

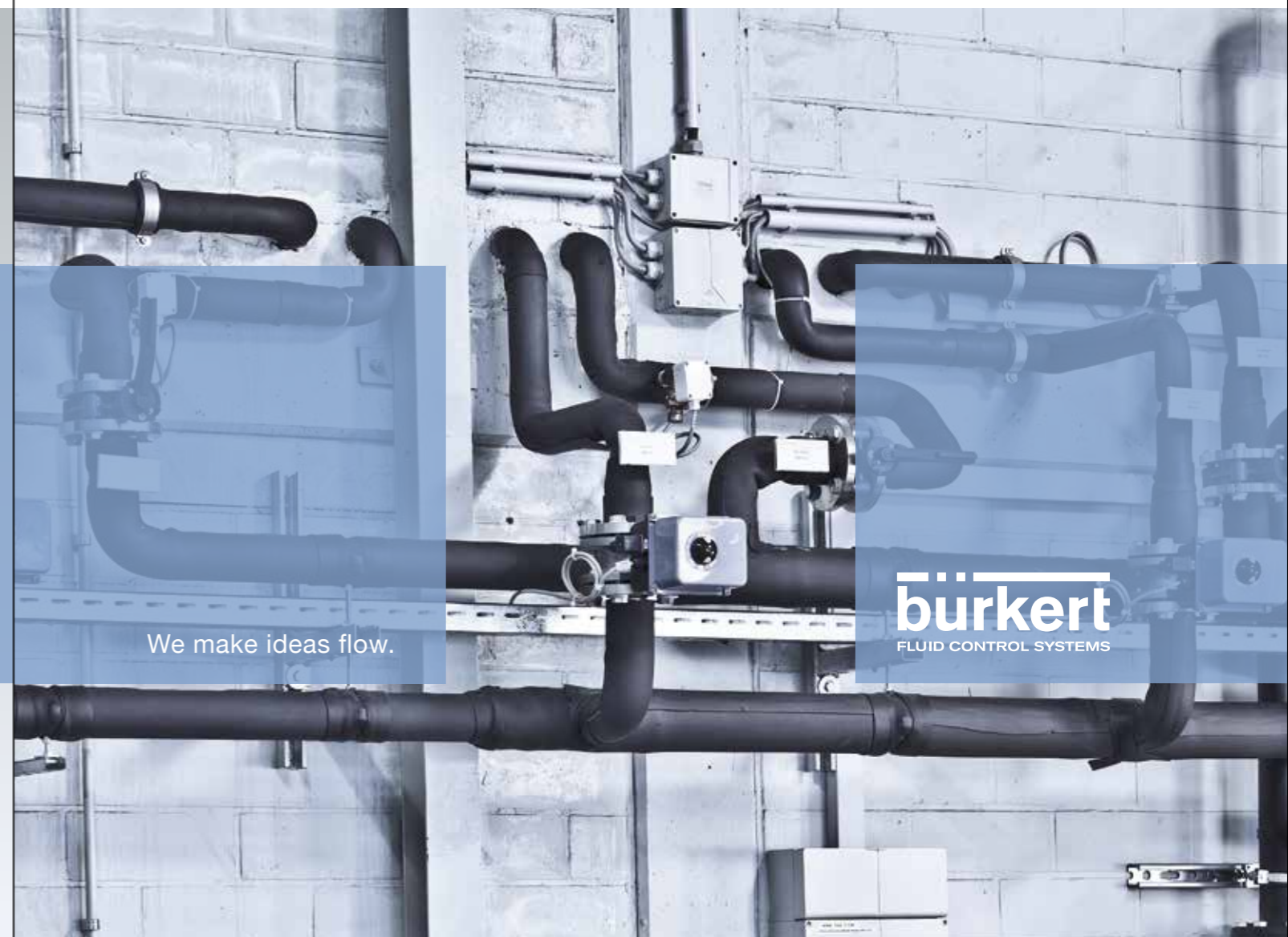
WE LEARN FROM YOU EVERY DAY –
AND THINK OUTSIDE THE BOX.

When it comes to dealing with liquids and gases, Bürkert has become a sought-after partner all over the world. Why? Probably because we have been learning for and from our customers for more than 70 years now. This enables us to always think that crucial step ahead and around the bend.

For your added value. Let us prove it to you – we look forward to your challenge.

Blending water – systematically

For constant process water quality



We make ideas flow.

bürkert
FLUID CONTROL SYSTEMS

Bürkert Fluid Control Systems

Christian-Bürkert-Straße 13–17
74653 Ingelfingen
Germany

Tel.: +49 7940 100

Fax: +49 7940 1091204

info@burkert.com

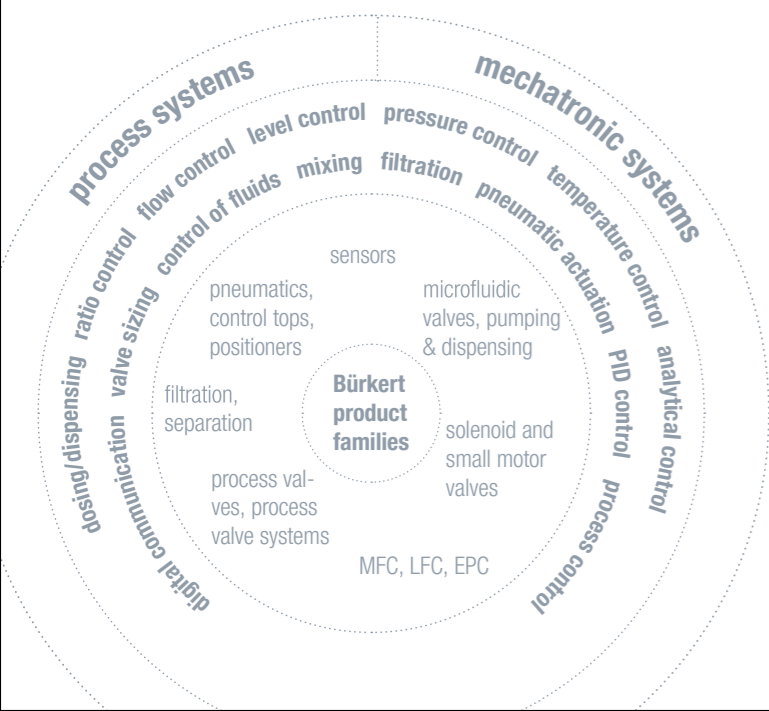
www.burkert.com

WE SPEAK YOUR LANGUAGE. FLUENTLY.

We love a good challenge. That is because we are simply fascinated by everything that flows. No matter if our customers require solutions for measurement, control or both – we always find unconventional ways of developing individual solutions.

Whether it is about flow, level, pressure, dosing, analysis, filtration, temperature, mixing or the automation of processes – liquids and gases have to be measured and controlled. These are the fundamental fluidic variations upon which industrial process technology is based, and Bürkert's specialty with its expertise and entire range of solutions and services.

What makes us special? At Bürkert, we start with your fluidic challenge and draw on the basic physical principles. This way we make use of the fluidic relationships and our experience with physics, duplicating them across the most diverse applications and industries and hence solving the same or similar challenges. You in turn benefit from a deep pool of expertise, which we accumulate from multiple industries and apply individually to your needs. For the ideal solution to your specific challenge.



FINDING THE BEST BLEND FOR THE RIGHT WATER QUALITY

To ensure that you always get the water quality that your application needs, we also mix our skills and our knowledge together. For intelligent water blending, we can offer you a standard system that can be individually modified to suit a range of different areas of application. And if the need arises, we can also provide tailor-made solutions.

4 Application

Producing the right quality through intelligent water blending to guarantee smooth running for all processes.

6 Typical areas of application

Whether brewing water or cooling tower make-up water: Together we can find a suitable answer to any challenge.

8 Your solution

The adaptable standard system that still provides a made-to-measure solution to your requirements.

10 Systemhaus

Where systems take on form. This is where customer-specific solutions are crafted according to your requirements and ideas.

11 A practical example

A blending unit that ensures a uniform taste and high quality in brewing water treatment.

INTELLIGENT WATER BLENDING WATER QUALITY THAT ALWAYS MEETS THE NEED

In many applications, the right kind of water is a decisive factor. For technical and economic reasons, water for many industrial processes often has to be modified in order to provide for the required water quality. Depending on the process, a variety of different quality criteria may be of importance, involving properties such as conductivity, the pH value, hardness, sulphate content or chloride content. In principle, there are two different water blending techniques that can be used to achieve a certain process water quality. Bürkert solutions for blending units mix two streams of water, each of a certain quality, using either the ratio control principle or the quality control principle. Bürkert has developed a standard system that caters for both of these solutions. The system can be adapted to suit the application, so that the respective requirements are reliably met and the highest degree of process water quality is achieved.

YOUR ADVANTAGES

- Reliable quality thanks to a broad basis of industrial and application know-how
- Consulting, development, manufacturing and service from a single supplier
- Less outlay in terms of time and costs through a system solution individually adapted to your needs
- Better process reliability thanks to full compatibility across all components

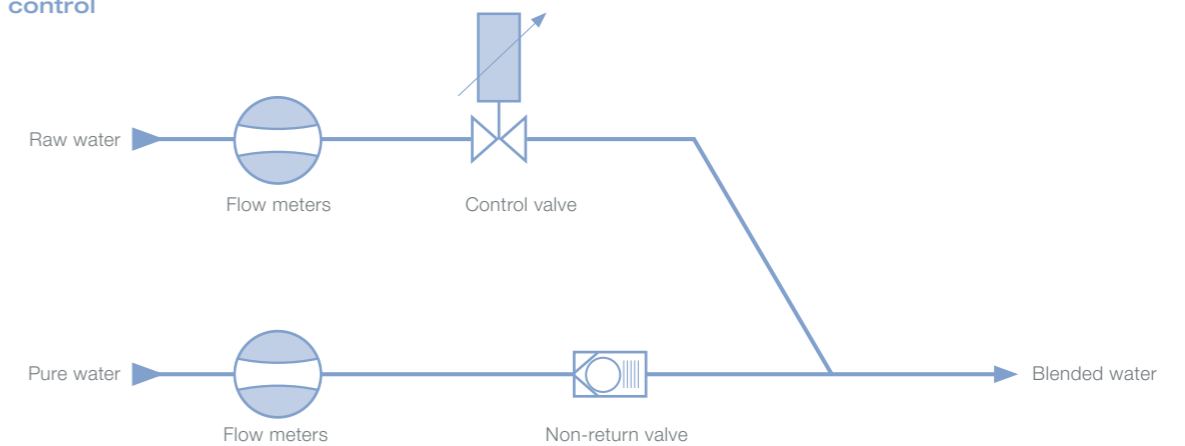
IN PRINCIPLE IT'S A MATTER OF FINDING THE RIGHT MIXTURE

Two different principles are used to obtain the desired quality for process water. One of them involves regulation on the basis of a fixed ratio. For this to work properly, the quality of the water from the input sources must remain constant. The correct ratio of raw water and deionized water, for instance, are mixed by the blending unit. In the second case, two different water qualities are combined to achieve a predefined output quality for the conductivity.

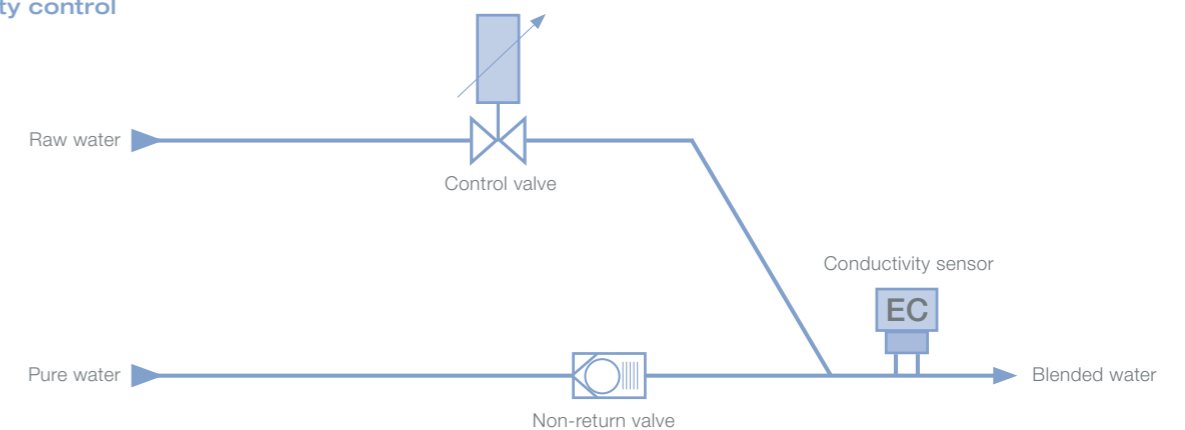
Downstream of the blending process, the water quality is monitored continuously (conductivity) and maintained by means of regulating the blending proportions.

Bürkert provides components for both principles. The components are designed for each other, and supplied either as a complete kit or as part of a customer-specific system.

Ratio control



Quality control



YOUR CHALLENGES, OUR SOLUTIONS

When it comes to blending water and maintaining a specific degree of water quality, success depends on exact measurement and dosing of the process water and make-up water. To ensure that all requirements are reliably met, Bürkert provides individual water-blending solutions for water treatment that can be used in a wide range of applications.



Air-conditioning technology

To prevent corrosion and deposition in humidity and air-conditioning plant, the quality of the make-up water must often be adjusted by means of blending raw and pure water. Where liability claims are involved, a major factor concerns the question as to whether prescribed limit values have been adhered to. In order to ensure the economical viability of water treatment, an operating point is computed which determines where the least possible amount of treated water is required. To this end, the treated water is blended with untreated water in a certain proportion to produce make-up water.



Cooling tower make-up water

In cooling towers, too, it is necessary to supplement process water with make-up water to prevent corrosion and deposition on account of substances concentrating in the water. The limit values for the process water are specified by the plant manufacturer, and maintained by the addition of make-up water. To this end, treated water is blended with untreated water in a certain proportion to produce cooling tower make-up water.



Brewing water

The quality of a type of beer depends on the quality of the brewing water, because it has a significant effect on the taste of the beer. In order to maintain a constant high quality, the raw water often has to be almost completely desalinated by means of a membrane plant first, and then blended to produce the desired quality. Therefore practically all membrane plants for brewing water treatment contain a blending unit to ensure exact blending parameters and uniform water quality.



Irrigation

Poor raw water quality for irrigation can lead to over-salinisation of the soil or a shift in the soil structure. This has a negative effect on the quantity and quality of the yield. In view of this, water for irrigation is produced by adding substances required for growth to completely desalinated water. In this process, the blending unit can lower the cost of additional chemicals through exact dosage. Especially where large quantities of irrigation water are involved, blending the water makes economic sense.



Drinking water

Drinking water supplies are subject to extremely high quality requirements. In this respect, long-term maintenance of health requirements and the prevention of damage – due to corrosion and deposition for instance – both play very important roles. Following treatment of the water through deionizing or reverse osmosis, the water has to be blended in order to comply with the locally specified limit values. Corrosion and deposition can be avoided through optimal balancing of the calcium / carbonic acid proportions, for instance.

THE ADAPTABLE STANDARD SYSTEM

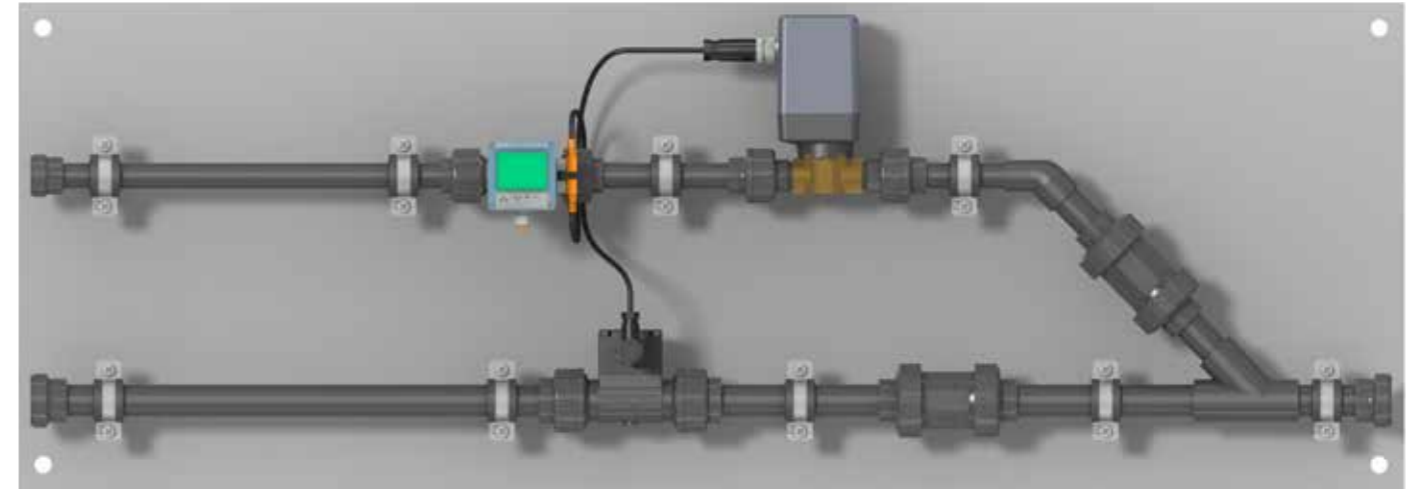
The right water quality can only be achieved by selecting the right components. We can provide the best-fit solution, whether based on a standard solution or an individually tailored system. We combine our expertise in applications know-how with a tried-and-tested product portfolio to craft exactly the right blending unit to suit your purpose. Depending on requirements, the piping, the process control, the sensor system and the control valves can either be pre-assembled or customized configured from individual components.



Trade fair demonstration system with blending units

YOUR ADVANTAGES

- More flexibility and individuality through a modular system consisting of valve and sensor technology specially tuned to serve your requirements
- Easy commissioning thanks to the plug & play solution with a pre-assembled and pre-configured system
- Maximum process reliability from high-quality components



Piping:

- Plastic or stainless steel
- Different process connector types possible (e.g. flange, thread etc.)

Sensors:

According to the blending principle that applies to the given application:

- Flow sensor (ratio control)
- Conductivity sensor (quality control)

Process controller:

- Autonomous control system via pre-configured Bürkert controller – no integration into customer control system needed
- Alternative: customer-side PLC control (plant-side)

Installation:

- Pre-assembled and tested system for immediate integration into the process (mounted on mounting plate)
- Matched and tested individual components for customized integration into your process

Control valves:

- Electric or pneumatic actuators possible
- Precise control with each actuator type

STANDARD SYSTEM – TECHNICAL DATA

Raw water input:	DN 20 (1"AG)	Flow rate	
Pure water input:	DN 25 (1 1/4"AG)	min./max. raw water:	0.7/2.0 m ³ /h
Blended water output:	DN 25 (1 1/4"AG)	Flow rate min./max. pure water:	1.3/5.0 m ³ /h
Nominal pressure:	PN 6	Flow rate min./max. mixed water:	2.0/6.0 m ³ /h
Electrical connection:	24V DC	Max. water temperature:	40 °C
Nominal flow		Max. ambient temperature:	40 °C
Blended water:	4.5 m ³ /h		

WHERE SYSTEMS TAKE SHAPE THE BÜRKERT SYSTEMHAUS

Bürkert has established an international engineering network that understands the challenges of your market and translates them into tailored system solutions based on concentrated competences. For you as a systems customer, Bürkert is not simply a developer of fluid technology, but also an expert in various other fields such as mechanical production, plastics technology and software development. This means that many areas of expertise are concentrated under one roof, resulting in valuable savings for you regarding time and money.

From the idea, development and initial testing, all the way to the production phase, the teams from various specialist departments work in an interdisciplinary way. They act autonomously in terms of technology to create your system solution. This way, cooperative partnerships produce solutions that exactly meet your requirements. Application experience gained over decades, combined with our comprehensive product range, forms the basis for innovative and customer-specific solutions. An existing platform hence serves as a basis for creating a customised solution quickly and efficiently – consequently reducing your time to market considerably.

For Bürkert, offering customer-specific answers means not only developing individualised systems, but also covering the associated production and logistics processes. This makes a Bürkert Systemhaus the ideal location to develop and produce tailor-made solutions efficiently and with a high level of creativity.



“With the new system, the outlay for cleaning, descaling, maintenance and repairs has become significantly less. And in connection with that, improved heat transfer performance means less energy consumption, of course.”

M. Egger,
Managing Director and Production Manager
Egger Brewery in Worb (Switzerland)

PRODUCING BREWING WATER FOR A GREAT TASTE AND HIGH QUALITY

The taste and quality of a beer is highly dependent on the quality of the brewing water. This means that water for brewing generally has to be treated. The Swiss brewery Egger in Worb had the problem that the lime content of the raw water was too high, and this led to scale build-up and malfunctions, especially where hot water was involved. The task facing Veolia Water Technologies Deutschland GmbH was to implement a tailored treatment plant with regulated blending in the brewery as a stand-alone solution. This was to operate independently of the production control system and ensure that the brewing water has exactly the right quality. The solution came in the form of a blending unit supplied by Bürkert.

The Veolia treatment plant splits the raw water into two separate streams: one remains untreated and one provides the infeed for the reverse osmosis process. The raw water is then fed into the salt-free permeate from the reverse osmosis process in a constant ratio (adjustable).

Thanks to the fact that the quality of the raw water remains very stable, the ratio controlled solution proved to be sufficient in this case. The blending ratio is controlled by means of a Type 8611 compact controller. In addition, the fast-response Type 8011 and Type S030 flow meters measure the flow rates of each stream. The blending system ensures that no more permeate is used than is necessary. As a result the Egger Brewery ensures a constant beer quality and increases profitability.

AT A GLANCE

Company	Egger Brewery
Application	Brewing water treatment
Requirement	Water blending unit as stand-alone solution
Solution	Modular blending unit
Added value	Enhanced product quality, improved efficiency, better cost effectiveness