Type 3360





Electromotive 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 and process controller available







Product variants described in the data sheet may differ from the product presentation and description.

Can be combined with



Type 3320 Electromotive 2/2 way angle seat valve



Type 3321 Electromotive 2/2 way globe valve



Type 3361
Electromotive 2 way globe control valve



Type 8098 FLOWave SAW flowmeter



Type ME43 Fieldbus gateway

Fluid Control Sp

Type description

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 cone 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 environments 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.



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1. General technical data

Product properties	
Dimensions	Detailed information can be found in chapter "4. Dimensions" on page 7.
Material	Detailed information can be found in chapter "3. Materials" on page 5.
Design	Angle seat control valve
Nominal diameter	DN1550, NPS ½2
Safety setting in case of power failure	With SAFEPOS energy-pack: open, closed or freely programmable Without SAFEPOS energy-pack: blocked in last position
Flow direction	Against closing direction (below seat)
Controller versions	Position controller or process controller (optional)
Weight	4 kg (only actuator, total weight depends on the port connection)
Performance data	
Operating pressure	025 bar(g) (see "5.1. Fluidic data" on page 12) Vacuum version up to -0.9 bar(g) (optional)
Nominal pressure	PN25 (DIN EN 1333), Class 150 (DIN EN 1759)
K _{vs} value	553 m ³ /h (see "5.1. Fluidic data" on page 12)
Flow characteristic	Modified equal percentage (see "5.1. Fluidic data" on page 12)
Seat leakage (DIN EN 60534-4)	Class III, IV and VI (see "5.1. Fluidic data" on page 12)
Closing time	2.36.2 s (depending on travel speed and stroke)
Travel speed	6 mm/s (for actuator force 1300 N) 4 mm/s (for actuator force 2500 N)
Dead band of the position control	±0.1%
Electrical data	
Operating voltage	24 V DC±10% (max. residual ripple 10%)
Operating current ^{1.)}	Max. 3 A (at max. load and including 1 A charging current of the optional SAFEPOS energy-pack) At minimum operating temperature additionally 2 A
Protection class (DIN EN 61140)	3
Duty cycle	100 %
Standby consumption ^{1.)}	25 W
Communication and control	
Standard signal (analogue)	Setpoint: 0/420 mA, 05/10 V and binary input (further inputs and outputs optional, see "5.3. Electrical control and interfaces" on page 16)
Fieldbus (digital)	Bü <mark>rke</mark> rt system bus (büS) CAN <mark>o</mark> pen (optional) EtherNet/IP, PROFINET, Modbus/TCP (optional via integrated gateway)
Media data	(P)
Process medium	Steam, neutral gases, water, alcohols, oils, fuels, hydraulic fluids, salt solutions, lyes, organ ic solvents, oxygen (optional)
Medium temperature	-40 °C+230 °C (see "5.2. Operating limits" on page 13)
Vis <mark>cos</mark> ity	Up to 600 mm ² /s
Process/Port connection & commur	
Port connection ^{2,)}	
Welded connection	DIN EN ISO 1127/ISO 4200/DIN11866 B DIN 11850 2/DIN 11866 A ASME BPE/DIN 11866 C SMS 3008
Clamp connection	DIN 32676 B (pipe ISO 4200) DIN 32676 A (pipe DIN 11850 2) ASME BPE
Threaded c <mark>on</mark> nection	G (EN ISO 228-1) Rc (ISO 7/1 /DIN EN 10226-2) NPT (ASME B 1.20.1)
aujo .	
Electrical connection	
Elulu	Terminal connector with cable gland, 3 x M20 or 2 M12 circular plugs, 5 pin and 8 pin, 1 M12 circular socket, 5 pin (only with process controller function)





Approvals and certificates	
Conformity	Food EGV 1935/2004
·	FDA (optional)
Approval	Explosion protection ATEX/IECEx (optional) (see "2. Approvals" on page 4)
	cULus Cert. No. 238179 (optional) (see "2. Approvals" on page 4)
Ignition protection class	II 3G Ex ec IIC T4 Gc
	II 3D Ex tc IIIC T135 °C Dc
Environment and installation	
Ambient temperature	-25+65 °C (only without additional modules)
	(Derating see "Operating limits for ambient and medium temperature" on page 14)
Degree of protection	IP65/IP67 (DIN EN 60529), NEMA 4X
Vibration and shock resistance	
Vibration, sinusoidal	5 g (IEC 60068-2-6 Test Fc)
Shock, mechanical	50 g (IEC 60068-2-27 Test Ea)
Installation position	Any, preferably actuator face up
•	

^{1.)} All values refer to a supply voltage of 24 V at 25 $^{\circ}\text{C}.$

2. Approvals

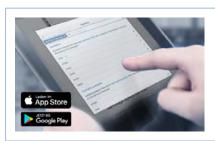
Approval	Description
只"	Food produce contact Materials in contact with medium conform to EC regulation 1935/2004 Materials in contact with medium conform to FDA (optional)
H ₂ O	Drinking water Suitable for use with drinking water according to KTW, W270 (optional)
O ₂	Oxygen Suitable for use with gaseous oxygen (optional)
⟨£x⟩	Explosion proof As category 3 device suitable for zone 2/22 (optional) ATEX
7-2-	II 3G Ex ec IIC T4 Gc
IECEX	• II 3D Ex to IIIC T135 °C Do
	IECEX
	Ex ec IIC T4 Gc
	• Ex tc IIIC T135 °C Dc
(I)	Safety requirements UL-listed cULus Cert. No. 238179 (optional)
Standards	Description
powered by	Field device for integration into the EDIP platform via Bürkert system bus (büS)
Fluid	Control Special.

^{2.)} Others on request



3. Materials

3.1. Chemical Resistance Chart - Bürkert resistApp



Bürkert resistApp - Chemical Resistance Chart

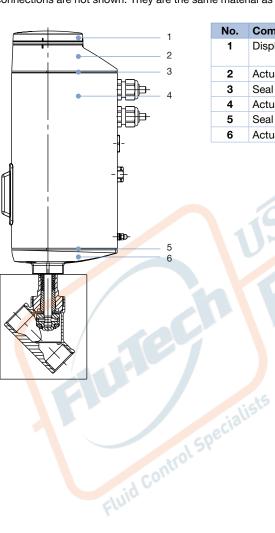
You want to ensure the reliability and durability of the materials in your individual application case? Verify your combination of media and materials on our website or in our resistApp.

Start Chemical Resistance Check

3.2. Material specifications

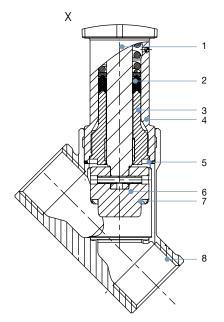
Note:

The Type 3360 angle seat valve is supplied with various port connections (flange, thread, weld end and clamp connections). These connections are not shown. They are the same material as the valve body.

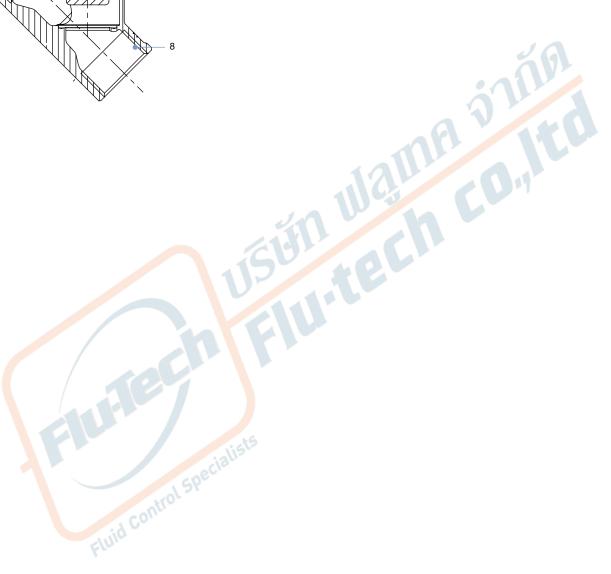


No.	Component	Material			
1	Display housing/Blind cover	PPS (Standard), Stainless steel 1.4301 (for ATEX/IECEx)			
2	Actuator cover	PPS			
3	Seal	EPDM			
4	Actuator housing	Aluminium powder coated			
5	Seal	EPDM			
6	Actuator base	PPS			
	SULE				





No.	Component	Material
1	Spindle	Stainless steel 1.4401 (316)/1.4404 (316L)
2	Spindle seal	PTFE- V-seals (filled) with spring compensation
3	Spindle guidance	Stainless steel 1.4404 (316L)
4	Packing gland tube	Stainless steel 1.4401 (316)
5	Seal valve body	Graphite or PTFE
6	Control cone	Stainless steel 1.4571
7	Seat seal	Stainless steel 1.4571/PTFE or PEEK seal washer
8	Valve body	Stainless steel CF3M





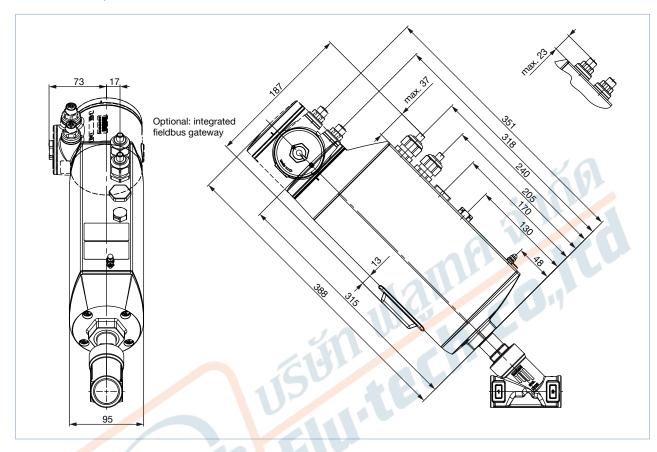


4. Dimensions

4.1. Actuator

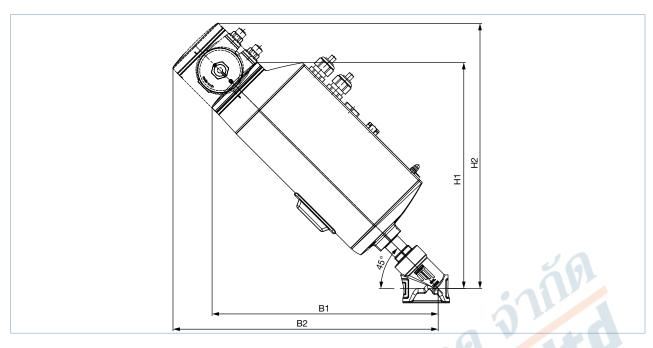
Note:

Dimensions in mm, unless otherwise stated









Nominal diameter (Pipe)	Height/Width ^{1.)}	Height/Width ^{1.)}		
DN	NPS	H1/B1	H2/B2 ^{2.)}		
15	1/2	311	362		
20	3/4	319	369		
25	1	334	385		
32	11⁄4	349	399		
40	11/2	352	403		
50	2	367	418		

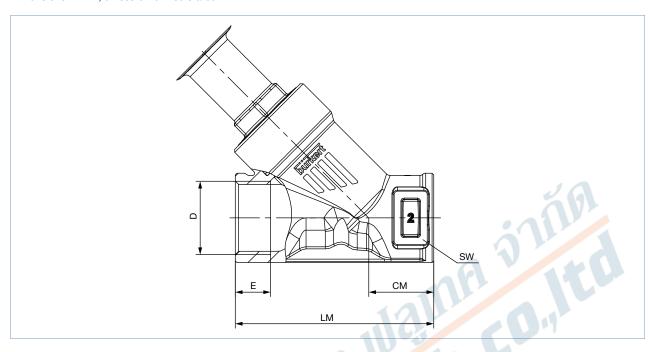
- 1.) Dimensions without tight-closing function: in closed position the actuator additionally lifts by approx. 2 mm
- 2.) Optional: integrated fieldbus gateway



4.2. Body with threaded connection

Note

Dimensions in mm, unless otherwise stated



Nominal diameter	G (DIN ISO 228-1), NPT (ASME B 1.20.1), Rc (ISO7-1)								
(Pipe)	D	E	E			LM	SW		
DN	NPS	G	NPT	Rc					
15	1/2	14	13.7	13.2	24	65	27		
20	3/4	16	14.0	14.5	27	75	34		
25	1	18	16.8	16.8	29.5	90	41		
32	11/4	16	17.3	19.1	36	110	50		
40	1½	18	17.3	19.1	35	120	55		
50	2	24	17.6	23.4	45	150	70		

Fluid Control Specialists

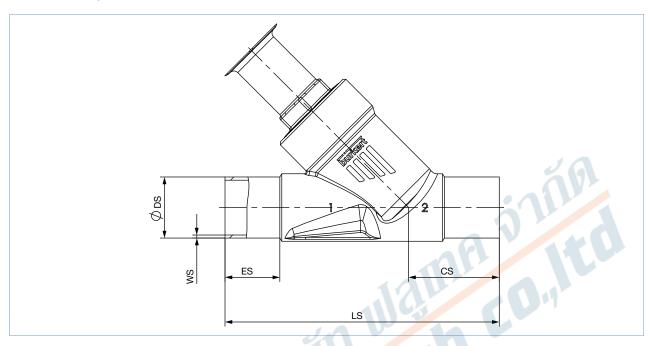




4.3. Body with welded connection

Note:

Dimensions in mm, unless otherwise stated



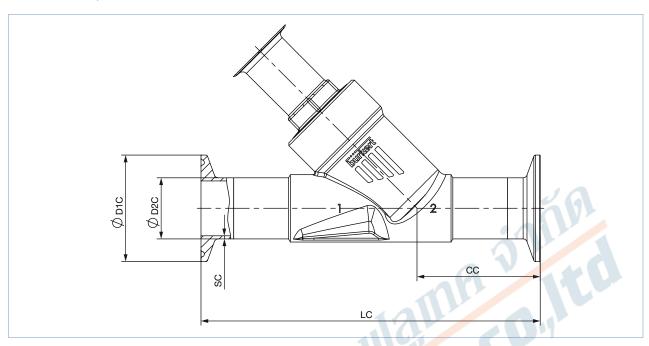
Nominal diameter (Pipe)	DIN EN IS ISO 4200 DIN 11866			15	A.	DIN 11850 2 DIN 11866 A				
DN	ES	CS	LS	ØDS	WS	ES	cs	LS	ØDS	WS
15	19	34	100	21.3	1.6	19	34	100	19	1.5
20	20	39	115	26.9	1.6	20	39	115	23	1.5
25	26	43	130	33.7	2.0	26	43	130	29	1.5
32	26	45	145	42.4	2.0	26	45	145	35	1.5
40	26	49	160	48.3	2.0	26	49	160	41	1.5
50	26	50	175	60.3	2.0	26	50	175	53	1.5

Nominal diameter (Pipe)	ASME BPE DIN 11866 C							
NPS	ES	CS	LS	ØDS	ws			
1/2	30	46	135	12.7	1.65			
3/4	30	52	145	19.05	1.65			
1	30	51	152	25.4	1.65			
11/2	30	60	182	38.1	1.65			
2	30	64	210	50.8	1.65			

4.4. Body with clamp connection

Note:

Dimensions in mm, unless otherwise stated



Nominal diameter (Pipe)	Clamp: DIN 32676 B Pipe: EN ISO 1127 1 ISO 4200 DIN 11866 B					Clamp: DIN 32676 A Pipe: DIN 11850 2 DIN 11866 A				
DN	LC	CC	ØDC1	ØDC2	SC	LC	CC	ØDC1	ØDC2	SC
15	156	49.0	50.5	21.3	1.6	130	49.5	19	34.0	1.5
20	150	56.5	50.5	26.9	1.6	150	57.0	23	34.0	1.5
25	160	58.0	50.5	33.7	2.0	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	69.5	41	50.5	1.5
50	230	77.5	77.5	60.3	2.6	230	78.0	53	64.0	1.5

Nomi <mark>na</mark> l diameter (Pipe)	Clamp: ASME BPE Pipe: ASME BPE DIN 11866 C						
NPS	LC	CC	ØDC1	ØDC2	SC		
1/2	130	49.0	25.0	12.7	1.65		
3/4	150	56.5	25.0	19.05	1.65		
1	160	58.0	50.5	25.4	1.65		
1½	200	69.0	50.5	38.1	1.65		
2	230	77.5	64.0	50.8	1.65		



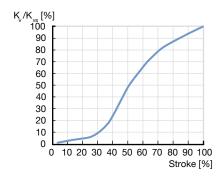
Performance specifications

5.1. Fluidic data

Flow characteristics

- Flow characteristic acc. to DIN EN 60534-2-4
- Modified equal percentage flow characteristic theoretical rangeability: $K_{vs}/K_{vn} = 50:1$
- K_{VR} value^{1.)} at 5 % of stroke

1.) K_{v_R} value = smallest K_v value at which the inclination tolerance according to DIN EN 60534-2-4 can still be maintained.



Overview of flow characteristics with flow below seat

Note:

- K_v value [m³/h]: Measured with water acc. to DIN EN 60534-2-3
- Operating limits, see "5.2. Operating limits" on page 13

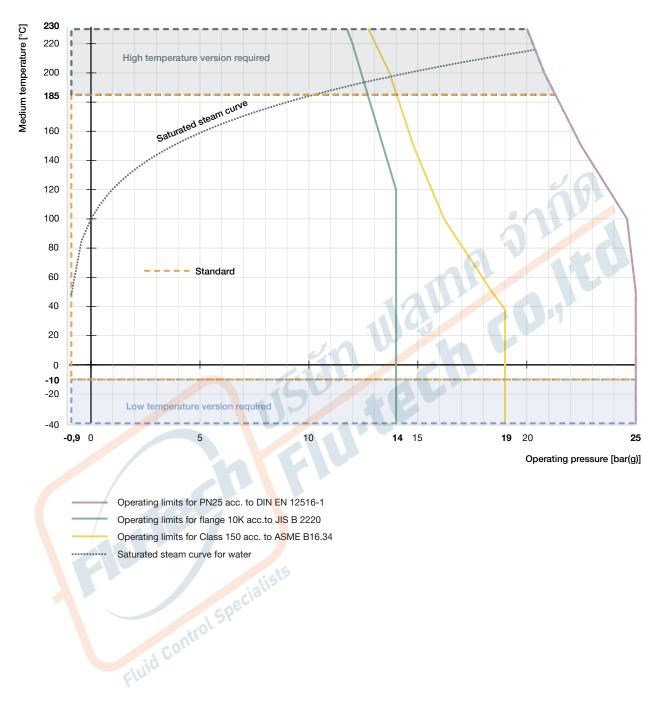
Overvi Note:	0 0 0 0 10 2	ow chara	acteristics v	oke [%] with flow b			18			9	11	t	
			sured with w "5.2. Opera										
Nominal diameter		Actu-	Operating pressure (seat leakage class)		Characteristic curve (theoreti-	$\mathbf{K}_{\mathbf{v}}$ value at stroke $\mathbf{K}_{\mathbf{vs}}$ value							
(Pipe)		force	Valve sea Stainless		PEEK	cal rangeability)	5%	10%	30 %	50%	70%	90 %	
DN	NPS	TAIT	steel	[how(ex)]					F.	-3/l-1			[m³/h]
15	1/2	[N] 1300	25 (IV)	[bar(g)]	25 (VI)	Equal	0.16	0.17	0.4	n³/h] 2.7	4.0	4.8	5
20	3/4	1300	25 (IV)	25 (VI)	25 (VI)	percentage	0.16	0.17	1.1	5.9	8.3	9.6	10
25	1	- /	25 (IV)	25 (VI)	20 (VI)	(50:1)	0.20	0.27	1.5	8.9	13.0	15.4	16
32	11/4	1300	16 (IV)	16 (VI)	10 (VI)		0.34	0.36	2.5	13.9	19.5	23.5	25
12	1 /4	2500	25 (IV)	25 (VI)	20 (VI)	_	0.40	0.40	2.5	10.9	13.5	20.0	25
10	1½	1300	10 (III)	10 (VI)	6 (VI)	<u>/</u>	0.48	0.66	5.1	20.0	28.5	34.5	36
	1/2	2500	18 (IV)	18 (VI)	14 (VI)		0.40	0.00	0.1	20.0	20.0	04.0	
50	2	1300	6 (III)	6 (VI)			0.87	1.2	4.0	26.0	40.5	48.0	53
,,		0500	10 (11)	10 (1)	8 (VI)		0.07		1.0	20.0	10.0	10.0	
			luid Cor	itrol SP									



5.2. Operating limits

Operating limits for medium temperature and operating pressure

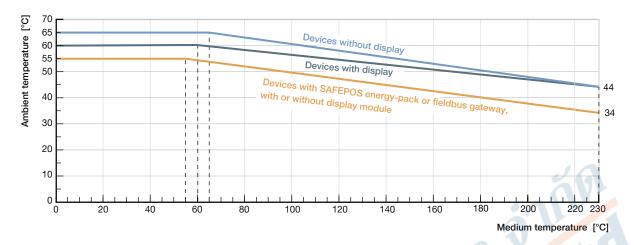
The operating range of Bürkert process valves is in addition to the maximum operating pressures limited by the nominal pressure according to the relevant standard.





Operating limits for ambient and medium temperature

The maximum permissible temperature for the environment and the medium are dependent on 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.



Operating limits for seat seal

Tight sealing required	Leakage class (DIN EN 60534-4)	Medium temperature	Seat seal		
No An additional shut-off valve is recommended	III/IV (metal seals) Metal-sealed valves have larger leakages (0.1 % or 0.01 % of the nominal flow rate are permissible). Metallic seals are impervious even under demanding process conditions.	-40230 °C	Stainless steel		
Yes	VI (soft seals) By using plastics as sealing material, the control valves can close tightly.	-40130 °C (recommended for ≤130 °C)	PTFE		
An additional shut-off valve is often unnecessary.	Their use is not recommended in cases of increased erosion due to demanding process conditions.	-10230 °C (recommended for >130 °C)	PEEK		
Fluid C	ontrol Specie				



Operating limits for optional versions

High temperature version

By adapting the spindle sealing this version is suitable for applications with steam, neutral gases and other heat transfer mediums up to 230 °C.

Drinking water version

Materials in contact with the medium are tested for suitability with drinking water up to 85 °C.

Vacuum version

Without leakage bore, this design is suitable for pressures down to -0.9 bar(g).

Low temperature version

Suitable for minimum medium temperatures down to -40 °C

Version for oxygen

Non-metallic materials in contact with the medium are tested for suitability with oxygen. Suitable for operating pressures up to 20 bar(g) and medium temperatures up to 60 °C.





5.3. Electrical control and interfaces

Interface diagram

The position of the actuator is controlled according to the position setpoint. The position setpoint is given either by an external standard signal (analogue) or via a fieldbus (digital).

Analogue control

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

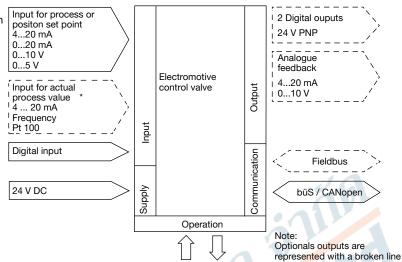
Inputs and outputs:

- 1 analogue input, 1 binary input
- 1 analogue input, 1 binary input, 1 analogue output, 2 binary output (optional)
- 1 analogue input process actual value (for optional version with process controller)

Interface:

Pt 100

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



Control data					
Analogue setpoint input	Galvanically isolated from supply voltage and analogue output 0/420 mA (input resistance <70 Ω) 05/10 V (input resistance 22 $k\Omega$)				
Analogue output	Max. current 10 mA (for voltage output 05/10 V) Burden (load) 0800 Ω (for current output 0/420 mA)				
Digital input	05 V = log "0", 1030 V = log "1" inverted input reversed accordingly				
Digital output	PNP, Current limitation 100 mA				
Analogue actual value signal input (optiona	0				
420 mA	Input resistance: $<70 \Omega$ resolution: 12 Bit				
Frequency	Measuring range: up to 1000Hz Input resistance: $>30 \text{ k}\Omega$ resolution: 0,1% of measured value Input signal: $>300 \text{ mVss}$ Signal shape: sine, rectangle, triangle				

Measuring current: 1 mA

Communication

Communication interface (büS)

Connection to PC via USB büS interface set

Communication software (büS)

Bürkert Communicator, see Type 8920 ▶

resolution: 0,01 °C

Measuring range: -20 °C...+220 °C





6. Product design and assembly

6.1. Product features

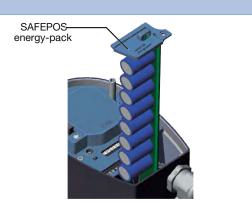
Note

More detailed information can be found in the **operating instructions \rightarrow**.



Safety position via energy storage (optional)

The safety starting positions in case of power interruption is realized with the optional energy storage SAFEPOS energy-pack. The desired position is set via the menu. In addition to the end positions (open/ closed), any desired intermediate position can be defined here. 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 storage device is designed as a plug-in module to facilitate replacement. Without energy storage, the valve remains in the last position it was in. The energy storage device is fully charged and ready for operation after a maximum of 100 seconds (depending on the operating conditions). The energy storage device cannot be retrofitted in the field.



Fieldbus: EtherNet/IP, PROFINET, Modbus TCP (optional)

The fieldbus gateway for EtherNet/IP, PROFINET and Modbus TCP is integrated in an additional module. It has 2 fieldbus connections with 4 pin M12 circular sockets. The interfaces for the fieldbus connection and the status LEDs are located under the gateway housing cover. If there is a need for it to be include in a network then the configuration of the Ethernet can be performed via the web server. The gateway cannot be retrofitted in the field.





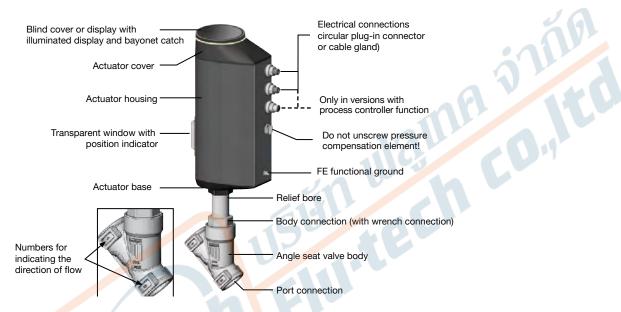


6.2. Product assembly

The electromotive linear drive consists of a brushless DC motor, a gear and a spindle system that transfers the force to the control cone. The integrated control electronics are controlled either via standard signals (analog) or via a field bus (digital). A positioner and a process controller are available as controller versions. The electromotive linear actuator is designed to provide optimum efficiency. At the same time, it keeps the valve tight and in position even at the maximum specified medium pressure in a powerless standstill. An optional energy storage device (SAFEPOS energy-pack) is available for the device. If the supply voltage fails, it supplies the actuator with the energy required to move the valve into the desired position, which can be set in the menu.

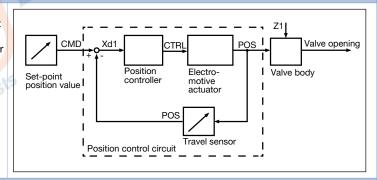
The valve position can be changed manually in 2 ways. Either via the electrical manual control or via a mechanical manual control if no supply voltage is available. The device can be set and operated either via 2 capacitive keys and 4 DIP switches or optionally on a display with touch screen. In addition there is always the possibility to operate the device via the büS service interface and using the "Bürkert Communicator" software.

The intelligent process valve Type 3360 offers the operator options for process monitoring, valve diagnosis and preventive maintenance. Internal measurements of the operating status are evaluated and, if necessary, issued as a warning or error message. These signal, for example, impermissible ambient and process conditions, functional deviations of components or the status of the energy storage device



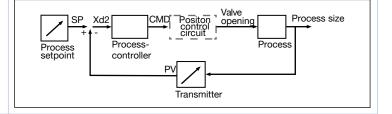
Integrated position controller

The position of the actuator (stroke) is controlled according to the position setpoint. The position setpoint is either given by an external standard signal (analog) or via a fieldbus (digital). The displacement transducer records the actual position (POS) of the electric linear actuator. This actual position value is compared by the positioner with the position setpoint (CMD) specified as standard signal. If there is a system deviation (Xd1), the electric motor drive is controlled via the manipulated variable CTRL and the actual position value is changed accordingly.



Integrated process controller (optional)

The additionally implemented PID controller allows process control. The setpoint position of the valve is calculated from the external signal (e.g. level, pressure, flow rate, temperature) for the process setpoint and the actual process value via the control parameters (PID controller).







7. Ordering information

7.1. Bürkert eShop - Easy ordering and quick delivery



Bürkert eShop - Easy ordering and fast delivery

You want to find your desired Bürkert product or spare part quickly and order directly? Our online shop is available for you 24/7. Sign up and enjoy all the benefits.

Order online now

7.2. Bürkert product filter



Bürkert product filter - Get quickly to the right product

You want to select products comfortably based on your technical requirements? Use the Bürkert product filter and find suitable articles for your application quickly and easily.

Try out our product filter

7.3. Ordering chart accessories

Standard accessories

Description	Article no.
SIM card for data transmission between devices	291773 ≒
Holding device for port connection DN1520	693770 ≒
Holding device for port connection DN2550	693771 ≒
Plastic blind cover	277881 ≒
Energy storage SAFEPOS energy-pack	285834 ≒

Accessories cable

Note:

For connection to a büS/CANopen network see cabling guide >.

Description	Article no.
Connection cable with M12 socket, 4 pin, (length 5 m) for operating voltage (without communication)	918038 🛱
Connection cable with M12 socket, 8 pin, (length 2 m) for input and output signals	919061 ≒
Connection cable with M12 plug, 5 pin, (length 2 m) for input of process actual value signals	559177 ≒
(only for version with process controller)	



Bürkert accessories

Note:

- For connection to a büS/CANopen network see cabling guide .
- Detailed accessory tables can be found in the cabling guide

Description	Article no.
Software Bürkert Communicator, Type 8920	LINK >
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 ≒

7.4. Bürkert product enquiry form

Bürkert product enquiry form: Would you like to make a specific product enquiry based on your technical requirements? Please use our product enquiry form at the end of this data sheet. There you will find all the information relevant to your Bürkert contact person that will help us to process your enquiry in the best possible way.

Bürkert specification key: In our product enquiry form you will find a complete explanation of the composition of our specification key. You will find our product enquiry form at the end of this data sheet.

