 2	24	NPT 2	17.6	RC 2	23.4

DTS 1000273502 EN Version: C Status: RL (released | freigegeben | validé) printed: 24.06.2016

Dimensions [mm] - body valve type 3360

Weld ends port connection

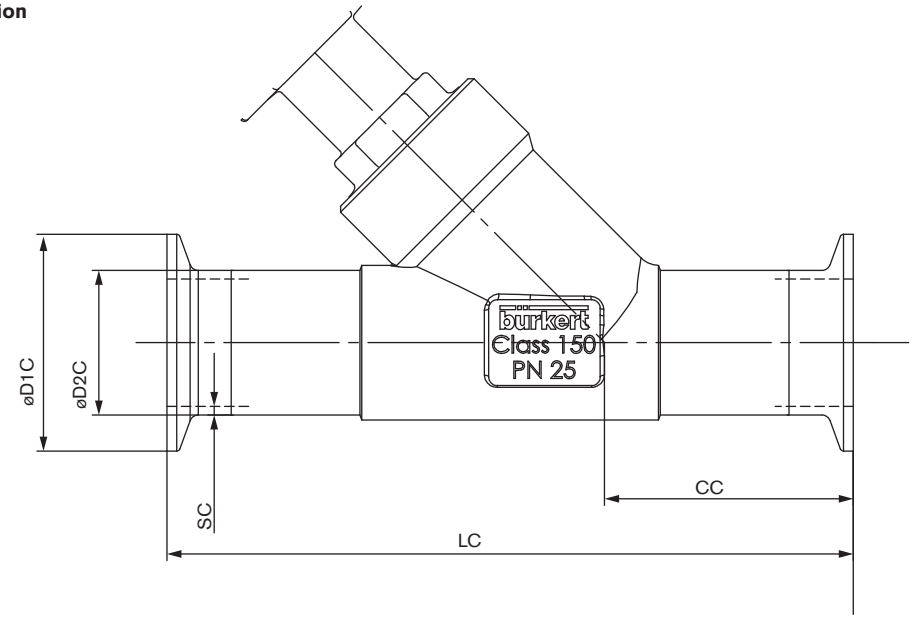


Port size	EN ISO 1127 Series 1 ISO 4200 DIN 11866 Series B				DIN 11850 R2 DIN 11866 Series A DIN EN 10357 Series A				ASME BPE DIN 11866 Series C			
	CS	LS	ØDS	WS	CS	LS	ØDS	WS	CS	LS	ØDS	WS
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
15	34	100	21.3	1.6	34	100	19	1.5	34	100	12.7	1.65
20	39	115	26.9	2.0	39	115	23	1.5	39	115	19.05	1.65
25	43	130	33.7	2.0	43	130	29	1.5	43	130	25.4	1.65
32	40	145	42.4	2.0	40	145	35	1.5	-	-	-	-
40	49	160	48.3	2.0	49	160	41	1.5	49	160	38.1	1.65
50	50	175	60.3	2.6	50	175	53	1.5	50	175	50.8	1.65

DTS 1000273502 EN Version: C Status: RL (released | freigegeben | validé) printed: 24.06.2016

Dimensions [mm] - body valve type 3360

Clamp connection



Port size	Clamp: DIN 32676 Series B Tube: EN ISO 1127 Series 1 ISO 4200 DIN 11866 Series B					Clamp: ASME BPE DIN 32676 Series C Tube: ASME BPE DIN 11866 Series C					Clamp: BS 4825-3 Tube: BS 4825-1					Clamp: DIN 32676 Series A Tube: DIN 11850 Series 2 DIN 11866 Series A DIN EN 10357 Series A				
	LC	CC	ØDC1	ØDC2	SC	LC	CC	ØDC1	ØDC2	SC	LC	CC	ØDC1	ØDC2	SC	LC	CC	ØDC1	ØDC2	SC
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
15	156	49.0	50,5	21.3	1.6	130	49.0	25.0	12.7	1.65	130	49.0	25.0	12.7	1.20	130	49.5	19	34.0	1.5
20	150	56.5	50.5	26.9	1.6	150	56.5	25.0	19.05	1.65	150	56.5	25.0	19.05	1.20	150	57.0	23	34.0	1.5
25	160	58.0	50.5	33.7	2.0	160	58.0	50.5	25.4	1.65	160	58.0	50.5	25.4	1.65	160	58.5	29	50.5	1.5
32	200	57.5	50.5	42.4	2.0	-	-	-	-	-	-	-	-	-	-	180	58.0	35	50.5	1.5
40	200	69.0	64.0	48.3	2.0	200	69.0	50.5	38.1	1.65	200	69.0	50.5	38.1	1.65	200	69.5	41	50.5	1.5
50	230	77.5	77.5	60.3	2.6	230	77.5	64.0	50.8	1.65	230	77.5	64.0	50.8	1.65	230	78.0	53	64.0	1.5

DTS 1000273502 EN Version: C Status: RL (released | freigegeben | validé) printed: 24.06.2016

bürkert

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

Valve system – request for quotation

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 PN

Pipe Material

■ Process medium

■ Type of medium ☐ Liquid ☐ Steam ☐ Gas

	min.	standard	max.	Unit
■ Flow rate (Q, Q_N, W) [1]				
■ Temperature at valve inlet T1				
■ Absolute pressure at valve inlet P1				
■ Absolute pressure at valve outlet P2				
Steam Pressure Pv				

Kinematic viscosity (ν) mm^2/s or cSt

Dynamic viscosity (η) mPa.s or cP

Standard density Kg/m^3

Max. sound level accepted dB (A)

[1] standard unit:
Liquid Q = m^3/h;
Steam W = kg/h;
Gas Q_N = Nm^3/h

Valves features

Cone seal material ☐ PTFE/Stainless steel ☐ Stainless steel/Stainless steel ☐ PEEK / Stainless steel

Nominal pressure PN

Seat size (orifice) DN

Type of connection ☐ Flanged ☐ Threaded ☐ Welded ☐ Clamp

Control function
- ☐ with energy storage (delivey status NO)
- ☐ without energy storage (blocked in last position)
- ☐ with energy storage (delivey status NC)

Reset

DTS 1000273502 EN Version: C Status: RL (released | freigegeben | validé) printed: 24.06.2016

Valve system – request for quotation, continued

Control unit features

User display

- ☐ with touch display
- ☐ without touch display

Controller version

- ☐ Position controller
- ☐ Process controller

Communication

- ☐ Analogue
  - ☐ 1 analogue IN / 1 binary IN
  - ☐ 1 analogue IN / 1 binary IN
1 analogue OUT / 2 binary OUT
- ☐ Digital (fieldbus)
  - ☐ Ethernet / IP
  - ☐ Profinet
  - ☐ Modbus TCP

Electrical connection

- ☐ Cable gland (without Bus)
- ☐ Multipol connection

SIM card

- ☐ with
- ☐ without

Please specify item no. (if known)**:**

Comments

Zurücksetzen

DTS 1000273502 EN Version: C Status: RL (released | freigegeben | validé) printed: 24.06.2016

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

Subject to alteration.
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