bürkert
FLUID CONTROL SYSTEMS

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Product Overview

Pneumatics & Process Interfaces

894510 / 07/09 www.wolf-corporate.de

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Content

The Process Interface Market Leader

Across thousands of individual solutions and spanning dynamic conditions of global competition our mission is to work towards your success.

We have decades of global experience and we have always been positioned at the forefront of pneumatic and process interface technology.

Our innovative approach to your success is to secure your process efficiency, lower your downtime, increase your safety and boost your competitive advantage.

We intend to collaborate with you where we can share our pneumatic and process interface experience.

All of our combined knowledge is available to you through consultation, engineering support, selection and commissioning.

Everyone in our organisation is interested in listening to you with the aim of presenting you with only the most appropriate solution, fluently in your daily application language.

Welcome to the Fascinating World of Fluid Control Systems

Measurement and control: When it comes to working with fluids and gases, we are at your side – as a manufacturer of sophisticated products, as a problem-solver with an eye for the big picture, and as a partner offering you reliable advice. Since we started in 1946, we have developed into one of the world's leading suppliers of Fluid Control Systems. At the same time we have kept our status as a family-owned business with a foundation of strong basic values to highlight the way we think and act.

EXPERIENCE

There are things which are not inherently yours. You have to gather them bit by bit. You receive them from others. And you constantly have to acquire them anew. That is what makes them so valuable. Experience is one of those things. For instance, because of our many years of experience with Pneumatics, we can provide our extensive services to you – from consulting, development, and 3D CAD simulating to testing and after-sales service. Whether individual product solutions or a pioneering new system for the entire control process: Benefit from our experience.

COURAGE

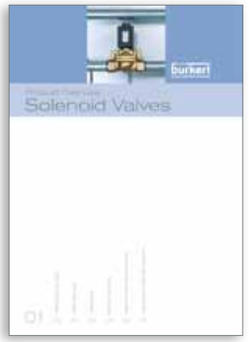
Those who only work toward optimizing things that already exist will eventually reach the limits – technically, financially, or personally. In order to overcome these limits, courage is needed: the courage to be different and trust one's own ideas; the courage to venture into the unknown, searching for new ways to develop products that have never existed before. We have this courage. By pooling and utilizing our competencies across all sectors, you benefit from our cumulative knowledge of Pneumatics and Process Interfaces.

CLOSENESS

There are things we simply take for granted. Only when they are gone, do we realize how important these things really were. This applies in particular to closeness. Without closeness, it is very difficult to build relationships and a good understanding of one another. As an established medium-sized company, we know that. And that is why we are always there for you. Working with you, we develop the best possible solutions for your projects in the area of Pneumatics. Our global presence in 35 locations enables us to press ahead with technical innovations for our customers around the world.

Bürkert Product Program

We are one of the few suppliers on the market to cover the complete control loop. Our current product range extends from solenoid valves through process and analytical valves to pneumatic actuators and sensors.



Bürkert offers a remarkable range of servo-assisted and direct acting solenoid valves. Read more about them in this brochure.

Bürkert offers unlimited modularity for process control with angle-seat, globe and diaphragm valves in the widest range of configurations.

Here you can find our product range of pneumatic valves, valve units and automation systems as well as information on our control cabinet building.

Here you can find our sensors, transmitters and controllers for measuring and controlling flow, temperature, pressure, level, pH/ORP and conductivity.

The brochure contains an overview of Bürkert miniature valves and micro pumps, which allow for precise and safe handling of small volumes of liquids.

This brochure provides technical background information as well as a detailed product overview for the mass flow controller and meter product range.

This brochure presents our solenoid control valves including their respective features, functions and typical applications.

Process Actuation

Pneumatic technology is known for high reliability, high force and torque generation and cleanliness. This makes it indispensable for efficient solutions for drives and actuators for control and regulation.

Bürkert has tamed the power of pneumatics and brings it to you in its most efficient form resulting in new standards in factory automation and process control.

Factory Automation

Factory automation refers to computer-aided automation of production in all technical and organizational areas of a factory. One special point of emphasis relates to automatic assembly of subassemblies and devices. This primarily requires transport systems, material flow systems, handling systems, robot systems and measuring systems which are connected with computer assistance. In many cases, pneumatically operated actuators are used for this (e. g., cylinders). These systems must smoothly interwork at high speed in the production process.

Process Control and Supervision

Bürkert has perfected practically-oriented pneumatics in an extremely wide variety of industries. Food, chemical and pharmaceutical industries, with their complex installations, require a high level of decentralization and conversion or expansion during operation.

Centralized or distributed control: not a question of faith in automation. Every problem is different and requires the most efficient solution. Our solutions allow you to focus on optimum process reliability, efficiency and economy.

Process Actuation and Valve Islands

The pilot valves required for controlling actuators may be fitted at various locations (Non Ex or hazardous locations) and in different ways (centralized or decentralized automation). Our range extends from directly mounted pilot valves on the actuator to centralized valve islands with Fieldbus interface in control cabinets (AirLINE and AirLINE Ex) or without control cabinets (FreeLINE).

When using a centralized valve island, corresponding pneumatic tubing must be installed from the control cabinet to the final control element. Alternatively, Bürkert offers with the ELEMENT positioners and controllers a wide range of equipment to actuate, monitor, network, position and decentralize process control into the field.

Non Ex				Hazardous Locations		
				 *ELEMENT interface* **Page 28**		Decentralized Automation
		 *Control cabinets for non Ex locations* **Page 26**		 *Control cabinets for hazardous locations* **Page 26**		Cabinets
 *8640* **Page 18**		 *8645* **Page 22**	 *8644 Rockwell* *8644 Phoenix* **Page 20**	 *8644 Siemens* *8644 Wago* *8650* **Page 20** **Page 24**		Valve Islands
 *8640 with 5470 valves*		 *8640 with 6518/6519 valves* **Page 16**	 *8640 with 6526/6527 valves*	 *8640 with 6524/6525 EEx-i valves* **Page 16**		Valve Blocks
 *6144*	 *6012P*	 *6014P*	 *5470 NAMUR* **Page 12-15**	 *6524/6525*  *6526/6527*	 *6519 NAMUR Ex*  *6524 EEx-i* **Page 12-15**	Single Pilot Valves

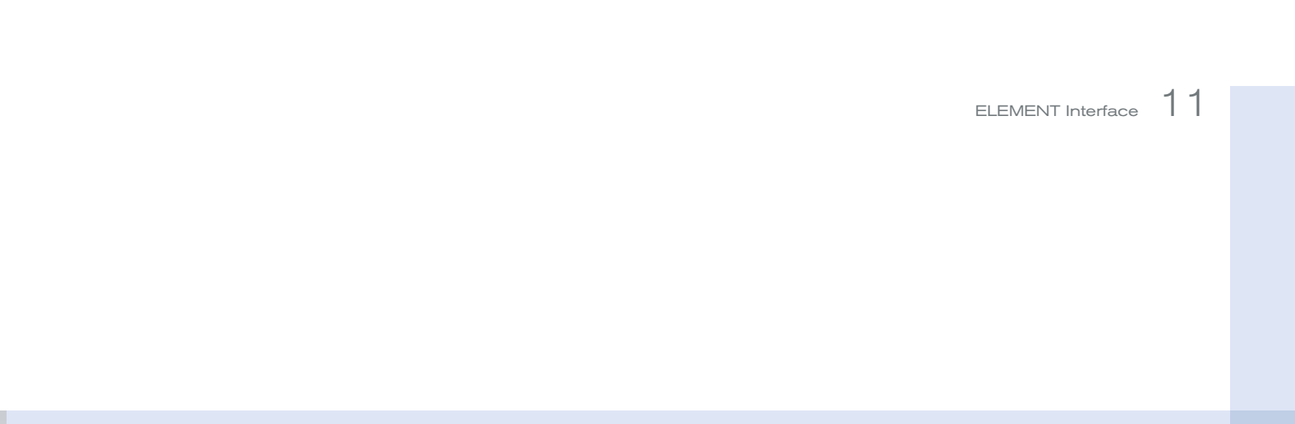
Central or Decentral … You Choose.

Centralized Automation

Types 8640, 8644, 8650 in cabinets

IP 65/IP 67

Type 8645 in the wild outside the cabinet



Decentralized Automation

Types 8690, 8691, 8695 On/Off

Types 8692, 8693, 8694, 8696 Continuous

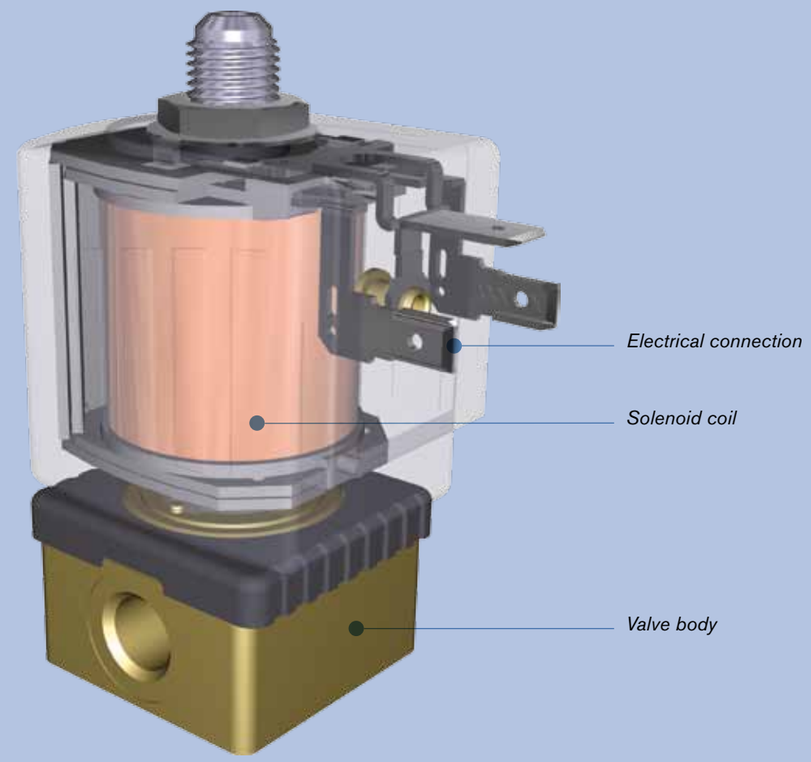
Normally Open and Normally Closed – Seat Valve Anatomy

The ports of a seat valve are connected or disconnected by lowering or lifting a sealing element (e. g., servopiston). These seals are hermetically tight and self-readjusting, they operate without friction (no stick-slip effect) and are rarely subject to any dynamic stress. Seat valves are designed to be very tight over their entire service life and the switching travels are small. The actuating forces are pressure-dependent and relatively high; a pressure differential across the pilot valve is required for switching.

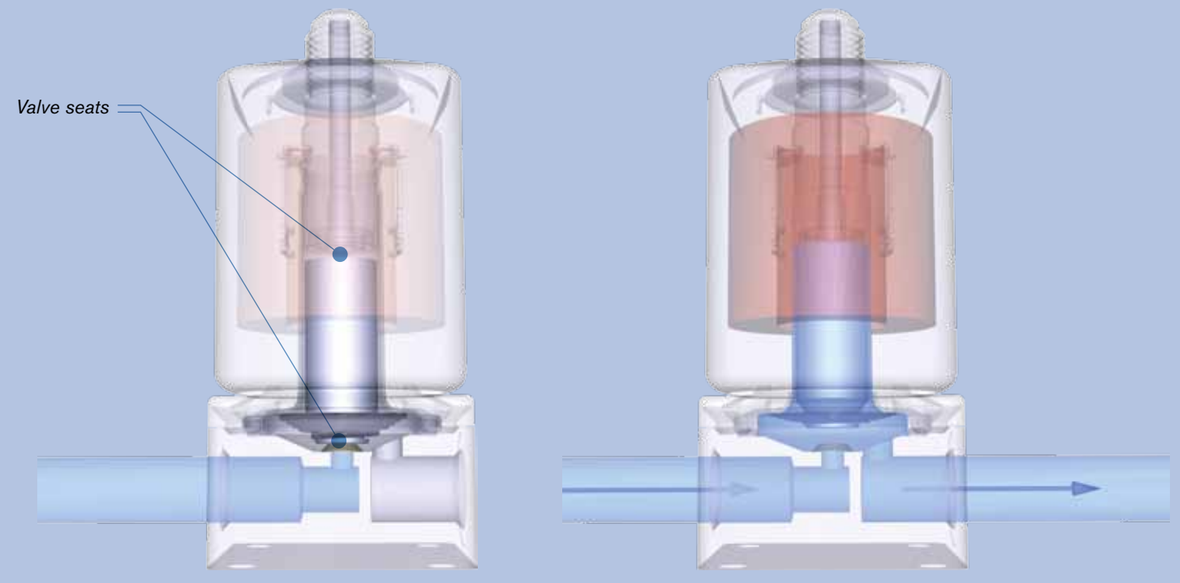
Multi-way seat valves are available with a choice of connection thread for direct installation or flange design for mounting directly on manifolds or actuators. Seat valves of narrow design are – similar to spool valves – well-suited for block assembly. Several valves may be arranged in a space-saving manner on manifolds or valve blocks with fieldbus interface. Mufflers can be connected to reduce venting noise.

The illustrations on the opposite page show a 3/2-way seat valve using the plunger principle. This type of valve has three ports and two valve seats, which open and close alternatively.

Type 6014



3/2-way plunger-type solenoid valve Type 6014



De-energized ***Energized***

You can find the 3D-animation of this functional schema in the PDF version of this brochure.

Pilot for Pneumatically Operated Valves

The term “control unit for pneumatic actuators” refers to a converter function unit which is able to issue corresponding pneumatic signals for controlling an actuator and which is controlled with low-energy, electrical, mechanical or pneumatic signals. These control units have electrically (magnetically), pneumatically or mechanically operated multi-way valves for switching compressed air.

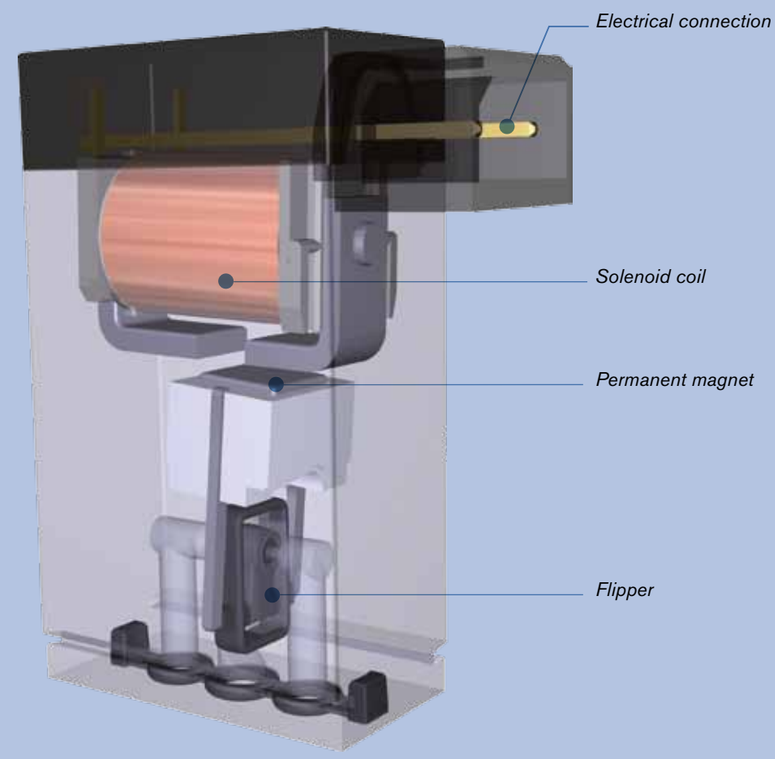
These pneumatic valves can be differentiated as follows, based on the pilot system's operating principle:
– pivoted armature
– plunger-type valves
– rocker valves
– flipper valves

For details about these principles see our Product Overview Solenoid Valves.

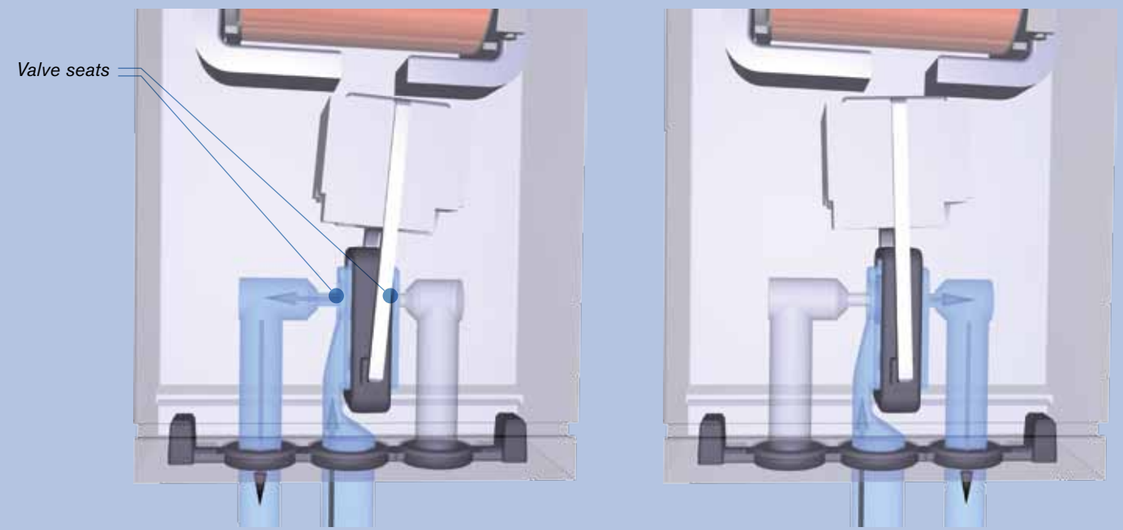
The illustrations on the opposite page show the flipper valve anatomy used as a pilot for pneumatic valves such as Types 6524 and 6525.

Type 6144 single valve

Type 6144 block solution



Direct-acting 3/2-way flipper valve Type 6144



De-energized ***Energized***

You can find the 3D-animation of this functional schema in the PDF version of this brochure.

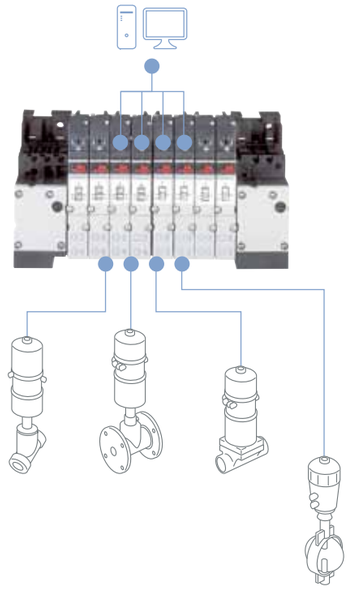
Valve Block – Type 8640

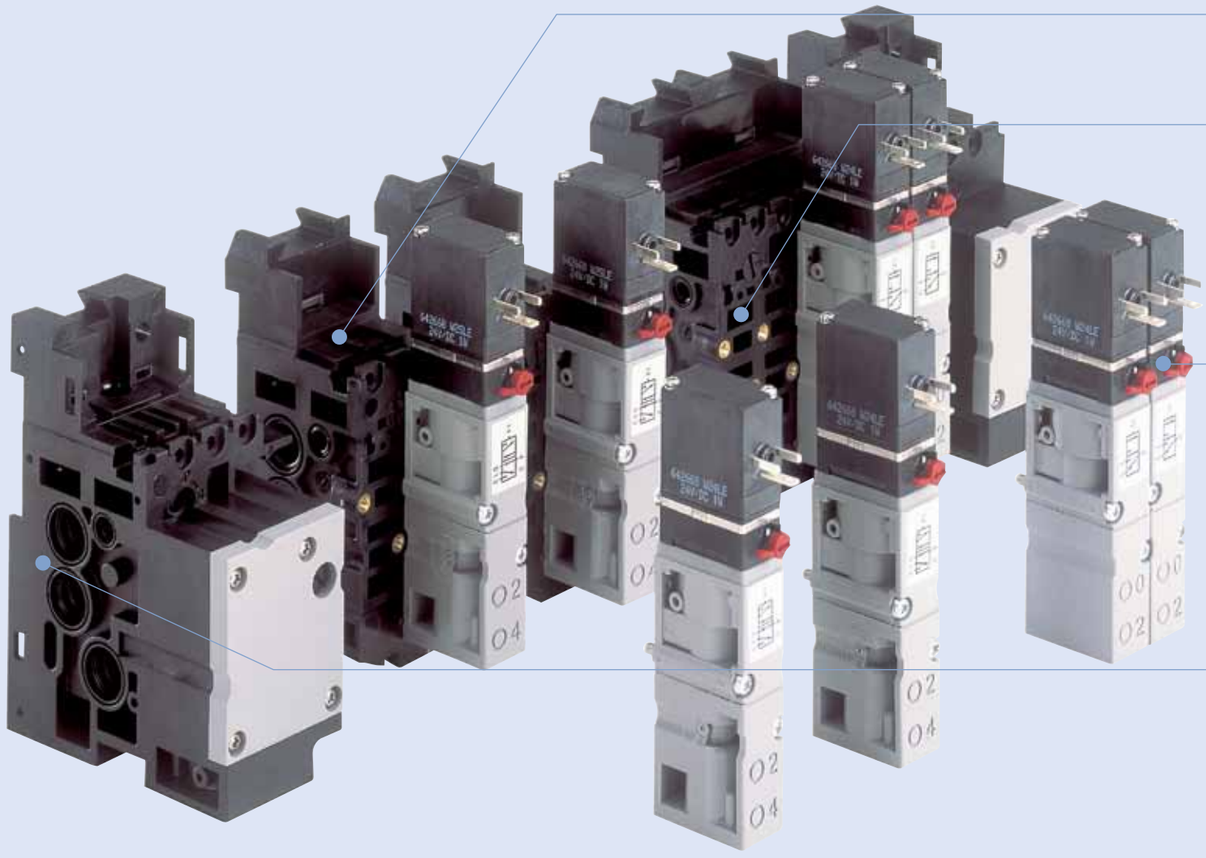
The 8640 valve block is designed to solve diverse and complex control problems due to its systematic modular construction. Different valve functions can be combined on one block without a common electrical control.

Following Bürkert pneumatic valve types can be mounted on a valve block:
– Type 6144
– Type 5470
– Type 6518/6519
– Type 6524/6525 Non Ex and EEx-i
– Type 6526/6527 Non Ex and EEx-i

Every single pneumatic valve on the block is wired separately with the control system. Each valve has the task of controlling a single- or double acting actuator. Valve blocks are mainly used in simple and small pneumatic applications.

With valves for hazardous areas, these valve blocks can be used in explosion proof areas.



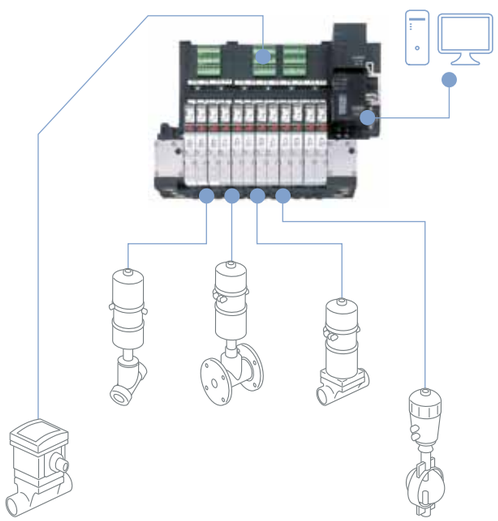


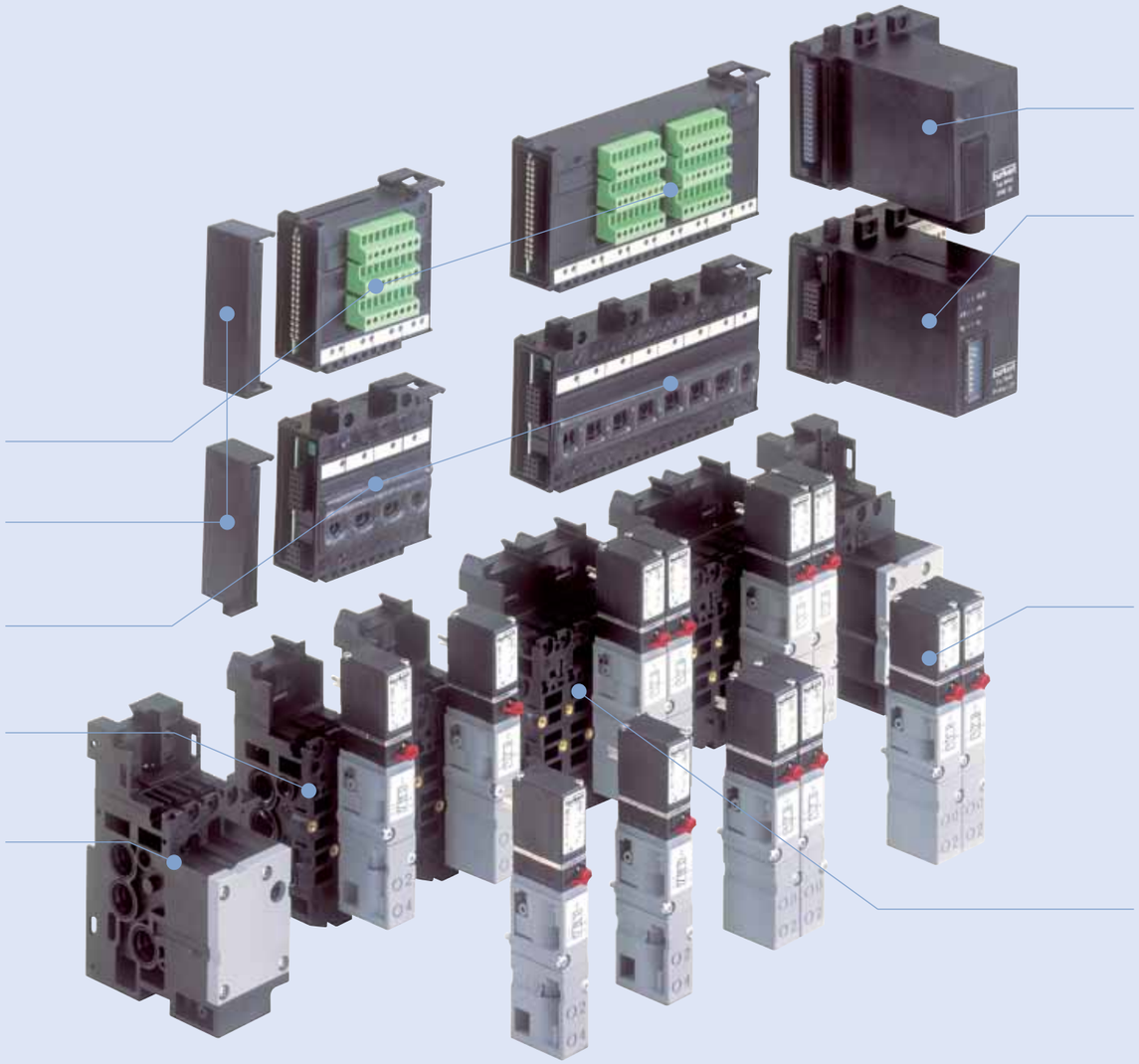
- *Pneumatic basic modules in different sizes*
- *Pneumatic features:*
  – P shut-off: replacement of valves during operation possible
  – Additional protection in your device with check valves
- *Possibility to combine different valve functions on a single valve block:*
  – 3/2-way valve
  – 5/2-way valve
  – 2x3/2-way valve
  – 5/2-way valve bistable
  – 5/3-way valve
- *Pneumatic supply: common supply of valves with compressed air as well as common exhaust air lines*

Valve Island – Type 8640

Type 8640 is a modular automation system with a protection class up to IP 54. The valve island uses digital feedback inputs for the control of sensor signals and pneumatic outputs for the control of single and double-acting process valves. By putting together a row of pneumatic modules with different numbers of valves, 2 to 24 valve functionalities may be realized on one valve island. Electrical connectivity is achieved by either fieldbus interfaces, common connection or multipin.

Some special features make a Bürkert valve island unique: With integrated P shut-off you are able to replace a valve even during operation and additional integrated check valves in the pneumatic basic modules give a better protection for your installation.





- *Digital feedback inputs*
- *Termination modules for electrical modules*
- *Basic electrical modules for valves supply*
- *Pneumatic basic modules in different sizes*
- *Pneumatic supply: common supply of valves with compressed air as well as common exhaust air lines*

- *Expansion modules for digital inputs*
- *Communication modules:*

  fieldbus technique
  – Profibus DP
  – CANopen
  – DeviceNet
  – Interbus
  – ASI

  conventional wiring
  – multipin
  – common connection

- *Possibility to combine up to 24 valve functions on a single valve block:*
  – 3/2-way valve
  – 5/2-way valve
  – 2x3/2-way valve
  – 5/2-way valve bistable
  – 5/3-way valve

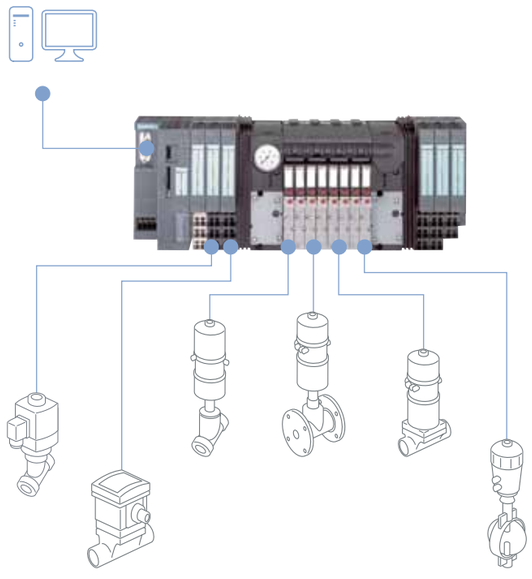
- *Pneumatic features:*
  – P shut-off: replacement of valves during operation possible
  – Additional protection in your device with check valves

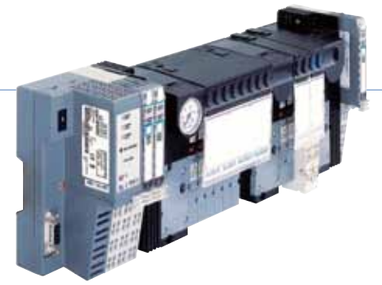
Process Control Centers AirLINE – Type 8644

AirLINE type 8644 uses digital and analogue inputs for the control of sensor signals and uses digital and analogue outputs for the control of complete decentralized control systems. Our expertise lies in the supervision and control of complete loops including flow, pressure, temperature and level.

Special features make Bürkert AirLINE unique:
– Our groundbreaking modular system fit in your world and in your cabinet
– AirLINE with WAGO I/O System 750 and AirLINE with Siemens ET 200S can be used in hazardous applications in Zone 2
– With integrated P shut-off you are able to replace a valve even during operation
– Additional integrated check valves give a better protection for your installation
– Perfect process pneumatics with multiple communication possibilities

For details on AirLINE with different cooperation partners please see the AirLINE Flyers.



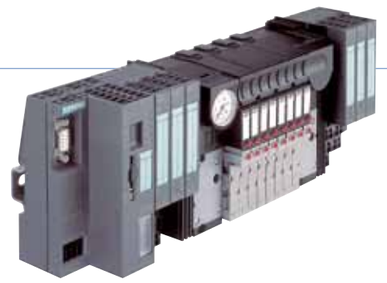


AirLINE Type 8644, Rockwell Point I/O System

Groundbreaking modular system in protection class IP 20 with multiple communication possibilities including ControlNet, DeviceNet, Ethernet and Profibus DP. Fully compatible with Rockwell Point I/O.

AirLINE Type 8644, WAGO I/O System 750

Remote Process Actuation Control System AirLINE, fully compatible with WAGO I/O System 750.
It integrates high performance solenoid pilot valves, remote electronic I/O and fieldbus communication into a process actuation and control system that is both compact and extremely flexible. Suitable for hazardous applications in Zone 2.



AirLINE Type 8644, Siemens ET 200S

Modular valve island for pneumatics with fieldbus and digital and analogue I/O modules. This automation system is open for all functionalities including hazardous applications in Zone 2.

AirLINE Type 8644, Phoenix INLINE System

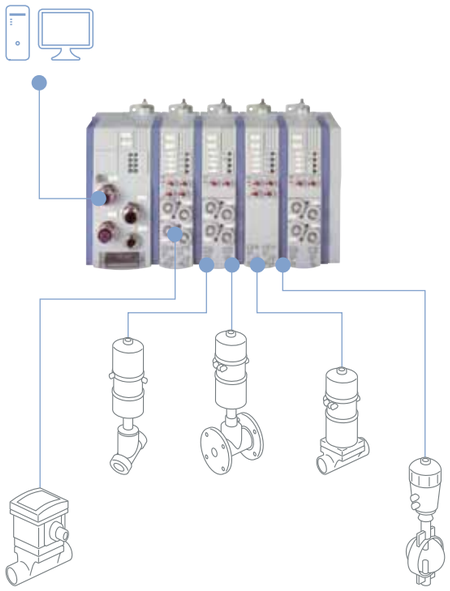
Remote Process Actuation Control System AirLINE, fully compatible with Phoenix INLINE System.
It integrates high performance solenoid pilot valves, remote electronic I/O and fieldbus communication into a process actuation and control system that is both compact and extremely flexible.

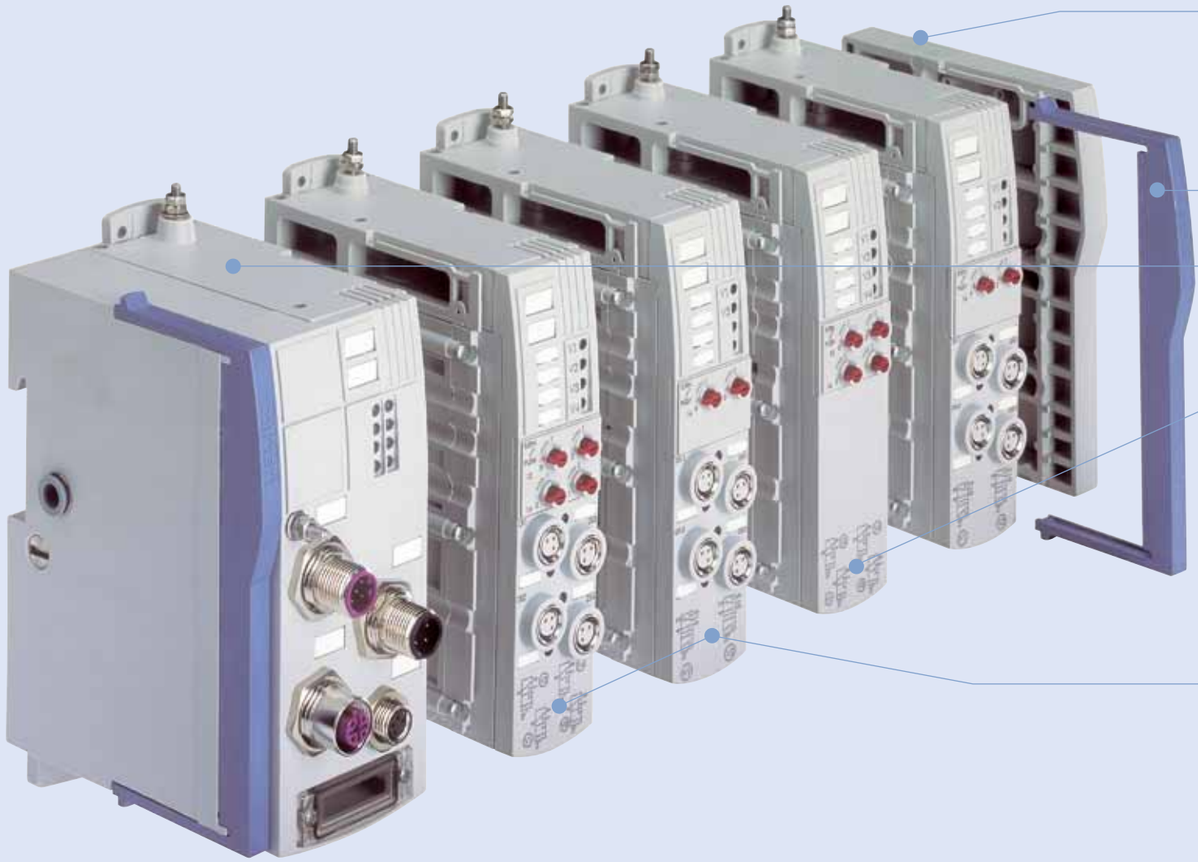
Automation System FreeLINE – Type 8645

The 8645 automation system is suitable for solving a multitude of control tasks thanks to its adapted, modular pneumatic and electrical interfaces. Pneumatic and electrical modules can be arranged in any sequence desired, and pneumatic as well as electrical functions can be realized on one module for the first time.

In addition to the valve unit as a central station, it is possible to use decentralised single modules and/or to combine one central station with decentralised units. Electrical connection can either be carried out via multipin interface or via fieldbus.

The efficient coupling of innovative valve technology with highly resistant plastic casing enables high protection classes up to IP 67. FreeLINE offers all the freedoms of distributed systems without the need for control cabinets.

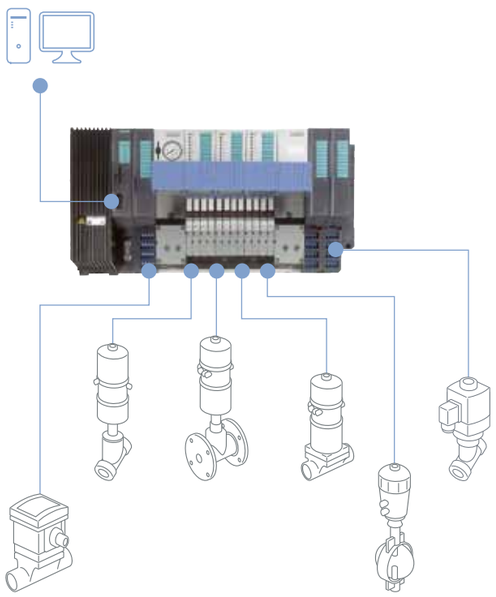


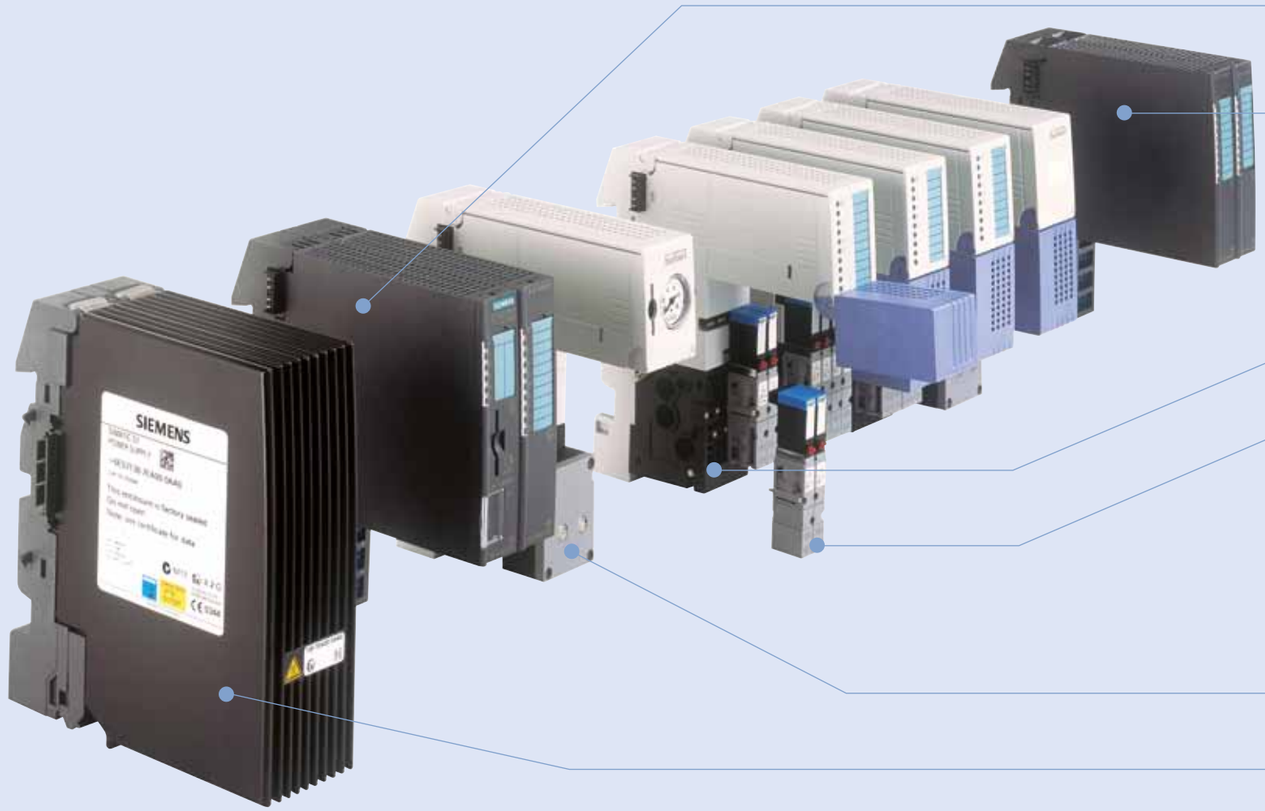


- *Termination module*
- *Connection bracket*
- *Communication module: Profibus, DeviceNet, CANopen, Multipin*
- *Pneumatic modules with following valve functions:*
  - *3/2-way valve*
  - *5/2-way valve*
  - *2x3/2-way valve*
  - *5/2 -way valve bistable*
  - *5/3-way valve*
- *Combination module: digital input modules (4xM8 3-pin or 2xM12 4-pin double allocation) plus several valve functions:*
  - *3/2-way valve*
  - *5/2-way valve*
  - *2x3/2-way valve*
  - *5/2-way valve bistable*
  - *5/3-way valve*

Automation System AirLINE Ex – Type 8650

AirLINE Ex Type 8650 is a modular electrical and pneumatic automation system that controls complex processes in hazardous areas (Zone 1/21). The protection class "intrinsically safe" (EEx-i) of electronic modules and valves allows the change of modules during operation. The valve slices with up to 8 channels offer compact design for areas with a high density of signals. Combined with the modules from our cooperation partner Siemens, Bürkert offers electrical, analogue and digital I/O functions for use in Zone 0.





- *Interface Module Profibus DP-is*
- *Electronic modules*
- *Valve slice*
- *Possible valve functions:*
  - *– 3/2-way valve EEx-i*
  - *– 5/2-way valve EEx-i*
  - *– 2x3/2-way valve EEx-i*

  With the additional module type 0498 you are able to realize a 5/3-way function.
- *Supply slice left*
- *Power supply module*

Automation System AirLINE Ex Type 8650 may contain up to 32 modules.

Cabinet Know-how

We have intimate knowledge of the main panel components. We combine pneumatics, communication and networking into simple turnkey solutions.

We strive to understand the exact needs and requirements of our customers. We deliver according to precise project management time scales.

We understand what is required for process cabinets in demanding environments.

We deliver and commission complete solutions for process environments, including hazardous locations.

ELEMENT – Continuous Advantages

Mechanical
- Optimised for tough and agile process environments
- Designed according to EHEDG guideline for materials compatibility, smooth surfaces and external seals
- Contactless, wear-free displacement transmitter
- Simple, one button, reliable drive adaptation by automatic TEACH calibration between parts
- Integrated pilot valve with manual override
- ATEX Zone 2/22 and Zone 1
- On board air filter
- Integrated control air channels
- External seals
- Protection againgst cleaning materials
- Adaptation also to classic 2000, 2012 and 2031 series valves

Communication
- AS-interface
- DeviceNET

Set Up
- Extremely compact integrated actuation without external air lines
- SuperBRIGHT illumination tell you what the valve is thinking
- FreshAIR innovation eliminates corrosion of the spring chamber

Look and Feel
- Exceptional

Control heads for the integrated mounting on process valves

Type 8690
Control head including pilot solenoid valve and mechanical or inductive limit switches.

Type 8691
Control head with SensorPAD contactless sensor and process actuation solenoid valve.

Type 8695
Control head with SensorPAD contactless sensor and process actuation solenoid valve for Bürkert's 50 mm actuator.

On/Off valves

Type 2000
2/2-way angle-seat valve, DN 13-65, pneumatically operated, gun-metal or stainless steel body.

Type 2100
2/2-way angle-seat valve with ELEMENT design, DN 13-50.

Type 2012
2/2-way globe valve, pneumatically operated, stainless steel body, DN 10-100.

Type 2101
2/2-way globe valve with ELEMENT design, DN 13-50.

Type 2031
2/2-way diaphragm valve pneumatically operated, stainless steel body, DN 4-100.

Type 2103
2/2-way diaphragm valve with ELEMENT design, DN 4-25.

ELEMENT – Air Advantages

The ELEMENT range of control heads, positioners and controllers offers four technological breakthroughs which effect the efficiency and lifetime of all the actuators it is coupled with. Innovative thinking and acting has produced advantages which should easily find their way into solid engineering specifications as they will be appreciated in the field saving headaches and time while maximizing investment.

As well as the inherent good looks of the system these four points are tough to overlook.

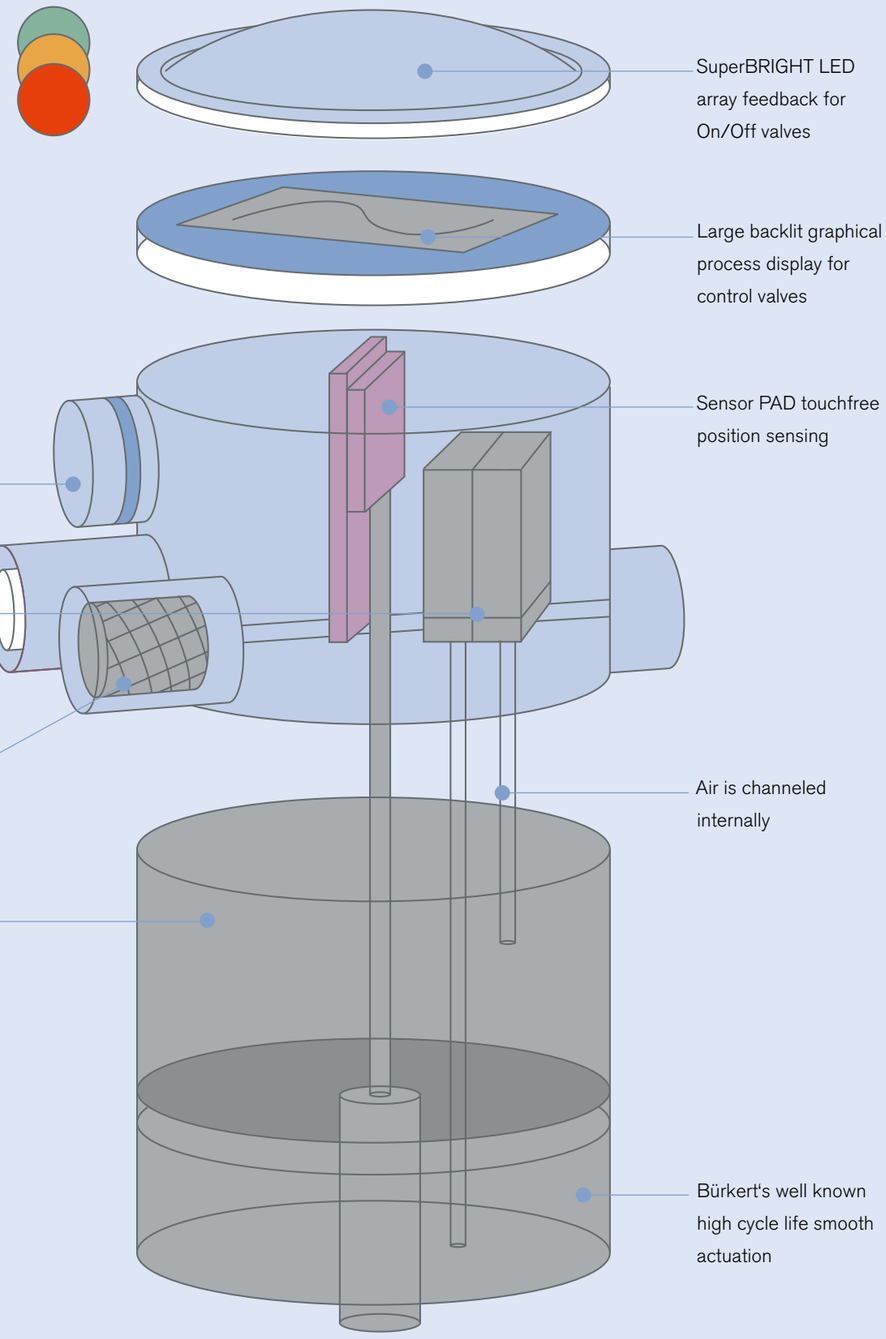
Control Flush Over Pressure Protection
Inside the control head there is always a positive pressure controlled by a small integrated check valve. As the pilot valve exhausts clean instrument air refreshes the environment in the head.

Integrated Pneumatic Actuation
Bürkert's 6144 process ready pneumatic flipper valves control On/Off and positioner functions perfectly. Bürkert specializes in making processes work. Solenoid isolation techniques formed over many years mean our "process actuation" offers more than what is expected in simple "pneumatics".

Integrated Air Inlet Filter
A removable mesh filter saves the valve from both installation dirt and any chance of dirty air during normal operation.

FreshAIR
Unlike any other actuator system, each time the actuator strokes the spring chamber is replenished by clean instrument air.

This means
– no corrosion of the actuator springs
– no dirt inside the actuator
– no humidity transmitted into the control head through the spindle
– no biological contamination inside the actuator



Selection Criteria for Multi-Way Valves

– Final control element, single or double-acting
– Circuit function of control valve
– Flow rate/nominal diameter
– Tube length
– Pilot pressure
– Switching speed
– Operating voltage
– Installation method and location
– Port connections
– Ambient conditions

Actuators, circuit function

The required circuit function for the pilot valve results from the actuator's mode of operation (single or double-acting). The options are shown in the table on page 24, along with the circuit functions for multi-way valves. Correct dimensioning of the pilot valve, allowing for the supply line, is very important.

Selection of pilot valves (multi-way valves), allowing for the air capacity

The pilot valve has the task of filling or venting – via a supply line – the actuator within a specific time. The shorter the response time of the actuator, the higher the air capacity requirement of the pilot valve. The reset time of single acting actuators can be reduced by using quick exhaust valves, directly mounted on the actuator. In process automation, larger actuators often need to switch slowly and switching times of up to half a minute are accepted. In factory automation it is different and switching times often have to be as fast as possible.

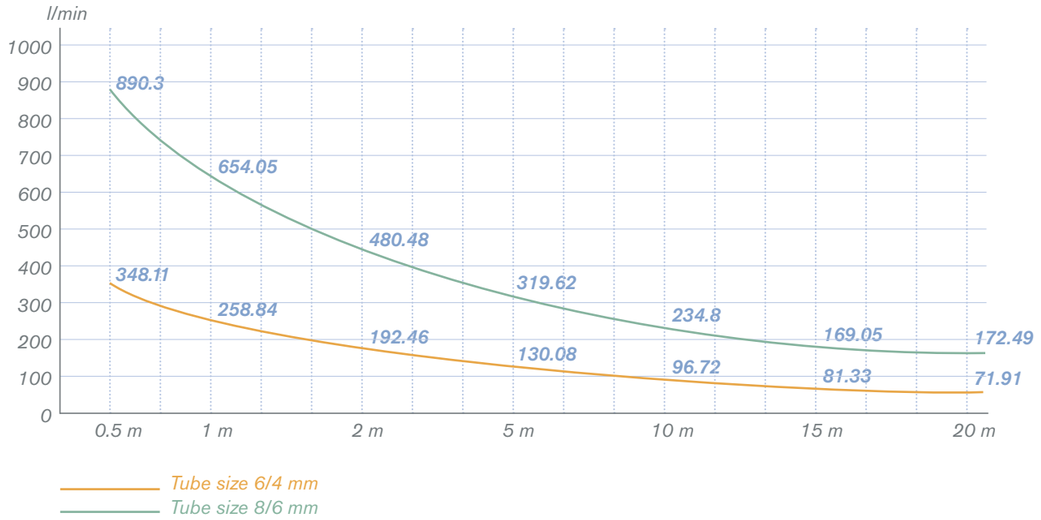
A tube represents an additional flow resistance and a disadvantageous volume. Thus, shortening the tube length reduces the volume to be filled and allows the usage of "smaller" control valves. Experience indicates that the flow rates can drop up to 50 % after approx. 3 – 4 m tube length and can also drop by an additional 20 – 30 % after a further 10 m (see diagram on the right page). Consequently, the losses must also be taken into account when selecting the valves and when dimensioning the tubes.

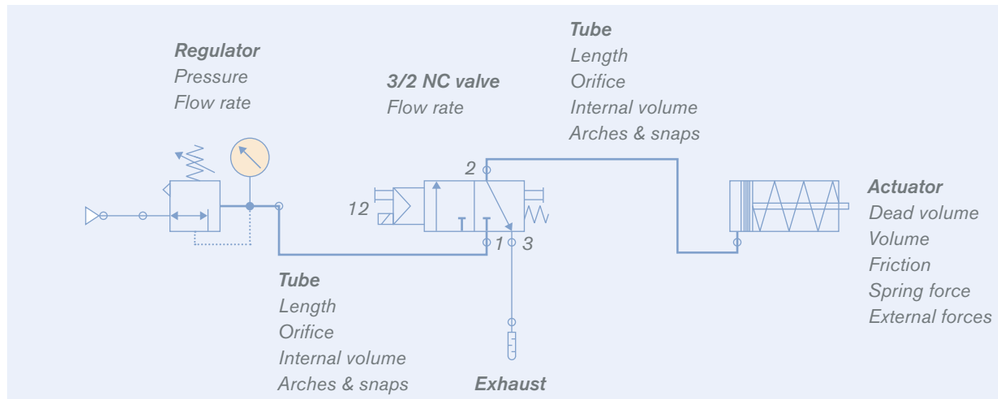
In addition, it must be ensured that lines are routed as straight as possible, with no kinks, pinching points or elbows, since they can impair the flow conditions, i. e. increase the flow losses in the tube. The diagram also clearly shows that higher flow rates are achieved by increasing the tube's inside diameter from 6/4 mm to 8/6 mm.

The diagram shows the effect of the tube lengths (6/4; 8/6 mm) on the air flow rate. Similar characteristics also result for tube sizes 10/8 and 12/10 mm. The measurements were conducted with multi-way valves at +20 °C and at an input pressure of 6 bar. The configurators for the valve blocks and valve islands include a calculation tool for calculating flow rates.

However, it is difficult to give a statement about the real switching times of an actuator, connected in the end of a tube. Further criteria influencing the switching time are the force of the spring package inside the actuator, friction forces and possibly the media pressure.

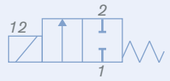
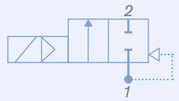
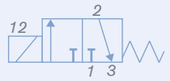
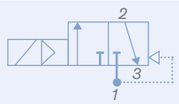
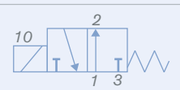
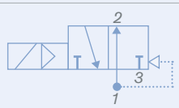
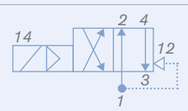
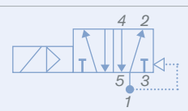
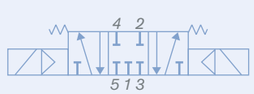
Q_{Nn} value (tube size 6/4 mm, 8/6 mm)



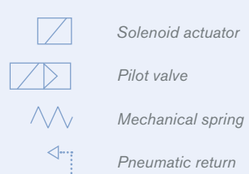


Different Multi-Way Valves

Circuit functions (WW) and possible applications of multi-way solenoid valves

WW	Circuit Symbol	Circuit Function	Possible Applications
A		2/2-way solenoid valve, direct-acting; normally closed; switching without pressure differential	Opening, closing of compressed air lines
A		2/2-way solenoid valve, servo-assisted; normally closed; pressure differential required across valve	Opening, closing of compressed air lines
C		3/2-way solenoid valve, direct-acting; service port 2 normally vented via outlet 3; switching without pressure differential	Pilot valve for single-acting final control elements (low air capacity)
C		3/2-way solenoid valve, servo-assisted; service port 2 normally vented via outlet 3	Pilot valve for single-acting final control elements (high air capacity)
D		3/2-way solenoid valve, direct-acting; service port 2 normally pressurized; switching without pressure differential	Pilot valve for single-acting final control elements (no air capacity)
D		3/2-way solenoid valve, servo-assisted; service port 2 normally pressurized; pressure differential required across valve	Pilot valve for single-acting final control elements (high air capacity)
G		4/2-way solenoid valve, servo-assisted; service port 2 normally pressurized and service port 4 normally vented via outlet 3	Pilot valve for double-acting final control elements; 2 and 4 are always vented via 3
H		5/2-way solenoid valve, servo-assisted; service port 2 normally pressurized and service port 4 normally vented via outlet 5	Pilot valve for double-acting final control elements; venting 2 via 3 and 4 via 5
L		5/3-way solenoid valve, servo-assisted; Position 1: pressure on 2; 4 vented Position 2 (center): everything shut off Position 3: pressure on 4; 2 vented	Pilot valve for double-acting final control elements; lifting, holding and lowering
N		5/3-way solenoid valve, servo-assisted; Position 1: pressure on 2; 4 vented Position 2 (center): 2 and 4 vented Position 3: pressure on 4; 2 vented	Pilot valve for double-acting final control elements; 2 and 4 vented in center position

Symbols for the actuating elements on the valve:



Solenoid actuator

Pilot valve

Mechanical spring

Pneumatic return

Approvals Behind our Success

Individual directives and national standards have resulted in clear standards that have been implemented in national or international law by the legislature. These recognized regulations ensure that equipment items from different countries are compatible and that manufacturers adhere to a set of regulations regarding design and production.

These regulations relate to the following aspects:
- Protection against risks and dangers
- Interfaces between technical systems
- Testing and inspections of products
- Clear description of the content and the characteristics of products

Legal supervisory authorities require that system operators use only equipment which meets the necessary safety requirements pursuant to these regulations.

Bürkert has the largest number of valves which have been granted the corresponding global approvals.

European approvals

The European approvals and CE mark must be considered in conjunction with one another. As products with CE marking comply with the specified safety regulations, these marked products must be accepted in all EU and EFTA states. A distinction is made between the regulated and unregulated area. The CE mark on Bürkert devices refers to
- Electromagnetic compatibility in the areas
- Low Voltage Directive with the following limits:
  75 – 1500 V for DC voltages
  50 – 1000 V for AC voltages
- Pressure Equipment Directive

In regulated areas, the requirement stipulates that an independent body must conduct an CE type examination:
- Pressure Equipment Directive
- Gas Appliances Directive
- ATEX Directive

In unregulated areas, it is the manufacturer's direct responsibility to attach the CE mark. In this case, a Declaration of Conformity may be required of the manufacturer, specifying the standards applied. Depending on the particular application, the following directives may apply to Bürkert:
- Low Voltage Directives
- Electromagnetic Compatibility Directive
- Vehicle Directives
- Medical Device Directives

German approvals

VDE approval applies to water valves for domestic use where the most important requirements are electrical safety requirements, stipulated function behavior, water hammer, tightness and mechanical strength of the fluidic components.

The KTW Recommendation is relevant to plastics in components used in drinking water and is also required for the use of solenoid valves with VDE approval in the drinking water sector. The hygiene requirement apply to non-metallic materials (e. g., elastomer seal materials) which come into contact with the medium and is taken as a basis for this recommendation in accordance with the specification of the competent Federal Agency.

Safety shut-off valve to EN 264 "Safety Shut-Off Devices for Combustion Plants using Liquid Fuels" is specified as the test regulation for this. A test laboratory (e. g., TÜV) draws up a report on the requirements which include functional behavior, continuous loading capability, electrical safety, tightness and mechanical strength of the fluidic components.

North American approvals

The American Occupational Safety and Health Administration (OSHA) drew up the OSHA Regulation. In Standard 29 CFR, the requirement for electrical installations or equipment stipulates that only installations or equipment which have been tested for the specified safety requirements by an NRTL (National Registered Test Laboratory) may be installed. The NRTLs specified include the following:
- Underwriters' Laboratories (UL) for UL-listed, UL-recognized, UL-classified
- Factory Mutual (FM)
- Canadian Standards Association (CSA)

The complete CSA approval, from the measurements to be carried out up to preparation of the documents can be conducted by Bürkert.

Hazardous Locations

Valves for ATEX Directives (formerly Explosion-Protection (EX) Directives) covers equipment, components and protection systems for use in hazardous areas. It also applies to safety facilities outside of hazardous areas if they are required for safe operation of equipment in the hazardous area with respect to the risk of explosion.

Intelligent Technology in the Field

The status quo:
Application-specific standardization of systems
As a key technology in the automation sector, fieldbus technology now offers a range of standardized bus systems that have been specialized and optimized for specific industries or specific applications.

Opening up this intelligent technology with optimum efficiency for the customer is a welcome and sought-after challenge for our team of consultants who, owing to their pioniering experience, process the crucial knowledge for developing future-oriented solutions. And what would highly qualified engineers find more motivating than an unsolved problem? The fact that Bürkert has the “tickets” for the future-oriented fieldbus technology worldwide makes the choice simple for our customers, but “difficult” for our experts who wish to be challenged by new tasks.

Catching the right bus
The “evolution” of network technology has essentially developed from the principle of centralization through to distributed intelligence. Of course, this also necessitates components that comply with all aspects of the new “command structure”. Maximum availability and minimum possible downtimes are but two key aspects of more efficient, i. e. advanced, operation of a system or installation which is based on future-proof fieldbus technology. It is certainly worth considering opting for a technology leader who has been involved right from the very start and who can therefore provide the appropriate solution to an indivual problem as an integrated system. With Bürkert, you are riding the bus to the future.

Bürkerts networking technology
In addition to the automation systems and valve islands, you can see on the right hand page, Bürkert offers a variety of different communication interfaces like Profibus DP, Profibus PA, DeviceNet, CANopen, Ethernet, Interbus, Foundation Fieldbus or the HART protocol.

Various user associations track the ongoing development of individual bus systems. Visiting the following websites will fill you in on the latest:
– AS-International Association
  www.as-international.net
– CANopen
  www.can-cia.de
– DeviceNet
  www.odva.org
– Ethernet
  www.iaona-eu.com
  www.ida-group.org
  www.odva.org
  www.profibus.com
– FOUNDATION Fieldbus
  www.fieldbus.org
– HART Communication Foundation
  www.hartcomm.org
– INTERBUS Club
  www.interbusclub.com
– PROFIBUS International (OI)
  www.profibus.com

ELEMENT TopControl Type 8693
with Profibus DP and DeviceNet

RaySENS Type 8136
with HART protocol

LiquidFLOW Controller Type 8719
with Profibus DP or DeviceNet

Power I/O Box Type 8643
with Foundation Fieldbus or Profibus PA

Modular Analysis Transmitter Type 8285
in combination with Types 8201 and 8221

Accessories

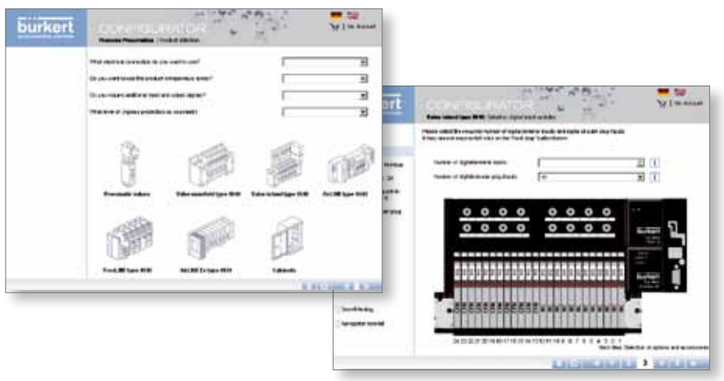
The most important criteria for selecting the right accessories for your pneumatic system are pressures, flow rates, materials for environmental resistance, port connection sizes, mounting options and tube lengths.

In particular, the following accessories should be used for configuring a complete pneumatic system:
– plastic tubes
– mufflers
– screwed fittings
– plug-in fittings
– compression fittings

Besides these pneumatic accessories, Bürkert offers a wide range of components such as flow valves and shut-off valves, which are interconnected with pilot valves and process valves, to form your pneumatic and process interface installation (see section “Selection Criteria for Multi-Way Valves” – page 32-33).

Configuration Tools

Uncomplicated and updated configuration tools for pneumatic valves, for all our valve blocks and valve islands are available online backed up with our local well trained and friendly technical support.



Added Value Systems

Bürkert has a unique perspective in the process control and instrumentation industry as we are the only single brand which combines a complete range of valves, instruments, pneumatic actuation, networking and controllers from a single source.

With our dedicated world-class engineers and our superlative manufacturing facilities we can deliver systems which meet your exact requirements.

Your reliable Bürkert sales consultant and our system engineers work in concert to ask the right questions and provide the right hardware. Transparent operations, up to date situation, review procedure, engineering change notices, portals through SAP and secure intranet are normal in our projects.

For a world class system experience, insist on Bürkert people to be part of your next project.

Connect

As a globally flexible, lean, focused and innovative company we are the partner of choice for fluid control systems in more than 35 countries. Whether you are in Stuttgart, Singapore, Chicago or Sydney, everywhere in the world, we are close to you and therefore know at first-hand about your specific tasks and problems.

Following our principle of “one face to the customer”, you have a competent, reliable consultant by your side at all times, who listens to your needs and presents a solution in your daily application language … crossing conventional boundaries and creating synergies between industries in pursuit of your ideal solution.

Systemhaus crews in Charlotte (USA), Suzhou (China), Dresden, Ingelfingen and Dortmund are continuously in innovation mode. They creatively engineer cost effective solutions to meet difficult process challenges for our customers.

Conceive & Innovate

Your project team starts working for you: from your reliable sales consultant, qualified industry specialists to dedicated system engineers – Bürkert puts the necessary experts together.

For the entire duration of the project they work together, combining their experience and clarifying all the requirements in close cooperation with you to come up with a feasible draft of your solution within the shortest timeframe.

CAD-created animations or simulations, combined with extended manufacturing, materials, tool design, construction and assembly knowledge enable us to provide a rough but firm production concept for your system at an early stage.

Plan & Specify

In Phase 3 the project is planned in detail. A specification sheet and refined solution concept are developed. This defines exactly what you expect from the system and what it must provide to ensure that all components meet your requirements.

At the end of this phase you are presented with a detailed product definition, a production specification and precise commercial conditions and agreements.

Structured project management based on open communication, effective coordination and thorough documentation ensures fast and reliable results.

Do & Check

Good communication, coordination and documentation at all project phases make sure that we are on the right track, developing the right solution, to allow us to quickly move on to prototyping.

Thanks to the latest technology, we are able to build a prototype made of metal or plastic or a functional model to test flow for example within 24 hours.

We provide you with samples; we perform tests and, of course, obtain all the necessary local and global approvals to make sure the system can go to production.

From here we work in concert with one of our production facilities in Ingelfingen, Gerabronn, Criesbach, Öhringen or Triembach according to their individual core manufacturing competencies.

Complete

Our work does not end with the perfect delivery of components and systems. We offer a comprehensive program to our global clients interlinking services ranging from maintenance and service contracts, operator training and integrated logistics.

Our customer service is available around the clock, offering support through internet, telephone or our qualified, experienced people at your site.

We aim to provide only the utmost in customer experience. Something you will tell your friends about.

Most Important Ingredient … People

Perfect delivery of components and systems is one dimension in providing comprehensive solutions for our global clients. We offer a comprehensive program of interlinking services which include:

Personal Consultation and Individual Configurations
We share our knowledge both by embedding our expertise in the product and by really listening to your requirements with your success in mind. We are only content when your specific problem was solved.

Everything from one Partner
We have tens of thousands of process engineering products in our program. We know exactly how to program them, install them and combine them according to your wishes.

Customer Service around the Clock
We offer support through internet, telephone or people on the ground at your site. We are available around the clock.

Start-up
We are always available for installation and commissioning and local staff and operator training.

Global Operations
We are close by in 35 countries in a network which guarantees the full achievement of our enterprise to each customer on each continent.

Bürkert – Close to You

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