A. u. K. Müller

Product Overview

Fascinating Valve Technology

A. u. K. Müller

Fascinated by Valve Technology

A. u. K. Müller has more than 70 years experience in the customer oriented development and manufacture of solenoid valves, control equipment and speciality valves.

Initially a family business, we have grown internationally into a respected leading manufacturer of valve technology with about 190 employees at the headquarters in Düsseldorf and sales representations in the UK and France.

With many years of extensive experience drawn from our wide range of products out in the market, we can quickly develop tailor made innovative valve solutions for the specific needs of our customers.

Specialized Valve Solutions for Fluid Control

Individual problems require individual solutions and we have developed thousands of bespoke innovative product systems and specifications in partnership with our customers. Our high quality components are designed for use in applications where product reliability and performance is critical in maintaining your reputation.

We have extensive experience in providing valves and components to a wide range of industry sectors, including:

- **Sanitary**
- **Vending**
- **Medical Technology**
- **Industry**
- **Agriculture/Food**
- **Environmental Technology**

We do not believe in just ‚selling a valve'. The integration of our product into your application is the result of detailed analysis of the ambient environment, operating parameters and specification requirements. This enables us to offer individually optimized solutions to suit even the most complex fluid applications. Such tailored valve design ensures a long product life expectancy and utmost reliability, in turn reducing your service costs significantly. Features such as low power consumption and minimal noise emission levels of our products support an efficient overall design of your equipment.

All customer sectors will benefit from our cross-industry experience and development expertise, which has formed the basis of our products for many years.

From the initial design stage through production to the point of delivery, we promise a service and product that exceeds the expectation afforded by the term "Made in Germany".

We push the Boundaries of Valve Technology

Each process starts with your ideas and specification requirements. Together we develop individual concepts and designs using our extensive resources and the skills of our experienced engineers.

Ultimately this process results in the development of innovative products and complete systems which exceed usual market standards and expectations.

Our team of designers and engineers work as a team to creatively realise your ideas in the shortest possible time scale. The use of modern technologies and techniques for structural analysis, fluid and electromagnetic simulations and rapid prototyping builds quality and reliability into every stage of the development process.

We are constantly researching and evaluating materials, our products and the way they are manufactured. Changes are constantly being implemented to every area to ensure we stay one step ahead and ensure the ongoing outstanding functionality and operational reliability of our products.

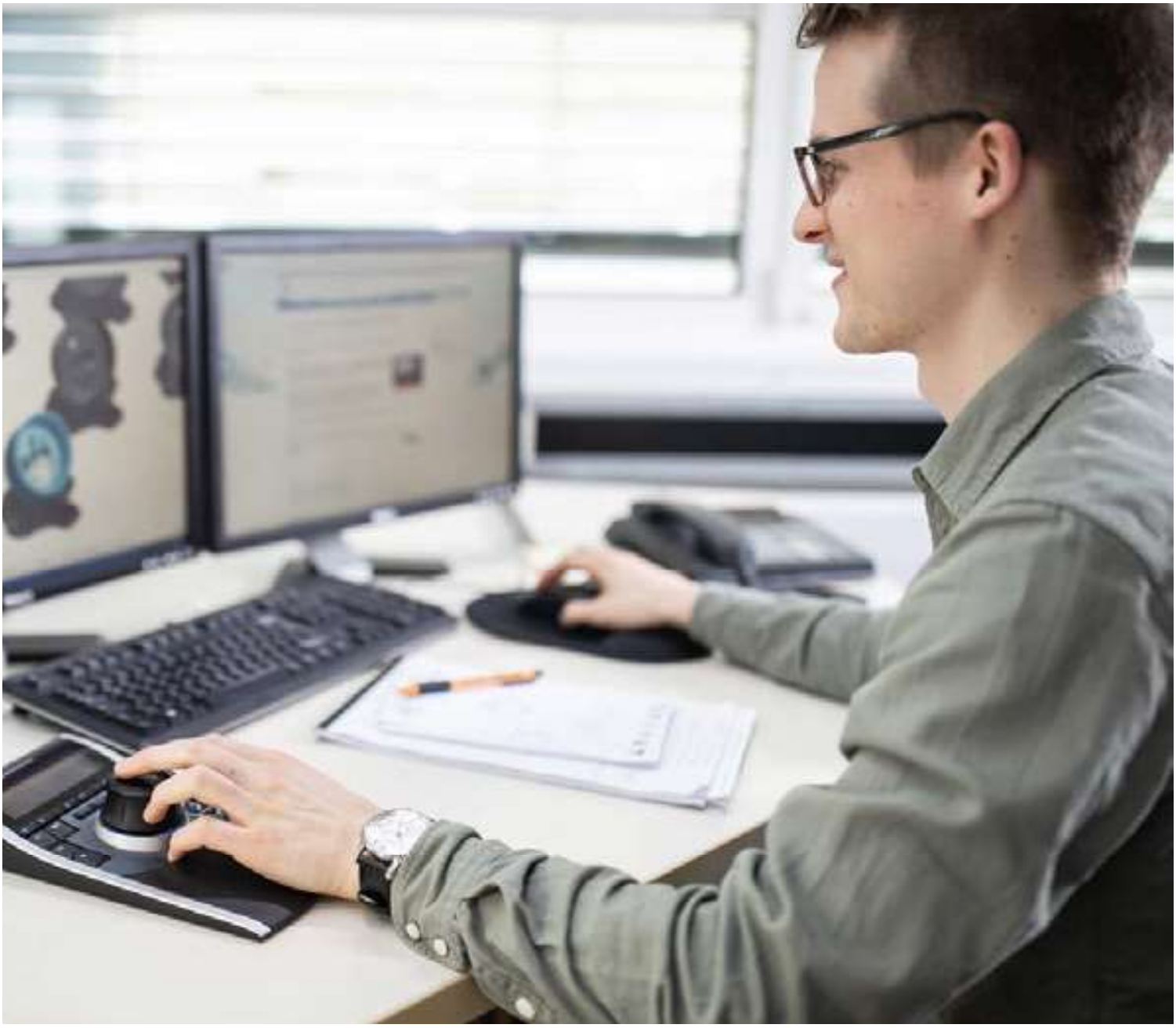
Over the years our products and inventions have set standards and redefined markets resulting in the granting of many patents.

Modern Production and Measurement Technologies

Our modern manufacturing and testing technologies, in-house production and the multi-industry exchange of experience of our 190 dedicated staff within the Dusseldorf factory enable both, you and us, to stay at the forefront in the marketplace.

More than 60% of total turnover is achieved in our export markets, supported by our sales subsidiaries in the UK and France.

Get into the fascinating world of valve technology and be inspired. You will find that a valve is much more than just a "component".



CONTENT

SANITARY

VENDING

VENDING & MEDICAL TECHNOLOGY

MEDICAL TECHNOLOGY

INDUSTRY

AGRICULTURE/FOOD

ENVIRONMENTAL TECHNOLOGY

ACCESSORIES

CUSTOMIZED SOLUTIONS

VALVE TECHNOLOGY

CHEMICAL RESISTANCE

SANITARY

Valve Solutions and Accessories

for Electronic Faucets

Digital water management is nowadays an integral part of public washrooms. Apart from the ability to save water, the focus also lies on the improvement of hygiene by using non-contact faucets. Due to these advantages, electronic faucets are now increasingly moving into private households. As a German quality manufacturer, A. u. K. Müller offers, with its large product range of different plastic valves adapted to sanitary applications, a variety of valve solutions for electronic faucets in the following application areas:

- Wash basin
- Shower, shower panel and wellness shower
- Bath tub
- Toilet and urinal as well as
- Whirlpool

As a matter of course, the offered products confirm to the standards and carry the appropriate approvals for use with drinking water. Thus, we are already supporting you at the component level in the standard conformance of your final product design.

Cartridge Valves

Cartridge valves, plugged or screwed into the corresponding faucet, control the flow of water in a reliable and energy saving manner. Latching versions work consistantly for years before a battery has to be replaced.

Infrared Sensors and Accessories

We offer, in addition, infrared sensors and control units, including accessories for the voltage supply, such as battery sockets, power supplies and cables. Therefore, the customer can obtain complete system solutions from a single source. The infrared sensors and control units are provided with numerous adjustment and operating modes. Depending on the type, these are, for example, stadium mode, enforced flush, adjustable flushing times, sensor range adjustment and maximum flushing time.

Customer Specific Solutions

Based on our long-term expertise and innovative product portfolio for the various sanitary applications, we offer our OEM customers the reliable realization of customer specific components or system solutions from design to the finished product.

Cartridge Valves/Valve Solutions based on the Pilot Valve

Compact latching or mono stable cartridge valves, directly screwed into the socket of faucets.
Good resistance against thermal and chemical disinfection (e.g. T-medium 80 °C (176 °F) for 10 minutes).

050-B05.060/050-M05.120
DN 5; 0,5 - 8 bar; 11 l/min @ 1 bar

50.005.101 mono/latching
DN 5; 0,5 - 10 bar; 11 l/min @ 1 bar

50.007.101 mono/latching
DN 7; 0,5 - 10 bar; 23 l/min @ 1 bar

50.009.101 mono/latching
DN 9; 0,5 - 10 bar; 27 l/min @ 1 bar

50.013.101 mono/latching
DN 13; 0,5 - 10 bar; 46 l/min @ 1 bar

Axial Valves

Due to the linear fluid path the integration is also possible where space is reduced, and in already existing installations. Also available as mono stable version.

51.005.125 mono/latching
DN5; 0,5 - 10 bar; 7,5 l/min @ 1 bar

51.007.125 mono/latching
DN 7; 0,5 - 10 bar; 12 l/min @ 1 bar

Servo-controlled 2/2-Way Valves

Straight through valve with linear fluid guidance.

50.007.806 mono/latching
DN 7; 0,5 - 10 bar; 16 l/min @ 1 bar

50.013.806 mono/latching
DN 13; 0,5 - 10 bar; 36 l/min @ 1 bar

Acentric Cartridge Valve

Thanks to the compact acentric dimension, this valve can easily be integrated in faucets with limited space. The plug-in design simplifies installation and service.

50.007.800 mono/latching
DN 7; 0,5 - 10 bar; 16 l/min @ 1 bar

Infrared Sensors and Accessories

Smart infrared sensor for touchless control of cartridge valves.
Specific versions for wash basin, urinal, shower and toilet applications are available.

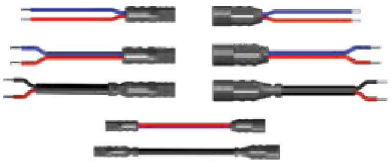
IRS-WT-x/IRS-UWS-x
Sensor for sanitary wash basins, urinals, toilets or showers

IRS-WT-MxC/-MxF
Sensors for sanitary wash basins

The sensor IRS-UWS-x may be equipped with an optional Piezo push-button, which starts the flow of water manually.

IRS-UWS-x Piezo Push-Button

Remote Control
Detection range, flushing time, ON/OFF



Connectors/Cables
Single strands, twin strand, male or female connector

Battery cases (Elastomer)

Mains or In-Wall Adapter

Cartridge Valve Body Adapter

50.007.126 /50.009.126 (PA 6/6)
DN 7/DN 9; 0,5 - 10 bar, burst pressure 50 bar

50.007.126 (PPE)
DN 7; 0,5 - 8 bar, burst pressure 25 bar

50.007.52x (Brass)
DN 7; 0,5 - 10 bar, burst pressure 50 bar

Modular Urinal Valve System

- For integration into concealed urinal systems
- For cold water applications
- With or without integrated strainer and shut-off valve

52.007.126
DN 7; 0,5 - 10 bar; 18 l/min @ 1 bar

52.007.2xx
DN 7; 0,5 - 10 bar; 18 l/min @ 1 bar

NEW PRODUCTS

Hand-operated Servo Valves

2/2-way bistable servo valve of nominal size DN 5 with mechanical valve release. The valve opens and closes at the push of a button by manual actuation, as with a ballpoint pen. Manual actuation, for example, allows the media inlet to be shut off manually without the need for an external power supply.

Valves of this type are 1-chamber straight through valves and can be manufactured with various body connections. The compact servo valve is ideally suited for water inlet control with a Kv value of 7.5 l/min.

The solenoid valve is suitable for controlling drinking water and physically and chemically similar media. Due to the glass fibre reinforced polyamide housing it is suitable for hot water up to 90 °C.

62.005.826
DN 5; 0,3 - 10 bar; 7,5 l/min @ 1 bar

Features & Benefits

- Bistable
- Mechanical valve release at the push of a button
- Easy operation due to manual operation with minimum effort
- Suitable for hot water up to 90 °C
- Optimized water hammer properties with low noise emission according to EN 60730
- High continuous serviceability
- High functional reliability due to the use of high-quality materials and 100% final testing of the products

NEW PRODUCTS

Hand-operated Cartridge Valves

50.005.801
DN 5; Actuation: hand-operated;
DN 5; 0,5 - 10 bar; 8 l/min @ 1 bar

50.007.801
DN 7; Actuation: hand-operated;
DN 7; 0,5 - 10 bar; 17 l/min @ 1 bar

50.009.801
DN 9; Actuation: hand-operated;
DN 9; 0,5 - 10 bar; 22 l/min @ 1 bar

Function

With the 50.00x.801 series, we are expanding our product portfolio with hand-operated cartridge valves in the nominal sizes DN 5, DN 7 and DN 9. Manual operation enables new operating concepts for sanitary applications without an external power supply. The cartridge valve is particularly suitable as a hand-operated shut-off unit in kitchen, washbasin or shower taps for controlling drinking water.

Like the solenoid-operated valves of the 50.00x series, the latest addition to the family impresses by consequently reduced external dimensions. The valve is simply screwed into the fitting and can therefore be used even where space is at a premium. The valve is designed to be bistable and functions similarly to a ballpoint pen; by simply pressing the button, the valve seat is released and the water can flow through the pipe. A second press reliably closes the valve seat by means of an integrated diaphragm up to a pressure of 10 bar.

Low maintenance and long service life
The valves of the 50.00x.801 series are purely mechanical and therefore do not require an external power supply.

This eliminates the need for recurring maintenance tasks such as battery replacement. The valve is equipped with a stainless steel strainer to prevent the ingress of dirt or other particles. The cartridge valve is supplied as a pre-tested functional unit, high-quality materials guarantee a long service life. Please do not hesitate to contact us if you have any further questions.
If you have a specific valve requirement, we will be happy to work with you to find an individual solution that suits your application.

Benefits

- Space-saving design for high design freedom
- Simple operation
- Open and close at the press of a button, similar to a ballpoint pen
- Low-maintenance and durable components
- Developed for use in kitchen, shower and washbasin faucets

VENDING

Valve Solutions and Accessories
for Vending

For the application area of vending, AKM offers special valve solutions and accessories for professional hot beverage dispensers and cold drink dispensers.

Dispenser Valves for Espresso and Instant

Dispensing valves for use in vending machines have to be able to handle a broad requirement spectrum of pressure, volume and temperature ranges, depending on the type of machine and the drink to be prepared. For the varied needs of the beverage industry we offer traditional dispense valves for boiler systems, as well as espresso valves, cold drink dispense valves, pumps and complete systems based on our push-fit coupling components. Furthermore the following special solutions complete our product portfolio:

- Proportional valves
- Media separated valves as lever or pinch valves
- Flow meter turbines
- Pressure regulators
- Verifiable single or double check valves EA/EC

Perfect for use with Food

Reliability, long lifetime and safe operation in a warm environment characterize our valves. Typically, high-performance plastics are used for all media-contact parts. Thus, the valves are 100% lead-free and do not affect the taste of the dispensed drink. Also, the surface of the plastic has an increased resistance to the build-up of lime scale. In addition, in operation, plastic components cool the hot water at a much lower rate than brass, which deliver the drinks at a more consistent temperature.

For this application, our material selection is based, in particular, on the suitability of the valves and components for food according to regulation (EC) No 1935/2004 and the plastic materials directive (EC) 10/2011. In addition, international approvals such as NSF 169 are also available.

Information on water inlet valves can be found in the section Industry.

Espresso Valves

- Suitable for food and hot water appliances
- Any number of connections possible
- Easy to assemble and service
- Compact design
- Direct acting
- Works from zero pressure
- Long term performance capability
- Applicable for saturated steam 143 °C (3 bar)

Single Espresso Valves 2/2-Way, NC

18.003.000
DN 1,5; 0 - 16 bar; 0,9 l/min @ 1 bar

18.004.000
DN 2; 0 - 10 bar; 1,5 l/min @ 1 bar

18.005.000
DN 2,5; 0 - 6 bar; 2,5 l/min @ 1 bar

Single Espresso Valves 2/2-Way, NO

Other nominal orifices on request:
- DN 1,2
- DN 2,0
- DN 2,5

18.003.001
DN 1,5; 0 - 10 bar; 0,8 l/min @ 1 bar

Single Espresso Valves 3/2-Way

18.002.032
DN 1,2; 0 - 16 bar; 0,6 l/min @ 1 bar

18.003.032
DN 1,5; 0 - 12 bar; 1 l/min @ 1 bar

18.005.032
DN 2,5; 0 - 5,5 bar; 2,2 l/min @ 1 bar

Extendable, Modular Espresso Valves

For the flexible and space saving design of complex bank valves with various configuration options in a confined space.

- The valve modules are single chamber angle valves, with a 6 mm push fit connector at the inlet and outlet, or 6mm stem at the outlet
- Valve types: 2/2-way NC and NO, as well as 3/2-way
- Nominal orifices: DN 1,2, 1,5, 2,0 and 2,5 mm
- Assembly by a simple plug and rotate mounting without tooling and secured by a snap lock
- Flexible arrangement of valve modules
- Possible integration of functional modules from FitSys 18, as e.g. pressure relief valve

18.00x.x6x
1 x NC: DN 1,2; 0,6 l/min @ 1 bar;12 bar
2 x 3/2-Wege: DN 1,5; 1,0 l/min @ 1 bar

Push-Fit Fitting System FitSys 18

The push-fit connectors used in series 18.0xx, 47.00x und 43.00x as well as the fitting system FitSys 18 enable the user-friendly design of pipework solutions. The quick couplings can be easily inserted by hand. The retaining claw secures the inserted pipe without being squeezed or reducing the flow. The inserted tube can be easily detached manually and the connections are reusable.

- Durable, Secure, Tightly sealed
- High temperature resistance: 98 °C @ 16 bar or 143 °C @ 3 bar
- Mounting and disassembly without tools
- Any combination possible and easily expandable
- NSF- and UL-approved variants available
- Different connection types and basic housings available

NSF

Special Functional Elements

G-Connector
DN 4; 0 - 16 bar

L-Connector
DN 4; 0 - 16 bar

T-Connector
DN 4; 0 - 16 bar

Y-Connector
DN 4; 0 - 16 bar

S-Plug
DN 4; 0 - 16 bar

Manifold
DN 4; 0 - 16 bar

Special Functional Elements

Pressure Relief Valve
4, 10 or 12 bar

Backflow Preventer
Opening pressure 0,04 bar

Control Valve
DN 4; 0 - 16 bar

Boiler Valves with Two Piece Valve Body

Medium separated seat valves for the dispense of fluids in hot and cold vending machines.
Two piece valve body. The valve outlet nozzle is removable and allows independent replacement of components.

46.008.104
DN 8; 0 - 60 mbar

46.008.114 (PTFE Valve Seat)
DN 8; 0 - 60 mbar

Boiler Valves with Single Piece Valve Body

- Cost-effective, single piece valve body
- With or without valve seat

46.008.101
DN 8; 0 - 60 mbar

46.008.111 (PTFE Valve Seat)
DN 8; 0 - 60 mbar

Boiler Valves with Single Piece Valve Body

- Flow and maintenance optimised dispense valve
- High duration, reduces service calls
- Internally angled inlet nozzle for redirection of air bubbles and reduction of lime scale
- Elevated PTFE valve seat to inhibit scale build up
- Membrane "tail" is angled to channel final drips away from critical area (Patented EP 1 286 092)
- Barbed inlet reduces deposits of dirt particles and prevents clogging by scale particles

46.008.118
DN 8; 0 - 60 mbar

Boiler Bank Valves

Two piece valve housing with and without PTFE valve seat.
A maximum of five output units can be built up.

One-piece valve housing:
- With and without PTFE valve seat
- Cost effective

46.008.x06
DN 8; 0 - 250 mbar

46.008.x16
DN 8; 0 - 250 mbar

46.008.x07
DN 8; 0 - 250 mbar

46.008.x17
DN 8; 0 - 250 mbar

Boiler Valves DN 10, 12 and DN 14

40.012.151
DN 10; 0 - 60 mbar (regulated breather)

40.012.101
DN 12; 0 - 60 mbar

40.014.111
DN 14; 0 - 60 mbar

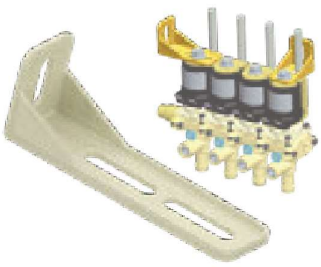
Proportional Beverage Valves

The continuous adjustability of the flow between 0 and 100 % of the maximum flow allows flexible dispensing sequences, such as:
- Splash-free dosing (adjustment of the flow rate independant of the filling level)
- Final or top-off dosing with a lower flow
- Fast dosing at the end of the dosing procedure for rinsing of the mixing bowl

46.008.111 prop
DN 8; 0 - 60 mbar

Accessories for Boiler Valves

Fixing Clip



Fixing Bracket, angled

Adjuster Wheel
For the adjustment of the regulation screw in boiler valves

Soda Dispense Valve

Dispense valve for still or sparkling water. Used, for example, in water mains connected drink dispensers. Equipped with two inlets, each with a manually adjustable compensator to adjust flow rate and bubble size.

06.003.234
DN 3; 0 - 7 bar; 5 l/min@ 1 bar

Pumps

Pumps increase the pressure and improve dosing consistency. Available as 12 or 24 V DC version. Varying the voltage supplied to the pump will change its speed and thus vary the flow rate output. The flow rate can be varied in relation to the voltage applied. Suitable for hot water up to 95 °C. Dosing pump allows the dispense valve to be placed up to 0.4 m above the water level in the boiler.

41.008.100
DN 8; 155 mbar; 3,6 l/min @ 24 V DC

41.008.20x
DN 8; 430 mbar; 12 l/min @ 24 V DC

41.005.300
DN 5; 102 mbar; 3,6 l/min @ 16 V DC
or 3,0 l/min @ 26 V DC

Verifiable Backflow Preventer

- Verifiable Backflow Preventer as type EA (single type), or EC (double function)
- Safety device against backflow or back suction of water into the main water supply
- Easy to retrofit, upstream of line connected devices
- Easy maintenance through inspection ports with G 1/4 screw cap
- Hygienic and neutral in taste
- Only KTW/W270 approved materials in fluid contact
- Function in accordance to DIN EN 13959, confirmed by an accredited laboratory
- Operating temperatures up to 65 °C
- Configuration options possible by combining various nominal diameters and fluid connections

	
49.0xx.126 (Typ EA) DN 6, 8, 10, 12; 0 - 10 bar	**49.0xx.226 (Typ EC)** DN 6, 8, 10, 12; 0 - 10 bar

DIN EN 1717 guidelines

The hygienic protection of our drinking water supply is ensured by numerous standards. The DIN EN 1717 is valid all over Europe to protect drinking water against backflow of non wholesome water into the mains water supply. Thus, it contributes to the preservation of drinking water quality from the transfer point to the point of dispense. Therefore it is of concern, also for the vending industry. For the area of water line bound vending machines, such as coffee or juice vending machines, various ways of protecting main water supply are recommended. Since the normative protection is seldomly already integrated in the machines, the use of a controllable backflow preventer is the easiest way to comply with the statutory provisions. According to DIN EN 1717, the types of EA and EC are suitable for securing devices using category 1 and 2 liquids (according to WRAS also for liquids of category 3).

VENDING & MEDICAL TECHNOLOGY

2/2-Way Direct Acting Compact Valves

Without medium separation 43.00x.142	**Medium separation by membrane** 43.00x.102	**Medium separation by PTFE bellow** 43.00x.122
43.001.142 DN 1; 0 - 10 bar; 0,5 l/min @ 1 bar	**43.003.102** DN 3; 0 - 3 bar; 3,5 l/min @ 1 bar	**43.003.122** DN 3; 0 - 5 bar; 3,3 l/min @ 1 bar
43.002.142 DN 2; 0 - 7,5 bar; 1,8 l/min @ 1 bar	**43.004.102** DN 4; 0 - 2,5 bar; 5 l/min @ 1 bar	**43.004.122** DN 4; 0 - 4 bar; 4,2 l/min @ 1 bar
43.003.142 DN 3; 0 - 5 bar; 3,3 l/min @ 1 bar	**43.005.102** DN 5; 0 - 2 bar; 6 l/min @ 1 bar	**43.005.122** DN 5; 0 - 1,5 bar; 5,5 l/min @ 1 bar
43.004.142 DN 4; 0 - 3 bar; 4,4 l/min @ 1 bar		
43.005.142 DN 5; 0 - 0,8 bar; 5,5 l/min @ 1 bar		

Compact Valves in Modular Design

The 2/2-way modular solenoid valves have orifice sizes ranging from 1.5 mm up to 5 mm. They are direct acting valves and available as 3/2-way versions on request. Due to it's compact size, complex multi-valve assemblies with multiple medium channels are possible in applications where space is at a premium. The two piece valve body consists of a polyamide outer frame and an internal core which handles the medium. This part can be manufactured in high performance plastics, differing in their resistance to temperature, for example PEI and PEEK. A large variety of fittings are available which clip into the valves to form inlets, outlets and multi valve connectors. These include various sizes of hose, threaded, push-fit and blanked options for endless possibilities.

- Nozzles 6,5 - 12 mm; Screw thread G 1/8; Adapter connector for 6 and 8 mm; Boiler connector; Closure and cover

PEI PEEK

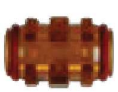
43.00x.xx6
DN 1,5 - 5

Nozzle connection
Id 007294

Threaded connection closed
Id 007283

Adapter connection John Guest
Id 007585

Boiler connection closed
Id 007308



Coupling open
Id 007289

Cover plate
Id 009206

Lever Valves

- Media separated
- Allows a higher pressure level in comparison to media separated membrane valves
- Easy to flush, with a low internal volume
- Low working pressure of the diaphragm, resulting in an improved lifetime
- High switching speeds, therefore excellent for dosing tasks
- Good thermal separation between hydraulics and electrics
- Any fitting position
- Material: PEI (transparent) or PPSU (higher mechanical strength)

		
47.00x.102/202 (2/2-Ways NC) DN 2; 0 - 8 bar; 2 l/min @ 1 bar DN 4; 0 - 3,5 bar; 4,3 l/min @ 1 bar	**47.00x.182/282 (2/2-Ways NO)** DN 2; 0 - 7 bar; 2,1 l/min @ 1 bar DN 4; 0 - 3 bar; 3,2 l/min @ 1 bar	**47.00x.103/203 (3/2-Ways)** DN 3; 0 - 3 bar; 4,1 l/min @ 1 bar DN 4; 0 - 2,5 bar; 3,5 l/min @ 1 bar
		
47.009.302 (2/2-Ways NC) DN 9; 0-0,6 bar; 22 l/min @ 0,6 bar	**47.009.382 (2/2-Ways NO)** DN 9; 0-0,6 bar; 28 l/min @ 0,6 bar	**47.009.303 (3/2-Ways)** DN 9; 0-0,6 bar; 21-26 l/min @ 0,6 bar

Pinch Valves

100 % medium separated and therefore particularly suitable for the use with aggressive, particle-loaded or high purity liquids.

- No valve parts in medium contact
- Free of turbulences
- No dead areas
- Flow in either direction
- Available for different tubing diameters 1.0 x 0.25 to 6.0 x 1.0 (60 °Shore)
- Tube can easily be changed
- Chemical resistance depends on the material of selected tube

		
16.00x.116/16.003.125/ 16.006.130 (NC)	**16.00x.216/16.003.225/ 16.006.230 (NO)**	**16.00x.316/16.003.325/ 16.006.330 (3/2-Ways)**

High-performance Plastic Housing

- Cost optimized
- Smaller dimensions
- Reduced weight
- Differently positioned mounting flanges
- Different types of 24V DC coils, with protection class IP00 to IP68

16.003.525 (NC)
Silicone Tube 3x1; 60°Sh,
0 - 1,5 bar; 2,2 l/min @ 1 bar

MEDICAL TECHNOLOGY

Valve Solutions

for Medical Technology and Laboratory

For years, A. u. K. Müller has produced valve solutions for the particular needs of the dialysis, sterilisation, disinfection, medical instruments, water purification and laboratory applications. Reliability, extended life and high quality characterize our valve solutions.

We are expert at designing products with the stringent needs of the medical market in mind. We can produce standard products or can tailor a bespoke solution.

High performance, bio-compatible polymers are used in areas of medium contact to ensure good chemical resistance and a long life time.

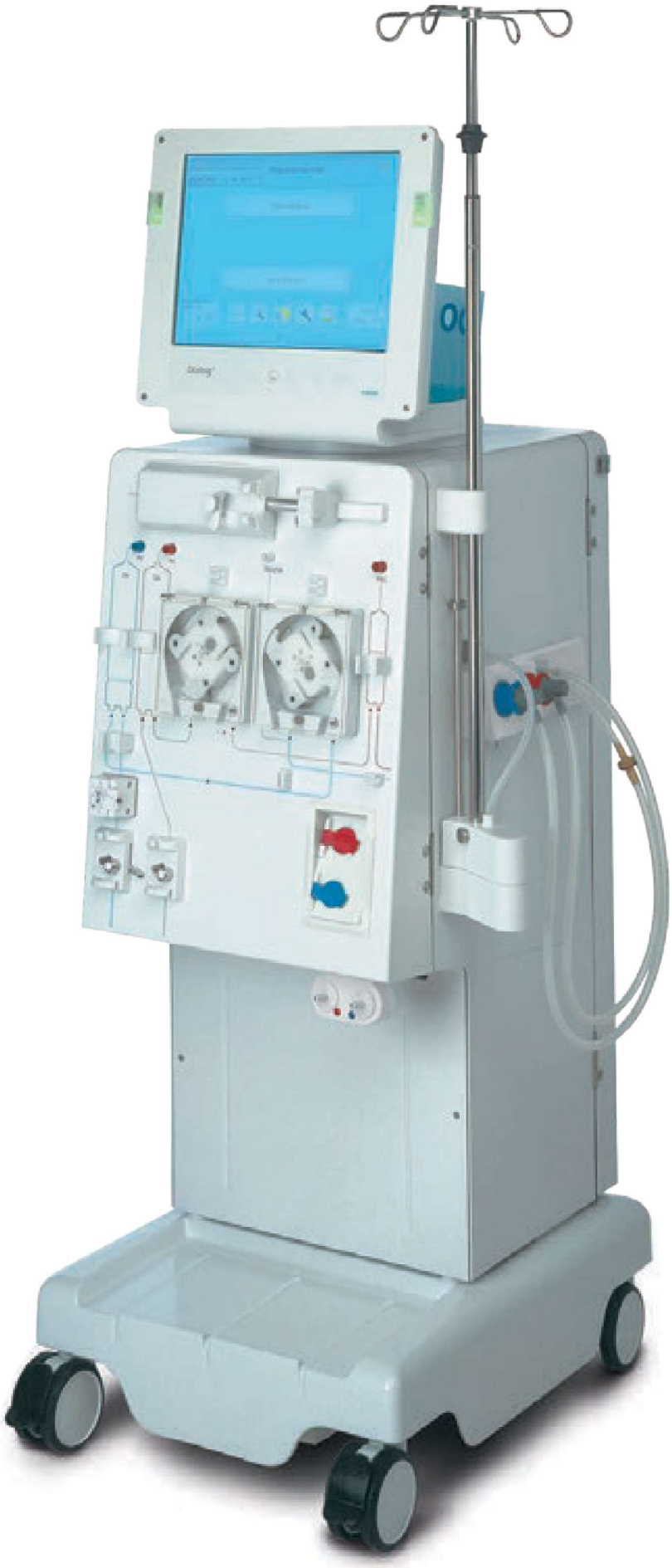
Media Separated Valves: Specialists for critical Fluids

Media separated valves are used in numerous applications for the handling of critical media. For the flow control of aggressive, particle loaded or high purity liquids it is essential to separate the hydraulic and electrical parts of the valve from the flow path. Depending on the valve type only the valve housing and separation membrane or tubing are in contact with the media. The complete valve mechanism is located outside the fluid space. Therefore, the fluid is protected from contamination and excessive temperature fluctuations. The separation membrane and valve body are made of resistant materials and can be flushed and disinfected easily due to the small dead space.

Various Valve Types for a Variety of Applications

- Direct acting valves with isolating diaphragm or bellows
- Lever valves
- Pinch valves

Typically they are available as a 2/2 or 3/2-way variants. As well as media separation, all these valve types have the benefit of reduced dead space, flexibility in both mounting position and flow direction. The ability to produce either standard or specially designed versions allow these valves to be incorporated into a wide range of possible applications in diverse industries such as medical or analytical instrumentation, process industry or food technology.



Dialysis Valves

- High number of ON-OFF cycles
- Short cycle times
- Function and leak tightness in both flow directions
- Medium separated by PTFE bellow
- Minimal dead areas in valve body
- Material valve housing: PEI (PPSU or PEEK on request)
- Sealing material: EPDM (FKM on request)
- Other nominal diameters, DN 0,8 - 6,0, on request

U9x.60x
DN 3,6; 10 - 400 kPa abs.; 3,2 l/min @ 1 bar

U9x.60x
DN 4; 10 - 400 kPa abs.; 4,2 l/min @ 1 bar

Miniature Valves

By combination of the pilot valve with servo components, the control of larger volume flows can be easily implemented and allows the flexible realization of different flow paths.

This dosing valve is appropriate for small quantities.

Hygiene benefit by 100% final testing with air.

19.00x.287 mono/latching
DN 0,5; 0 - 10 bar; 0,13 l/min @ 1 bar

19.00x.287 mono/latching
DN 0,8; 0 - 10 bar; 0,31 l/min @ 1 bar

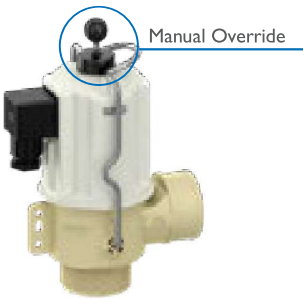
Drain Valves

- Material: PPE (Tm: 98 °C), PVDF (Tm: 50 °C) or stainless steel (Tm: 98 °C)
- Moisture-proof by potted coil
- Cable or mounted connector
- Protection type: IP68 and IP65

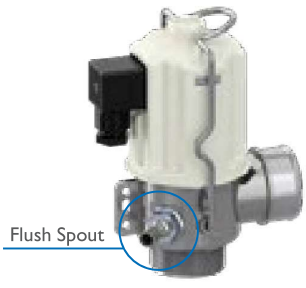
04.040.116 (NC)
DN 40; 0 - 180 mbar

04.040.916 (NO)
DN 40; 0 - 120 mbar

Optional with:
- Manual emergency override (only NC)
- Flush spout on valve body



04.050.116 (NC)
DN 50; 0 - 180 mbar



04.050.916 (NO)
DN 50; 0 - 120 mbar

INDUSTRY

Valve Solutions
for Industrial Applications

The use of valves with potable water or similar controlled media such as food are determined by demanding application specific and normative requirements. As a valve specialist for potable water applications, we meet these requirements with our solenoid valves by many years of experience and the highest product quality. The use of hygienically safe solutions is necessary wherever drinking water is extracted from the pipeline and used by humans. In most cases, the use of certified valves is required by regulations. We therefore develop and manufacture our valves according to the normative requirements and certify them according to the most common approvals in potable water, such as KTW / W270 (D), WRAS / BS6920 (UK), ACS (F), SVGW (CH) or NSF 61 (USA).

In addition to these hygienic requirements, technical standards and regulations are determined by the application. A. u. K. Müller meets these requirements, such as media and ambient temperatures, different pressures and accurate flow values with its water valves for a broad range of applications.

Application specific and qualified Solenoid Valves for Potable Water

Already during the development process, the application-specific requirements are taken into account, starting with the selection of the materials up to the design in accordance with the regulations in place. Each development process is completed with internal product qualification and certification by external approval bodies. The tests of our products also include lengthy, long-term tests under extreme conditions which often go far beyond the requirements of regulations and standards. Customer defined, special requirements are also taken into account as well as our own high-quality targets. With A. u. K. Müller valves, you can easily meet the necessary standards for your application.

NSF KTW WRAS SVGW SSIGE ACS

Servo-controlled Valves, NC

Servo-controlled valves are typically applied in automatic control of water into appliances. For secure function a minimum differential pressure of ~0,02 MPa (~0,2 bar) between inlet and outlet is required. As this design uses the medium pressure to operate so the electromagnetic actuator can be relatively small, making the valves compact.
The valves are suitable for the control of water, drinking water, as well as physically and chemically similar media. Please refer to page 47 for additional information about the servo-functionality.
An advantage of the A. u. K. Müller servo-controlled valves is the self-cleaning pin in the pilot port of the membrane, a design that increases the life of the valve. Additionally, the flow design results in low water hammer. Our unique valve design ensures reliable performance as well as high durability for many applications.

Failsafe function also under extreme conditions. All servo solenoids are equipped with a magnetic coil class F. This allows the full function at maximum ambient temperature (70°C), with minimum allowed voltage (Un -10 / -15%), maximum pressure (10 bar) and maximum temperature of fluid (90°C). Control according to EN 60730. VDE approved variants available on request.

		
62.005.115 DN 5; 0,2 - 10 bar; 7 l/min @ 1 bar	**62.005.126** DN 5; 0,2 - 10 bar; 7 l/min @ 1 bar	**01.007.111** DN 7; 0,2 - 10 bar; 11 l/min @ 1 bar
		
01.007.126 DN 7; 0,2 - 10 bar; 11 l/min @ 1 bar	**44.007.126** DN 7; 0,3 - 10 bar; 10 l/min @ 1 bar	**01.010.115** DN 10; 0,2 - 10 bar; 21 l/min @ 1 bar
		
01.010.125 DN 10; 0,2 - 10 bar; 21 l/min @ 1 bar	**01.010.126** DN 10; 0,2 - 10 bar; 21 l/min @ 1 bar	**01.010.215** DN 10; 0,2 - 10 bar; 17 l/min @ 1 bar

Possible connectors for servo-controlled valves
For inlet and outlet the following versions are offered:

- Threads: G 3/8, G 3/4, G 3/4 swivel nut, G 1/4 x 10 female, G 1/2, G 1, .75 - 11,5 NH
- John-Guest®: 3/8“ JG, 1/2“ JG
- Nozzles: 1/2“, 3/4“, 3/8“, Ø 15 (compatible to quick fit connector system 11.000)

Typical materials

- Valve housing: PA66; PA6/6, PPE and PEI on request
- Plunger guide, plunger and spring: stainless steel
- Membrane and sealing: EPDM; NBR and VMQ on request
- Coil coating: PBT, PET or epoxy resin
- Filter: stainless steel (in inlet), POM

Typically the valves are suitable for hot water up to 90 °C. Other connection variants available on request.

		
01.010.216 DN 10; 0,2 - 10 bar; 22 l/min @ 1 bar	**01.010.225** DN 10; 0,2 - 10 bar; 15 l/min @ 1 bar	**01.010.315** DN 10; 0,2 - 10 bar; 18 l/min @ 1 bar
		
01.010.325 DN 10; 0,2 - 10 bar; 18 l/min @ 1 bar	**01.010.415** DN 10; 0,2 - 10 bar; 17 l/min @ 1 bar	**01.010.425** DN 10; 0,2 - 10 bar; 15 l/min @ 1 bar
		
01.013.115 DN 13; 0,2 - 10 bar; 42 l/min @ 1 bar	**01.013.126** DN 13; 0,2 - 10 bar; 30 l/min @ 1 bar	**01.013.215** DN 13; 0,2 - 10 bar; 33 l/min @ 1 bar

Servo-controlled Valves, NC

01.013.225
DN 13; 0,2 - 10 bar; 33 l/min @ 1 bar

01.017.115
DN 17; 0,3 - 10 bar; 70 l/min @ 1 bar

01.017.126
DN 17; 0,3 - 10 bar; 58 l/min @ 1 bar

15.017.325
DN 17/10; 0,3 - 10 bar; 59/25 l/min @ 1 bar

15.017.425
DN 17/10; 0,3 - 10 bar; 59/25 l/min @ 1 bar

01.021.126
DN 21; 0,3 - 10 bar; 65 l/min @ 1 bar

29.007.215
DN 7; 0,2 - 10 bar; 8 l/min @ 1 bar

29.010.226/326
DN 10; 0,2 - 10 bar; 15,5/13 l/min @ 1 bar

Aquastop

Two single servo-controlled valves (NC) connected in line, in order to prevent water damage.

- High reliability as both valves are switched simultaneously
- Connection to water supply (swivel nut) possible without tool
- Water supply tube routed in flexible corrugated tube
- Designed for free outlet
- Flexible corrugated tube to guide leakage medium to directed recirculation
- Filtration in inlet by stainless steel filter
- Flow regulator retainer in inlet
- Suitable for warm water up to 60° C (EU, UK), 90 °C (USA)

Aquastop 13.007.226
DN 7; 0,2 - 10 bar; 8 l/min @ 1 bar

Servo-controlled Valves, NO

Single chamber straight valve, normally open (NO). Also available in the housing variants of NC servo valves, with various conntections.
Suitable for hot water up to 90 °C.

36.010.126
DN 10; 0,2 - 10 bar; 17 l/min @ 1 bar

Servo-controlled Valves with Brass Body

Other housing variants, e.g. angle valves, nozzle connections or combinations of female and male thread are also available.

The housings are conform to the UBA regulations for metallic materials.

01.01x.521
DN 10, 13; 0,2 - 10 bar; DN 17 ; 0,3 - 10 bar

01.01x.523
DN 10, 13; 0,2 - 10 bar; DN 17 ; 0,3 - 10 bar

Flowmeter Turbine

The combination of a flow meter and a solenoid valve in one compact unit enables, with suitable electronics (provided by customer), the accurate metering, dosing and control of a liquid together with the ability to interrupt the flow. Furthermore water hammer is reliably prevented by the integrated servo-controlled valve. Depending on the orifice used, different measuring ranges can be achieved.

17.007.126
max. DN 7; 0,2 - 8 bar; 12 l/min @ 1 bar

Servo-direct Stepper Motor Controlled Valves

For the design of controlled fluidic paths, for continuous regulation of flow rates or for dosing of constant volumes.

- Stepper motor driven
- Continuous operation
- No water hammer
- Medium separated by PTFE bellow
- Medium temperatures up to 80°C

10.010.126 - sds
DN 10; 0 - 10 bar; 20 l/min @ 1 bar (fully open)

10.00x.126 - ds
DN 4,2; 0 - 3 bar; 10 l/min @ 1 bar (fully open)

Servo-controlled Valves with Assisted Lift

Specifically for high flow valve applications with little or no differential pressure.

The valves combine the features of servo-assisted and direct acting valves. In the low pressure range they act as a direct acting valve and in the high pressure area as servo-controlled valve.

31.010.126
DN 10; 0 - 10 bar; 21 l/min @ 1 bar

31.013.126
DN 13; 0 - 10 bar; 30 l/min @ 1 bar

Direct Acting Solenoid Valves

Direct acting solenoid valves are typically applied where fast switching of the valve is required for dosing tasks and low pressure is involved.

- Internal plunger assembly medium separated by membrane
- Suitable for hot water up to 98 °C
- Available with coil system in all common voltage and frequency ranges
- Housings are based on servo controlled valves, therefore all connection variants are possible

01.010.114
DN 10; 0 - 60 mbar

01.010.124
DN 10; 0 - 60 mbar

01.010.127
DN 10; 0 - 60 mbar

01.013.127
DN 13; 0 - 60 mbar

Direct Acting Solenoid Valves without Media Separation

24.006.115/~126
DN 3; 0 - 10 bar; 3 l/min @ 1 bar

24.006.125/~225
DN 3; 0 - 10 bar; 3 l/min @ 1 bar

27.00x.126
DN 1,6 / DN 2 / DN 3; 0 - 10 / 0 - 8 / 0 - 3,5 bar; 1,5 / 2,5 / 4,8 l/min @ 1 bar

Pressure Reducer

Control of constant lower inlet pressure in order to protect equipment and its components from high or inconsistent incoming medium pressure. Outlet pressure is adjustable and can be preset in factory. 100 % lead free.

42.008.126
DN 8; inlet pressure max. 16 bar, outlet pressure 1,2 - 8 bar

42.010.000
DN 10; inlet pressure 3 - 10 bar, outlet pressure 1 - 8 bar

Pressure Switch

Pressure dependent electrical switch (changeover), which can switch ON or OFF when the response pressure is reached. Therefore it reliably indicates the presence of the medium pressure, e.g. for protection against water shortage.

- Response pressure: 0,3 - 0,5 bar
- Optional: 0,9 - 1,3 bar

30.010.126
DN 10; 0 - 10 bar; 11 l/min @ 1 bar

30.010.215
DN 10; 0,2 - 10 bar; 17 l/min @ 1 bar

Stopcock

The stopcock allows a complete shut-off of water paths for service e.g. pipe parts or other distribution circuits. The shut-off valve ensures a tight seal so that no pressure loss in the system occurs while still in operation. Suitable for hot water up to 90 °C.

50.009.100
DN 9; 0 - 10 bar; 57 l/min @ 1 bar

50.009.200
DN 9; 0 - 10 bar; 57 l/min @ 1 bar

AGRICULTURE/FOOD

Valve Solutions

for Agricultural Engineering and Food Processing

Agriculture

Within the field of agriculture our products are used in milk tanks, milking machines as well as in cleaning and disinfection plants for the dairy farm.
These are mainly different drain valves for milk tanks or vacuum-controlled discharge valves in milking units. Particularly for the milking process we also produce regulation valves for a constant vacuum supply.
Furthermore, servo valves and dirt strainers are used in the water inlet (see product category Industry).
In addition, our valves control the water supply in animal feeding and irrigation. Moreover, direct-acting valves are used as dosing valves in the field of plant protection and fertilization technology.

Food Processing

Also the applications in food processing are many. For example our valves control the water supply in steam appliances, baking ovens, ice machines for flake ice and cubes as well as temperature controlled installations and in food warmers (see also products in the category Industry).

Next to direct acting valves mainly servo-controlled valves as well as float valves are used in the water inlet of devices connected to the main water supply. See also products in the category Industry and Environmental technology.

Reliable in use with Drinking Water and Food

Compliance with the strict regulations and laws in this sensitive environment is self-evident to us. Only food safe and harmless materials are used in our components, so that the food quality is not affected. The offered valve variants are developed and produced in accordance with the guidelines and standards for the safeguarding of materials in media contact with food according to regulation (EC) No 1935/2004 and the plastic materials directive (EC) 10/2011. In addition, valves according to international approvals such as NSF 169 for the USA are available.

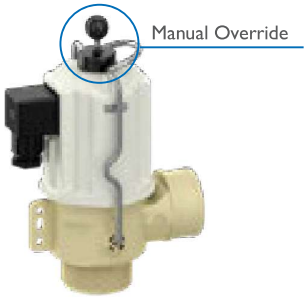
Drain Valves

- Material: PPE (Tm: 98 °C), PVDF (Tm: 50 °C) or stainless steel (Tm: 98 °C)
- Moisture-proof by potted coil
- Cable or mounted connector
- Protection type: IP68 and IP65

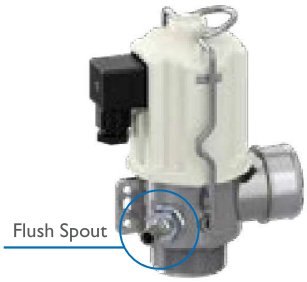
04.040.116 (NC)
DN 40; 0 - 180 mbar

04.040.916 (NO)
DN 40; 0 - 120 mbar

Optional with:
- Manual emergency override (only NC)
- Flush spout on valve body



04.050.116 (NC)
DN 50; 0 - 180 mbar



04.050.916 (NO)
DN 50; 0 - 120 mbar

Vacuum-controlled Drain Valves

04.040.113 (2/2-Ways)
DN 40; 0 - 600 mbar;
Control vacuum 30 - 60 kPa abs.

04.040.115 (2/2-Ways)
DN 40; 0 - 200 mbar;
Control vacuum 10 - 80 kPa abs.
Soon also available as NC/NO-types with DN 50.

04.040.114/04.050.114 (3/2-Ways)
DN 40 / DN 50; 0 - 150/ 0 - 250 mbar;
Control vacuum 40 - 80/ 40 - 65 kPa abs.

3/2-Way Vacuum-controlled Valves (NC)

When the valve is energized vacuum is applied to the point of use. In de-energized state the system is under atmospheric pressure, then the point of use is fully separated from the vacuum resulting from the ventilation through the control valve.

Suitable for vacuum-controlled drain valves.

26.005.115
DN 5; Vacuum range 40 - 80 kPa abs.

26.008.126
DN 8; Vacuum range 40 - 80 kPa abs.

Vacumaster

The Vacumaster is used for milking installations with an unregulated or regulated vacuum pump. In the first case the Vacumaster keeps the milking vacuum constant within narrow limits of ± 1 kPa. In the second case the Vacumaster is used for fine adjustment. The function is based on a low-inertia differential pressure principle with high control of the speed and accuracy.

23.020.100
Vacuum control range 35 - 60 kPa;
Flow range 450 - 2800 l/min

23.025.000
Vacuum control range 35 - 60 kPa;
Flow range 700 - 4000 l/min

3/2-Way Pulsator Valves

The 3/2-way pulsator valves are used in combination with the Vacumaster in order to control the vacuum in automatic milking processes.
The vacuum range is 30 - 60 kPa.

25.008.600
DN 8

25.010.600
DN 10

Valves for Crop Protection Technology

For dosing tasks in agricultural technology, for example in spray booms of field sprayers. Small dimensions and low weight allow these valves to be connected directly to the spray nozzles. Also, the design of a double nozzle line is possible for two independent treatments in parallel. The selective dispensing by the electromagnetic control offers an additional advantage.

19.00x.287 mono/bi
DN 0,5/DN 0,8; 0 - 10 bar;
0,13/0,31 l/min @ 1 bar

90.00x.100
DN 4; 0 - 8 bar; 3,5 l/min @ 1 bar

ENVIRONMENTAL TECHNOLOGY

Valve Solutions

for Environmental Technology

Valves are required in applications such as rain water harvesting, water treatment and irrigation systems to regulate and control the flow of water. In particular, float valves are used in this application as well as classic servo valves with larger nominal sizes.

Float Valves

For tanks, float valves are used, where the buoyancy of the float closes or opens the servo-controlled valve, so that a constant water level is maintained.

Air Gap according to DIN EN 1717

Float valves are ideally suited when, according to DIN EN 1717, an air gap must be maintained in order to prevent contaminated tank medium from entering the fresh water area.
It has to be taken into account that, according to regulation 1988-4 or DIN EN 1717, the length of the free flow path between the outlet opening of the inlet and the maximum operating water level of the supplied container must correspond to objects of at least three times the diameter of the inlet pipe. Furthermore, the distance between the spout and the tank wall can also be included, which is possible by pivoting the outlet spout. Depending on the separation distance described in DIN EN 1717, however, the outlet must not deviate from the vertical by more than 15°.

Further Valve Solutions

Additionally servo-controlled valves, dirt strainers and direct acting valves are used in water purification systems. For irrigation systems also servo-controlled valves with larger nominal orifices are applied. Therefore, see also the products listed in the category Industry.

Float Valves

Available as single chamber valves, either as straight through or angle version with various options for connection.
Float material:

- Stainless steel for max. 90 °C
- PE-foam or PPH for max. 60 °C
- Polystyrene for max. 30 °C

21.010.110
DN 10; 0,3 - 10 bar; 28 l/min @ 1 bar
Patent-registered: EP 1 469 241

21.010.115
DN 10; 0,3 - 10 bar; 25 l/min @ 1 bar

21.010.126
DN 10; 0,3 - 10 bar; 22 l/min @ 1 bar

21.010.226
DN 10; 0,3 - 10 bar; 15,5 l/min @ 1 bar

21.013.110
DN 13; 0,3 - 10 bar; 34 l/min @ 1 bar
Patent-registered: EP 1 469 241

21.013.126
DN 13; 0,3 - 10 bar; 28 l/min @ 1 bar

21.017.126
DN 17; 0,3 - 10 bar; 53 l/min @ 1 bar

Linear Float Valves

For narrow or deep tanks, uses a vertical guide float.

21.013.126 lin.
DN 13; 0,8 - 10 bar; 25 l/min @ 1 bar
Patent-registered: EP 1 626 215

21.017.126 lin.
DN 17; 0,8 - 10 bar; 50 l/min @ 1 bar
Patent-registered: EP 1 626 215

Servo-controlled Valves DN 25

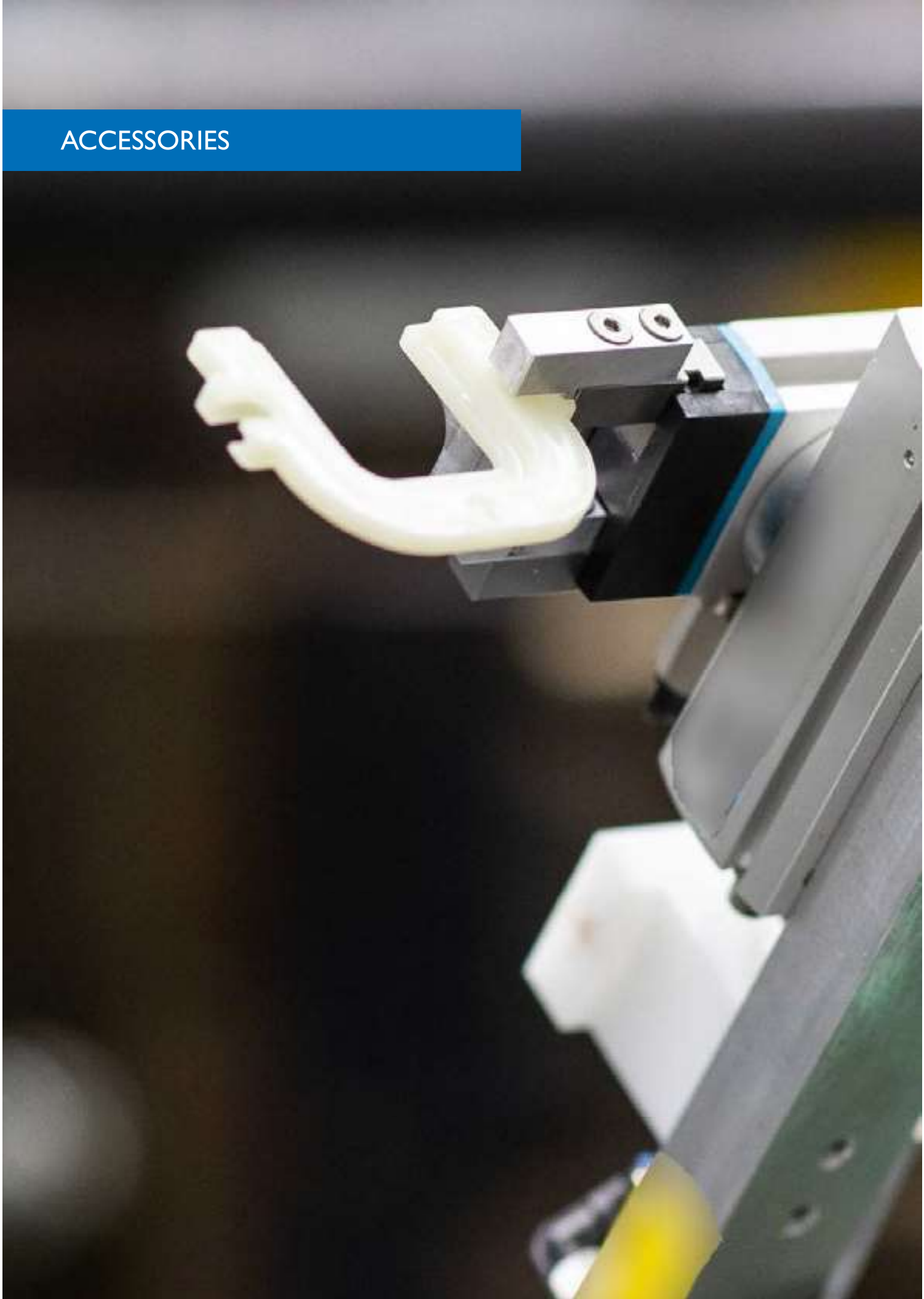
Water inlet valve with nominal diameter DN 25 for safe media inlet in irrigation, rain water utilisation or water treatment systems. Also applicable for process and cooling water.

- Flow limitation by adjustable stroke of membrane
- Lockable manual actuation
- Emergency opening of the valve by manual override
- Valve housing with female metal thread in common dimensions

14.025.126
DN 25; 0,3 - 10 bar; 175 l/min @ 1 bar

Linear float valve in rainwater harvesting tank

ACCESSORIES



Accessories - Modular Fitting System

Modular fitting system based on the popular John Guest push fit cartridge for 15 and 18 mm OD tubing. Combined with solenoid valves of 10 and 13 mm nominal bore, for simple creation of complex fluid supply systems.

- L, T and X-couplings
- Assembly without tools
- Anti-twist protection
- Suitable for warm water up to 65 °C

11.000
DN 10/13; 10 bar

Accessories - CF-System

For distribution and mixing of liquids.

- Medium temperature up to 90 °C
- Operating pressure up to 10 bar
- Burst pressure of >50 bar

Tube connections for direct connection of valves and tubes with sealed front side G 3/4 female thread (thread length 10 mm). Swivel nut manually releasable. Approvals of the materials in contact with medium for hot drinking water, 85 °C.

CF-13 Manifolds
DN 13; 0 - 10 bar

CF-17 Manifolds
DN 17; 0 - 10 bar

CF-H Hose Connection
G 3/4; 0 - 10 bar

Accessories - Dirt Strainers

Dirt strainers prevent the appliance respectively the valves being invaded by particles. Besides the primary filter function they can also be used as a shut-off device.

12.010.300/~.500
DN 10; max. 10 bar; 20/17 l/min @ 1 bar

12.017.400/~.500
DN 17; max. 10 bar; 79/70 l/min @ 1 bar

12.017.800 (three stages)
DN 17; max. 10 bar; 51 l/min @ 1 bar

Accessories - Flow Regulators

MR 04, Ø 19 mm
1 - 10 bar; 5 - 20 l/min @ 4 bar;
Tm: 65 °C max.

MR 05, Ø 9,5 mm
1 - 10 bar; 0,5 - 9 l/min @ 4 bar;
Tm: 65 °C max.

MR 06, Ø 19 mm
1 - 10 bar; 0,5 - 9 l/min @ 4 bar;
Tm: 65 °C max.

MR 07, Ø 10 mm
1 - 10 bar; 0,5 - 9 l/min @ 4 bar;
Tm: 65 °C max.

MR 12, Ø 9,5 mm
1 - 10 bar; 4/5 l/min @ 4 bar;
Tm: 90 °C max.

MR 19, Ø 19 mm
1 - 10 bar; 3,5 - 22 l/min @ 4 bar;
Tm: 98 °C max.

Accessories - Filters insertable

POM, G 3/4
Mesh size 0,45; 65 °C

Stainless steel, G 3/4, G 1/2, G 3/8
Mesh size 0,25; 90 °C

Stainless steel, G 3/4
Mesh size 0,5; 90 °C

Accessories - Insertable Check Valves

Check Valve
DN 6; max. 16 bar; 12 l/min @ 1 bar

Check Valve
DN 10; max. 16 bar; 35 l/min @ 1 bar

Check Valve
DN 12; max. 16 bar; 38 l/min @ 1 bar

Accessories - Mounting Flange

- Flange for simple mounting of valves
- Secure fixing of valves in housings
- Mountable to fixing bracket
- Applicable with servo-controlled valves, float valves and dirt strainer

Flange
mostly for use with direct acting valves

Flange
mostly for use with servo-controlled valves

Accessories - Stepper Motor Control

The SMC (Stepper Motor Control) is an evaluation electronics for the control of the stepper motor controlled valve series 10.010.126-sds (18V DC or 24 V DC, according to type of valve) and 10.00x.126-ds (12V DC). The control electronics is available in a plastic housing to line up on a hat rail. Integrated connector for the stepper motor and screw terminals for connection of supply voltage and control signal.

Design of control or process measurement systems to control volume of flow.

Series SMC-001

Accessories - Manometer

Manometer

Accessories - Multifunctional Housings

The three-stage dirt strainer combines three consecutively arranged filters of different mesh sizes in one housing.
It ensures coarse, medium and small particles are filtered out of the flowing medium.
The dirt strainer is available with different connection threads allowing easy integration in existing applications.

Series 12.017.800
with filter insert as dirt strainer

Series 12.017.800
Multifunctional housing

Series 12.017.800
Multifunctional housing

CUSTOMIZED SOLUTIONS

Individual & Fitting
Custom Valve Solutions

You are looking for a tailored valve solution fitting for a product or a new development project? Then we are the right partner for you.

With innovative products and patented solutions A. u. K. Müller has established as a well known quality leader in solenoid valves over many years. Having started as a manufacturer of simple solenoid valves, we have grown to become a worldwide specialist for plastic solenoid valve technology.

Our wide range of valve variants can be customized individually. Or, based on our expertise, we can develop a customer-specific valve so that the solution fits exactly to your application.

From the Initial Design to the finished Product: We deliver consistently high Quality "Made in Germany".

It all begins with an idea or challenge from our customer. We, as A. u. K. Müller, develop and produce individual solutions based on these application specific requirements.

Thanks to many year of experience, detailed knowledge of the applicable standards and regulations as well as state of the art technologies in the production and product validation, we can respond exactly to the wishes of our customer. Jointly we develop the optimum solution.

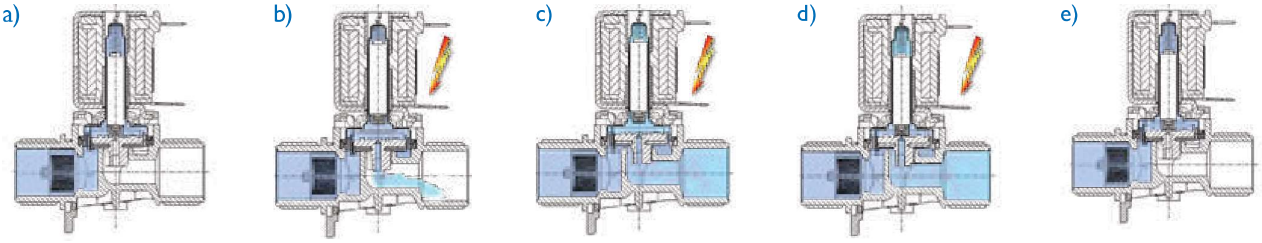
In the end, a product is created with the highest quality and reliability that is tested at our heart. As required, we also obtain the international approvals required for your application, e.g. for potable water or food.

As an OEM manufacturer, we are happy to support you with your next product development with valve components.

VALVE TECHNOLOGY

Servo-controlled Valves

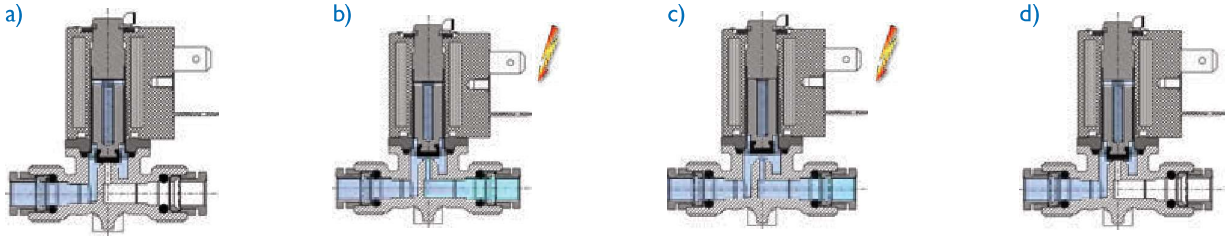
a) b) c) d) e)



Function	Advantages
The opening and closing of the valve is initiated by the solenoid and essentially carried out by the medium pressure a) The valve is normally closed, media pressure is applied b) Valve is energized, the pressure relief hole is open c) The media flow opens the membrane, the valve is fully open d) Current flow is stopped, the closing process is initiated by the closure of the pilot seat e) Valve is closed	• Only small forces for switching the valves are required • Small magnetic coils even with large diameters • Low power consumption • Low pressure surges, conforming to EN 60730

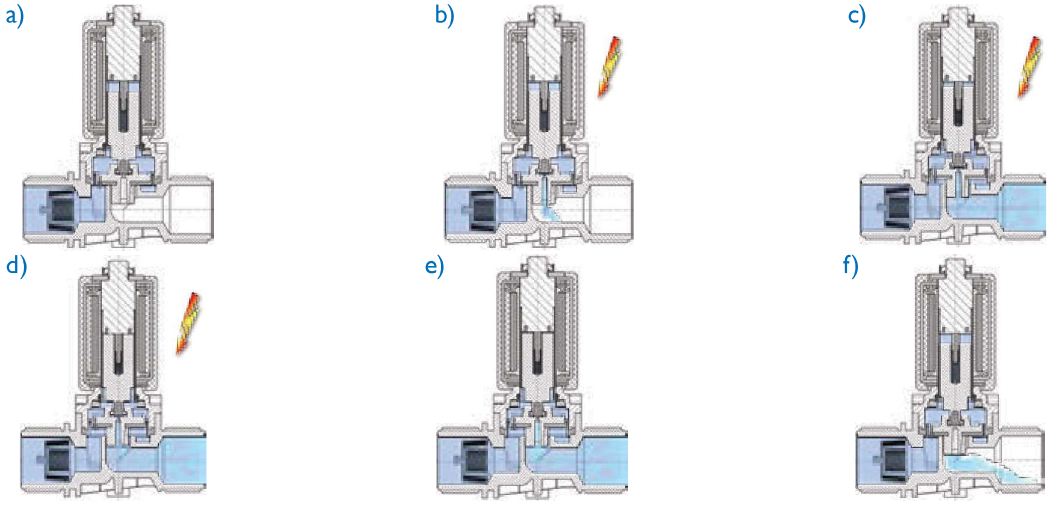
Direct-acting Solenoid Valves

a) b) c) d)



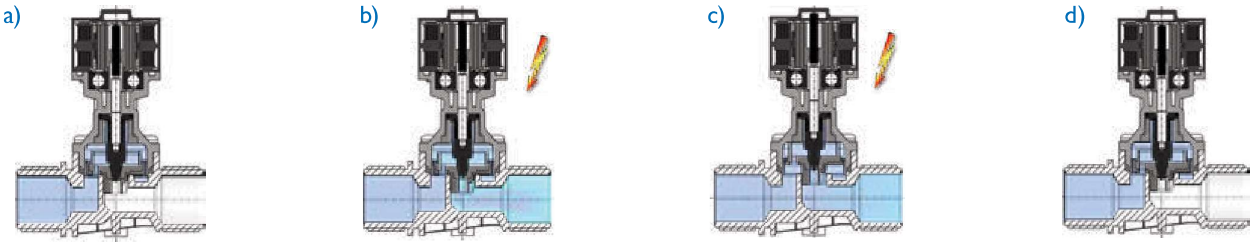
Function	Advantages
The coil causes the valve opening against the media pressure a) Valve is closed b) When voltage is applied the plunger lifts and the valve seat opens against the operating pressure c) Valve is open d) Voltage is switched off, by the spring force and the operating pressure the membrane is pressed on the valve seat and the valve is closed	• Does not require a differential pressure for opening and closing • Works in both flow directions • Less sensitive to dirt particles • Downstream orifices do not affect the closing behavior

Servo-controlled Valves with Assisted Lift



Function	Advantages
Coupling of the servo principle with direct operation a) Valve is closed, the central relief hole is closed b) When voltage is applied the plunger lifts and valve seat opens against the operating pressure c) The media flow supports the membrane opening d) Valve is open e) Voltage is switched off and the pilot seat is closed f) By the spring force and the operating pressure the membrane is pressed on the valve seat and the valve is closed	• Combining the positive features servo-assisted and direct acting valves • Opens without differential pressure • Normally closed without differential pressure • By applying the servo principle smaller and energy saving coils can be used compared to direct acting valves

Proportional Valves



Function	Advantages
Proportional valves open (a) and close (d) as direct acting valves. However, between 0 and 100 % of their nominal flow they exhibit a proportional behavior. The pictures outline 50 % (b) and 100 % (c) valve opening. The stroke of the plunger is proportional to the current flow through the solenoid coil. Therefore, the volume flow can be variably set by means of the actuating signal. Solenoid coil proportional valve: closes at voltage shut-off Stepper motor proportional valve: stays in last position at voltage shut-off.	• Continuous adjustment of flow through electrical input signal between 0% and 100% of nominal flow • By coupling with a sensor a controlled-loop system can be realized • Energy consumption can be reduced by demand-oriented control of the flow • Ideal for controlled dosing

Solenoid Coils

The A. u. K. Müller valves are available for the most common voltages and frequencies. Also, special voltages (e.g., 100V or 200V) can be offered. The coils have a high electrical safety. Typically, they are designed according to insulation class F (155 ° C) or H (180 ° C). The actual coil made of copper wire is protected with either a duro- or thermoplastic sheathing. Optionally, the coils can be supplied with a protective diode against voltage spikes. For most types of valves, the coils can be rotated freely or 90 °. Furthermore it is typically replaceable without valve disassembly. In the case of the servo-controlled valves, this can even be done without tools.

The following connections to the voltage supply are typically offered:

- Flat tabs 6,3 x 0,8 mm
- Plug socket according to EN 175301 - 803
- Various cable connections

The type of connection used defines the possible protection type

Protection Type

IP 00
Flat Tab

IP 65 Plug Socket with Plug

IP 68
Cable Connection

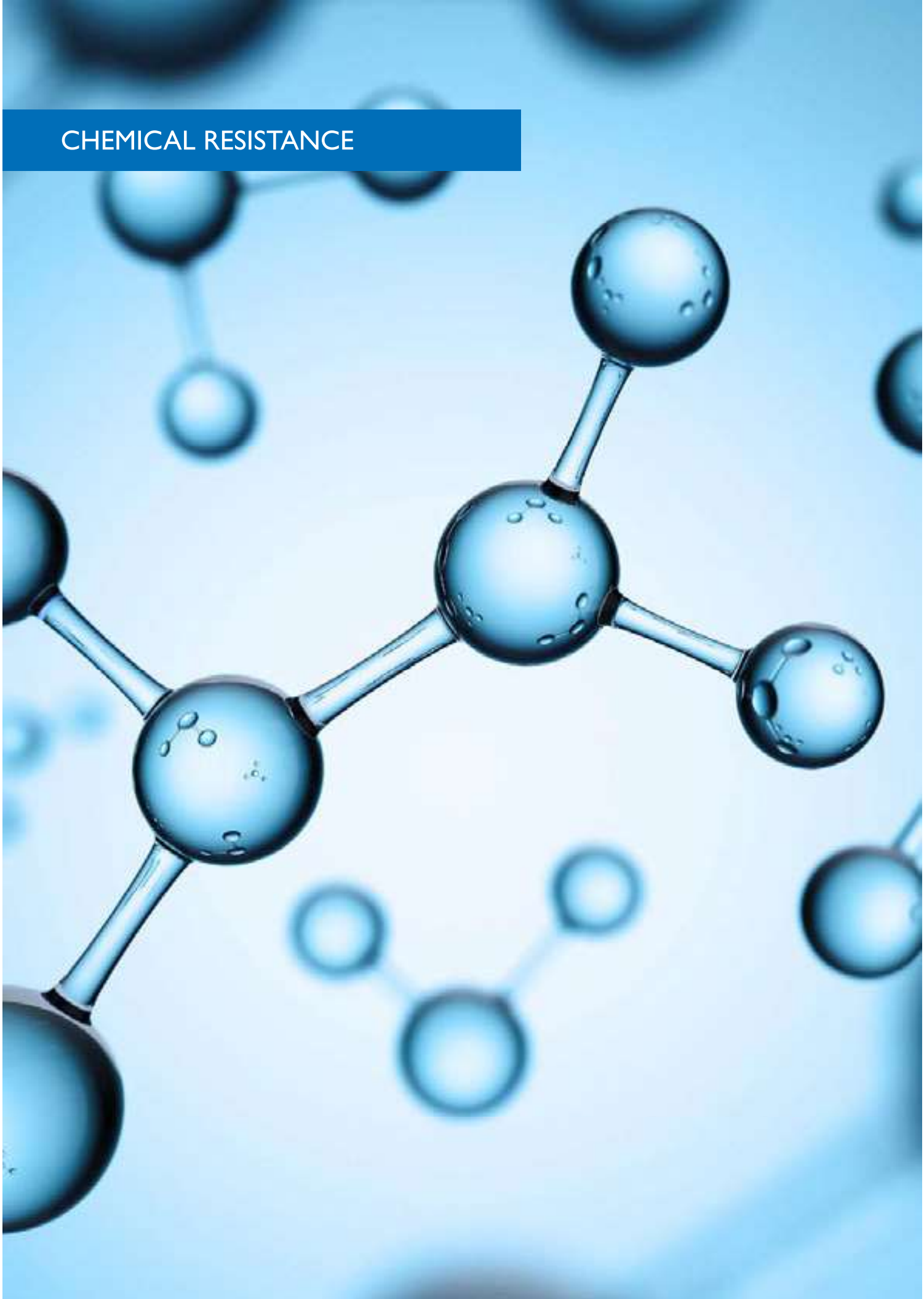
			
MS.006 (IP00)	**MS.024** (IP65)	**MS.025** (IP67, IP68)	**MS.026** (IP00)
			
MS.028 (IP68)	**MS.039** (IP00)	**MS.040** (IP65)	

Solenoid Valves Made from High Performance Plastics

A. u. K. Müller is specialised in solenoid valve solutions made from plastic, typically high performance plastics:

- Application specific characteristics, such as media resistance or hot water and steam applicability, can be selected by the appropriate choice of the plastic material
- Plastics meet the requirements of approvals for use with potable water and food, such as KTW/W270, NSF 61, WRAS, ACS, NSF 169, EC regulation (EC) No. 1935/2004 and others
- Lead free valve solution
- Valves housings made from plastics offer the advantage of an increased resistance to the build-up of lime scale. In addition, in operation, plastic components cool the hot water at a much lower rate than brass, resulting in a more consistent temperature
- Especially in mobile applications, the lower weight can also be an advantage

CHEMICAL RESISTANCE



Short form	Material	General chemical resistance*	Special features
Listing of Applied High Performance Plastics, its Chemical Resistance and Features:			
PA 66	Polyamide, typically in use with up to 35% glass fiber reinforcement	Resistant to fats, oils, waxes, fuels, weak bases, aliphatic and aromatic hydrocarbons. Resistant, i.e. corrosion resistant to aqueous solutions of many inorganic chemicals (salts, alkalis).	Generally suitable for potable water applications to Tm 23 °C. Useable for other applications up to Tm 90 °C (194 °F). Only limited suitability for USA (Chloramine-T containing water).
PA 6/6 (PPA)	Polyphthalamide, typically in use with up to 40 % glass fiber reinforcement	Very good chemical resistance with exception of concentrated acids and aggressive chemicals such as cresols, hexafluoroisopropanol or trifluoroacetic acid.	Generally suitable for drinking water applications and other applications up to Tm 90 °C (194 °F). Better suited for USA (Chloramine-T containing water) than PA 66.
PEEK	Polyether ether ketone	Resistant to most chemicals. Not resistant to concentrated sulfuric and nitric acid as well as certain halogenated hydrocarbons.	High wear resistance, excellent high temperature properties. Applicable for sterilization process.
PEI	Polyether imide	Resistant to most chemicals. Not resistant to aromatic hydrocarbons, oxidizing acids, strong alkalis, tri- and perchlorethylenes, and acetone.	Ideal for food applications (FDA, NSF 51). Biocompatible variant possible.
POM	Polyoxymethylene	Good resistance to numerous chemicals: Resistant to diluted acids (pH> 4) as well as diluted bases, aliphatic, aromatic and halogenated hydrocarbons, oils and alcohols. Resistant to concentrated acids and hydrofluoric acid as well as oxidizing agents.	Operating temperature up to max. 85 °C (185 °F) continuous, optionally with KTW / W270 hot water. If the component is subjected to mechanical stress, the application temperature must not exceed 65 °C (149 °F) (deformation in water applications possible).
PPE/PPO	Polyphenyl ether, with up to 20 % glass fiber reinforcementl	Good chemical resistance to acids and alkalis and many cleaning agents, lack of oxidative resistance from 100 ° C.	Generally suitable for potable water applications and other applications up to Tm 90 ° C (194 °F). Very suitable for USA (Chloramine-T containing water), but with regard to the UL temperature declaration of the materials (depending on the variant Tm <= 65 ° C (149 °F)) can only be used to a limited extent.
PPSU	Polyphenyl sulfone	Resistant to most chemicals, with a moderate resistance to aliphatic and aromatic hydrocarbons (PAH), not resistant to ketones. Better chemical resistance than PEI.	Excellent temperature characteristics (saturated steam applications up to 143 ° C (289 °F)), good hot steam sterilisability and resistance to detergents and disinfectants, suitable for food applications (NSF 61 and 51 as well as (EC) No. 1935/2004).
PTFE	Polytetrafluoroethylene	Universal chemical resistance except for liquid alkali metals and some fluorine compounds.	The smooth surface reduces the adherence of precipitated lime from the medium as a valve seat for boiler dispense valves. Applied as bellow, a complete media separation to the plunger is implemented.
PVDF	Polyvinylidene fluoride	Excellent chemical resistance comparable to PTFE. However, moderate resistance to alkalis, not resistant to gasoline.	The UL application temperature is restricted to a generic temperature of Tm 50 °C (122 °F) for use in the USA.
Listing of Applied Sealing and Membrane Material, its Chemical Resistance and Features:			
EPDM	Ethylene-Propylene-Diene-Rubber	Good resistance to diluted acids and alkalis. Resistant to aliphatic, aromatic and chlorinated hydrocarbons (oils, fats, fuels) and strongly oxidizing acids. Due to the instability to oils and fats, be careful when using cleaning agents (i.e. added fragrance oils)!	Preferred sealing material in potable water installations. High resistance to hot water and steam. Operating temperature range from -45 to + 150 °C (- 49 to + 302 °F).
FKM/FPM	Fluoro Elastomers	Resistant to oil and many chemicals, with very good resistance to acids and alkalis.	Excellent temperature resistance from -20 to + 220 °C (- 4 to + 428 °F).
VMQ	Silicone Rubber	Oil resistance corresponds approximately to that of NBR. Low resistance against alkalines.	Excellent temperature resistance - 40 to + 200 °C (- 40 to + 392 °F), but not transferable to hot water or steam. Very suitable for food applications.
FMQ/FVMQ	Fluoro-Silicone-Rubber	Improved resistance to oils, fuels and solvents compared to VMQ.	Wide operation temperature range from -60 to + 200 °C (-76 to + 392 °F).
NBR	Nitrile-Butadien-Rubber	Good resistance to oils, fuels, mineral oils, greases, vegetable and animal fats.	Not approved for potable water. Good temperature resistance from - 40 to + 130 °C (- 40 to + 266 °F) .
Listing of Applied Coil Material, its Chemical Resistance and Features:			
PBT	Polybutylene terephthalate	Similar to the properties of PET, but better resistance to hot water than PET.	For coil bobbin and encapsulant with insulation class 155 °C (311 °F), class F.
Resin	Epoxy resin	Resistant to diluted acids and alkalis; Hydrochlorofluorocarbons; toluene; alcohols; fuels, benzene, mineral oils, fats (selection). For cycloaliphatic resins good UV resistance. Resistant to hot water. Not resistant to concentrated acids and alkalis, ammonia; esters, ketones, acetone (selection).	For coil encapsulation with insulation class 155 °C (311 °F), class F.
PET	Polyethylene terephthalate	Resistant to diluted acids, aliphatic and aromatic hydrocarbons, oils, fats and alcohols but not to halogenated hydrocarbons and ketones. Instable against hot water and alkalies.	For coil bobbin and encapsulant with insulation class 180 °C (356 °F), class H.

* The material resistance data is only given as an initial orientation value. In case of doubt, the suitability should be looked up in more detailed tables, e.g. Bürkle "Chemical Resistance of Plastics" or, as a matter of fact, directly by means of life tests. When using material stability tables, it is important to note that the chemical resistance is usually determined by individual chemicals but not by mixtures. The suitability test should therefore always be determined individually for the chemical mixture (external laboratory test).

A. u. K. Müller

A. u. K. Müller GmbH & Co. KG
Dresdener Str. 162
40595 Düsseldorf
Germany

Phone: +49(0)211-7391-0
Fax: +49(0)211-7391-281

E-Mail: info@akmueller.de
Internet: www.akmueller.de

A. K. Muller (UK) Ltd.
Unit 4, Brookside Business Park
Brookside Avenue
Rustington, West Sussex, BN16 3LP
Great Britain

Phone: +44 1903 788888
Fax: +44 1903 785817

E-Mail: valves@akmuller.co.uk
Internet: www.akmuller.co.uk

A.K. Müller France
10 Avenue du Gué Langlois
Z.A.E du Gué Langlois
F-77600 Bussy Saint Martin
France

Phone: +33 1 64 62 95 14
Fax: +33 1 64 62 95 12

E-Mail: info@akmuller.fr
Internet: www.akmuller.fr