

AquaMakks™ Water Cooled Clutches and Brakes with Composite Water Jackets



 **Wichita**[®]
Clutch

An Altra Industrial Motion Company





AquaMaKKs water cooled clutches and brakes are designed to provide accurate torque control for heavy-duty tensioning applications.

AquaMaKKs™ clutches and brakes are pneumatically or hydraulically controlled and water cooled. They consist of a series of alternating friction discs and water jackets. Torque is transmitted by applying axial force from the pneumatic, hydraulic, or spring set actuator. Copper wear plates are used for excellent heat dissipation. Models are available in 19", 25", and 36" diameter sizes. Torque Ranges from 55,440 in.lbs. @ 80 PSI to 1,596,000 in.lbs. @ 100 PSI.

New engineered composite water jacket improves performance

Wichita engineers have utilized the latest cutting edge technologies and state-of-the-art materials to develop a revolutionary new breakthrough in water cooled clutch and brake design... composite water jackets (patent pending).

Corrosion resistant, saltwater friendly

Composite material will not corrode, so salt water and water sources with high PH acidic values can be used for cooling without the need to supply fresh water.

Other composite water jacket benefits include:

- Improved channeled water flow - achieved via groove designed and molded into jacket providing enhanced cooling capability
- Fast & easy maintenance created from the lightweight composite jacket design that is about 25% the weight of the competitors metal design
- Water jacket design and material allows for longer life, requiring fewer replacements
- Reduced overall clutch weight – critical for weight restricted applications (eg: truck mounted)

No optional salt water corrosion protection is required

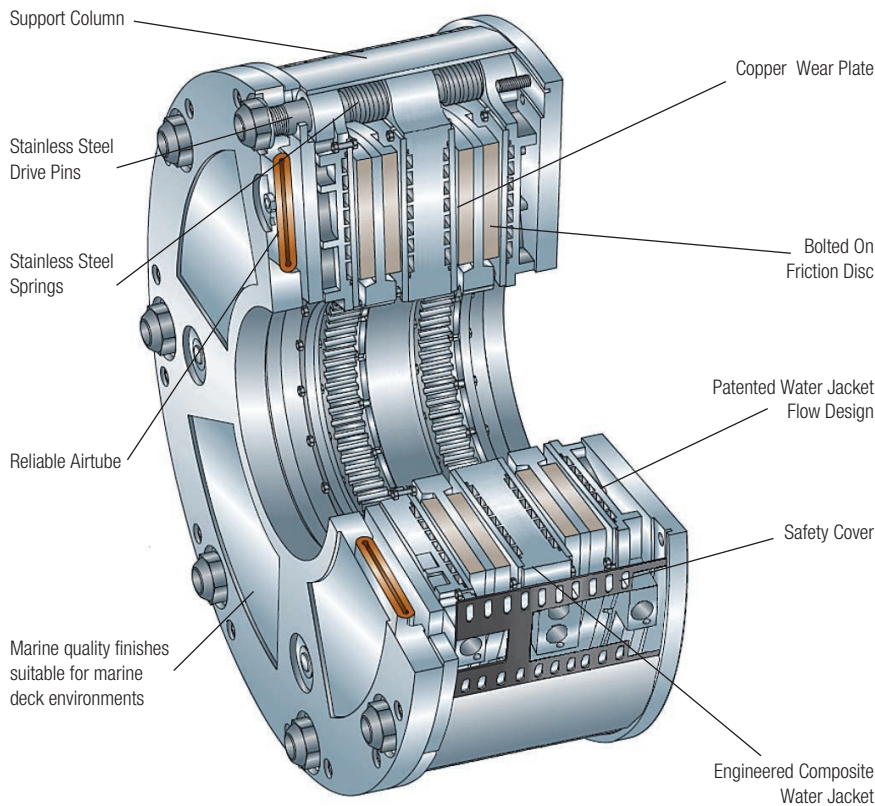


A new 36" composite water jacket (above, left) weighs approx. 95 lbs. A comparable 36" cast iron jacket (above, right) weighs approx. 375 lbs.

The reduced weight is a significant maintenance benefit, as well as when equipment is installed in weight restricted applications such as mobile yarders in the forestry industry.



Features



- The standard AquaMaKKs design incorporates new composite material water jackets which will not corrode. No optional salt water corrosion protection is required.
- Durable air tube design with high strength reinforced neoprene air-tubes, offering longer service life
- Water channels for balanced water flow for the highest thermal capacity
- Long-lasting friction material with minimal wear on mating copper
- Copper alloy wear plates enable higher heat transfer than any other metals
- Hub spline provides perfect alignment of rotating discs
- External air & water connections
- Release springs ensure complete disengagement
- Adjustment for wear is easily accomplished by removing shims without any unit disassembly
- Unique torque pin column arrangement provides structural integrity of case
- Open case design with covers for safe, simple, visual inspection and easy maintenance

See Wichita Clutch Catalog (P-1100-WC) for specifications and available options.

Design Advantages

- Simplicity of design with fewer parts simplifies installation and maintainability, saving both time and money.
- The standard AquaMaKKs design incorporates premium materials and finishes suitable for marine deck environments. No optional salt water corrosion protection is required.
- Shim design makes it easy to maintain and adjust for wear.
- Unique, patent pending water jacket design ensures high heat absorption and torque stability, allowing for greater heat dissipation over similar sized competitive units.
- Unique mounting pattern enables direct replacement to Wichita or competitors' units, requiring no design changes for the customer.
- AquaMaKKs is a perfect solution for field retrofits, rebuilds, or new OEM applications.

Options

- Standard and HICO friction materials available.
- Optional HICO friction material provides up to 50% higher torque.
- Provisions for electronic wear monitoring.
- Customer specific back-plate mounting configurations.
- Custom engineered solutions available for adding accessories such as deck mount assemblies, water kits, shaft assemblies, etc.
- Materials available for operation in low temperature environments.
- Hydraulic piston actuation available.
- Spring Set version with either air or hydraulic release available.
- Arctic packages for operating temperatures to -45°C.



Air, hydraulic, or spring set actuated and water cooled design, featuring copper wear plates optimized for heavy-duty continuous slip tension applications



Oil and Gas

The AquaMakKs family is ideally suited for superior water cooled tension control for drawworks applications.

Features that make AquaMaKkS ideal for oil and gas applications:

- Airtube design has less hysteresis than piston type actuators
- Engineered packaged solutions including shafts, water kits, covers, and deck mounts
- The unit can be easily removed for service if required and/or quickly swapped out for maximum rig availability and rapid serviceability, reducing expensive downtime



Metal Processing & Metal Forming

AquaMakKs clutches and brakes can be used to control tension on the coilers in metal processing plants and to control tension in unwind stands and slitters in metal forming facilities.

Features that make AquaMaKkS ideal for metal processing and metal forming applications:

- Compatible with PLC control systems
- Higher thermal capacity than comparable models
- Easy to maintain minimizing downtime
- Open design concept for easy wear inspection
- Safety covers provided for increased operator and plant safety



Marine Deck Machinery

Positioning and Mooring Winches require high heat dissipation and accurate tension control. That's why AquaMaKkS is ideal for these applications.

Features that make AquaMaKkS ideal for marine deck applications:

- The standard AquaMaKkS design incorporates premium materials and finishes suitable for marine deck environments.
- **No optional salt water corrosion protection is required.**
- Compatible with electronic and analog control systems for tension winches
- Long lasting friction material for improved wear life
- Optional designs available for suitability in low temperature environments
- Accessories and packaged engineered solutions available such as deck mounts, manifold kits, water connection kits, covers, and sensor mounting provisions

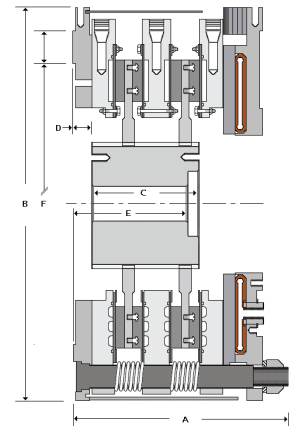


Forestry

AquaMaKkS water cooled brakes provide precise tension control on winch drives for mobile forestry equipment, such as yarders.

Features that make AquaMaKkS ideal for forestry applications:

- Compatible with tension control systems on yarders
- Open case design enables easy wear inspection and serviceability
- Higher thermal capacity than comparable models
- Lighter weight version available for mobile equipment



Dimensions

Model Size ATD-	Assembly Number	A Length		B Diameter		C Length		D Length		E Length		F Length			
		in.	(mm.)	in.	(mm.)	in.	(mm.)	in.	(mm.)	in.	(mm.)	OD		ID	
												in.	(mm.)	in.	(mm.)
KKB119AM	7-119AM-W-1005	12.35	314	28.3	719	4.13	105	1.25	32	3.75	95	23.25	591	18.25	464
KKB219AM	7-219AM-W-1302	17.09	434	28.3	719	8.97	228	1.25	32	6.88	175	23.25	591	18.25	464
KKB319AM	7-319AM-W-1303	21.58	548	28.3	719	13.39	340	1.25	32	10.88	276	23.25	591	18.25	464
KKB419AM	7-419AM-W-1300	26.07	662	28.3	719	17.88	454	1.25	32	13.75	349	23.25	591	18.25	464
KKB125AM	7-125AM-W-1003	13.75	349	34.12	867	5.49	139	1.38	35	4.88	124	30	762	24.38	619
KKB225AM	7-225AM-W-1300	18.86	479	34.12	867	10.32	262	1.38	35	10.01	254	30	762	24.38	619
KKB325AM	7-325AM-W-1300	23.99	609	34.12	867	16.39	416	1.38	35	14.57	370	30	762	24.38	619
KKB425AM	7-425AM-W-1300	29.42	747	34.12	867	20.66	525	1.38	35	18.32	465	30	762	24.38	467
KKB136AM	7-136AM-W-1000	15	381	45.51	1156	5	127	2.36	60	7.36	187	44.5	1130	18.38	467
KKB236AM	7-236AM-W-1301	21.28	541	45.51	1156	10	254	2.36	60	11.36	289	44.5	1130	18.38	467
KKB336AM	7-336AM-W-1301	26.76	680	45.51	1156	17.05	433	2.36	60	15.36	390	44.5	1130	18.38	467
KKB436AM	7-436AM-W-1301	32.79	833	45.51	1156	23.16	588	2.36	60	20.36	517	44.5	1130	18.38	467

Specifications

Model Size ATD	Assembly Number	"Dynamic Torque Capacity with Standard Linings (optional linings available)"				Heat Capacity Parallel Water Hosing		Max Bore Rect. Key		Max Drive Plate Rotating Speed RPM
		lb.in.		Nm		HP	kW	in	(mm)	
		80 PSI	100 PSI	5.5 BAR	7 BAR					
KKB119AM	7-119AM-W-1005	55,440	83,000	6,259	9,371	185	138	5.56	141	1200
KKB219AM	7-219AM-W-1302	110,880	166,000	12,518	18,741	370	276	5.63	143	1200
KKB319AM	7-319AM-W-1303	166,320	249,000	18,778	28,112	555	414	6.13	156	1200
KKB419AM	7-419AM-W-1300	221,760	332,000	25,037	37,483	740	552	6.13	156	1200
KKB125AM	7-125AM-W-1003	132,000	165,000	14,903	18,629	400	298	7.25	184	935
KKB225AM	7-225AM-W-1300	264,000	330,000	29,806	37,257	800	596	7.38	187	935
KKB325AM	7-325AM-W-1300	396,000	495,000	44,708	55,886	1200	895	7.38	187	935
KKB425AM	7-425AM-W-1300	528,000	660,000	59,611	74,514	1600	1193	9.38	238	935
KKB136AM	7-136AM-W-1000	319,344	399,000	36,054	45,047	850	634	11.25	286	640
KKB236AM	7-236AM-W-1301	638,688	798,000	72,108	90,094	1700	1268	11.75	298	640
KKB336AM	7-336AM-W-1301	958,032	1,197,000	108,162	135,141	2550	1901	11.75	298	640
KKB436AM	7-436AM-W-1301	1,277,376	1,596,000	144,216	180,188	3400	2535	11.75	298	640

*Optional HICO friction material provides up to 50% higher torque.

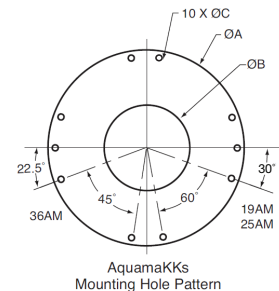
*Torque values can be affected by speed, temperature, unit wear and lining burnish after installation

*The maximum drive plate speed is maximum structural speed for drive plates

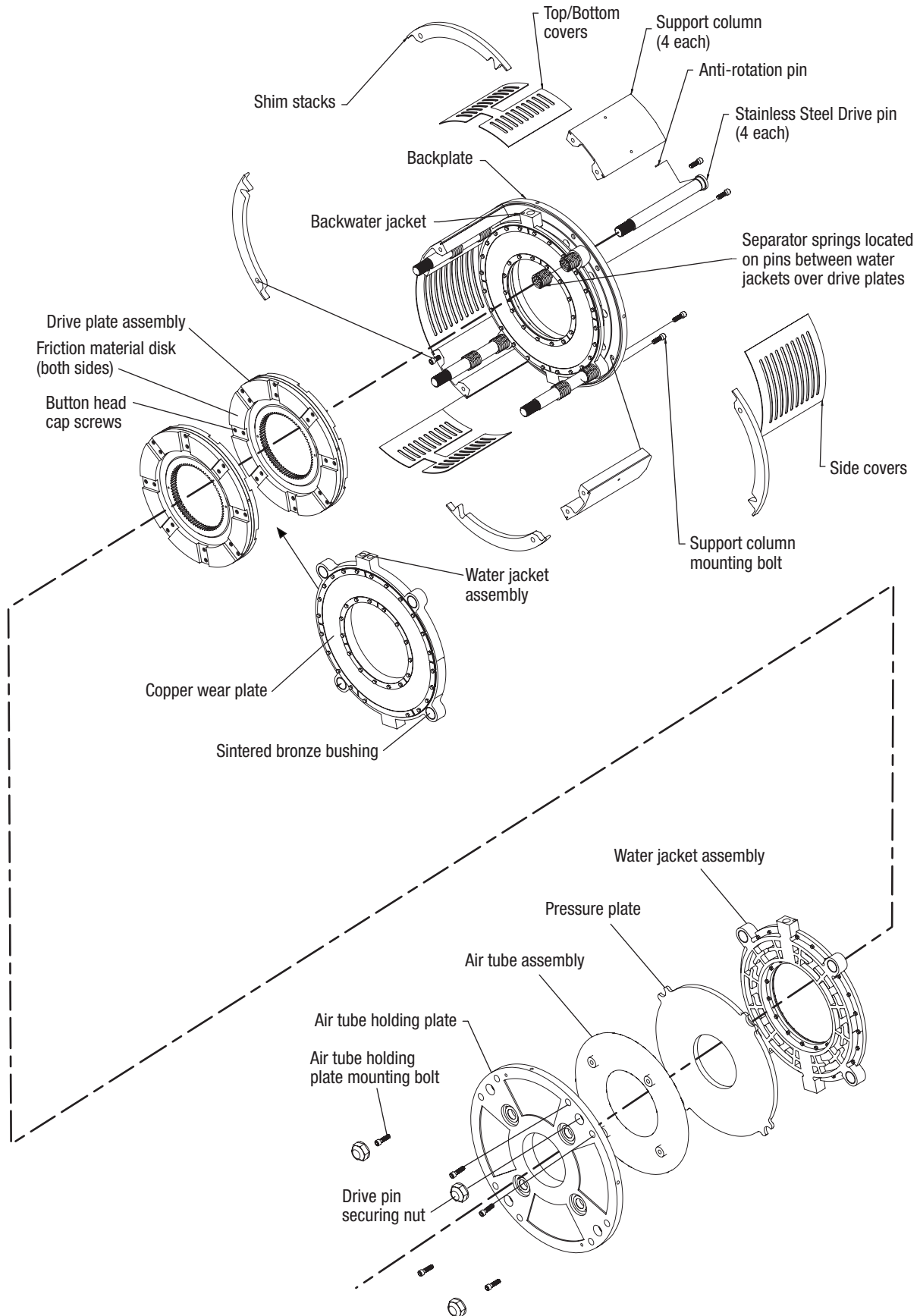
*Engagement speed is based on HP duty

Mounting Hole Pattern

Model	ØA		ØB		ØC		Hole Circle		# Holes	PLT THK	
	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)		Qty.	in.
KKB 19AM	28.3	719	11	279	0.656	17	22	559	10	1.63	41
KKB 25AM	34.12	867	16.7	424	0.656	17	28.75	730	10	1.63	41
KKB 36AM	45.51	1156	16.5	419	1.06	27	42	1067	10	1.61	41

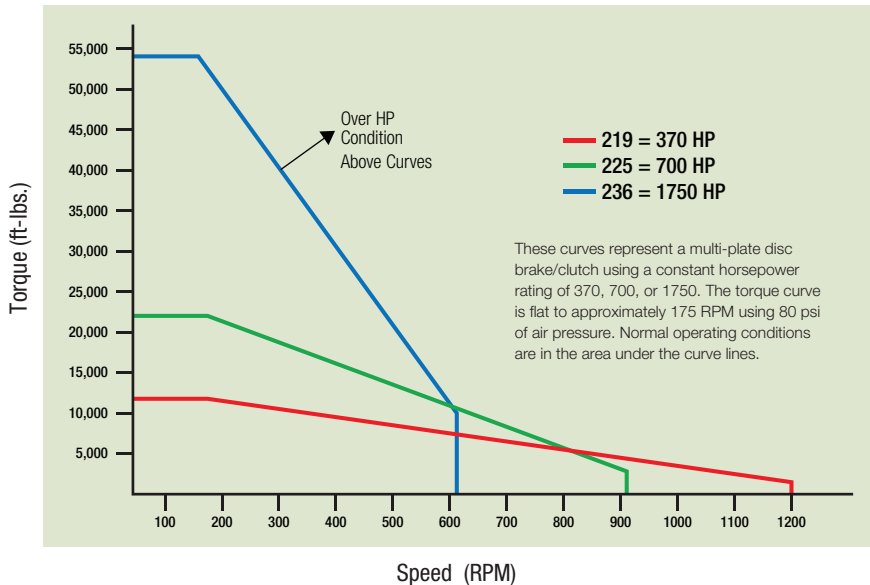


Exploded View



Performance Data

Horsepower Curves 219, 225, 236 AquaMaKKs (Standard Linings)



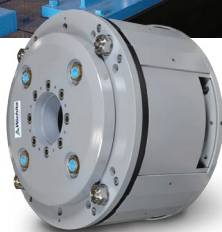
Contact Wichita Clutch Engineering for unique HP curve information

Option packages and custom engineered AquaMaKKs models are available to meet your specific requirements

The versatile AquaMaKKs product platform can be modified to accommodate your application specifications. With AquaMaKKs, you get more than just a water cooled brake, you can get a turnkey solution. Whether you need a brake painted a preferred color, water connection kits, covers, shaft assemblies, or deck mount assemblies, Wichita will provide a custom engineered solution to meet your specific needs. Other variations include LI-SSB models for marine deck use, dual actuator units, and arctic packages for operating temperatures to -45°C. Call Wichita today for more information.



Dual actuator models provide both a spring-set parking and a precision tension braking capability in one compact unit.



LI-SSB models are designed to withstand highly corrosive offshore deck environments where sea spray and direct seawater splash is prevalent.

Genuine Wichita Replacement Parts

When you specify genuine replacement parts from Wichita Clutch, you automatically expect more... and get more. Especially better performance, longer life, and the peace of mind that comes with knowing that you are working with the industry's proven leader.

We have years of experience in building value into every Genuine Wichita Replacement Part. Our parts, made with quality materials and leading-edge technology, are long lasting, resulting in lower life cycle costs, they also fit precisely to give you the assurance of trouble-free performance.



We offer a three-year warranty on our line of replacement air tubes, and a two-year warranty on all other non-wear components. That's unmatched by anyone in our industry!

For assistance, please call 1-800-964-3262

For after hours emergency service, call 1-940-631-4595.

Electromagnetic Clutches and Brakes	Couplings	Heavy Duty Clutches and Brakes	Overrunning Clutches
<p>Warner Electric <i>Electromagnetic Clutches and Brakes</i> New Hartford, CT - USA 1-800-825-6544 <i>For application assistance: 1-800-825-9050</i></p> <p>St Barthelemy d'Anjou, France +33 (0) 2 41 21 24 24</p> <p><i>Precision Electric Coils and Electromagnetic Clutches and Brakes</i> Columbia City, IN - USA 1-260-244-6183</p> <p>Matrix International <i>Electromagnetic Clutches and Brakes, Pressure Operated Clutches and Brakes</i> Brechin, Scotland +44 (0) 1356 602000 New Hartford, CT - USA 1-800-825-6544</p> <p>Inertia Dynamics <i>Spring Set Brakes; Power On and Wrap Spring Clutch/Brakes</i> New Hartford, CT - USA 1-800-800-6445</p>	<p>Ameridrives Couplings <i>Mill Spindles, Ameriflex, Ameridisc</i> Erie, PA - USA 1-814-480-5000</p> <p><i>Gear Couplings</i> San Marcos, TX - USA 1-800-458-0887</p> <p>Bibby Turboflex <i>Disc, Gear, Grid Couplings, Overload Clutches</i> Dewsbury, England +44 (0) 1924 460801 Boksburg, South Africa +27 11 918 4270</p> <p>TB Wood's <i>Elastomeric Couplings</i> Chambersburg, PA - USA 1-888-829-6637 – Press #5 <i>For application assistance: 1-888-829-6637 – Press #7</i></p> <p><i>General Purpose Disc Couplings</i> San Marcos, TX - USA 1-888-449-9439</p> <p>Ameridrives Power Transmission <i>Universal Joints, Drive Shafts, Mill Gear Couplings</i> Green Bay, WI - USA 1-920-593-2444</p> <p>Huco Dynatork <i>Precision Couplings and Air Motors</i> Hertford, England +44 (0) 1992 501900 Chambersburg, PA - USA 1-888-829-6637</p> <p>Lamiflex Couplings <i>Flexible Couplings, Bearing Isolators, and Coupling Guards</i> São Paulo, SP - Brasil +55-11-5679-6533</p>	<p>Wichita Clutch <i>Pneumatic Clutches and Brakes</i> Wichita Falls, TX - USA 1-800-964-3262 Bedford, England +44 (0) 1234 350311</p> <p>Twiflex Limited <i>Caliper Brakes and Thrusters</i> Twickenham, England +44 (0) 20 8894 1161</p> <p>Industrial Clutch <i>Pneumatic and Oil Immersed Clutches and Brakes</i> Waukesha, WI - USA 1-262-547-3357</p> <p>Gearing</p> <p>Boston Gear <i>Enclosed and Open Gearing, Electrical and Mechanical P.T. Components</i> Charlotte, NC - USA 1-800-825-6544 <i>For application assistance: 1-800-816-5608</i></p> <p>Bauer Gear Motor <i>Gearred Motors</i> Esslingen, Germany +49 (711) 3518 0 Somerset, NJ - USA 1-732-469-8770</p> <p>Nuttall Gear and Delroyd Worm Gear <i>Worm Gear and Helical Speed Reducers</i> Niagara Falls, NY - USA 1-716-298-4100</p>	<p>Formsprag Clutch <i>Overrunning Clutches and Holdbacks</i> Warren, MI - USA 1-800-348-0881 – Press #1 <i>For application assistance: 1-800-348-0881 – Press #2</i></p> <p>Marland Clutch <i>Roller Ramp and Sprag Type Overrunning Clutches and Backstops</i> South Beloit, IL - USA 1-800-216-3515</p> <p>Stieber Clutch <i>Overrunning Clutches and Holdbacks</i> Heidelberg, Germany +49 (0) 6221 30 47 0</p> <p>Belted Drives and Sheaves</p> <p>TB Wood's <i>Belted Drives</i> Chambersburg, PA - USA 1-888-829-6637 – Press #5 <i>For application assistance: 1-888-829-6637 – Press #7</i></p> <p>Engineered Bearing Assemblies</p> <p>Kilian Manufacturing <i>Engineered Bearing Assemblies</i> Syracuse, NY - USA 1-315-432-0700</p> <p><small>For information concerning our sales offices in Asia Pacific check our website www.altramotion.com.cn</small></p>
<p>Linear Products</p> <p>Warner Linear <i>Linear Actuators</i> Belvidere, IL - USA 1-800-825-6544 <i>For application assistance: 1-800-825-9050</i></p> <p>St Barthelemy d'Anjou, France +33 (0) 2 41 21 24 24</p>			



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