

# INTORQ

setting the standard



## Product Range

Brakes and clutches for electrical drives

[www.intorq.com](http://www.intorq.com)

## We set the standards

The INTORQ brand stands for reliable brake solutions with the highest product standards. INTORQ products are used in a very diverse range of applications, from brake motors and industrial trucks to lifts, cranes and wind turbines. We can create the right solution for you and your drive – individually and reliably.

The INTORQ module system offers numerous variants that can be used in many motors and geared motors, setting standards worldwide. We have been increasing our international presence step by step, establishing sites in Shanghai, Atlanta and Pune. So our network of sales and service staff is close at hand all over the world, ready to support you.



### INTORQ at a glance

- Electromagnetic brakes and clutches
- Flexibility with standard options as well as customised solutions
- Centralised product development and production located in Aerzen
- Fast response and delivery times globally thanks to production and warehousing in Shanghai, Atlanta and Pune
- Over EUR 50 million a year sales volume
- 800,000 units a year
- 13,000 square metres production area
- 250 employees
- Market leader with 63 sales partners in 49 countries



## Quality that convinces

Are you facing increasingly global challenges? We offer you the right solution with INTORQ's customised range of products:

- Brakes and clutches for industries using electric drive technology
- High-performance, configurable standard products with a wide operational scope
- Customised solutions for demanding applications in terms of technology and cost
- Consulting and delivery through a worldwide sales network
- Global purchasing of components and sub-assemblies
- Fast and binding delivery times

We can provide you with this package of products and services all over the world. Our production facilities in Aerzen, China, USA and India (planned for 2018) are certified in accordance with the DQS ISO 9001 standard, and thanks to their modern production and storage technology they provide ideal conditions for the fast assembly of variant versions and fast delivery times.

Our R & D department in Aerzen specialises in the further development of series products and optimisation of customised solutions based on experience and the latest findings from applications. Powerful on-site testing facilities are available to perform the vital tests on all INTORQ products, examining the reliability and service life of the products under real-world conditions. This expertise is also applied across-the-board in Shanghai, Atlanta and Pune, ensuring that the markets in the Far East and the United States enjoy the same high standards.

Project planning, production, service – quality is a key component in our processes.



Secure insulation



Exact surface coating thickness



Fast assembly of different versions



Defined accuracy

## A trendsetter in the market: the INTORQ modular system

This solution is unique in the market, and it guarantees you fast worldwide availability at all times. At its heart is a set of inter-coordinated components that can be freely configured within the system.

This results in short reaction times in project planing and delivery. Both series of brakes – the BFK458, which has been put to successful use for decades, and the new, encapsulated BFK470 – are available as “out of the box” components, freely configurable, ready to be mounted.

Other benefits of the INTORQ BFK458 and BFK470 modular systems include:

- Production from batch size 1 upwards
- Automatic allocation of ID number through software configuration
- Wide range of torques in every size of brake
- Tight tolerances in the braking torque
- Different friction linings can be configured in the standard version
- Enclosure up to IP66
- Long service life thanks to guided armature plate and toothed intermediate ring
- Many connection voltages to choose from
- Hub diameter adapted to your requirements
- Cable available in a set of graduated lengths
- Different flange types can be configured

The following equipment can be optionally configured:

- Application-specific friction linings
- Manual release
- Inductive proximity sensor
- Flange
- Centering flange
- Mounted rotary transducer
- Plug
- Shaft seal

Configurable any way you like. This is how we fulfil your requirements for performance, variance and delivery times. All over the world!



## Safety when you need it: Brake systems for lifts

When using brakes in lifts, safety is the top priority. We offer you specific solutions for various drive concepts in the field of lift technology.

Whether geared motors or direct drives – our brake systems are precisely matched to your specific requirements. The BFK464-S dual-circuit brake with multi-coil technology has, for example, been optimised for fitting to the new generation of compact direct drives. Also, the kidney-shaped brake callipers of the BFK466 with multi-coil technology have been ideally matched to the contours of axially-short motors and are capable of generating high levels of braking torque.

The most important features of INTORQ brake systems for lifts:

- Redundant brake circuits
- Long-term stable noise reduction
- Stable braking torque, even on friction surfaces at high temperatures



High-efficiency and noise-reduced – INTORQ brake systems perform their duties inconspicuously in lifts and escalators



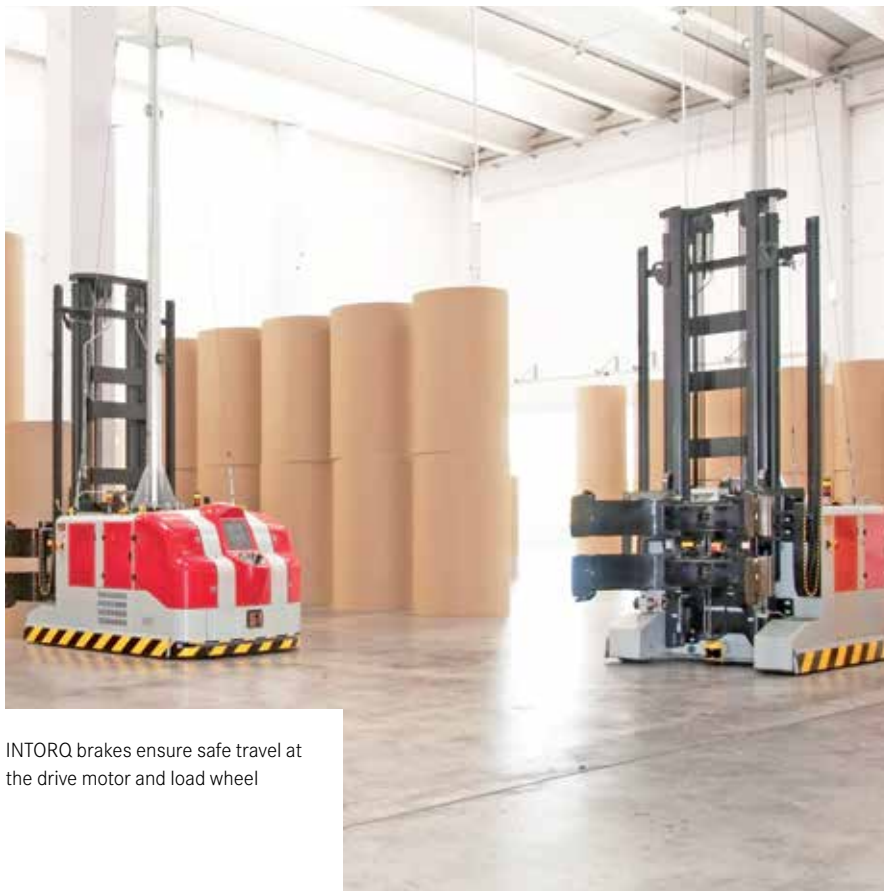
## Tried and tested, millions of times: brake systems for industrial trucks

INTORQ brake systems for industrial trucks have been specifically developed for use as parking/holding brakes with emergency stop capability.

In the field of drive technology for fork lifts, our brakes have already proven their effectiveness in thousands of DC-driven electric vehicles. We also offer specially adapted brake systems for vehicle developments based on AC technology.

The most important features of INTORQ brake systems for industrial trucks:

- The right brake for every application
- High levels of holding torque
- Long maintenance intervals
- High speed of rotation
- Compact design
- High emergency stop energy



INTORQ brakes ensure safe travel at the drive motor and load wheel



## Performance that convinces: brake systems for crane and port facilities

The key factor for brake systems in crane and port facilities and for the offshore sector is brake power due to high hook loads. However, we also place great emphasis on getting the specific details right. We have therefore developed special features for this application area, such as a dedicated manual release that complies with the strict requirements for environmental protection.

The most important features of INTORQ brake systems for crane and port facilities:

- High degree of protection, also in combination with manual release
- High level of braking torque in tight installation spaces
- Long maintenance intervals



Whenever and wherever cranes move, INTORQ brakes ensure secure braking and precise stops



## Durable and weather-resistant: brake systems for wind turbines

The economic success of wind turbines depends not only on their location, but also mainly on their operational availability, which in turn depends on the reliability of the components used. We have therefore developed special solutions for pitch and azimuth drives.

The special features of our brake systems include their long maintenance intervals, resistance to extreme climatic conditions and tight braking torque tolerances. The ruggedness and special corrosion protection of our brakes are therefore also setting standards in the offshore area.

The most important features of INTORQ brake systems for wind turbines:

- High degree of protection, also in combination with manual release
- Can be used up to  $-40^{\circ}\text{C}$  (CCV Cold Climate Version)
- Stable braking torque with defined performance limits



INTORQ brake systems have been key players in the growth market of wind energy from the very beginning





## Compact and heat-resistant: servo motors prefer INTORQ

Servo motors often only have a limited amount of space for the brake. Other restrictive conditions include high ambient temperatures and short operating times. Thanks to our many years of experience in the planning and implementation of projects, we can develop the ideal spring-applied brakes for these special conditions, individually tailored to meet the needs of your servo drives.

Our engineers accompany you in the organisation of the projects, all the way from the construction to the sample production and the series release. A comprehensive test laboratory is available on site for testing the brakes. Here the brakes are assessed in accordance with testing criteria that we define together. Following your requirements, we ascertain all the relevant rated data, such as rated torque, operating times, wear, and energy throughput. And we achieve a cost-optimised development process by using already available components and carrying out customer-specific modifications.

The most important features of INTORQ brake systems for servo motors:

- High braking torques, independent of temperature
- Compact dimensions
- Designed for 100 % duty cycle and high switching cycles
- Low angular backlash
- Rotors and hubs in different designs
- Designed for reversing duty
- Can be mounted on the A- or B-bearing side



Especially servo motors demand high braking torques in a limited amount of space



## Spring-applied brakes

### The versatile modular system

#### INTORQ BFK458



A modular system forms the basis for a product range that offers versions tailored to almost any task. As a standard product, the BFK458 spring-applied brake can be used anywhere, but its modular structure also meets the requirements of specific industries. Its strength lies in its versatility.

#### Features

- Braking torques: 1.5 – 600 Nm
- 9 sizes with CSA-CUS approval
- Temperature class F (155°C)
- Air gap precisely preset
- Braking torque can be reduced (E model)
- Long, low-wear rotor/hub guide
- Manual release devices for all sizes
- Optional air gap and wear monitor

#### Fields of application

Brake motors, cranes, warehouse equipment, woodworking machinery, industrial trucks, stage machinery, vehicles for disabled persons and escalators

### For harsh operating conditions

#### INTORQ BFK470



The BFK470 series is a scalable modular system for universal use. It provides ideal cover for special fields of application where high demands are made on the enclosure and the braking torque tolerance. The INTORQ modular system, which is unique in the market, always guarantees you fast availability all over the world.

#### Features

- Braking torques: 2 – 370 Nm
- 7 sizes
- Temperature class F (155°C)
- Enclosure compliant up to IP66
- Hand-release corresponding to enclosure IP66 for manual release for all sizes, two-way release
- Noise-reduced rotor

#### Fields of application

Brake motors, wind turbines, car wash systems, cranes, lifts, textile machines, food industry

**Compact, and flexible in deployment**  
**INTORQ BFK417**



Brakes are often required to provide high rated torques and at the same time be very compact. This is where the BFK417 comes in, as a project brake available in different sizes. Designed for mounting on the A- or B-bearing side in servo motors, it can be fastened in a variety of ways, depending on the mounting location.

**Features**

- Braking torques 0.12 - 220 Nm
- Various sizes
- Temperature class F (155°C)
- Shaft-hub connection: shrinkage, interference fit assembly, key
- Coil voltage from 24 to 205 VDC

**Fields of application**

Automation technology, robotics, materials-handling technology, logistics, general machine-building, such as packaging, tool, or textile machines

**Compact and fast installation**  
**INTORQ BFK457**



Brakes are often only required to perform their basic function. The BFK457 is ideal for these situations. The speed of installation with integral fixing screws and fixed air gap also make this spring-applied brake even more attractive.

**Features**

- Braking torques: 0.12 - 125 Nm
- 11 sizes
- Temperature class F (155°C)
- Compact construction with rotor and flange
- Integral fixing screws for quick and easy installation
- Precisely set air gap
- Noise-reduced as a dual spring-applied brake <50dB(A)

**Fields of application**

Small motors, vehicles for disabled persons, woodworking machinery, automation systems and general engineering

## Compact size, stable performance

### INTORQ BFK464-R



Discover new perspectives: the BFK464-R is the brand-new INTORQ brake for your lifts – smaller, more powerful, and more compact. Making the comparison is worth it ...

By optimising the power density of the new BFK464-R we are able to offer our customers their required torque in a more compact size. This saves you space and costs! But the BFK464-R power package offers even more: fast switching, sophisticated noise-reduction (stable in terms of temperature and service life), and condition monitoring with the help of our tried-and-tested micro switches.

**NEW**



When brake systems are used in lifts applications, safety has top priority. Our brake systems are tailored precisely to your needs, whether for geared motors or direct drives. The BFK464-R dual circuit brake with multi-coil technology, for example, is optimised for mounting on the new generation of compact direct drives.

#### Features

- Braking torque: 2x150 – 2x1200 Nm
- 7 sizes
- Rotatable hand-release can be retro-fitted (optional)
- Air gap protected by a seal
- Cost-optimised excitation with bridge rectifier / half-wave rectifier (required)
- Safe operation by monitoring the brake circuits with micro switches
- Type tested

#### Field of application

Lifts

### The high-standard performance INTORQ BFK455



The BFK455 double spring-applied brake is also specially designed for use in hoist applications. The redundant braking system offers stable, long-term noise reduction and a stable braking torque even on high-temperature friction surfaces.

#### Features

- Braking torques: 2x1200 Nm – 2x2065 Nm
- New voltage variant through reduction from 103V to 72V 103 V auf 72V
- Hand-release can be retrofitted (optional)
- Flat design
- Safe operation by monitoring the braking circuits with micro switches
- Type tested

#### Fields of application

Lifts

### The high-performance standard INTORQ BFK468



High-performance drives are reaching ever greater motor speeds and levels of drive torque. Yet despite the increasing performance requirements, the space allocated for the accompanying brakes is getting smaller. The INTORQ spring-applied brake for the high-performance field is the BFK468. Thanks to its innovative multi-pole technology, it is released with high forces even with large air gaps.

#### Features

- Braking torques: 100 – 2400 Nm
- Spring-applied brake with multi-coil system
- Up to twice the braking torque of the BFK458
- With fixed or adjustable braking torque
- High magnetic forces through special control
- Fast switching times thanks to low brake inductance
- Long maintenance intervals thanks to large working air gap
- Release or wear monitoring with micro switch

#### Fields of application

Brake motors, crane systems, port facilities, stage machinery, storage technology

## Electromagnetic clutches and brakes

### Electromagnetic clutch and brake

INTORQ 14.105 and 14.115



Electromagnetic clutches and brakes control the speed of distributed drive groups in machines with central drive. INTORQ products excel through their fast switching times, low motor moments of inertia and zero-backlash torque transmission.

#### Features

- Rated torque from 7.5 – 480 Nm
- 7 sizes
- Temperature class B (130°C)
- Zero-backlash torque transmission
- Extremely versatile thanks to different magnet and armature plate designs
- High switching frequencies thanks to fast switching times and low motor moments of inertia

#### Fields of application

Packaging machines, machine building and plant construction, door operating drives, folding machines and printing presses

### Clutch-brake combinations

INTORQ 14.800



Clutch-brake combinations are often used in clocked systems with mains-synchronised drive speeds. They are robust and easy to maintain.

#### Features

- Rated torque from 7.5 – 120 Nm
- 5 sizes
- Temperature class B (130°C)
- Brake and clutch fitted in a single housing
- Fast acceleration and braking at constant motor speed
- Easy to maintain thanks to patented wear adjustment system

#### Fields of application

Packaging and labelling machines, filling plants, machinery and apparatus construction

## Setting standards in the market, 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:

E-mail [service@intorq.de](mailto:service@intorq.de)

Tel: +49 5154 70534-222

Fax: +49 5154 70534-200

You can find more information on our products, as well as catalogues and operating instructions available for download, on our website at [www.intorq.de](http://www.intorq.de)



