

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

## Reliably controlling air flows

For stable transport of bulk materials

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.

We make ideas flow.

**bürkert**  
FLUID CONTROL SYSTEMS

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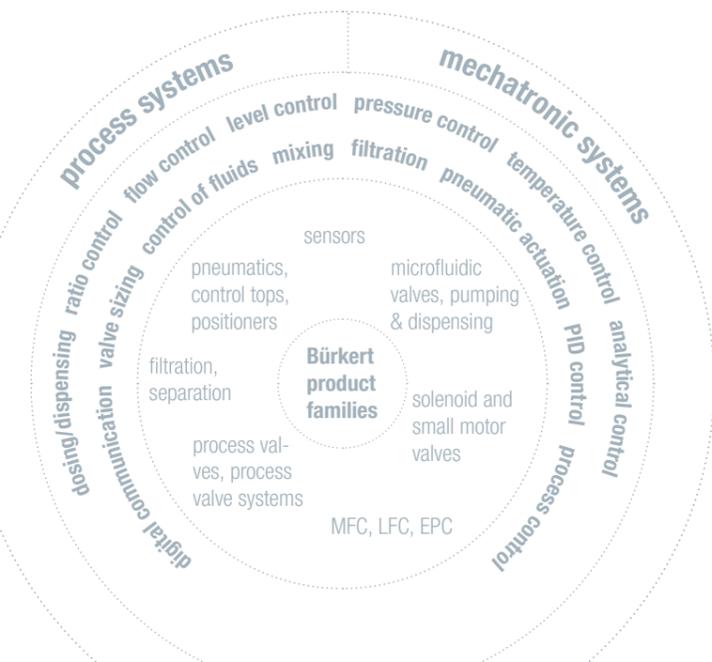
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## WE SPEAK YOUR LANGUAGE. FLUENTLY.

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.



## PNEUMATIC TRANSPORT OF PRODUCTS – SECURELY AND WITH LONGTERM STABILITY

The process of pneumatic transport requires the secure movement of products such as powders or granules from one place to the other, with consistently high quality. Bulk material properties and conveying air flows are key considerations. The diversity of the bulk materials must be taken into account and conveying air flows must be reliably controlled. With our intelligent systems and product solutions, we transport your demanding materials reliably to the destination.

### 4 Selectively controlling conveying air

Precise and flexible transport of a wide variety of products with various characteristics

### 6 Your solution

Our air flow rate controller guarantees stable processes and assures the quality of the bulk material.

### 7 Systemhaus

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

### 8 Products

Process shut-off and process control valves that increase your productivity and precisely adjust dry bulk transport.

### 9 From the field

The pneumatic transport of carbon black pellets and reliable raw material supply in tyre manufacture.



**SELECTIVELY CONTROLLING CONVEYING AIR**  
**SECURE TRANSPORT OF YOUR BULK MATERIALS**

Despite their diversity, bulk materials are always conveyed in closed pipeline systems, if they have to be protected from external influences during transportation or if environment should be protected from their influence. If, for example, fine powders are conveyed in an open system, this would heavily contaminate the environment and make conveying of the powders more difficult as they absorb ambient moisture. Dried compressed air is a tried & tested transport medium for such materials. A distinction is made between vacuum and pressure conveying systems. Pressure conveying requires selective control of the conveying air, depending on the product to be conveyed, in order to protect pipes from clogging, to preserve the quality of the bulk materials and their properties, or to protect the environment from contamination.

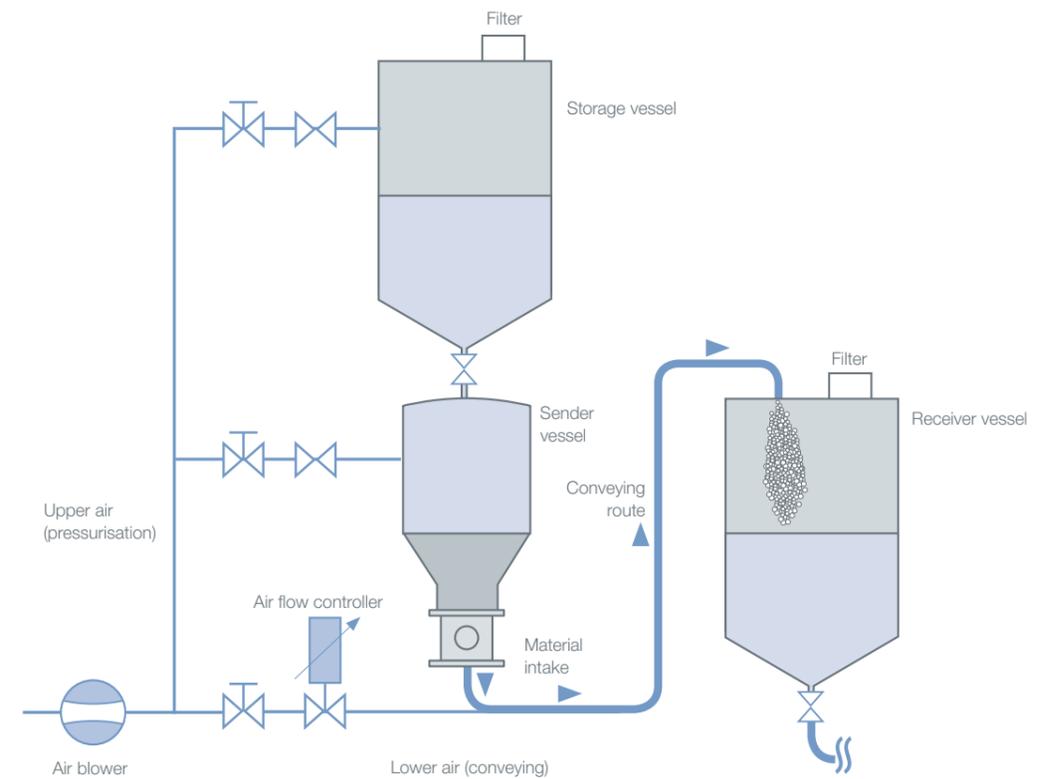
**THE BENEFITS**

- Efficient enhancement of your system with our compact and economical air flow control unit
- Stable transport of your bulk materials by our automatic conveying air flow control even over longer distances
- Sustainable use of your system by flexible air flow measurement even after the piping or product characteristics are changed

**WHAT MATTERS IS THE CONVEYING METHOD**

Bulk material properties have an enormous influence on the selection of the correct pressure conveying method. All processes share a requirement for stable operating points so that product transport is smooth and consistent. The pressure conveying from a pressure vessel (silo) into a pipeline to the next pressure vessel can be carried out with or without a rotary feeder. This device is used to discharge pressurised powder from vessels. The upper air pushes the product out of the vessel while the lower air accelerates the bulk material into the pipeline. A smaller sender vessel is

typically fed through a larger storage vessel. In the case of dilute phase conveying, the bulk material is transported with low pipeline charging, low air pressure and high velocity. In the case of dense phase conveying, also known as plug or slow conveying, on the other hand, the bulk material is moved with high pipeline charging and low flow velocity. The air speed is set by an air flow controller. The dense phase conveying guarantees even lower changes in the bulk material properties as the dilute phase conveying.

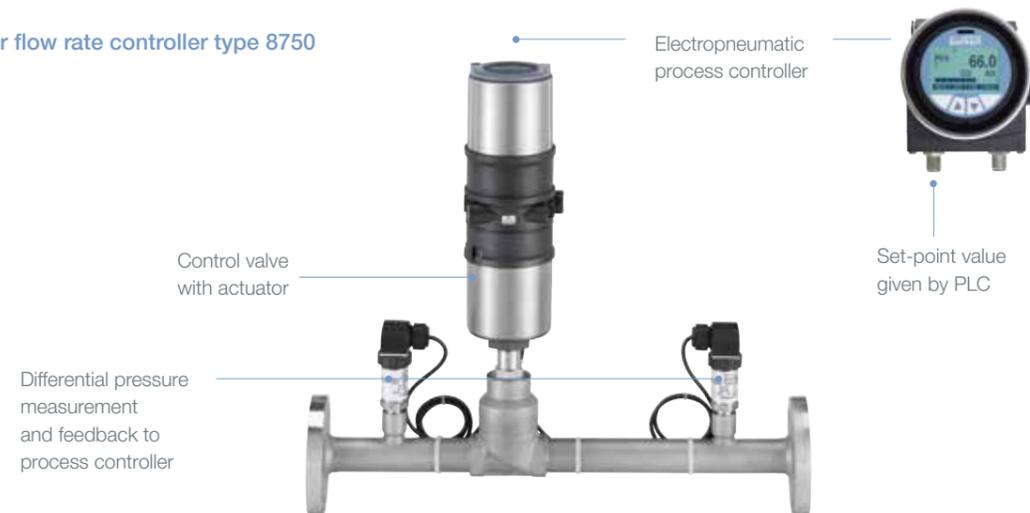


## CONTROLLED AIR FLOWS FOR YOUR BULK MATERIAL TRANSPORT

The type 8750 air flow rate controller consistently ensures the correct air flows when transporting your products. Its control valve – a flexible orifice – is operated by the process controller via the actuator. The valve characteristic is known to the process controller. He measures the upstream and

downstream pressure (differential pressure across the valve), calculates the current flow rate, and then adjusts the valve position so that the current flow automatically matches the desired setpoint flow.

Air flow rate controller type 8750



### THE BENEFITS



Highest product quality by controlled and variable adjustment of the air flow.



Stable processes even at high ambient temperatures.



Significant cost savings because one system takes charge of all conveying-related tasks and no additional equipment is required.



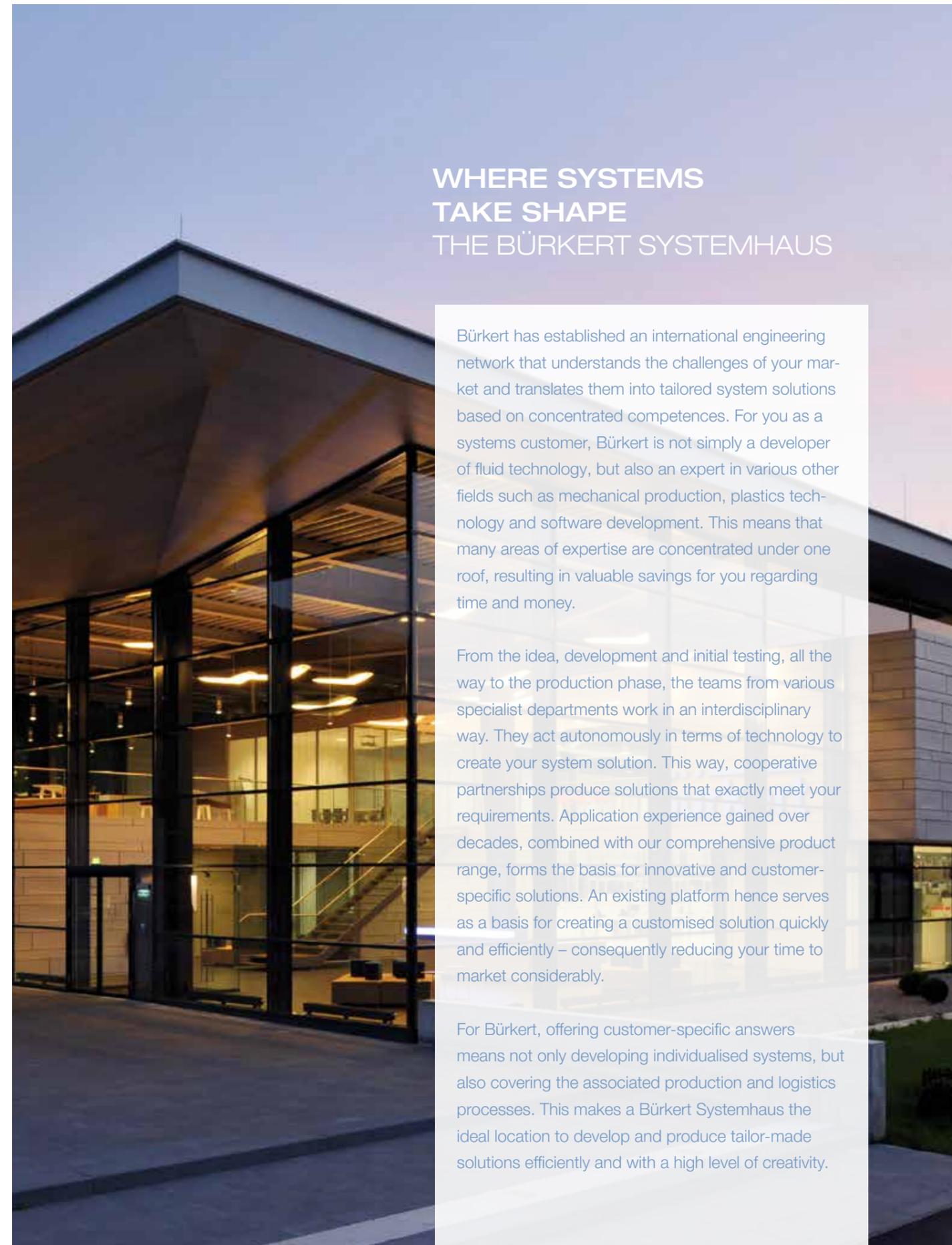
Considerable time savings thanks to low installation costs for new installations or modernisation of your existing plant.

## 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.



## MEASURING, CONTROLLING AND REGULATING PNEUMATIC TRANSPORT PROCESSES

### PROCESS SHUT-OFF VALVES



**Type 2100 angle seat valve**    **Type 2101 globe valve**

- Pneumatically controlled seat valves up to DN100
- Space-saving due to compact design
- Cost-saving due to long service life
- Easy integration of automation units, e.g. pneumatic controls or position feedback



**Type 8805 ball valve**

- Pneumat. controlled ball valves with rotary actuator up to DN100
- Operable in high temperature ranges
- High flow rates



**Type 6281 solenoid valve**

- Electromagnetic diaphragm valve up to DN50
- Vibration-resistant, centrally screwed coil system

### PROCESS CONTROL VALVES



**Type 8802 globe valve**

- Electro-pneumatically actuated control valves with integrated process controller DN4-DN100
- Integrated automation
- Maintenance-free operation

**Type 3361 globe valve**

- Electromotive control valves DN3 to DN50
- High precision and dynamic control
- Weather-, shock- and vibration-resistant design

### OTHER PRODUCTS FOR PNEUMATIC CONVEYING

- Valve islands for pneumatic control of process valve types 8644 and 8647
- Compact mass flow controllers for air flows up to 150 Nm<sup>3</sup>/h (air) type 8745
- Mass flow meter type 8008 for up to 825 Nm<sup>3</sup>/h (air)
- Electropneumatic position and process controllers types 8792 and 8793 for remote control of pneumatic actuators
- Filling level sensors with oscillating fork principle types 8110, 8111, 8112
- Pressure sensors of type 8323 with housing and parts in contact with fluid made of corrosion-resistant stainless steel



Application of air flow rate controller type 8750 in the conveying system of Zeppelin Systems GmbH

## GENTLE CARBON BLACK TRANSPORT FOR TOUGH TYRES

Zeppelin Systems GmbH is a world-leading supplier of plant engineering for the handling of high-quality bulk materials. Also in the rubber and tyre industry, the precise feed of raw materials is a decisive factor. The pulverised carbon black for tyres is pneumatically conveyed in hermetically sealed systems. The lowest possible bulk material speed of 1-4 m/s is vital for a slow conveying that is gentle on the sensitive substances, in which the increase in the fine fraction (particle size <125 µm) is considerably reduced. In modern rubber mixtures, various carbon black qualities with very different flow characteristics are used. Nevertheless, the conveying system has to operate at all times dust-free and with a constant performance. A stable operating point is achieved by means of a uniform carbon black flow, a regulated air flow supply and a reliable bypass pipeline system, which is of central importance in slow conveying. An air flow rate controller controls the conveying air flow in the main line and a second the bypass air flow, which is added to the

main line at regular intervals. This ensures secure and stable conveying with consistently high product quality.

### AT A GLANCE

<b>Company</b>	Zeppelin Systems GmbH
<b>Application</b>	Pneumatic transport of carbon black
<b>Requirement</b>	Uniform and controlled slow conveying at low bulk material velocity
<b>Solution</b>	Reliable and longterm stable air flow rate controller
<b>Added value</b>	Secure, stable and uniform conveying with consistent high product quality

## BÜRKERT – CLOSE TO YOU

For up-to-date addresses  
please visit us at  
[www.burkert.com](http://www.burkert.com).

