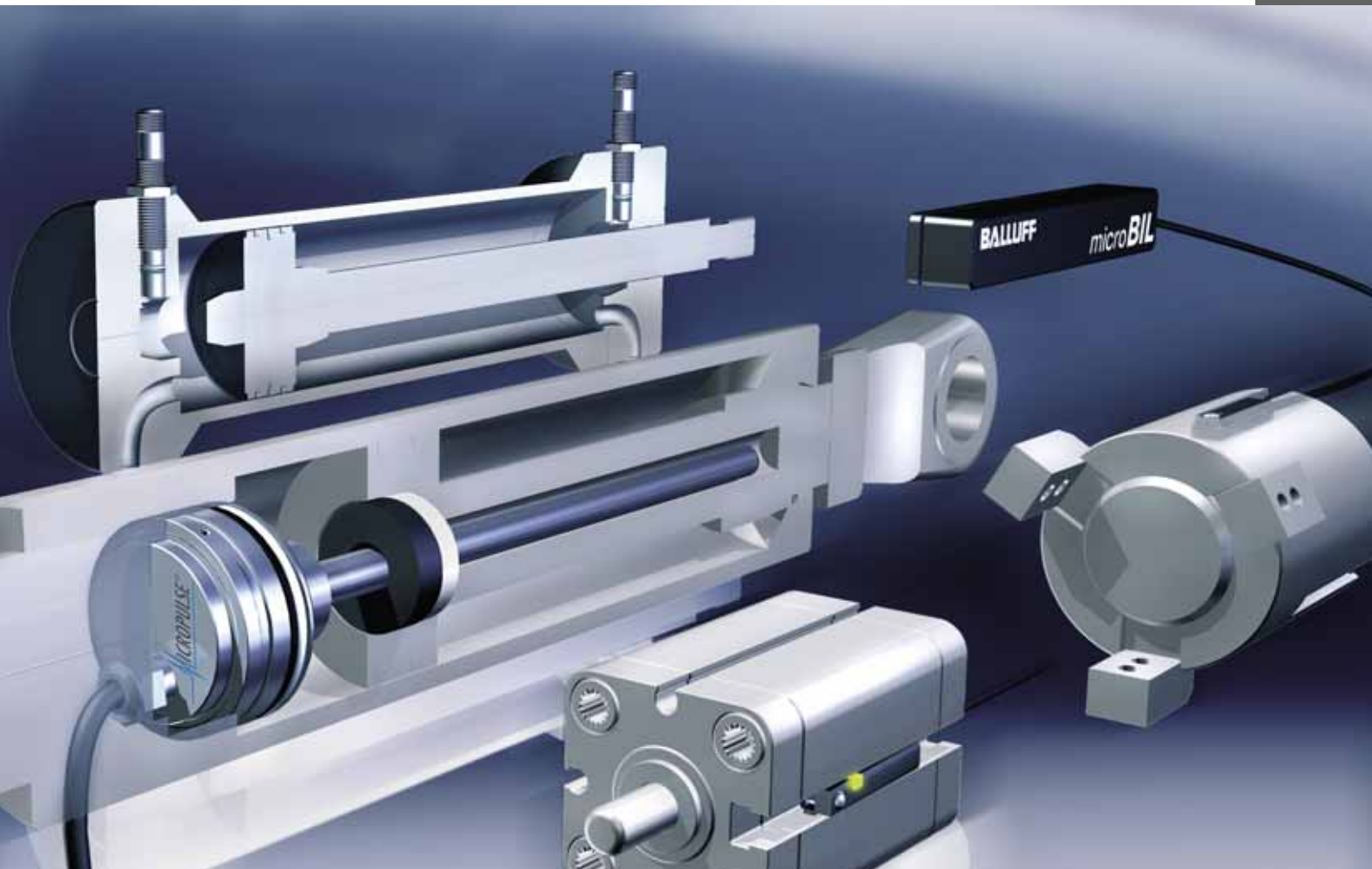
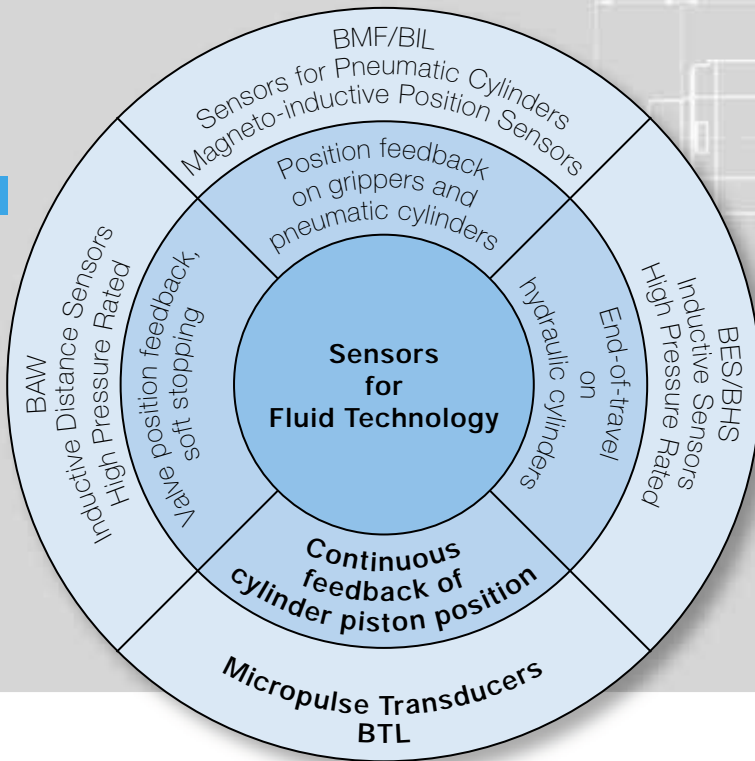


# BALLUFF

## Sensors for Fluid Technology

... refined quality for optimal products





## Micropulse Transducers BTL

For continuous piston sensing in hydraulic axes

## Position feedback in mobile hydraulics

Sensors are being used increasingly to extend useful life and improve safety in mobile equipment. The new Micropulse AR Transducer from Balluff senses the piston position in mobile hydraulic cylinders. The sensor operates on the proven magnetostrictive principle. The compact size of the transducer makes it ideal for use in pivot bearing and spherical eye end cylinders or large bore cylinders. The processing electronics integrated in the transducer has been designed to meet the strict EMC Directives for industrial lift trucks, agricultural and forestry equipment and earthmoving machinery.

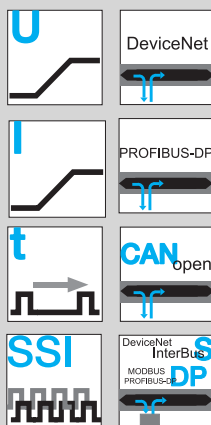




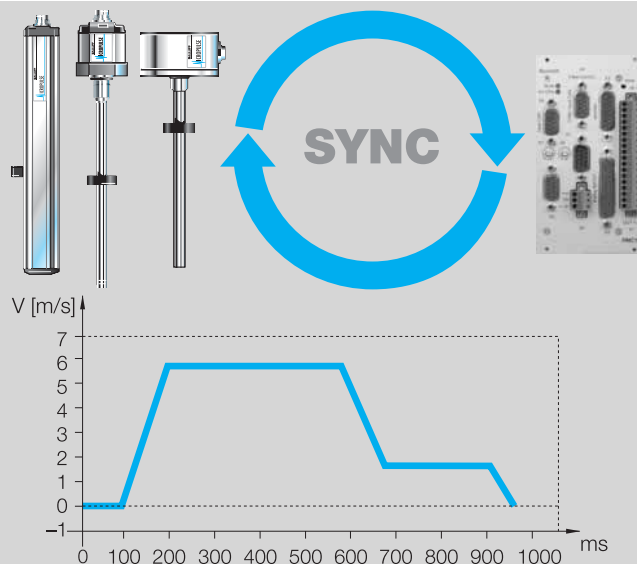
## The right feedback system for every application

### Advantages

- Non-contact, wear-free system
- Very reliable with high protection rating
- Pressure rated for integration in cylinders
- Wide variety of interface options
- Special form factors, e. g., for EX or redundant applications



Interfaces



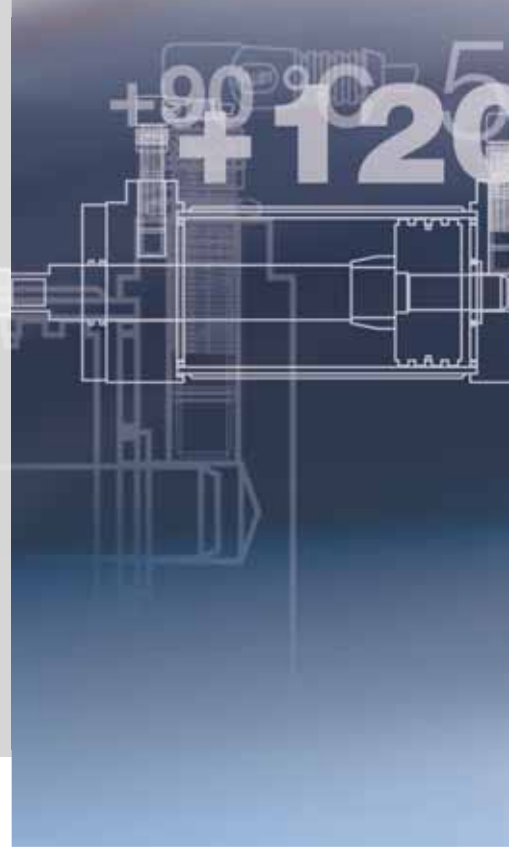
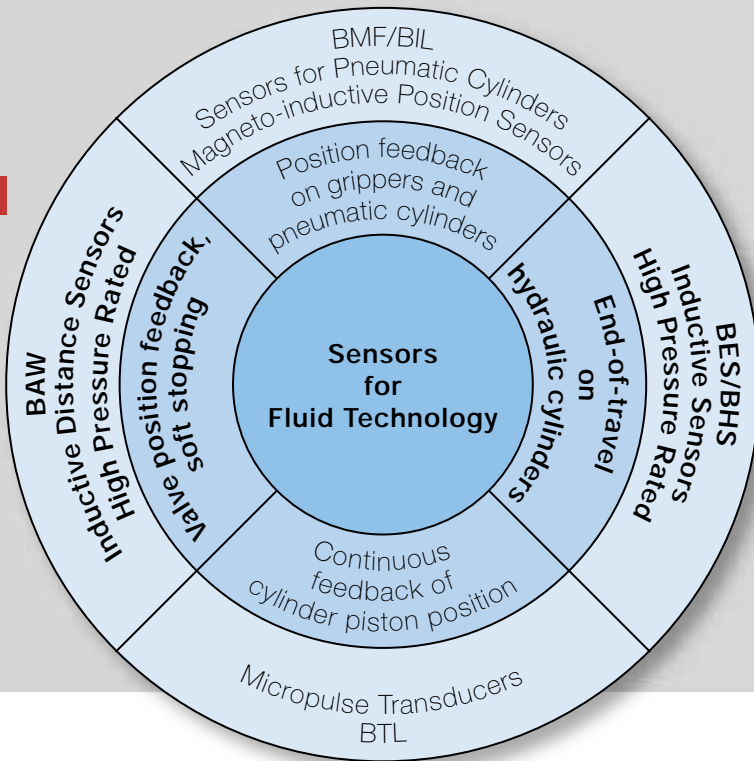
### Loop control and higher dynamics with SSI-SYNC

The absolute position information from the Micropulse Transducer is sent synchronous to the axis control card. This synchronous data acquisition enables exact calculation of the velocity and acceleration.

By feeding these state variables (velocity and acceleration) back, the damping and natural frequency of a hydraulic system are increased. These measures permit greater loop gain and with it better control behavior and higher dynamics.







## High Pressure Rated Inductive Sensors BES/BHS and Inductive Distance Sensors BAW

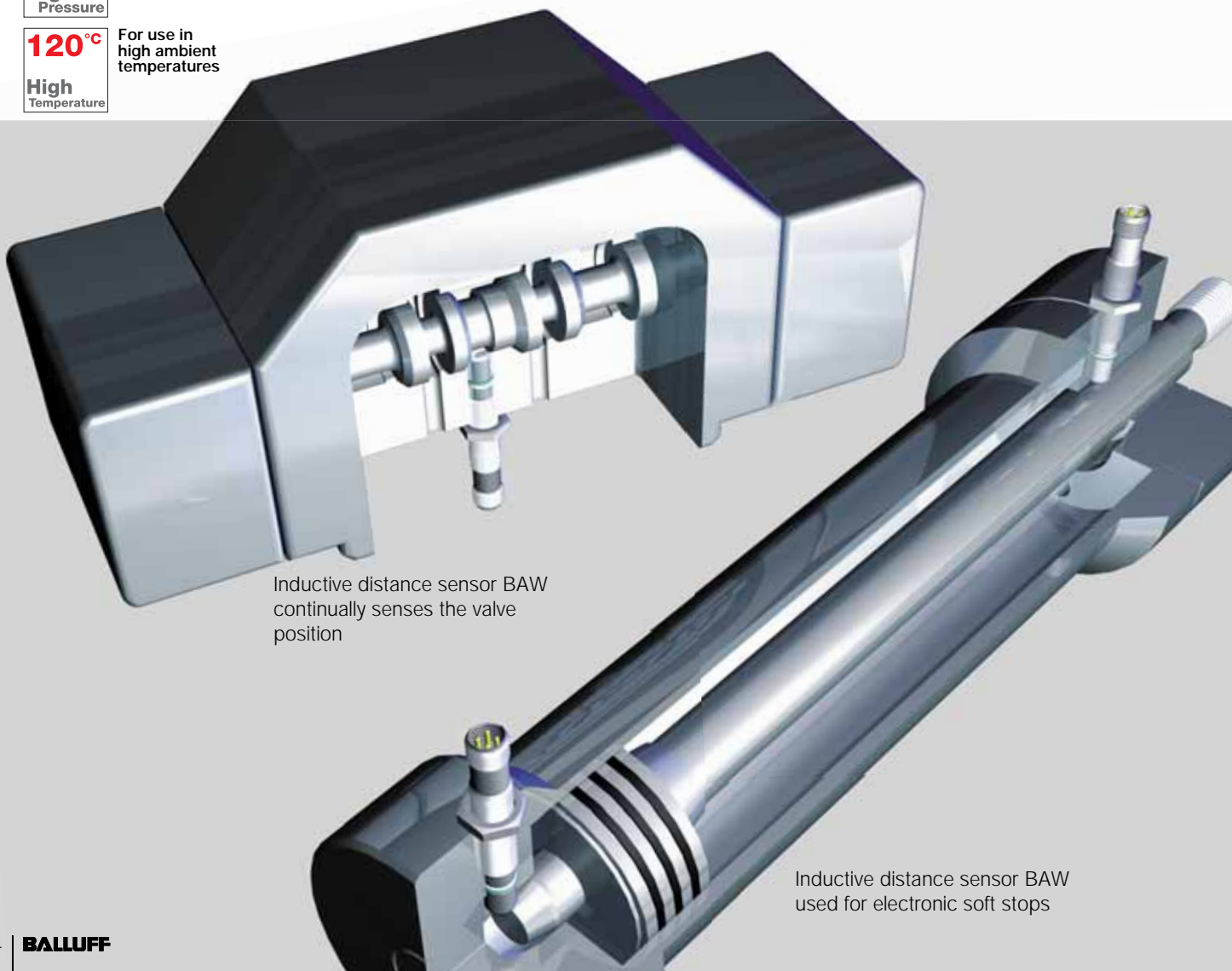
Reliably detecting travel and positions directly in the pressure area

**500 bar**  
High Pressure

For use in hydraulic units, pressure rated to 500 bar

**120 °C**  
High Temperature

For use in high ambient temperatures

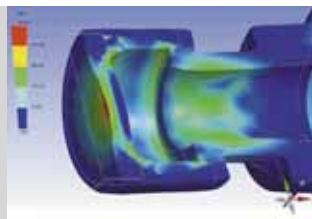


Inductive distance sensor BAW continually senses the valve position

Inductive distance sensor BAW used for electronic soft stops

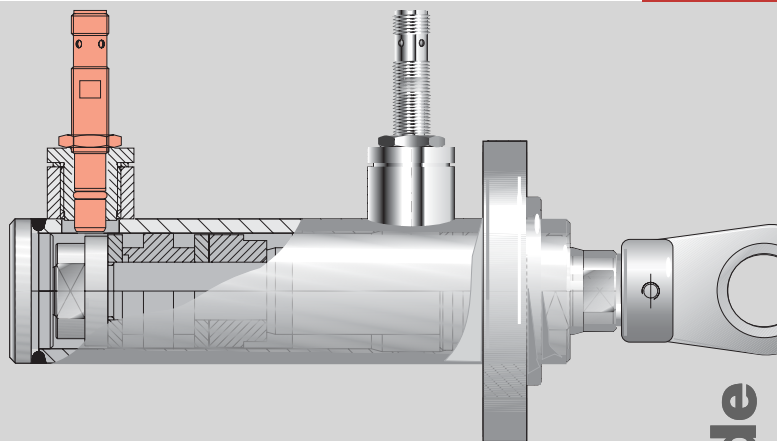


High pressure rated inductive sensors and distance sensors



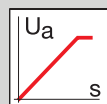
Simulation of the pressure load on a high pressure rated inductive sensor BES

Experience and expertise are required to develop sensors for extreme applications.

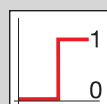


## Continuous displacement sensing in the pressure area with inductive distance sensors

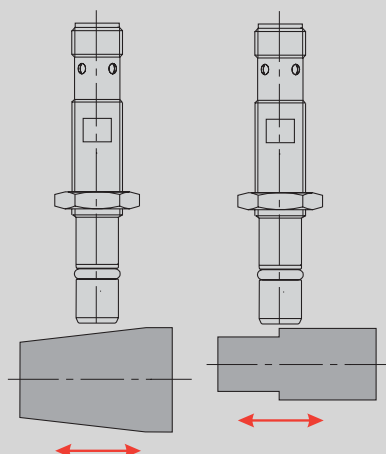
- In valves
- In hydraulic cylinders



Inductive distance sensors voltage output



Inductive distance sensors digital switching output

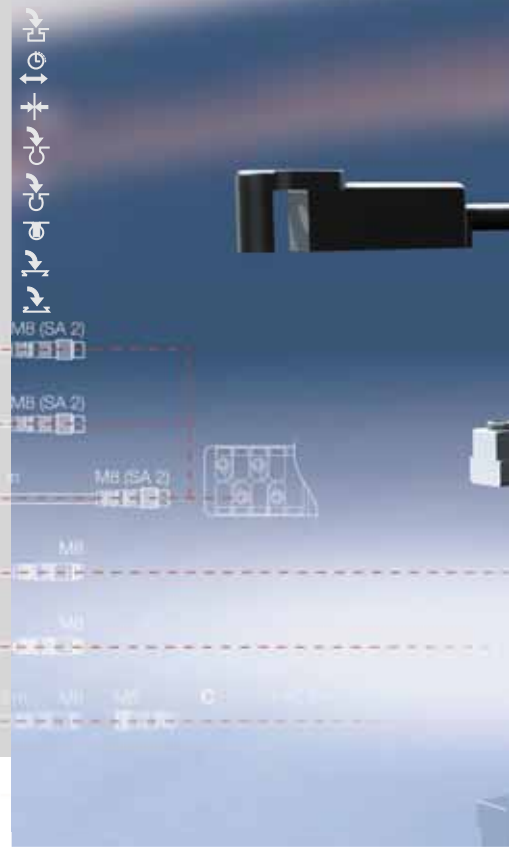
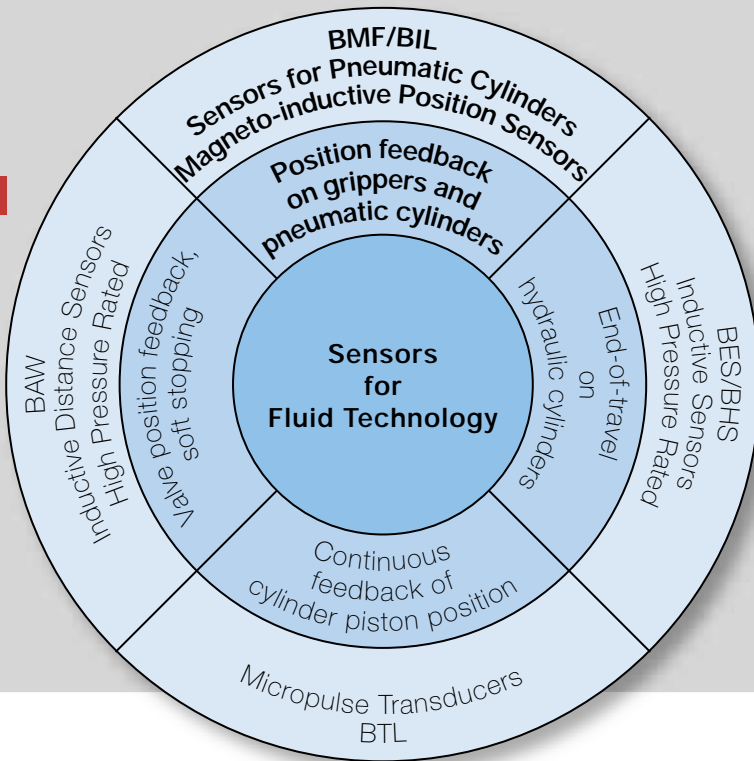


## End-of-travel monitoring on hydraulic cylinders

Inductive high pressure proximity sensors

- Pressure rated to 500 bar
- Temperature ranges up to 120 °C for high-performance cylinders
- Switching distances up to 2.5 mm with M12 housing for even more reliable switching



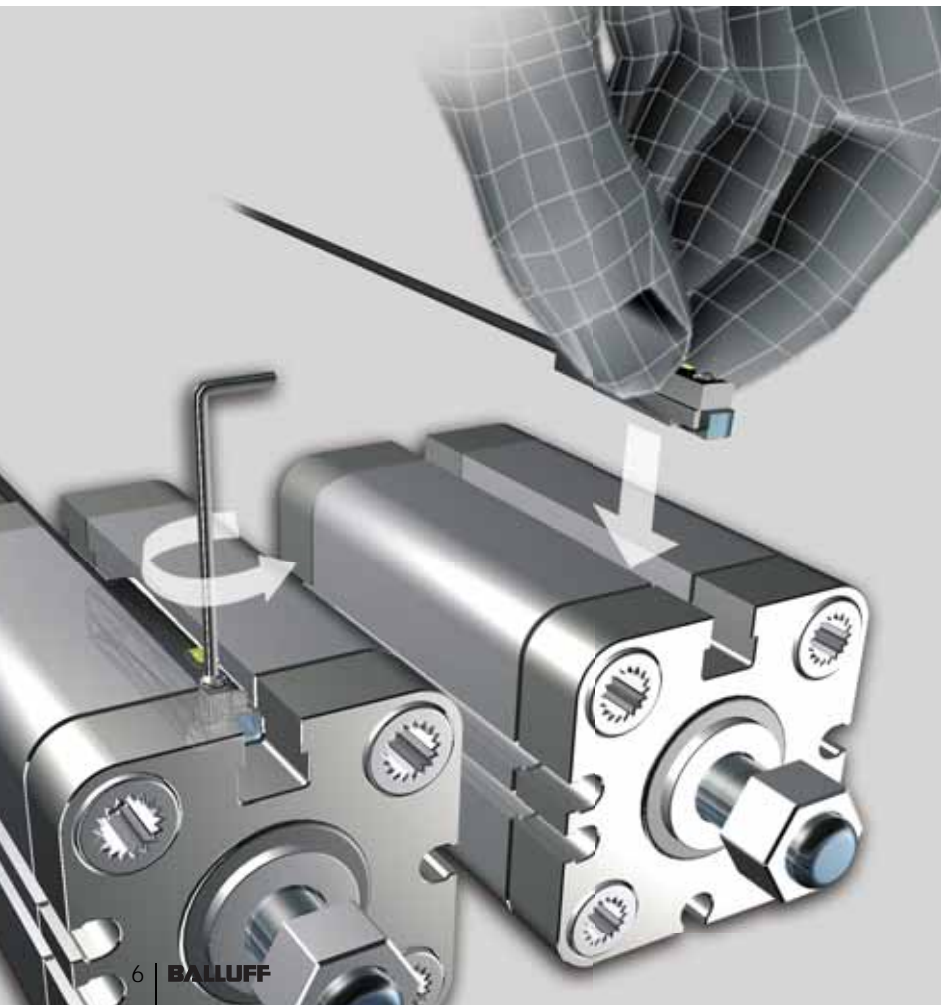


## Sensors for Pneumatic Applications

These sensors bring your cylinder or gripper to the right position



Sensors for pneumatic cylinders



### allround

**The do-it-all BMF 305** is at home on any cylinder. Combined with one of our mounting brackets it promises a secure hold and precise switching!



### mini.s

**Our mini.s BMF 103 and BMF 303** work even on the smallest cylinders and grippers!



### handy

**The handy BMF 315K** is fast and easy to mount in the T-slot from above!



### special

**The specialist BMF 315M** for extreme applications. Rated for temperatures up to 105 °C. The BMF 315M is fast and easy to mount in the T-slot from above.







Magneto-inductive position sensors



## Micro-BIL – brand new

### Continuous position feedback for pneumatic miniature grippers

Miniaturized sensors for installation of the T-slot of mini-grippers enables flexible sensing of gripper positions, such as

- Open
- Closed with workpiece
- Closed without workpiece

### Features

- Absolute analog output signal
- Senses travel up to 10 mm
- Non-contact, wear-free signal generation



# FAXINFO

- **Micropulse Transducers BTL –**  
Position sensing – with extreme precision
- **The Sensor Line '05 –**  
optimized for every automation task
- **High Pressure Rated Inductive Sensors –**  
High-End for extreme applications
- **BAW High-pressure Inductive Distance Sensor –**  
continuous position sensing for hydraulic actuators
- **Magneto-inductive Position Sensors BIL –**  
Position sensing has a new name
- **Magneto-inductive Position Sensor Micro-BIL –**  
analog position feedback for miniature grippers
- **BMF 305M-PS-C-2-SA 4-S 49 –**  
Cylinder switches for temperatures up to +105 °C
- **Sensors for Pneumatic Cylinders BMF 315K –**  
for insertion from above
- **Sensors for Pneumatic Cylinders BMF 315M –**  
for particularly demanding applications
- **Electronic Catalog '05 –**  
Full Line on CD-ROM

✕ Please check and return by fax!

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