The Unique Diaphragm Valve System

for High-Quality Applications

Easy Fluid Control Solutions

- Customized System Solutions with Burkert Sensors, Controllers, Process Actuation and Process Valves
- Easy LINK and Easy NET Technologies
- Body Materials in Plastic and Stainless Steel with Various Surface Finishes
- Modular Range of Different Process Connections, Diaphragms and Accessories
- Zero Dead Volume, Self-Draining

bürkert
Fluid Control Systems

Table of Contents

Applications

2030/3232 – Plastic

Applications:

- Water Treatment
- Chemical Industry
- Semicon (auxiliary processes)

2031/3233 – Forged

Applications:

- Pharmaceutical Industry
- Bioprocessing Industry
- Semicon

2031/3233 – Investment Cast

Applications:

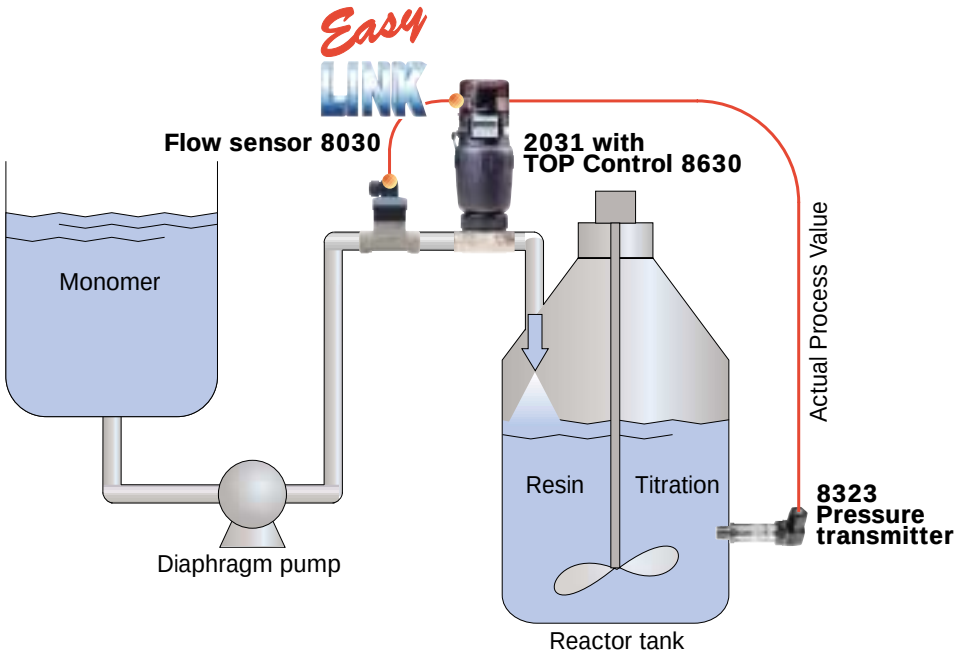
- Water Treatment
- Food and Beverage
- Chemical Industry
- Cosmetic Industry
- Pharmaceutical Industry (auxiliary processes)
- Bioprocessing Industry (auxiliary processes)
- Semicon (auxiliary processes)

2031/3233 – General Purpose

Applications:

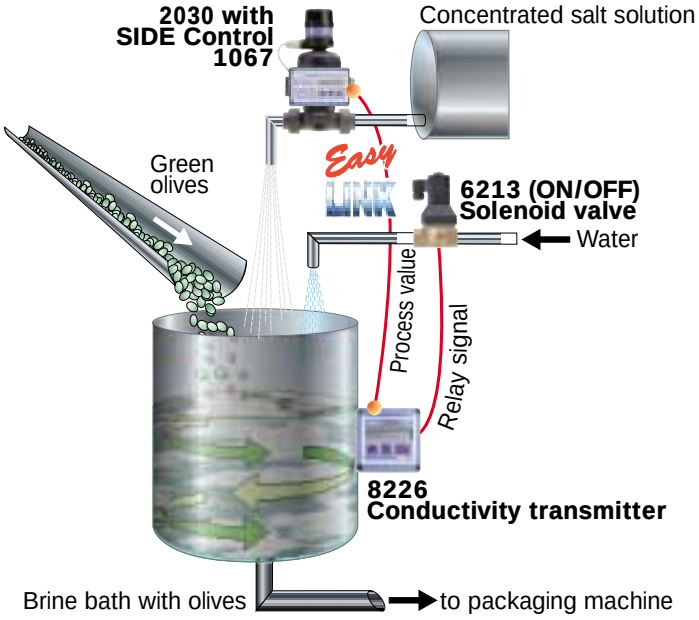
- Water Treatment
- Food and Beverage (auxiliary processes)
- Chemical Industry (auxiliary processes)

Easy Flow Control



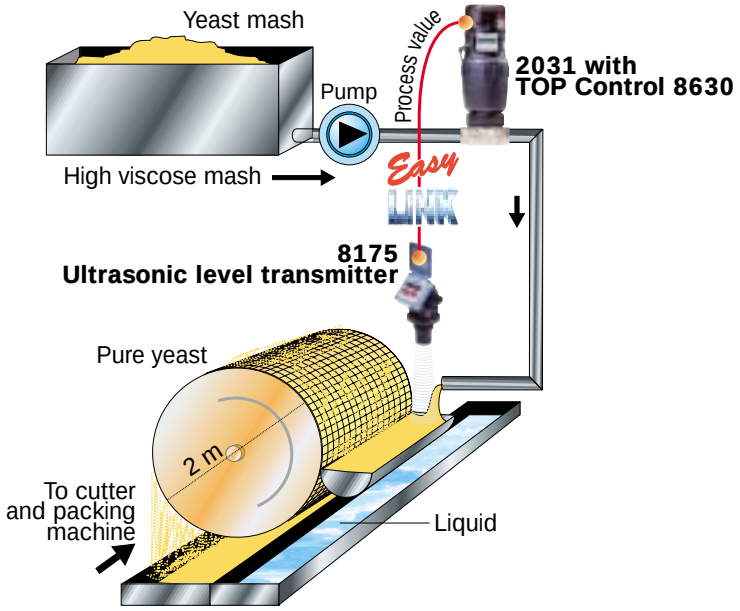
Reduced costs up to 48%

Easy Analytical Control



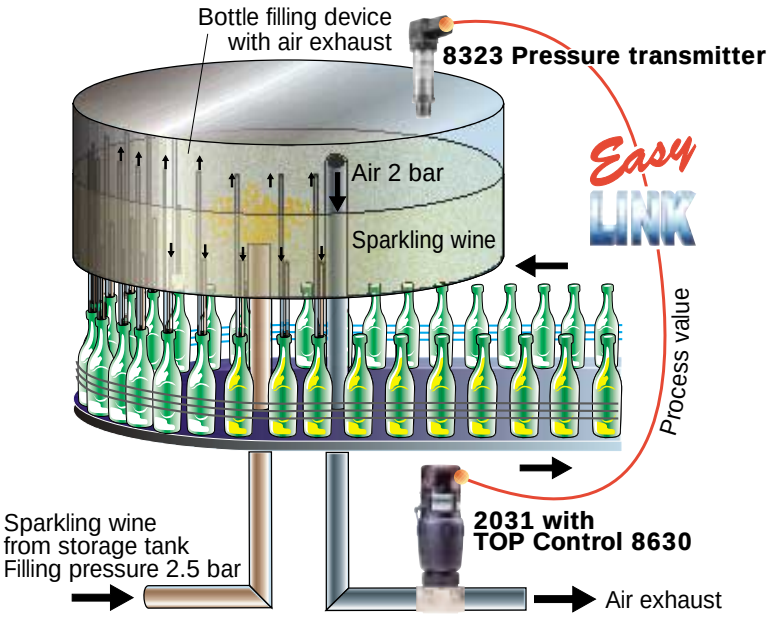
Pay back period for user, less than two weeks

Easy Level Control



Reduced costs up to 40%

Easy Pressure Control



Reduced costs up to 42%

Type 2030/3232 – Plastic

A wide range of modules for contaminated, aggressive and corrosive fluids

Actuator

Size:

- D ø 50 mm
- E ø 63 mm
- F ø 80 mm
- G ø 100 mm
- H ø 125 mm
- K* ø 175 mm
- L* ø 225 mm

(* only PA)

Material:

- PA (Polyamide)
- PPS (Polyphenylene Sulphide) (on request)

Temperature:

Valve Body Material	Medium Temperature °C	°F
PVDF	-10...120	-14...248
PVC	-10...60	-14...140
PP	-10...80	-14...176

Actuator Size	Ambient Temperature °C	°F
≤125 mm	-10...60	-14...140
>125 mm	-10...50	-14...122

Circuit function:

- Normally closed by spring force (A)
- Normally open by spring force (B)
- Double acting (I)

Process Connection

Solvent spigot
Fusion spigot
True union

Flange:

- DIN
  Size 65 mm
  80 mm
  100 mm
- Customized Solutions for JIS and ANSI

Solvent and fusion spigot

True union

Flange

Bonnet and Hand-Wheel

Size:

Material:

• Hand-Wheel	PPS
Bonnet	PPS

On request

• Hand-Wheel	PPS
Bonnet	St.Steel (SS)
• Hand-Wheel	St.Steel (SS)
Bonnet	St.Steel (SS)

Diaphragm

Material:

- EPDM (Ethylene Propylene Rubber)
- PTFE/EPDM (Teflon®)
- FPM (Viton®)

On request

- CSM (Hypalon®)
- PSI (Silicone)
- PTFE/FPM
- NBR (Perbunan N®)
- Butyl

Valve Body

Body conf.:

- 2/2-way

Material:

- PVDF (Polyvinylidefluoride)
- PVC (Polyvinylchloride)
- PP (Polypropylene)

Size:

DN [mm]	NPS [Inch]
15	1/2"
20	3/4"
25	1"
32	1 1/4"
40	1 1/2"
50	2"
65	2 1/2"
80	3"
100	4"

Type 2031/3233 – Forged

A wide range of modules for ultra-pure, sterile and aggressive fluids

Actuator

Size:

• C	ø 40 mm	• G	ø 100 mm
• D	ø 50 mm	• H	ø 125 mm
• E	ø 63 mm	• K*	ø 175 mm
• F	ø 80 mm	• L*	ø 225 mm

(* only PA - on request)

Material:

- PA (Polyamide)
- PPS (Polyphenylene Sulphide)

Temperature:

Diaphragm Material	Medium Temperature °C	°F
EPDM/PTFE	-10...130 (short 150)	-14...266 (short 302)

Actuator Mat.	Size	Ambient Temperature °C	°F
PA	All	-10...60	-14...140
PPS	<100 mm	5...140	41...284
PPS	≥100 mm	5...90 (short 140)	41...194 (short 284)

Circuit function:

- Normally closed by spring force (A)
- Normally open by spring force (B)
- Double acting (I)

Process Connection

Weld end:

- ISO 4200
- DIN 11850, S0, S1, S2 and S3
- SMS 3008
- BS 4825
- ASME BPE / ASTM A269
- JIS Sanitary and JIS Utility

Tri-Clamp®:

- ISO 2852 / SMS 3017
- DIN 32676
- BS 4825
- ASME BPE

Sterile threaded:

- DIN 11851
- SMS 1145 (on request)

Surface Finish

	Ra [µm] Int. / Ext.	Ra [µInch] Int. / Ext.
Satin finished[1)]	0.5 / 6.3	20 / 248
Satin finished[2)]	0.5 / 1.6	20 / 63
Electro polished	0.4 / 3.2	16 / 126
Electro polished	0.4 / 0.8	16 / 31.5
Mirror finished[3)]	0.25 / 0.25	10 / 10

1) Internal: Satin finished / External: Glass beaded
2) Internal: Satin finished / External: Mech. polished
3) Int. Ra < 0.1 µm / 4 µInch / 500 Grit: on request

Grit # (Reference only)
Ra: 0.8 µm / 31.5 µInch ~ 160 Grit
Ra: 0.5 µm / 20.0 µInch ~ 240 Grit
Ra: 0.4 µm / 16.0 µInch ~ 280 Grit
Ra: 0.25 µm / 10.0 µInch ~ 330 Grit

Bonnet and Hand-Wheel

Size:

Material:

- Hand-Wheel PPS
  Bonnet PPS
- Hand-Wheel PPS
  Bonnet St.Steel (SS)
- Hand-Wheel St.Steel (SS)
  Bonnet St.Steel (SS)

Option:

- Locking function
- St.Steel (SS) electro polished

Diaphragm

Material:

- EPDM (Ethylene Propylene Rubber)
- PTFE/EPDM (Teflon®)
- FPM (Viton®)

On request

- CSM (Hypalon®)
- PSI (Silicone)
- PTFE/FPM
- NBR (Perbunan N®)
- Butyl

Valve Body

Body conf.:

- 2/2-way
- Customized Solutions
  such as – Tank bottom
  – T valve
  – Multiport
  – Sampling valves

Material:

- Stainless Steel
  ASME BPE 316L/DIN 17440 1.4435

Size:

DN [mm]	NPS [Inch]	
4	–	
6	–	
8	1/4"	
10	3/8"	
15	1/2"	
20	3/4"	
25	1"	
40	1 1/2"	
50	2"	
65	2 1/2"	(on request)
80	3"	(on request)
100	4"	(on request)

Type 2031/3233 – Investment Cast

A wide range of modules for ultra-pure, abrasive and aggressive fluids

Actuator

Size:

- C ø 40 mm
- D ø 50 mm
- E ø 63 mm
- F ø 80 mm
- G ø 100 mm
- H ø 125 mm
- K* ø 175 mm
- L* ø 225 mm

(* only PA - on request)

Material:

- PA (Polyamide)
- PPS (Polyphenylene Sulphide)

Temperature:

Diaphragm Material	Medium Temperature °C	°F
EPDM/PTFE	-10...130 (short 150)	-14...266 (short 302)

Actuator Mat.	Size	Ambient Temperature °C	°F
PA	All	-10...60	-14...140
PPS	<100 mm	5...140	41...284
PPS	≥100 mm	5...90 (short 140)	41...194 (short 284)

Circuit function:

- Normally closed by spring force (A)
- Normally open by spring force (B)
- Double acting (I)

Process Connection

Weld end:

- ISO 4200
- DIN 11850, series 0-3
- SMS 3008
- BS 4825
- ASME BPE
- JIS Sanitary and JIS Utility

Tri-Clamp®:

- ISO 2852 / SMS 3017
- DIN 32676
- BS 4825
- ASME BPE

Threaded:

- Customized Solutions on request

Flange:

- Customized Solutions on request

Sterile threaded:

- DIN 11851
- SMS 1145

Surface Finish

	Ra [µm] Int. / Ext.	Ra [µInch] Int. / Ext.
Glass beaded	6.3 / 6.3	248 / 248
Mech. polished	1.6 / 6.3	63 / 248
Satin finished	0.8 / 6.3	31.5 / 248
Electro polished	0.6 / 3.2	23.6 / 126

Grit # (Reference only)
Ra: 0.8 µm / 31.5 µInch ~ 160 Grit
Ra: 0.6 µm / 24.0 µInch ~ 180 Grit

Bonnet and Hand-Wheel

Size:

Material:

• Hand-Wheel	PPS
Bonnet	PPS
• Hand-Wheel	PPS
Bonnet	St.Steel (SS)
• Hand-Wheel	St.Steel (SS)
Bonnet	St.Steel (SS)

Option:

- Locking function
- St.Steel (SS) electro polished

Diaphragm

Material:

- EPDM (Ethylene Propylene Rubber)
- PTFE/EPDM (Teflon®)
- FPM (Viton®)

On request

- CSM (Hypalon®)
- PSI (Silicone)
- PTFE/FPM
- NBR (Perbunan N®)
- Butyl

Valve Body

Body conf.:

- 2/2-way

Material:

- Stainless Steel 316L; 1.4404

Size:

DN [mm]	NPS [Inch]	
4	–	
6	–	
8	1/4"	
10	3/8"	
15	1/2"	
20	3/4"	
25	1"	
40	1 1/2"	
50	2"	
65	2 1/2"	(on request)
80	3"	(on request)
100	4"	(on request)

Type 2031/3233 – General Purpose

A wide range of modules for contaminated, abrasive and aggressive fluids

Actuator

Size:

- C ø 40 mm
- D ø 50 mm
- E ø 63 mm
- F ø 80 mm
- G ø 100 mm
- H ø 125 mm
- K* ø 175 mm
- L* ø 225 mm

(* only PA)

Material:

- PA (Polyamide)
- PPS (Polyphenylene Sulphide)

Temperature:

Diaphragm Material	Medium Temperature °C	°F
EPDM/PTFE	-10...130 (short 150)	-14...266 (short 302)

Actuator Mat.	Size	Ambient Temperature °C	°F
PA	All	-10...60	-14...140
PPS	<100 mm	5...140	41...284
PPS	≥100 mm	5...90 (short 140)	41...194 (short 284)

Circuit function:

- Normally closed by spring force (A)
- Normally open by spring force (B)
- Double acting (I)

Process Connection

Weld end:

- ISO 4200
- DIN 11850, series 2
- BS 4825

Tri-Clamp®:

- On request
  - ISO 2852 / SMS 3017
  - DIN 32676
  - BS 4825

Threaded:

- G
- Rc
- NPT

Flange:

- DIN 2634
- Customized Solutions for JIS and ANSI

Surface Finish

	Ra [µm] Int. / Ext.	Ra [µInch] Int. / Ext.
Glass beaded	1.6 / 1.6	63 / 63
Electro polished	0.8 / 3.2	31.5 / 126

Grit # (Reference only)
Ra: 0.8 µm / 31.5 µInch ~ 160 Grit

Bonnet and Hand-Wheel

Size:

Material:

- Hand-Wheel PPS
  Bonnet PPS
- Hand-Wheel PPS
  Bonnet St.Steel (SS)
- Hand-Wheel St.Steel (SS)
  Bonnet St.Steel (SS)

Option:

- Locking function
- St.Steel (SS) electro polished

Diaphragm

Material:

- EPDM (Ethylene Propylene Rubber)
- PTFE/EPDM (Teflon®)
- FPM (Viton®)

On request

- CSM (Hypalon®)
- PSI (Silicone)
- PTFE/FPM
- NBR (Perbunan N®)
- Butyl

Valve Body

Body conf.:

- 2/2-way
- Customized Solutions

Material:

- Stainless Steel 316L; 1.4404

Size:

DN [mm]	NPS [Inch]
8	1/4"
10	3/8"
15	1/2"
20	3/4"
25	1"
32	1 1/4"
40	1 1/2"
50	2"
65	2 1/2"
80	3"
100	4"

Actuator Types for 2030 and 2031

Burkert pneumatic actuators are pilot operated to provide either Normally Open, Normally Closed or Double Acting operation. These compact units feature modern design, with a Polyamide (PA) or a Polyphenylene Sulphide (PPS) housing, integrated visual position indicator, and internals that are easily converted to other operating functions.

Diaphragms

Developed to handle the unique challenges of hygienic and sterile applications, Burkert offers diaphragms with precise material formulae and physical tolerances.

Burkert diaphragms are available in a wide range of materials which have been proven in food & beverage, biotechnology, pharmaceutical and cosmetic industry applications.

Diaphragms are tested during development and production to ensure reliability in critical processing environments.

- **EPDM** (Ethylene Propylene Rubber)
- **PTFE**/EPDM (Teflon®)
- **FPM** (Viton®)
- **CSM** (Hypalon®)
- **PSI** (Silicone)
- **PTFE**/FPM
- **NBR** (Perbunan N®)
- **Butyl**

Chemical Resistance Chart of Diaphragms

Material	General Chemical Resistance	Permissible Fluid Temperatures [C°] Neutral		Aggressive
		Long-Term	Short-Term	Long-Term
EPDM	▸ Weather-resisting ▸ Good performance to ozone ▸ Particularly suitable for aggressive chemicals ▸ Unsatisfactory for oils and fats	-10 up to +130	-10 up to +150	Depending on aggressiveness of the fluid and on chemical load
PTFE EPDM	▸ Excellent resistance to chemicals, fuels and solvents ▸ High temperature resistant ▸ Its low coefficient of friction results in nearly self-lubricating quality	-10 up to +130	-10 up to +150	
FPM	▸ Its chemical resistance is the most favorable of all elastomers. ▸ Particularly to ozone, oils and fats	-10 up to +150	-10 up to +170	

Valve Body and Surface Finishes – 2031/3233 Forged

Defect free surface
- High quality surface of finished product - free from pinholes, crevices, impurities and subsurface porosity after grinding and polishing.
- The size of cavities, well accepted in many industrial applications, could cause enormous problems in hygienic applications such as bacteria traps in cell culture or other critical systems.

Low ferrite content
- Relatively ferrite-free alloy eliminates concern regarding ferrite contamination which may result from the use of cast piping components.
- Process lines can be contaminated by leaching out of free ferrite and subsequent migration of the resulting oxides throughout the system.

Forged bodies
The key to hygiene, Burkert high quality valve bodies are forged of DIN 17440 - 1.4435 / ASME BPE 97 316L / 1.4435 BN2 stainless steel, with Fe <0.5%.

High surface quality and consistency especially for pharmaceutical and bio-processing industries.

Benefits
Superior surfaces for increasingly stringent specifications on cleanness of the relevant processing industry:

- Surface finish can be described by using the roughness average (Ra) parameter.
- The Ra value is defined as the average value of deviation from its centre line through a prescribed sampling length.

Electropolishing - additional inherent benefits subsequent to mechanical polishing (not possible on mirror polished surfaces):

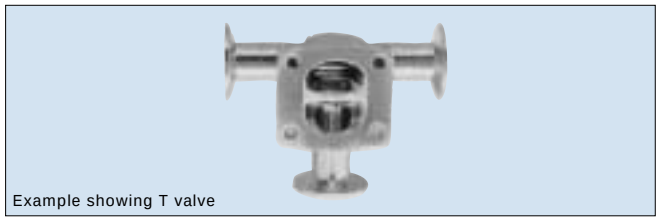
- Surface leveling reduces the total surface height by 50% and relieves much of the surface tension inherent in mechanical polishing.
- Provides a continuous, tenacious, chromium rich oxide layer on the surface resulting in an excellent passive film enhancing corrosion resistance.
- Offers optimization of cleanability and sterilization.
- Provides quality control mechanism exposing surface pits and defective welding.
- Removal of inclusions and entrapped contaminants such as lubricants and grit particles.
- High lustre reflective and aesthetic appearance.

Customized Valve Bodies and Connections

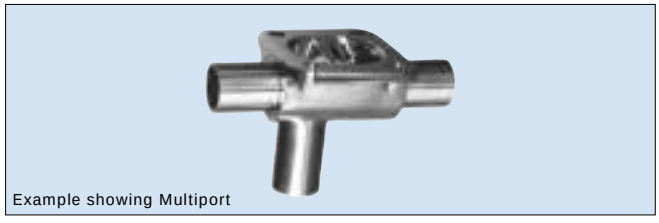
Burkert offers many customized valve body and piping combinations to allow a broad range of diaphragm valve applications in high purity environments.
In each of our customized body configurations, the elimination of dead volume, cleanability and drainability are always paramount in our design.

The examples shown here are indicative of custom piping capabilities that Burkert can deliver in addition to our standard program.

- Tank bottom
- T valve
- Multiport
- Sampling valves



Example showing T valve



Example showing Multiport

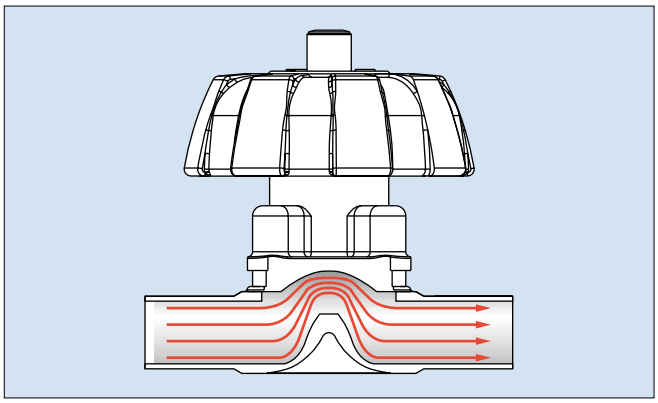
Installation

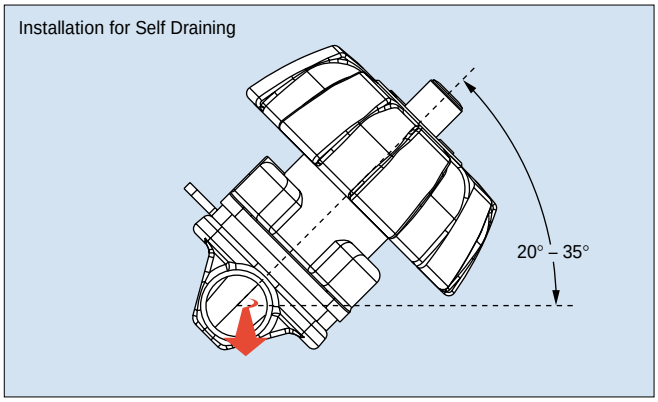
Flow paths shaped for purity and performance

A streamlined flow path delivers low drag and turbulence for smooth flow characteristics.
The Burkert design also allows access to the valve internals without removing the body from the line. Bodies may be welded in place for purity while still allowing for diaphragm or actuator replacement or maintenance.

Conversion from manual to powered actuator, or vice versa, is easily accomplished because of the top mount design.

When positioned as illustrated, Burkert valve bodies are self-draining.
These are also the ideal characteristics for CIP operations; a must for the purity required in pharmaceutical, biotechnology, food & beverage and cosmetic processing.





Validation / Certification

- Certification of Conformity for Raw Material EN-ISO 10204 3.1.B
- Attestation of compliance with the order EN-ISO 10204 2.1
- Test report EN-ISO 10204 2.2
- 3A Certification
- Certification of Conformity for Pickling and Electropolishing Processes
- Certification of Conformity for the Surface Quality DIN4762-DIN4768-ISO/4287/1
- Certification of Conformity for the 100% Weld inspection or Endoscopy RCCM RSEM ASME
- FDA CFR No. 21 177.2600 Certification
- Test Certification and Conformity Certification for the Final Assembly of Diaphragm Valves
- ISO 9001 Certification

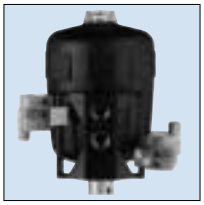
Pneumatic Actuator Options

The actuator options shown here are available at time of valve purchase, but may also be retrofitted anytime after original valve installation. For further details please request our complete Type 2000 Actuator Accessories data sheet.

Position Indicator

Type 1062
Electrical postion feedback - available with mechanical or inductive switches

Type 1060
Electrical feedback signaller with optical position indication



Type 1071
External magnetic inductive position feedback (requires magnetic position)

Continuous Control Head

Type 1067
SIDE Control 3-wire with integrated PID for continuous control and positioner

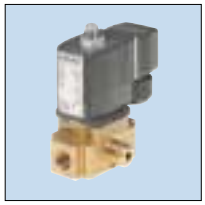
Type 8630
TOP Control with integrated PID for continuous control and positioner

Type 8635
SIDE Control 2-wire with integrated PID for continuous control and positioner

Banjo Valves

Type 300
Solenoid banjo valve

Type 6012
Solenoid banjo valve



Type 6014
Solenoid banjo valve

Stroke Limiter

Min./Max. Stroke Limiter
Minimum/Maximum stroke limitation with optical position indication

Max. Stroke Limiter
Maximum stroke limitation

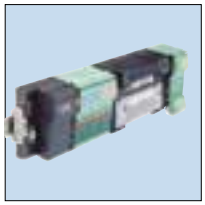
ON/OFF Control HEAD

Type 8631
TOP Control with control functions and ASi option

Type 8633
Mini TOP with control functions and ASi option

AirLINE

Type 8644
WAGO Remote Process Actuation Control System

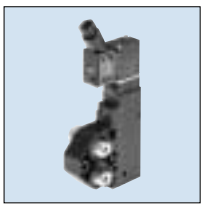


Type 8644
PHOENIX CONTACT Remote Process Actuation Control System

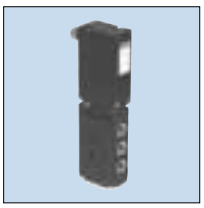
NAMUR Valves

Type 6517
Solenoid NAMUR valve
Options:
– Intrinsically safe EEx ia IIC T6
– FM / CSA approval

Type 6519
Solenoid NAMUR valve
Options:
– Intrinsically safe EEx ia IIC T6
– Ex proof EEx m II T5/T6
– Ex proof EEx me II T5/T6
– FM / CSA approval



Type 5470
Solenoid NAMUR valve
Options:
– Intrinsically safe EEx ia IIC T6
– FM / CSA approval



Type 6520
Intrinsically safe EEx ia IIC T6 for use with I/O box 8642
P <10 mW
Options:
– FM / CSA approval

I/O Box

Type 8642/8643
PROFIBUS PA or Fieldbus Foundation H1
Intrinsically safe EEx ia IIC T6
4 outputs for pilot valves
8 inputs for NAMUR switches
Options:
– FM / CSA approval

Manual Override

With optical position indication for Normally Closed valves

Continuous Control Valves with TOP and SIDE Control

- Integrated PID controller for process control
- Automatic self-adjustment of basic parameters
- User-friendly operation, menu-guided
- Positioner
- Programmable flow curves:
  - linear, equal percentage
  - freely programmable
- No control air consumption in stabilized condition

Easy to commission

Automatic self-adjustment of basic parameters by finger tip control

Easy to operate

User-friendly operation
- LCD and key pad
- Menu guided access
- Programmable characteristic curves

Easy to install

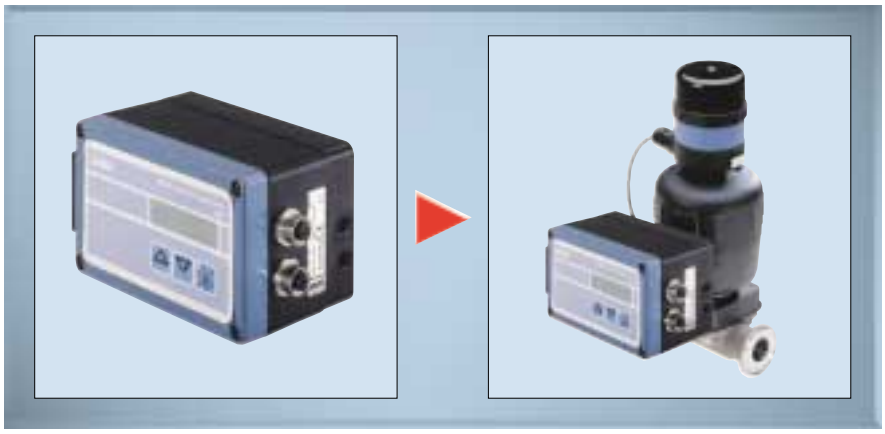
Compact design
- Delivered pre-mounted, tested and ready to install
- Requires less space than conventional control valves

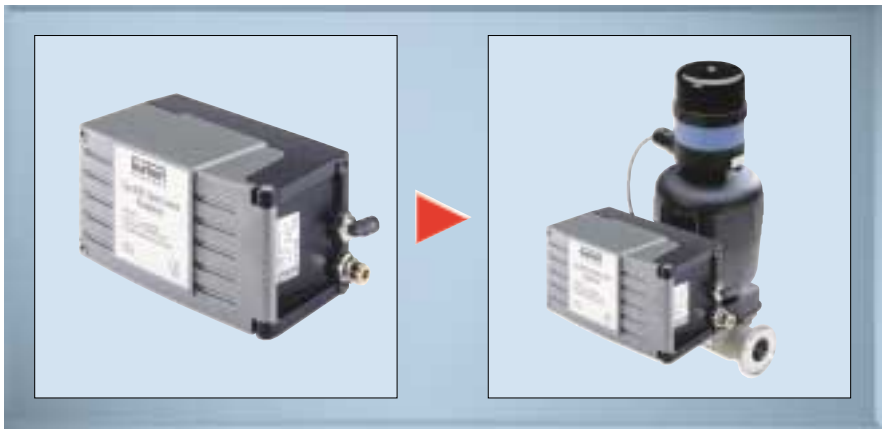
Easy LINK

Connection of Burkert's control valves with Burkert's intelligent sensors for continuous process control

Easy NET

Connection of Burkert's control valves and intelligent sensors to a PLC via 4...20 mA signals or fieldbus (PROFIBUS DP and PA or DeviceNet)





PROFIBUS

DeviceNet™

ON/OFF Control Valves with TOP Control and Mini TOP

- Integrated pilot valves for single or double acting versions
- Integrated mechanical or inductive limit switches
- Position feedback
- Modular electrical interfaces
- ASi bus communications (optional)

Easy to commission
Automatic self-adjustment of the valve position

Easy to operate
User-friendly operation with diagnostic function

Easy to install
Compact design
- Delivered pre-mounted, tested and ready to install
- Requires less space than conventional ON/OFF control valves

Easy LINK
Connection of Burkert's ON/OFF control valves with Burkert's intelligent sensor switches for ON/OFF control

Easy NET
Connection of Burkert's ON/OFF control valves with a PLC using ASi fieldbus

Burkert Instrumentation and Sensor Program (few examples of our range)

Easy Flow Control

Type 8032
Paddle wheel flow sensor/switch for indication, monitoring, transmitting and ON/OFF control

Type 8045
Insertion Magflowmeter for continuous measurement and ON/OFF control

Easy Analytical Control

Type 8205
pH-transmitter for continuous pH measurement and PID control

Type 8226
Inductive conductivity transmitter for continuous measurement and ON/OFF control

Easy Level Control

Type 8175
Ultrasonic level transmitter for continuous measurement and ON/OFF control

Type 8326
Hydrostatic pressure transmitter with display

Easy Pressure Control

Type 8323
Pressure transmitter

Type 8311
Pressure sensor/switch for indication, monitoring, transmitting and ON/OFF control

Improve your profitability with Burkert's Customized System Solutions

Valve Program

Sensor Program

Easy
Fluid Control
Solutions

Accessories & Process Actuation

bürkert
Fluid Control Systems

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

We reserve the right to make technical changes without notice.
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