WORLDWIDE LEADER IN OIL TECHNOLOGY

MAGNASHEAR™

SPRING SET ELECTRIC RELEASE MOTOR BRAKES FEATURING OIL SHEAR TECHNOLOGY

NO ADJUSTMENT – EVER!
YEARS OF MAINTENANCE FREE SERVICE

ISO 9001 CERTIFIED

FORCECONTROL.COM
THE ADVANTAGES OF MAGNASHARE BRAKES WITH OIL SHEAR TECHNOLOGY

- Longer life - in typical applications it is not unusual to see 5 to 10 times the service life of most competitive products.
- No Regular Maintenance* - There is no regular maintenance replacing friction discs, pads, or shoes, bearings, O-rings, or coils.
- No Adjustment – Ever! - The unique design and Oil Shear Technology eliminate the need for regular adjustment.
- Lower Cost per Index - Reduced maintenance, no adjustment - ever, and Longer life = lower cost per index.
- Less Down Time - The unique design, high quality components and Oil Shear Technology mean less chance of failure causing unexpected downtime.
- Higher Cycle Rates - Oil Shear Technology enables higher cycle rates by continuously removing heat in the friction stack.
- Quieter Operation - the combination of Oil Shear Technology and the heavy duty sealed housings eliminate the sharp noise of engagement and eliminate any squeal of acceleration or deceleration.
- Improved Efficiency - Low rotating inertia and reduced power consumption with the PWM board improves efficiency.
- Improved Safety - Reduced maintenance and need for adjustment decreases the chance of unexpected failure.

*Annual fluid change recommended for maximum performance and life.

OIL SHEAR TECHNOLOGY

Specially formulated transmission fluid is used for cooling and provides a hydroviscous fluid film between the friction disc and the drive plate during the dynamic phase of engagement.
SUCCESSFUL APPLICATIONS
- Cranes/Winches/Hoists
- Palletizing
- Conveying
- Indexing
- Turn Overs/Dumpers
- Coal Sampling
- Production Machines
- Automotive Production
- Marine Winches/Hoists

TYPICAL INDUSTRIES
- Lumber
- Mining
- Packaging
- Steel
- Fabrication
- Pipe Mills
- Food Processing
- Meat Packing
- Breweries
- Bottling Plants
- Military
- Concrete Blocks
- Rail Loading/Unloading
- Ice Cream
- Bakeries
- Candy

SPECIFICATIONS
- Spring Set Electric Release
- Torque 6 Lb. Ft. to 1250 Lb. Ft.
- Fits NEMA Frame 56 to 440 motor frames.
- IEC and Custom frame available
- Wash Down, Marine Duty, Hazardous Duty, Crane Duty
- Manual Release, lock out, and released indicator available
- Can also be furnished as an assembled brake motor.

OPTIONS & ACCESSORIES

MAGNASHEAR COUPLER BRAKE
Magnashear™ Electrically Actuated Spring Set Oil Shear Coupler Brake

The Magnashear™ Oil Shear Spring Set Coupler brake turns any standard C-face motor into a high performance brake-motor eliminating the need to purchase a special motor designed for a brake. This is feasible with the Magnashear Coupler brake because of the extremely long service life, and no “adjustment needed – ever” performance means the brake does not have to be removed for maintenance or adjustment.

- Designed around world renowned Oil Shear Technology
- Never Needs Adjustment - Ever
- No regular maintenance
- Quick response
- Lasts 5-10 times longer than the competition
- 2 sizes to fit motor frames 56 to 215T
- Torque Range - 6 Lb. Ft. to 33 Lb. Ft.
- Totally Enclosed - Water and Dust Tight

CRANE DUTY BRAKES
The MagnaShear crane duty brakes are designed for the high cycle, jogging operation experienced by many overhead crane applications. The heavy duty cast housings, multiple disc, direct acting magnet, and split clamped or splined quill all make the MagnaShear brakes reliable and safe.

Oil Shear Technology adds smooth engagement, high heat absorption, quiet operation, and 5 to 10 times longer life with no regular maintenance and no adjustment – ever!

Many crane brakes are custom designed by the crane manufacturer to fit special motors or gearboxes. Force Control can modify the MagnaShear brakes to fit many of these custom applications.

HAZARDOUS DUTY
Hazardous Duty brakes are required where there is a potential of fire or explosion due to a failure of the braking system. The size MSB2 through MSB10 is available in a hazardous duty design certified to meet UL Class I and II Div 2 specifications.
STEEL-IT EPOXY COATING SYSTEM A Steel It epoxy coating protects the housing from most common moisture or chemical agents. The STEEL-IT Epoxy Coating System utilizes a unique stainless steel leafing pigment. This catalyzed system creates a hard, non-toxic, metallic finish that safeguards a wide variety of materials from the effects of ultraviolet rays, chemicals, oils, alkalis, food acids, water immersion, abrasion, and high pressure wash downs.

LOW TEMPERATURE The MagnaShear brakes can be modified for low temperature operation to -40 degrees. A special synthetic fluid is used and internal heaters keep the fluid warm.

MANUAL RELEASE Designed to allow manual release of the brake when power is off. This allows movement of the machine for maintenance purposes while the power is locked out.

RELEASE INDICATOR SWITCH A mechanical switch that indicates the brake is released. This can be used to disable starting the motor if the switch indicates the brake is not released.

SPLINE QUILL Especially when doing a retrofit on a crane a splined shaft is often used and requires a splined quill. Force Control Industries can make splined quills with a drawing or by making a mold of the existing spline.

STUB SHAFT There are times when an encoder is required especially with VFD drives. The optional shaft extension out the back of the brake is ideal for mounting an encoder.

STEP DOWN TRANSFORMER All MagnaShear Brakes are designed to operate on 115 Volt AC input power. This typically would come from the main motor switch panel auxiliary contactor. Wiring any brake directly into the motor leads can cause problems such as premature coil failure and sluggish response due to back emf. However this is often done for convenience. To wire the MagnaShear Brake directly into the motor leads a step down transformer is required. This makes a single brake available for most standard voltages such as 230VAC 460 VAC, 575 VAC, 360VAC as well a 50 or 60 Hz.

WASHDOWN/MARINE DUTY The purpose of the washdown option is to prevent corrosion and liquid ingress from exposure to rain, water, salt water spray, or high pressure wash down.

The MagnaShear motor brakes are by design totally enclosed in heavy duty cast iron or cast aluminum housings. Corrosion is controlled using nickel plated shafts, stainless or non-ferrous bolts, sight gauges, breathers, clamp collars, and a corrosion resistant epoxy coating, typically Steel It. Preventing the ingress of water or other fluids is sealed breathers, shaft seals, and housing/conduit box seals.

Food grade fluid is used for food processing applications and bio-degradable fluid is used for marine duty units.

CONTACT FORCE CONTROL
Force Control Industries, Inc
p: 513.868.0900 f: 513.868.2105
info@forcecontrol.com
ForceControl.com
## MagnaShear Specifications and Dimensions Standard, Hazardous Duty, Crane Duty

### Size

<table>
<thead>
<tr>
<th>Size</th>
<th>Static Torque (Lb. Ft.) (Nm)</th>
<th>Motor Frame Size</th>
<th>Pilot Dia. FAK (in.)</th>
<th>Bolt Circle Dia.FAJ (in.)</th>
<th>Quill</th>
<th>Bore Dia. FU (In.)</th>
<th>Min/Max Shaft Length FAH (in.)</th>
<th>L Overall Length</th>
<th>L2 Max Length (in.)</th>
<th>H Height (In.)</th>
<th>W Width (In.)</th>
<th>Oil Capacity (Fl. Oz.)</th>
<th>Weight (Lbs.)</th>
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<tbody>
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<td>MSB2</td>
<td>6</td>
<td>8</td>
<td>12</td>
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<td>143</td>
<td>145</td>
<td>5.875</td>
<td>.875</td>
<td>1.00 - 2.19</td>
<td>7.96</td>
<td>10.02</td>
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<td>286</td>
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<td>3.625</td>
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<td>300</td>
<td>350</td>
<td>450</td>
<td>284</td>
<td>324</td>
<td>320</td>
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<td>1.375</td>
<td>3.86 - 5.23</td>
<td>14.82</td>
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<td>900</td>
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### MagnaShear Coupler Brake Dimensions

<table>
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<tr>
<th>Size</th>
<th>Static Torque (Lb. Ft.) (Nm)</th>
<th>Motor Frame Size</th>
<th>Pilot Dia. AK/FAK (in.)</th>
<th>Bolt Circle A/H.FAJ (in.)</th>
<th>Quill</th>
<th>Bore Dia. FU (In.)</th>
<th>Min/Max Shaft Length FAH (in.)</th>
<th>Dia. U (In.)</th>
<th>Shaft Length FAH (In.)</th>
<th>L Overall Length</th>
<th>L2 Max Length (in.)</th>
<th>H Height (In.)</th>
<th>W Width (In.)</th>
<th>Oil Capacity (Fl. Oz.)</th>
<th>Weight (Lbs.)</th>
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<td>7.96</td>
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<td>5.875</td>
<td>7.250</td>
<td>1.37 - 2.89</td>
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<td>10.10</td>
<td>8.10</td>
<td>10.10</td>
<td>10.10</td>
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**Note:** All dimensions are approximate and may vary with specific models or options. Request certified drawings.

### How To Order A MagnaShear Motor Brake

**MSB** - Standard Motor Brake  
**MCB** - MagnaShear Crane Duty Brake  
**MHB** - Hazardous Duty Brake

<table>
<thead>
<tr>
<th>Size</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<td>C</td>
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<td>4</td>
<td>6</td>
<td>8</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>T</td>
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<tr>
<td>MHD</td>
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<td>8</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>T</td>
<td></td>
</tr>
</tbody>
</table>

**(1) Brake Size**

2 = MSB2, MCB2, MHB2  
4 = MSB4, MCB4, MHB4  
6 = MSB6, MCB6, MHD6  
8 = MSB8, MCB8, MHB8  
A = MSB8, MCB8, MHD8  
B = MSB10, MCB10, MHD10  
C = MSB12, MCB12  
T = MSB12 (16.00')

**(2) Pilot Dia. (FAK)**

4 = MSB4 (5.875 Dia.)  
5 = MSB5 (5.875 Dia. & 7.250 Dia.)  
8 = MSB8 (7.250 Dia.)  
C = Coupler, MSB2, MSB4  
Q = MSB8, MSB8  
R = MSB7, MSB8, MSB9  
S = MSB7, MSB8, MSB10 (10.60') Dia.

**(3) Mounting Position**

H = Horizontal Standard (All Sizes)  
J = Horizontal high oil level (Except MSB4, 5 & 6)  
Z = Horizontal Marine Duty  
U = Vertical Brake Up (Except MSB12)  
D = Vertical Brake Down (Except MSB12)  
P = Vertical Brake Up-Marine  
W = Vertical Brake Down-Marine  
F = Vertical Brake Up-Flush  
G = Vertical Brake Down-Flush  
K = Vertical Brake Down-Washdown  

**(4,5,6) Torque**

<table>
<thead>
<tr>
<th>Size</th>
<th>Size MSB2</th>
<th>Size MSB4</th>
<th>Size MSB6</th>
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<tr>
<td>006</td>
<td>+5 Lb. Ft.</td>
<td>+5 Lb. Ft.</td>
<td>+5 Lb. Ft.</td>
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<tr>
<td>008</td>
<td>+8 Lb. Ft.</td>
<td>+8 Lb. Ft.</td>
<td>+8 Lb. Ft.</td>
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<tr>
<td>021</td>
<td>+21 Lb. Ft.</td>
<td>+21 Lb. Ft.</td>
<td>+21 Lb. Ft.</td>
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<tr>
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<td>+33 Lb. Ft.</td>
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<td>+100 Lb. Ft.</td>
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<tr>
<td>170</td>
<td>+175 Lb. Ft.</td>
<td>+175 Lb. Ft.</td>
<td>+175 Lb. Ft.</td>
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</table>

**(7) Manual Release**

1 = Manual Release (not available on MSB2 or coupler)  
2 = Manual Release with Encoder Stub Shaft (not available on MSB2)

**(8) Coupler Brakes (Bore & Shaft Dia.)**

1 = 6.25" - 6.25"  
2 = 6.25" - 6.25"  
3 = 8.75" - 8.75"  
4 = 12.50" - 12.50"

**(9) Voltage**

M = 115 VAC release indicator switch included on MSB7 - MSB12  
O = Other (requires separate switch)  
N = 230 VAC

**(10) Encoder Options**

1 = 600 LpM 2 = 600 LpM 3 = 900 LpM 4 = 1200 LpM
**MAGNASHEAR™ SPRING SET ELECTRIC RELEASE OIL SHEAR MOTOR BRAKES**

**WHAT IS A MAGNASHEAR SPRING SET ELECTRIC RELEASE OIL SHEAR MOTOR BRAKE?**

MagnaShear Spring Set Electric Release Motor Brakes are designed to mount to the fan end of a NEMA electric motor. Mounting to the motor provides a clean package, simple to mount, no alignment issues, no couplings required or special foot mounting bases.

They are used for applications where the motor stops and starts or reverses each index, and needs a brake to stop and hold between cycles.

The MagnaShear brakes are dynamic stopping brakes meaning they can stop a moving load without damage or wear.

The spring set brake requires no power when holding. Therefore when the power is off, the brake is set and holding. If there is a power failure the brake would come on safely, stopping the machine.

Oil Shear Technology supplies a film of transmission fluid through the friction stack separating the friction discs and drive plates, while dynamically stopping the load. This system removes the heat from the engagement area and nearly eliminates wear. This means no adjustment is ever needed over the life of the brake.

**FEATURES OF A MAGNASHEAR BRAKE**

- Spring set electrically released - 115 VAC through pulse width modulation for reduced heat and energy cost. Simple transformers are used for alternate voltages. Some DC actuation is available.
- Direct acting coil eliminates small linkage parts to corrode, hang up, or fail.
- Multiple disc design for high thermal capacity and low rotating inertia
- Oil Shear Technology for smooth cushioned stops, minimal wear, no adjustment required, superior heat dissipation and consistent, accurate stopping
- Heavy duty totally enclosed sealed housing for protection in severe dusty, dirty, or wet applications.
- Optional wash-down and marine duty designs
- Custom flange designs for IEC, reducer mounting, or old crane retrofits.
- Manual release, optional release indicator switch, heater, encoder shaft,
- Quick mount design installs in one piece. No assembling parts on the motor, small parts to drop, covers to remove for adjustment.
- Wash Down, Marine Duty, Hazardous Duty, Crane Duty

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