Tension Brakes/Very High Heat Capacity

AquaMaKKs Water Cooled Clutches and Brakes

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. AquaMaKKs provides accurate torque control for constant tensioning and are perfectly suited for applications in oil and gas, metal processing and forming, forestry, and marine deck machinery.

Engineered composite water jacket improves performance for marine applications

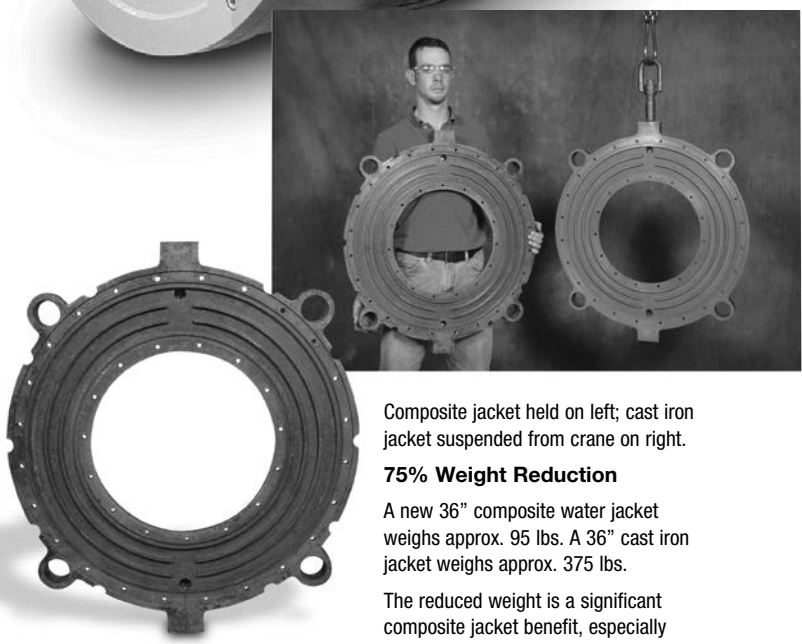
Wichita engineers have utilized the latest cutting edge technologies and state-of-the-art materials to develop a revolutionary new breakthrough in water cooled clutch and brake design... composite water jackets (patent pending).

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
- Easier maintenance, lightweight – smaller sizes do not require a lifting device. Repair/replace jackets in minutes – AquaMaKKs uses fewer copper mounting bolts than competitors
- Water jacket design and material allows for longer life, requiring fewer replacements
- Reduced overall clutch weight – critical for weight restricted applications (eg: truck mounted)
- Lower cost



Composite jacket held on left; cast iron jacket suspended from crane on right.

75% Weight Reduction

A new 36” composite water jacket weighs approx. 95 lbs. A 36” cast iron jacket weighs approx. 375 lbs.

The reduced weight is a significant composite jacket benefit, especially where equipment is mounted on a flat bed trailer.

AquaMaKKs Design Benefits

- 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.

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Oil and Gas

The AquaMakks family is ideally suited for superior water cooled tension control for drawworks applications. It also can be the perfect solution for integration into electronic drilling systems as well as traditional style drawworks control systems.

Features that make AquaMaKKs ideal for oil and gas applications:

- Compatible with major electronic drilling systems
- Airtube design has less hysteresis than piston type actuators, making it ideal for automatic drilling systems
- 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 and 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

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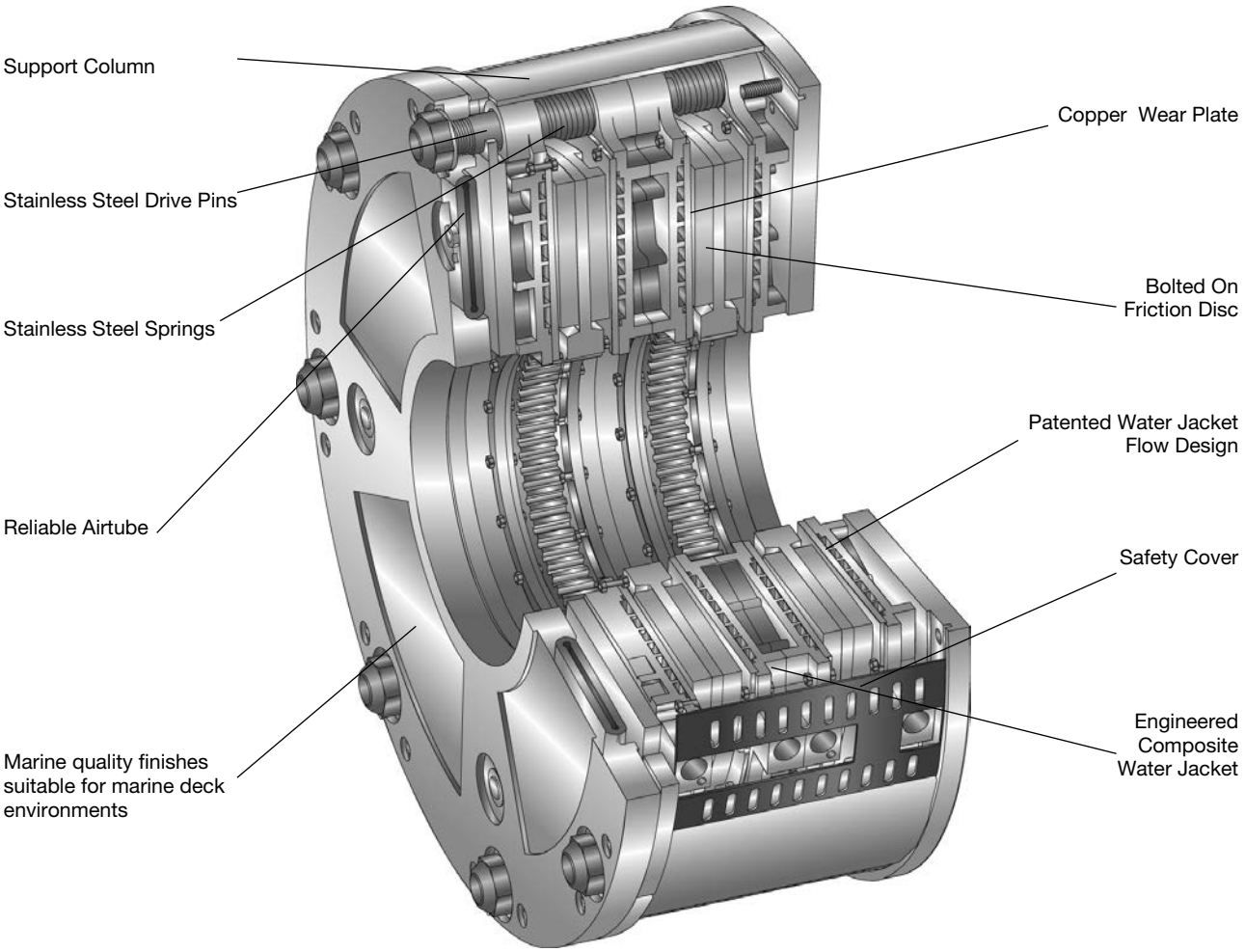


Features

- 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.

Options

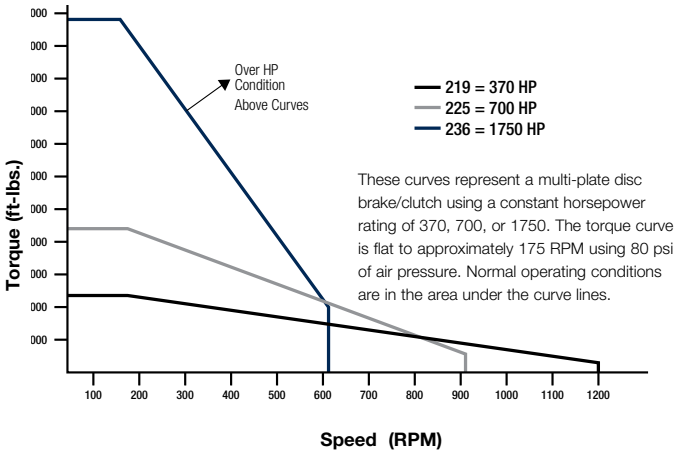
- Standard and HICO friction materials available.
- Optional HICO friction material provides up to 50% higher torque.
- Provisions for electronic wear monitoring.
- Customer specific back-plate mounting configurations.
- Custom engineered solutions available for adding accessories such as deck mount 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.

B

Horsepower Curves for Models 219, 225, and 236

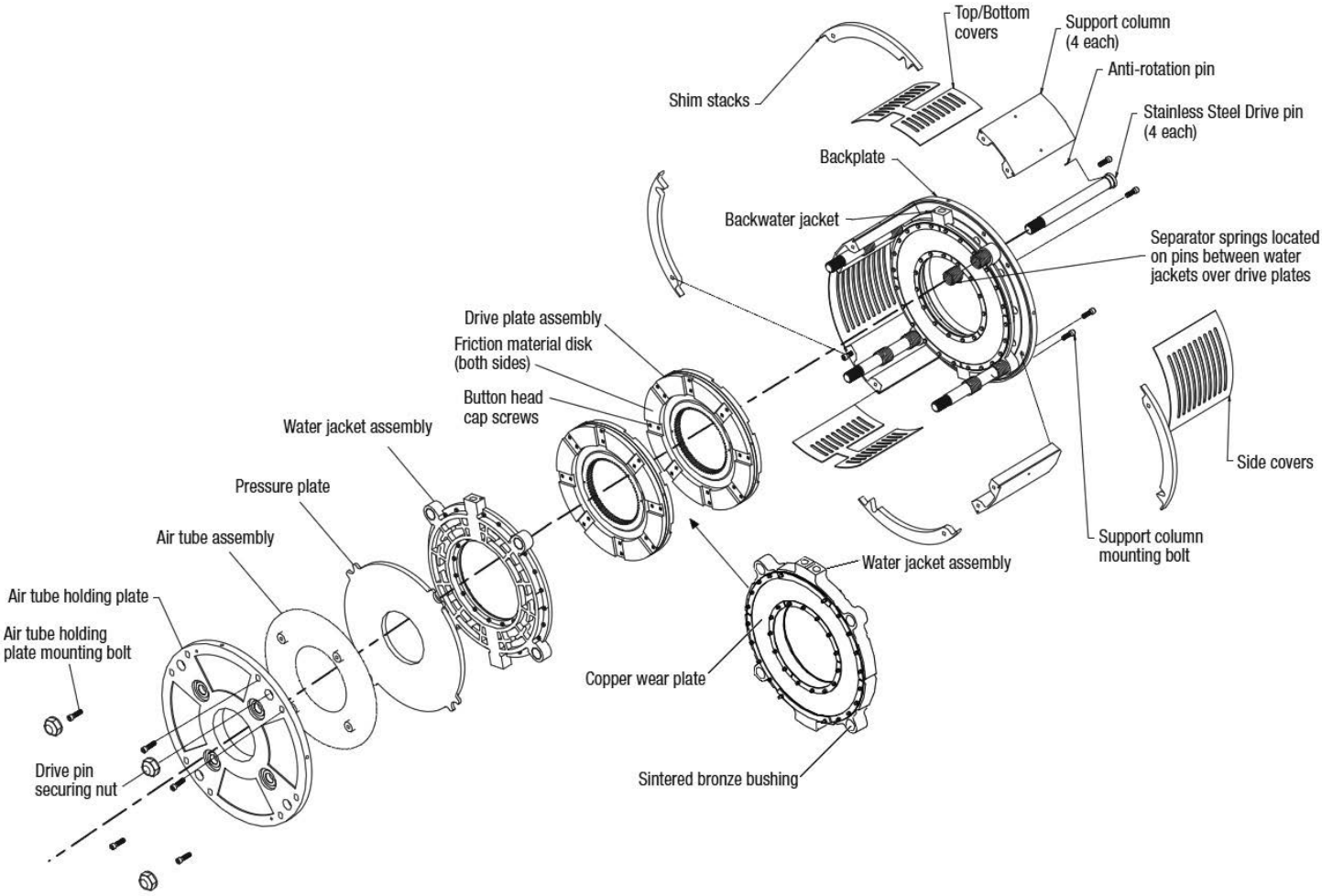
(Standard Linings)

Contact Wichita Clutch for unique HP curve information



These curves represent a multi-plate disc brake/clutch using a constant horsepower rating of 370, 700, or 1750. The torque curve is flat to approximately 175 RPM using 80 psi of air pressure. Normal operating conditions are in the area under the curve lines.

Component Parts



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Ordering Number System

Clutch or Brake
6 = Clutch
7 = Brake

Unit Size
19, 25 or 36

Internal Code
W or B

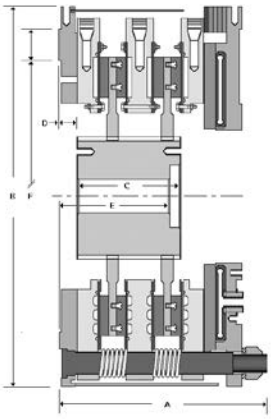
Factory-Provided Sequential Number

7 – 2 1 9 A M – W – 1 X X X

Qty. of Drive Plates
1 – 4

AquaMakks

1 = Air Set Water Cooled
2 = Spring Set Water Cooled
3 = Low Inertia
4 = Low Inertia Spring Set
5 = Reserved



Dimensions

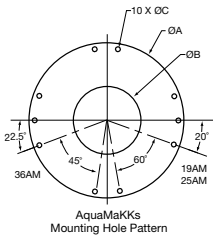
Model Size ATD-	Assembly Number	A Length		B Diameter		C Length		D Length		E Length		F Length OD		F Length ID	
		in.	(mm.)	in.	(mm.)	in.	(mm.)	in.	(mm.)	in.	(mm.)	in.	(mm.)	in.	(mm.)
KKB119AM	7-119AM-W-1005	12.35	314	28.3	719	4.13	105	1.25	32	3.75	95	23.25	591	18.25	464
KKB219AM	7-219AM-W-1302	17.09	434	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)" lb.in. 80 PSI	100 PSI	Nm 5.5 BAR	7 BAR	Heat Capacity Parallel Water Hosing HP	kW	Max Bore Rect. Key in	(mm)	Max Drive Plate Rotating Speed RPM
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

Mounting Hole Pattern

Model	∅A		∅B		∅C		Hole Circle		# Holes	PLT THK	
	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	Qty.	in.	(mm)
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



AquaMaKKs
Mounting Hole Pattern