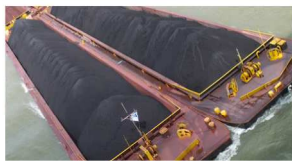
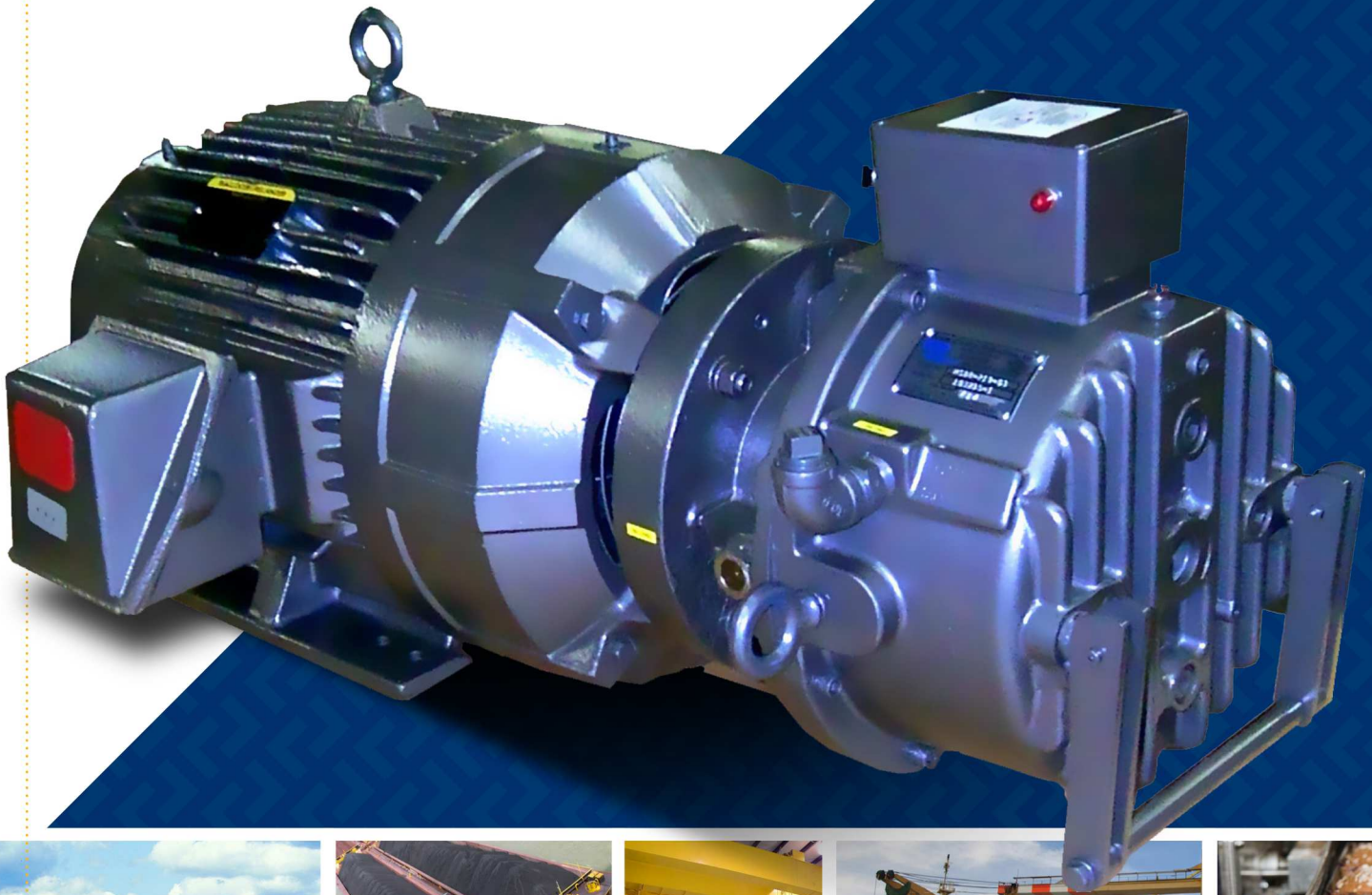


WORLDWIDE LEADER IN OIL TECHNOLOGY

MAGNASHEAR™

**SPRING SET ELECTRIC RELEASE
MOTOR BRAKES FEATURING OIL
SHEAR TECHNOLOGY**



**NO ADJUSTMENT – EVER!
YEARS OF MAINTENANCE FREE SERVICE**

ISO 9001 CERTIFIED



FORCECONTROL.COM

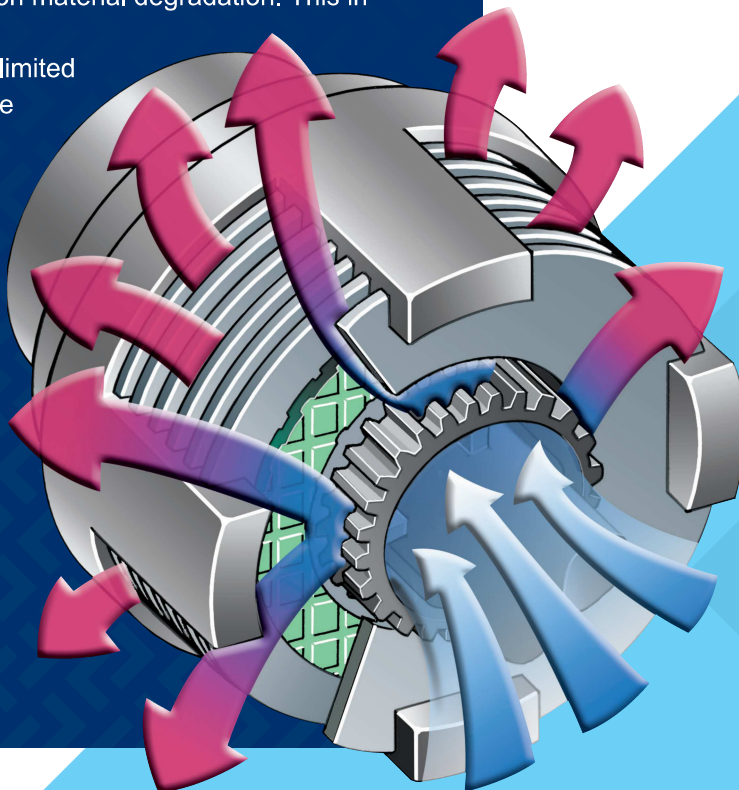
OIL SHEAR TECHNOLOGY

Oil Shear Technology Provides Force Control Clutches and Brakes With Increased Cycle Life, Higher Cycle Rates, and Lower Cost per Cycle.

The MagnaShear motor brakes with Oil Shear Technology are of the wet or hydroviscous type which transmit torque between the drive plates and friction surfaces. 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.

The transmission fluid in shear transmits torque between the two components increasing as the clamping pressure increases until mechanical lock up occurs. By cooling the friction surfaces and reducing the mechanical wear, a significant increase of thermal capacity and total cycle life is possible.

Many competitive clutches and brakes depend on friction between dry surfaces surrounded by air to transmit torque. During engagement of dry surfaces, high heat caused by slipping is difficult to dissipate quickly causing wear, glazing, and friction material degradation. This in turn causes positioning inaccuracy, limited service life, and possible safety issues.



THE ADVANTAGES OF MAGNASHEAR 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 cycles 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.

MAGNASHEAR BRAKE APPLICATIONS, INDUSTRIES & SPECIFICATIONS



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.

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.



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.

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.



Manual Release



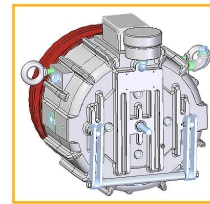
Release Indicator Switch



Washdown/ Marine Duty



Low Temperature



Hazardous Duty



Crane Duty Brakes



CONTACT FORCE CONTROL

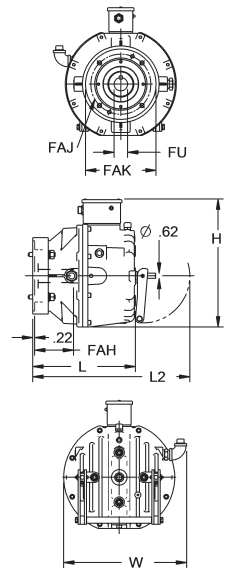
Force Control Industries, Inc
p: 513.868.0900 f: 513.868.2105
info@forcecontrol.com
ForceControl.com



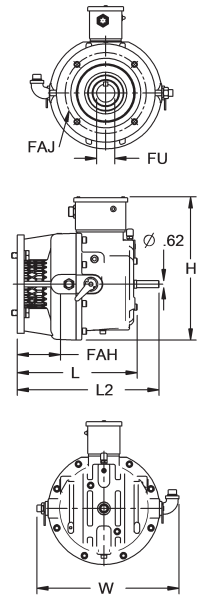
MagnaShear Specifications and Dimensions Standard, Hazardous Duty, Crane Duty

Size	Static Torque (Lb. Ft. (Nm))		Motor Frame Size	Pilot Dia. FAK (in.)	Bolt Circle FAJ (in.)	Quill		L Overall Length	L2 Max Length (in.)	H Height (in.)	W Width (in.)	Oil Capacity (Fl. Oz.)	Weight (Lbs.)
						Bore Dia. FU (in.)	Min/Max Shaft Length FAH (in.)						
MSB2	6	(8)	56	N/A	5.875	.625	1.00 - 2.19	7.96	10.02	10.26	9.84	28	21
MHD2	8	(11)	143										
MCB2	12	(16)	145										
MSB4	14	(19)	182	N/A	5.875	.875 - 1.125	1.37 - 2.89	8.10	10.10	10.25	10.64	40	50
MHD4	21	(28)	184										
MCB4	33	(45)	213										
MSB6	32	(43)	213	8.500	7.250	.875 - 1.625	2.00 - 3.75	10.55	12.7	13.37	10.89	80	65
MHD6	62	(84)	215										
MHD6	86	(117)	254										
MCB6	100	(136)	256										
Size	Static Torque (Lb. Ft. (Nm))		Motor Frame Size	Pilot Dia. FAK (in.)	Bolt Circle FAJ (in.)	Quill		A Overall Length	L2 Max Length (in.)	B Height (in.)	G Width (in.)	Oil Capacity (Fl. Oz.)	Weight (Lbs.)
						Bore Dia. (in.)	Min/Max Shaft Length FAH (in.)						
MSB7	95	(129)	254	8.50	9.00	1.375 - 1.875	3.00 - 4.38	12.4	13.14	24.15	9.84	50	70
MHD7	135	(183)	256										
MCB7	170	(230)	284										
MSB8	100	(136)	254	8.50	11.0	1.375 - 1.875	3.86 - 5.23	14.82	10.02	10.26	9.84	180	170
MHD8	150	(203)	256										
MCB8	200	(271)	284										
MSB9	250	(339)	284	10.50	12.50	1.625 - 2.375	2.75 - 4.62	15.51	19.48	17.77	16.84	192	270
MHD9	300	(407)	286										
MHD9	350	(475)	324										
MCB9	450	(610)	326										
MSB10	500	(678)	364	10.50	12.50	1.875 - 2.375	2.75 - 4.62	15.51	19.75	17.77	16.84	192	270
MHD10	600	(813)	365										
MHD10	650	(881)	404										
MCB10	750	(1017)	405										
MSB12	625	(847)	444	16.00	14.0	1.875 - 3.625	3.00 - 5.13	23.35	30.54	23.40	24.30	384	600
MHD12	950	(1288)	445										
MHD12	1250	(1695)	447										
MCB12			449										

MSB7-12



MSB2-6



MagnaShear Coupler Brake Dimensions

Size	Static Torque (Lb. Ft. (Nm))		Motor Frame Size	Pilot Dia. AK/FAK (in.)	Bolt Circle AJ/FAJ (in.)	Quill (FU)		Shaft		L Length (in.)	H Height (in.)	W Width (in.)	Oil Capacity (Fl. Oz.)	Weight (Lbs.)
						Bore Dia. FU (in.)	Min/Max Shaft Length FAH	Dia. U (in.)	Shaft Length (in.)					
MSB2C	6	(8)	56	N/A	5.875	.625	1.00 - 2.19	.625	1.00 - 2.19	10.02	10.26	7.48	28	21
	8	(11)	143											
	12	(16)	145											
MSB4C	14	(19)	182	N/A	5.875	.875	1.37 - 2.89	.875	2.63	10.10	11.36	8.50	40	50
	21	(28)	184											
	33	(45)	213											

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 MHD - Hazardous Duty Brake

MSB	MCB	MHD	1	2	3	4	5	6	7	8	9
-----	-----	-----	---	---	---	---	---	---	---	---	---

(1) Brake Size

2	=MSB2, MCB2, MHD2
4	=MSB4, MCB4, MHD4
6	=MSB6, MCB6, MHD6
7	=MSB7, MCB7, MHD7
8	=MSB8, MCB8, MHD8
9	=MSB9, MCB9, MHD9
A	=MSB10, MCB10, MHD10
C	=MSB12, MCB12

(2) Pilot Dia. (FAK)

4	=MSB2 (5.875 Dia.)
5	=MSB4 (5.875 Dia. & 7.250 Dia.)
8	=MSB6 (7.250 Dia.)
C	=Coupler, MSB2 4.500 Dia, MSB4 (8.500 Dia)
Q	=MSB7, MSB8 (8.50" Dia.)
R	=MSB7, MSB8, MSB9, MSB10 (10.50" Dia.)
S	=MSB8, MSB9, MSB10 (12.50" Dia.)
T	=MSB12 (16.00")

(3) Mounting Position

H	=Horizontal Standard (All Sizes)
J	=Horizontal high oil level (Except MSB, 4 & 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	=Horizontal Washdown
G	=Vertical Brake Up-Washdown
K	=Vertical Brake Down-Washdown

(4,5,6) Torque

Size MSB2	Size MSB9
006	=6 Lb. Ft.
008	=8 Lb. Ft.
012	=12 Lb. Ft.
Size MSB4	450 =450 Lb. Ft.
014	=14 Lb. Ft.
021	=21 Lb. Ft.
033	=33 Lb. Ft.
Size MSB6	600 =600 Lb. Ft.
038	=38 Lb. Ft.
062	=62 Lb. Ft.
086	=86 Lb. Ft.
100	=100 Lb. Ft.
Size MSB7	600 =600 Lb. Ft.
95	=95 Lb. Ft.
135	=135 Lb. Ft.
170	=175 Lb. Ft.
Size MSB8	600 =600 Lb. Ft.
100	=100 Lb. Ft.
150	=150 Lb. Ft.
200	=200 Lb. Ft.
250	=250 Lb. Ft.

(7) Manual Release

R	=Manual Release (not available on MSB2 or coupler)
B	=Manual Release with Encoder Stub Shaft (not available on MSB2)
S	=None (Std. on MSB2 & 4)

(8) Bore Dia.

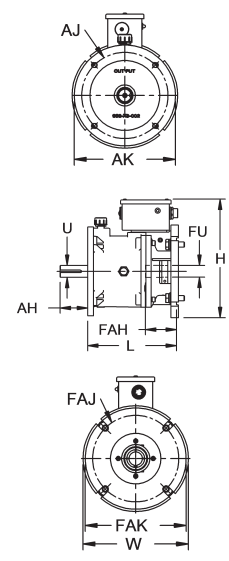
A	=.625"
0	=.875"
1	=1.125"
2	=1.250"
3	=1.375"
5	=1.625"
7	=1.875"
B	=2.000"
C	=2.125"
D	=2.250"
E	=2.375"
G	=2.625"
J	=2.875"
K	=3.000"
N	=3.125"
P	=3.375"
Q	=3.500"
R	=3.625"

(9) Voltage

M	=115 VAC release indicator switch included on MSB8 - MSB12
3	=115 VAC with release indicator switch on MSB4 - MSB6
O	=Other (requires optional step down transformer)
N	=230 VAC
v	=.625"-.625"
w	=.625"-.875"
z	=.875"-.875"
1	=1.250"-1.250"

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

MSB CPLR



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 disc 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

