



Ready to measure force?



Force measurement is our passion

And that is why we do such a good job

If you are looking for perfection, BROS A is the right place. Only those who are passionate about developing products will never stop asking questions. And only this will make a continuous further development possible, which has the goal to put the best products on the market. With this goal in mind BROS A has been developing reliable pressure transducers and load cells as well as

electronic components since 1935. We can meet our high quality standard by manufacturing our products entirely in-house. This high-quality work is regularly confirmed by the independent TÜV certificates ISO 9001 for quality management and ISO 14001 for environmental management.



Sensors for safety-related applications

Force measurement you can rely on

Whether big or small solutions, we work tirelessly so we can develop customised measuring systems for you. A very intensive co-operation with our customers is very important to us. Because of our special commitment to meet your requirements we continuously expand our know-how and are able to contribute valuable synergy effects. Our

experience allows us to tackle even the trickiest tasks and to work out the best solution for you from the development to the production of individual solutions or small and medium sized production series. With a lot of flexibility and development power BROSA can provide the smallest as well as giant "force meters" for each application.



Our sensors: accurate, reliable, robust

In your customized application as well

We use forward-looking methods for the production, which enable us to produce both environmentally friendly and extremely reliable products. By using top quality raw materials in combination with a precise machining we can ensure an extremely

long service life for our entire product line. With the longevity we can close the circle to our responsibility for the environment: Quality instead of quantity will stop wasting our resources and is also the more cost-effective alternative in the long run.



Force measuring pin, type 0201

For the precise force measurement at bearing points

BROSA force measuring pins are made of high-strength stainless steel and meet the highest requirements. Depending on the application-specific conditions the BROSA force measuring pins are designed and produced according to

different, partly patented design concepts. High measurement accuracies are ensured for a long time by considering the exact installation situation from the construction to the calibration of the sensors.





Force measuring pin MEMS, type 0201

For the flexible measurement of the rope load in sheaves

BROSA force measuring pins MEMS are a further development of the tried and tested BROSA force measuring pins that enable the direct measurement of the rope load in crane booms. An integrated MEMS sensor allows the calculation of the suspended load

depending on the position of the boom. Thanks to the integration of two measurement systems, the complexity of the design can be further reduced. Any possible parasitic influences are thus reduced to a minimum.



Force measuring pin MOP, type 0202

For the precise and robust measurements at bearing points

BROSA force measuring pins with mechanical stop (mechanical overload protection) are made of high-strength stainless steel and can withstand the highest loads. The integrated stop is able to effectively absorb very high overload shocks both in the direction of measurement and against the direction of measurement without the sensor being damaged. Compared to a normal force measuring pin, the ratio between nominal load

and maximum load is increased by a factor of 3. These characteristics were developed specifically for the material handling. However, thanks to the integration of the force measuring pins into the force flow, they can be used in a number of other applications as well. The consideration of the exact installation situation from the construction to the calibration of the sensors ensures longterm high measurement accuracies.





Tubular load cell, type 0206

For the flexible measurement of radical forces

BROSA tubular load cells measure radial forces acting on an axis with a constant or variable direction of the force transfer. BROSA tubular load cells can be used even in case of axes that had not been suitable for force measurements due to their dimensions or deflection. The combination of

several tubular load cells on one axis is possible. Optionally, it is possible to equip BROSA tubular load cells with an integrated angle sensor that measures the inclination of the sensor. The output signal can be the resulting force or even the rope load in case of sheaves.



Tension load cell, type 0111

For the exact measurement of tensile and compressive forces

BROSA force measuring pins with mechanical stop (mechanical overload protection) are made of high-strength stainless steel and can withstand the highest loads. The integrated stop is able to effectively absorb very high overload shocks both in the direction of measurement and against the direction of measurement without the sensor being damaged. Compared to a normal force measuring pin, the ratio between nominal load

and maximum load is increased by a factor of 3. These characteristics were developed specifically for the material handling. However, thanks to the integration of the force measuring pins into the force flow, they can be used in a number of other applications as well. The consideration of the exact installation situation from the construction to the calibration of the sensors ensures longterm high measurement accuracies.





Rod end load cell, type 0110

For the exact measurement of tensile and compressive forces

BROSA rod end load cells have a compact design and will withstand even extreme loads thanks to the use of high-strength stainless steel. Thanks to the designs with inner and outer thread for tensile and compressive forces as well as suitable rod ends, the sensor can be

used for many different applications. Thanks to the proven and tested strain-gauge technology and fully developed amplifiers providing reliable and exact measurement results, BROSA rod end load cells can be permanently used under the most extreme environmental conditions.





Force sensor washer, type 0120

For measuring the force at connecting elements

BROSA force sensor washers offer critical advantages thanks to their patented three-point design: The forces flow optimally through the measuring points, thus allowing for a high measuring accuracy. Customer requirements can be adapted in a flexible, individual and easy way. Compared

to closed washer supports the acceptance of the surrounding steel structure is many times better while the production is more cost-effective. Thanks to the compact and robust design, the force sensor washers can be used under extreme environmental conditions.





Compression load cell, type 0101

For the precise measurement of axial compressive forces

Thanks to high-strength stainless steel and the FEA based design, the BROSA compression load cells can withstand very high loads. Even at maximum load the life of the compact sensors are extremely high due to the overload capacity of up to 3x the measuring range. Thanks to the proven

and tested strain-gauge technology and fully developed amplifiers providing reliable and exact measurement results, BROSA compression load cells can be permanently used under the most extreme environmental conditions.



Support jack load cell, type 0106

For the exact measurement of supporting forces

BROSA support jack load cells reliably monitor the forces acting on stabiliser cylinders. Thanks to the special design of the sensors they are extremely unsusceptible against angular force transfers and shear forces. This allows for the precise measurement of the axial force at each individual

supporting point, even in case of uneven or inclined surfaces. The support jack load cells ensure the optimum stabilisation of emergency vehicles or mobile machines at all times. Thanks to the robust design with high-quality materials the sensors are ideally suited for permanent operation.





Normal force sensor, type 0250

For the precise measurement of normal forces at bearing points

BROSA normal force sensors are used at bearing points to measure the reaction forces at these points in a defined direction. Thanks to this simple solution the measurement of the bearing forces can be effortlessly integrated into the

existing design. This is possible because the force sensor - as in the case of all BROSA force sensors - can be customised for installation. A calibration for the respective installation also ensures a high measurement accuracy.





Shear force sensor, type 0210

For the precise force measurement at supporting points

BROSA shear force sensors are built based on the shear beam principle and can easily be adapted to the local conditions and requirements. Thanks to their small dimensions shear force sensors can easily be retrofitted both in case of a low installation

height and in situations in which an installation had originally not been intended. The shear force sensors are extremely reliable when in permanent use thanks to the robust design made of high-quality stainless steel.



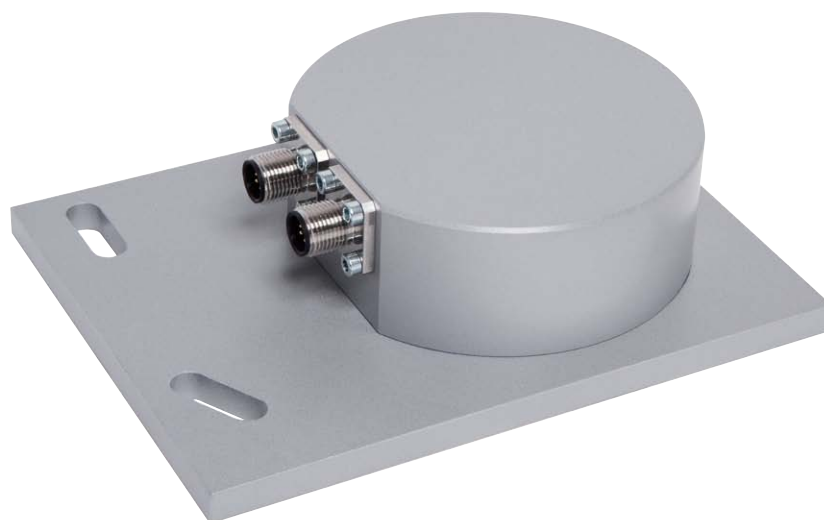


Angle sensor MEMS, type 0804

Robust MEMS technology for your angle measuring

BROSA angle sensors are characterised by their high long-term stability and accuracy. The high-quality finish and the use of robust MEMS technology provide decisive advantages. The MEMS technology used resists impacts of up to

3500 g during operation. Other impressive characteristics include a high measuring accuracy, extreme vibration resistance as well as the low installation height for many different applications.





Pressure transducer, type 0301

For the pressure monitoring in hydraulic systems

Thanks to their especially robust stainless steel welded design, BROSA pressure transducers are extremely resistant to shock and vibrations. Their special construction allows for a high long-term stability under the harshest conditions. Especially in the area of mobile hydraulic systems the pressure transducers are characterised by a flawless operation and reliability. The integrated

electronic system works very exact under extreme EMC conditions and within the compensated temperature range. In addition to the standard pressure connection design it is possible to meet individual customer requirements. Optionally also available as pressure transducer, high pressure, type 0320, up to 14,000 bar.





Pressure transducer abrasive, type 0310

For the pressure monitoring of abrasive media

BROSA pressure transducers for abrasive media are remarkable for their extraordinary abrasion resistance and are ideally suited for applications requiring a high long-term stability under the harshest conditions. Thanks to their very robust stainless steel welded construction they are also extremely resistant to shock and vibrations.

Especially in the area of constructions machines the pressure transducers are characterised by a flawless operation and reliability. The integrated electronic system works very exact under extreme EMC conditions and within the compensated temperature range.



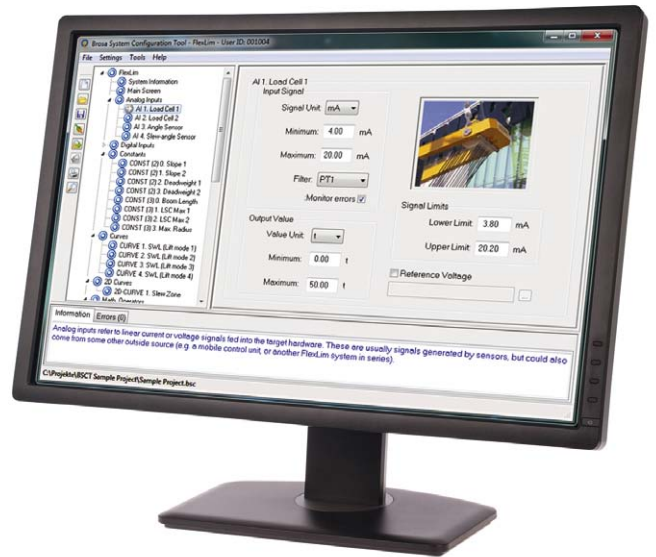
Sensors for explosion-risk area

For the use in explosive environments

In order to measure force in explosive environments, BROSA offers high-quality ATEX sensors. All sensor types are available in the intrinsically safe EX i version with an integrated 4-20 mA amplifier. The sensors used most often in offshore cranes such as force measuring pins, tension load cells

and angle sensors are also available in the pressure-resistant EX d design. Furthermore we provide IECEx certificated sensors. This solution allows for a simple integration into the overall system and does not require any additional safety barriers.



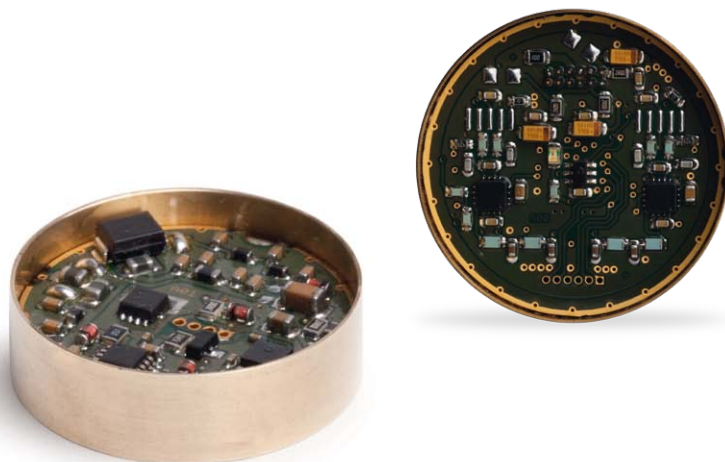


BROSА electronics

For the reliable signal transmission and load monitoring

BROSА sensors are equipped with amplifiers developed and produced in-house. They allow for a complete calibration ensuring a reliable signal transmission. Of course, all common signals, both analogue and digital signals, are supported by the amplifiers. For the flexible and modular load

monitoring of crane systems, BROSА offers reliable electronic systems for all applications. Thanks to a specially developed PC software the user can easily configure the systems. Specially customised display panels are optional.





Yesterday and today

Or why today's market leaders buy from BROSA

The success story of BROSA can be described in one sentence: The continuous further development with the goal to achieve perfection in meeting customer requirements. No wonder that well-known crane manufacturers with a focus on mobile cranes and container handling buy from BROSA worldwide. It all started out very simple: In 1935, the precision engineer Erich Brosa began to develop and produce electrical sensors in Berlin. Interrupted by WWII Erich Brosa went into business for himself in Freiburg after the war and in 1956 moved the company because of space reasons to today's headquarters in Tettnang/ Lake Constance. At the time, BROSA produced mainly pressure sensors and acceleration sensors for large regional firms. In 1974, Dr. Bernd Brosa, the son of the company's founder expanded the business segment by purchasing an electronics manufacturer in Rütli/Switzerland. Under a succession plan the company with 32 employees was sold in 2000 to an investor group, which continues to operate the business today like a family business.

In 2003, the old factory buildings were demolished and a new production site boasting 2,500 sqm was built. The Swiss location was completely modernised and expanded. Also, BROSA acquired the IBA Präzisionstechnik GmbH in Eriskirch in order to supplement the BROSA production capacities, which had become tight. In 2004, new distribution companies were founded: BROSA Singapore was established to develop the Asian market and BROSA BV in the Netherlands to focus on offshore applications. Here, the guiding principle „Perfection in meeting customer requirements“ proved again to be successful and the new location became too small due to the expansion of the company. BROSA responded to the great demand and in 2007 bought a 17,000 sqm lot in the Bürgermoos industrial park. Since 2008, the site houses a new office and production building with 6,000 sqm for “loads of innovation“.

Force is our strength!

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