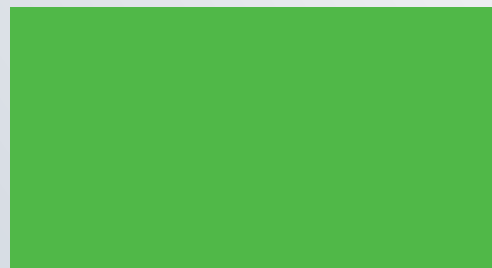


## PRODUCT OVERVIEW

### Clutches and Brakes >

**Clutches and Brakes**  
for Energy Efficient Drives  
with high Standards



## ELECTROMAGNETIC CLUTCHES AND BRAKES – YOUR DRIVE SOLUTION WITH A CLEAN AND RELIABLE TORQUE TRANSMISSION >

### SPRING-APPLIED BRAKE 4BZFM

FOR OFFSHORE AND MARINE APPLICATION, FLOOD- AND SEAWATER-PROOF

#### Features:

The 4BZFM brake type with its very high degree of protection fulfils the highest requirements for durability, robustness and seawater resistance.

#### Applications:

Offshore on deck motor winches, anchor windlasses, deck cranes, cargo winches and trawler winches; in rolling mills, steel mills and mining under difficult climatic conditions.



### BENEFITS INCLUDE >

- > Braking torque range 63 – 11,000 Nm (higher on request)
- > Degree of protection up to IP 67
- > All components with special surface protection
- > Type approvals: GL, LRS, ABS, DNV, BV, RR (on request)
- > Simple mounting, highly serviceable, fully functional without cover
- > Connecting flanges to IEC standards
- > Robust, reliable design with low inertia
- > Braking does not generate any additional axial or radial forces
- > Excellent heat dissipation
- > Wide range of options like tachometer mounting, terminal box, anticondensation heater, micro switches to monitor switching states and/or wear indication
- > Rectifiers and quick switching units optimise switching comfort

### SPRING-APPLIED BRAKE NFF4F-LS

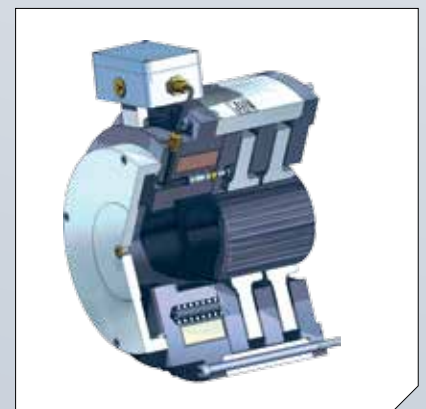
FOR SLOW-RUNNING HIGH TORQUE DRIVELINES, IN HARSH ENVIRONMENT

#### Features:

The four-face brake range has been developed for industrial and crane applications requiring for slow running drives a very high brake torque with closed design.

#### Applications:

Cranes, conveyors, assembling lines, presses with electric torque motor drives, electric gearless drives and heavy industry.



### BENEFITS INCLUDE >

- > Comprehensive brake torque range 4,000 – 40,000 Nm
- > Degree of protection up to IP 66
- > All components with special surface protection
- > Concentricity through body for tachometer fixing
- > Simple mounting, no brake disassembly required
- > Extremely low inertia
- > High heat dissipation

### POLE-FACE FRICTION CLUTCH MWU

FOR THE POWERFUL ACTUATION OF AUXILIARY POWER GENERATING SETS IN VEHICLES, GENERAL MECHANICAL ENGINEERING

#### Features:

The growing integration of different drive forms in drive trains (hybrid technologies) and the development of low-consumption drives require the activation and deactivation of diverse subassemblies. They also require clutches with low consumption and an excellent torque to space ratio that can disengage quasi free from residual torque.

#### Applications:

Actuation of auxiliary power generating sets in agricultural machinery, municipal vehicles, textil machines, for compressor drives for refrigeration sets, booster sets in motor vehicles, laundry machines, proof systems.

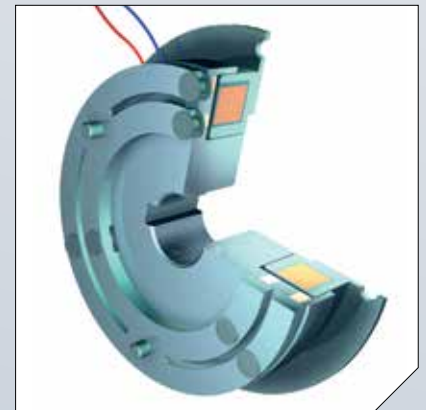


#### BENEFITS INCLUDE >

- > Torque: 400 – 7,800 Nm
- > Available in various executions e.g. flange-shaft, shaft-shaft and for through shaft arrangement
- > Variety of designs e.g. for reception of a pump, with plug-in shaft and drive pulley with inbuilt bearings, connection for cardan shaft
- > Combination variant with elastic coupling
- > Electromagnetically operated for clean, simple actuation
- > Four-pole technology for high power density
- > High switching frequency
- > Short switching times
- > Fixed and wear free power transmission without slip ring
- > Diaphragm technology for torque transmission free from backlash and disengagement free from residual torque
- > Low idling torque
- > Diaphragms for low axial restoring forces
- > Steel-steel friction combination, hardened for high wear resistance

### POLE-FACE FRICTION CLUTCH MFT

STANDARD CLUTCH SOLUTION FOR ENGAGEMENT OF INDUSTRIAL DRIVES



#### BENEFITS INCLUDE >

- > Torque: 7 – 1,000 Nm
- > Electromagnetically operated for clean, simple actuation
- > Four-pole technology for high power density
- > Small dimensions
- > Additional hub as option
- > High switching frequency
- > Fixed and wear free power transmission without slip ring
- > Short switching times
- > Diaphragm technology for torque transmission free from backlash and disengagement free from residual torque
- > Low idling torque
- > Diaphragms for low axial restoring forces
- > Steel-steel friction combination, hardened for high wear resistance

## SPRING-APPLIED BRAKE NFF

FOR COMPACT INDUSTRIAL AND CRANE APPLICATIONS  
WITH A HIGH PROTECTION AGAINST HARSH ENVIRONMENT

### Features:

With its high degree of protection the brake fulfils the highest requirements for durability and robustness.

### Applications:

On harbour and marine cranes, in container transportation plant, for long travel drives, hoisting and trolley travel gears, suitable for seawater environment and similar harsh environments.



### BENEFITS INCLUDE >

- > Braking torque range 20 – 10,000 Nm (higher on request)
- > Degree of protection up to IP66
- > All components with special surface protection
- > Type approval: GL
- > Simple mounting, no brake disassembly required
- > Braking does not generate any additional axial or radial forces.
- > Excellent heat dissipation
- > Wide range of options like braking torque adjustment, manual release, tachometer mounting, terminal box, anticondensation heater, micro switches to monitor switching states and/or wear indication
- > Rectifiers and quick switching units optimise switching comfort
- > Robust, reliable design with low inertia

## SPRING-APPLIED BRAKE BZFM V7

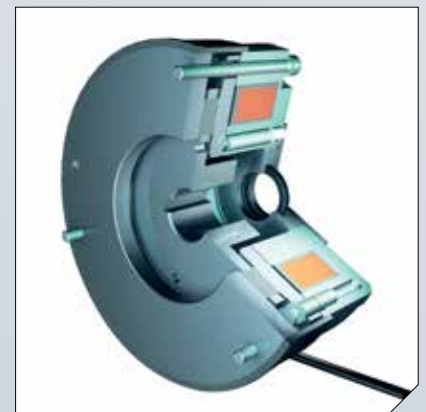
FOR STANDARD ELECTRIC MOTORS, GENERAL INDUSTRIAL APPLICATIONS

### Features:

Completely pre-mounted and adjusted the brake fulfils highest requirements for a high heat capacity and less wear.

### Applications:

Brake series for mounting at electric motors in general machinery, wind turbine generator systems and conveyor technology.



### BENEFITS INCLUDE >

- > Braking torque range 3 – 380 Nm
- > Degree of protection up to IP 44 with rubber sleeve and seal ring on through shaft
- > Simple mounting, no brake disassembly required
- > The fitted friction pads present an intermittent friction surface for good heat dissipation
- > Axially flexible friction pads in the carrier allow high fastening tolerances
- > Fitted as standard with a manual release for simple retrofits
- > Compact, simple design, standard brake for wide range of applications
- > Adjusting ring fitted as standard for simple torque reduction up to 55 % of the rated torque

## SPRING-APPLIED BRAKE HPI

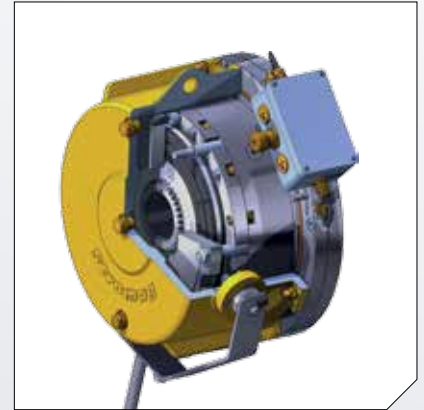
FOR INDUSTRIAL AND CRANE APPLICATIONS WITH A  
VERY HIGH PROTECTION AGAINST HARSH ENVIRONMENT

### Features:

With a compact design and a high wear-resistance the brake assures a high durability.

### Applications:

Holding and working brake variations for industrial applications where high protection against harsh environment is essential. For drives for port cranes and heavy machinery e.g. coal mining, steel plants and rolling mills.



### BENEFITS INCLUDE >

- > Braking torque range 100 – 1,600 Nm
- > Degree of protection up to IP 67
- > All components with special surface protection
- > Operative without cover
- > Simple assembly to motor, no dismantling of brake required.
- > Positive feel hand release mechanism
- > Proven reliable design
- > Sealed inspection holes for air gap or lining wear
- > Extremely low inertia
- > High heat dissipation
- > Wide range of options like hand release lever, preparation for speedometer installation, terminal box, stand still heater, micro switches to monitor switching states and/or wear indication

## POLE-FACE FRICTION BRAKE MFK/MWU-B

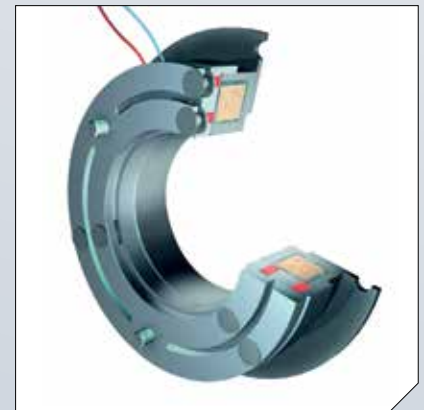
THE ACTIVE BRAKE SOLUTION FOR ALL KIND OF INDUSTRIAL APPLICATIONS

### Features:

The electromagnetic pole-face friction brakes are active brakes with a high ratio of torque to mounting space ensuring the transmission of torque free from backlash. They are particularly suitable for the active, nontwisting and energy efficient retention and positioning of drives.

### Applications:

The MWU-B type with cap for IP 67 protection can be used offshore and under other difficult climatic conditions as in rolling mills, steel mills and mining.



### BENEFITS INCLUDE >

- > Braking torque range 7 – 7,800 Nm (higher on request)
- > Operating-current brake with four pole technology for high power density
- > With optional cap suitable for IP 67 protection (MWU-B type)
- > High switching frequency
- > Short switching times possible with optimised actuation
- > Diaphragm technology for torque transmission free from backlash and disengagement free from residual torque
- > Diaphragm connection for low axial restoring forces
- > Steel-steel friction combination, hardened for high wear resistance

**GKN Land Systems® 2014**

PO Box 55,  
Ipsley House,  
Ipsley Church Lane,  
Redditch,  
Worcestershire B98 0TL  
P: +44 (0)1527 517 715

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### > TO POWER APPLIED

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Dessauer Str. 10  
06844 Dessau-Roßlau  
P: +49 (340) 2190-203  
F: +49 (340) 2190-201  
vertrieb.str105@gkn.com  
www.stromag.com



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is a company of GKN Land Systems

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