



INTORQ

setting the standard

Electromagnetic braking systems

for industrial trucks

www.intorq.com

We set the standards

INTORQ stands for reliable brake solutions with the highest product standards. Whether in crane and lift systems, wind turbines, industrial trucks or brake motors, we offer you the right solutions for your drive – individual and safe.

The INTORQ module system with its broad range of different versions has set standards worldwide. We have a global presence, with sites in Aerzen, Shanghai, Atlanta and Pune. Our sales network and service are available for you locally, all across the world.

INTORQ at a glance

- Sales volume >55 million euros per year
- 800,000 units per year
- 13,000 square metres of production space
- 275 employees
- Market leader with 63 sales partners in 49 countries



INTORQ quality worldwide

We manufacture our products with the same processes and the same quality at all INTORQ sites. The basis for this is provided by our international production network. We can react flexibly in production thanks to our versatile assembly structure.

INTORQ test laboratory

The main focus in our development work is on the quality and safety of our brakes. Our products are thoroughly tested, and function-relevant values are continuously documented.

In Germany, we have the honour of being one of only three firms worldwide that are allowed to carry out online tests on behalf of the TÜV-SÜD/ Deutschland inspection agency.

INTORQ logistics certified

Our approval as a “Known Consignor” carries the number DE/KC/0898-01. Our freight consignments now do not have to be checked at airports, so they can be delivered more quickly and more cost-effectively.

INTORQ is an AEO

An AEO is an authorised economic operator in the European Union who has been checked by the Customs Office and consequently enjoys certain privileges (simplified customs procedures, preferential treatment etc.). The AEO programme is recognised by numerous other countries (for example, the USA and China).

Braking systems for industrial trucks: Competence in innovative solutions

Our products setting standards for years and they meet the most demanding requirements. Our knowledge of what customers need during the development phase, our expertise in selecting the right materials, and our competence in the production phase are all reflected in our products. Our success proves we are doing the right thing. Our brakes and clutches are well known. They stand for quality, fully developed technology, and innovation.

Thanks to our sites in Germany, China, the USA and India, we achieve a reliable, top-quality performance as a supplier.

Used in these kinds of vehicle

- Electric forklift pallet truck, with and without a driver's platform
- Electric forklift truck for standing or sitting
- Electric pallet stacker with wheel support
- Electric side-seat stacker with wheel support
- Electric reach forklift truck
- Horizontal picking truck
- Vertical picking truck
- High-bay stacker
- Driverless transport systems (DTS)

INTORQ BFK457
Spring-applied brake

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INTORQ BFK457
Spring-applied brake in flat design

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INTORQ BFK457
Spring-applied brake with hydraulic support

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Modular spring-applied brake

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INTORQ EMB 115
Electromagnetic loadwheel brake

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INTORQ BFK442
Load-dependent 2-stage spring-applied brake

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Performance

The tailor-made solution from the market leader for brakes in electrically driven industrial trucks: our BFK457 withstands the highest emergency-stop energies and impresses through its long service life.

We set the standards – standards you can rely on.

INTORQ BFK457

Compact and easily fitted



A brake is frequently required only to perform its basic function. The BFK457 is suited for this purpose. Speedy fitting with integrated fixing screws and a fixed-set air gap enhance this spring-applied brake's attractiveness as a product.

Features

- Braking torques: 0.12–125 Nm
- 11 sizes
- Thermal class F (155°C)
- Compact design with rotor and flange
- Integrated fixing screws for quick, easy fitting
- Air gap with fixed setting

INTORQ BFK457

Spring-applied brake in flat design



The modified BFK457 spring-applied brake is generally used in drives where there is not much space. Adapted to the envelope radius, the brake has a compact, flat design combined with a high braking torque.

Features

- Modified BFK457, for example size 10 with a braking torque of 20 Nm
- Compact, flat design adapted to the envelope radius
- Closed design

Variants

- Friction plate
- Low-wear rotor
- Plug matched to connecting cable
- Emergency manual release

INTORQ BFK457

Spring-applied brake with hydraulic support

The hydraulically supported BFK457 is suited for applications where a load-dependent braking torque is required. Normal braking is generator-based, and in emergency stops the electro-hydraulic control takes over the braking function.

Features

- Modified BFK457, e.g. size 12 with a braking torque of 12 Nm to 45 Nm (with hydraulic support)
- Thanks to specially adapted friction-lining halves, the brake complies fully with the legally prescribed deceleration for no-load, partial-load and full-load operation regardless of the driving direction
- The basic torque is guaranteed by the high-precision factory setting of the spring force, and it controls the emergency-stop braking from the no-load range
- An optimised magnetic circuit provides the brake with a large working air gap
- Also, a wear-resistant rotor can double the length of the interval before the air gap has to be adjusted



Driverless transport systems

INTORQ BFK458

The versatile modular system



Our modular system forms the basis of a product portfolio that offers variants specially adapted for almost any task. The BFK458 spring-applied brake is a universally usable standard product, but thanks to its modularity it can also meet the requirements of specialised industries. Its strength is its versatility.

Features

- Braking torques: 1.5–600 Nm
- 9 sizes
- Thermal class F (155°C)
- Air gap precisely preset
- Braking torque reducible (E model)
- Manual release devices for all sizes
- Optional monitoring of air gap and wear

INTORQ BFK442

Load-dependent 2-stage spring-applied brake



The BFK442 2-stage spring-applied brake is optimised for applications where load-dependent braking torques are required. The graduated braking torque guarantees that the brakes perform in accordance with the load situation.

Features

- Sizes 12 – 18
- Both braking torque stages can be given individual settings
- High endurance thanks to wear-resistant linings

Always an idea ahead

Noise-reduced BFK design

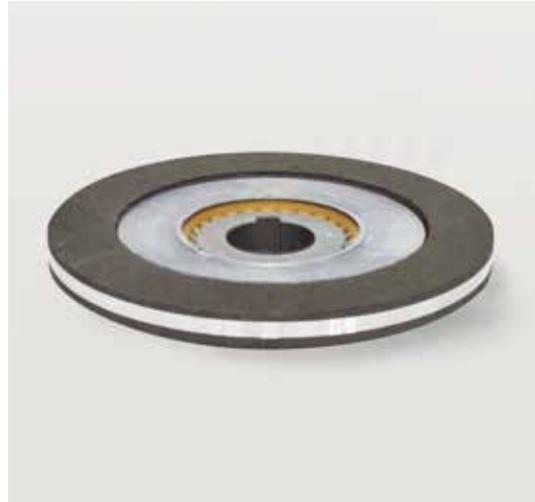
The noise reduction required in many applications can be achieved in two ways:

1. Impact-noise-reduced armature plate

The brake's operating noise can be minimised using special damping elements, which are installed between the pole face and the armature plate as shock absorbers.

2. Noise-reduced aluminium rotor

The rotor with plastic sleeve reduces the running noises in the rotor/hub connection. At the same time, this increases the service life of this connection.



Features and advantages

- Low rate of wear between rotor and hub
- Recommended for frequency inverter operation
- Noise-reduced design
- Also available in combination with CCV



Forklift truck for standing or sitting

INTORQ EMB 115

Electromagnetic load wheel brake

The INTORQ electromagnetic brake is conceived as a load wheel brake. The additional controlled braking of the load wheels results in a better deceleration of the vehicle. At the same time it minimises wear on the drive wheel and increases safety during the transport of heavy loads. The CAN bus allows complete system integration.

Features

- Modified EMB115, e.g. size 20 with a braking torque of 450 Nm
- High braking torques in a small space, and the brake is fully integrated into the load wheel
- Simple structure, and there is no need to adjust the air gap
- Long service life thanks to long wear distances
- Brake release free of residual torque (no wear on the armature or on the stator)
- Easy detection of wear from outside, making disassembly unnecessary
- Stepless braking torque, dependent on the operating current



Electric reach
forklift truck



Electric pallet stacker
with wheel support

INTORQ Control

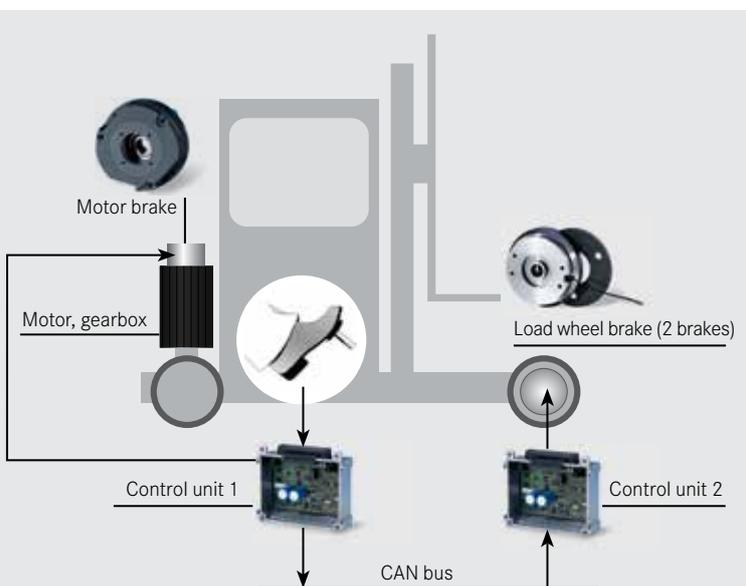
The mechatronic braking system



The mechatronic braking system is suited for controlled braking in battery-driven vehicles. The combination of a spring-applied brake with an intelligent control provides an optimal load-dependent braking torque (load-independent stopping distance). The control range covers 20 % to 100 % of the rated torque.

Features

- Operating modes:
 - Pedal-controlled braking
 - Ramp-controlled braking
 - Pedal-ramp-controlled braking
 - Sensor-controlled braking
 - Speed-controlled braking
- INTORQ Control can communicate with the vehicle control via the integrated CAN bus
- INTORQ Control has an integrated safety system that monitors wear, temperature and operating voltage and also registers any blocking of the drive wheel (a kind of ABS function)
- Operating voltage range: 24 V and 48 V
- Needed for operation:
 - INTORQ Control drive, Starter Kit incl. software, plugs and contacts
- INTORQ Control can be used for:
 - Spring-applied brakes INTORQ BFK458-N, sizes 08 – 16
 - Electromagnetic brakes 14.115, sizes 06 – 20



Example of a completely controlled braking system

Service and sales, worldwide

We are available to our customers at all times and in all locations. Major customers and projects are supported directly by our Key Account Sales Team at our HQ in Aerzen (Germany) or by our locations in Shanghai (China), Atlanta (USA) and Pune (India).

In addition to this, we work with a global network of local trading partners and cooperate with Lenze's global sales organisation. Please send service requests directly to your local sales partner or to our HQ in Aerzen, Germany:

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› You can find more information on our products, as well as catalogues and operating instructions available for download, on our website at www.intorq.com





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