

Tension Brakes and Clutches

Selection Guide

Selection Guide






INDUSTRIAL MAGZA MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
 DIST. AUTORIZADO QRO (442) 1 95 72 60 ventas@industrialmagza.com

Selecting the proper clutch or brake starts with collecting the appropriate data. See the data form on page 13. Once the data is collected, go through the various calculations for thermal and torque requirements. Examples are on pages 16-28. At this point, a general selection can be made from these two pages. Then go to the applicable page for further details on the unit such as mounting considerations and dimensions.

Finally, a control system must be chosen – several factors will influence this choice, such as degree of accuracy required (open vs. closed loop), physical restraints in the machine (dancer or load cell). Go to the controls section on page 44 for full specifications and details on these various controls systems.

Once control system is selected, determination of dancer, load cell, or analog system can be made. Dancer design considerations can be found on pages 33-37. Load cell design considerations and sizing can be found on pages 38-43.

You are now well on the way to specifying the best tension control system available.

Product	Description and most suitable applications
TB Series  Brakes	Basic Tension Brakes Single disc friction electromagnetic brake. Operates with any Warner 24V or 90V control. Very economical. Excellent life when properly sized.
ATT Series  Brakes & Clutches	Advanced Technology Brakes & Clutches The tension version of the popular Warner Electric Advanced Technology clutches and brakes. Economical and easy to install. The clutch has an easily adaptable pulley mounting. Operated by full family of Warner Electric tension controls, 24V and 90V.
MTB Series  Brakes	Modular Tension Brakes Single or double disc electromagnetic brake uses multiple pucks for precise selection of torque range. Unique design provides up to double normal operating torque for E-stops. Works with all Warner Electric 24V tension controls.
M Series  Brakes & Clutches	Permanent Magnet Brakes & Clutches These units can be used as either clutch or brakes. They operate with permanent magnets, thereby requiring no external power source. Very accurate torque control is manually adjustable.
Magnetic Particle  Brakes & Clutches	Magnetic Particle Brakes & Clutches Very precise torque control in an enclosed unit that does not have friction discs, but employs magnetically charged powder that varies torque according to current. Works with all Warner Electric 24V tension controls.

Electric

Tension Brakes and Clutches


Selection Guide





Heat Transfer  **MAGZA** MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
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Dynamic Torque Rating	Continuous Operation	On-Off Operation	Typical Applications and Comments	Page No.
0.50–256 lb.ft.	.02–1.1 HP	.03–2.12 HP	Narrow to medium width web machines such as business forms presses. Also good on wire pay-offs. A low-cost alternative in many applications.	72
7–62 lb.ft. Up to 83 lb.ft. with overcurrent	.3 to .9 HP	—	Light tension on narrow web paper or plastic film, such as bag making machines and printing presses. Clutch provides a good, economical solution on many winders.	78
0.21–592 lb.ft. Up to 1,120 lb.ft. with overcurrent	.25–2.75 HP	—	The work horse of the brake line. Wide dynamic torque range. Good for business forms presses, wire pay-offs, slitters, coaters. Excellent choice for closed loop as well as open loop systems.	86
0–65 lb.in.	3-150 watts	—	Excellent problem solver for difficult light tension applications. Particularly good for nip-roll control where diameter compensation is not required. Perfect solution for wire braiders and twisters where pay-off is spinning. No control required.	98
.17–578 lb.ft.	10-400 watts	—	Excellent solution where wear particles of friction disc units cause a problem. Very precise torque regulation. Will operate with great accuracy at lower speeds than friction disc units. Staying within thermal capacity is critical for long life.	106

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	Product	Description and most suitable applications
Pneumatic	Mistral  Brakes	Pneumatic Brakes The Mistral combines high thermal capacity with a rugged, easy-to-maintain design. No guard is required. Both open and closed loop controls available. Optional cooling fan increases heat dissipation.
	Magnum  Brakes	Pneumatic Brakes High thermal capacity and easy to service this brake requires no guard. Optional fan increase thermal capacity. Easily controllable in both open and closed loop mode.
	AD Series  Brakes	Pneumatic Brakes Broad range of torque capacities accessible by selection of modular actuators. All control options are available.
	MODEVO  Brakes	Pneumatic Brakes Combination of high thermal capacity and broad range of torques through various selection of actuators and friction pads. Option for increase thermal capacities.

Heat Transfer Capacity  **Industrial Magza**

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Dynamic Torque Rating	Continuous Operation	On-Off Operation	Typical Applications and Comments	Page No.
5.2–1,328 lb.ft.	3.2–6.4 HP	3.5–7.0 HP	The brake of choice in the corrugator industry due to long life and ease of maintenance. Other converting industry applications apply equally.	130
0.16–1,180 lb.ft.	1.5–6.0 HP 4.0–22.0 HP w/forced air cooling	—	This brake is well accepted among converting equipment manufacturers worldwide. Slitters, coaters, and laminators are but a few of the many applications.	134
3.8–1,785 lb.ft.	1–3.2 HP 4–6.5 HP with optional blower	—	The multiple actuator selection possibilities make this an excellent choice for machines running a variety of materials on a wide range of tensions.	138
0.6–3,180 lb.ft.	1–17 HP 4–18 HP with optional blower	—	Compatibilities of various actuator and friction pad combinations allow for wide range of applications.	144

Electric Brakes

TB Series – Basic Tension Brakes

System Features

- Full roll to core control
- Consistent tension, even during flying splices, rapid starts and emergency stops
- Eliminates web flutter to allow better registration control
- Electronic System responds in milliseconds
- Dramatically reduces material waste, downtime and maintenance
- Total systems capability—worldwide distribution—local professional service.



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Features – Basic Tension Brakes

- Ideal for light duty, light load unwind tension applications
- Cost effective
- Compact package size
- Eight models
- Small sizes, from 1.7" dia. to 15.25" dia.
- .025 to 1.09 thermal horsepower capacity

Complete Control Capability

Warner Electric offers two functionally different controls and a companion power supply for all models of TB Series 24 VDC tension brakes. All three units offer compact dimensions and modular design for easy, low cost maintenance. Both controls (MCS-203/MCS-204) and the power supply are furnished with either a panel mount or wall/shelf mount enclosure at no added cost. Controls information starts on page 44.



MCS-203
Dancer Control



MCS-204
Remote/Analog
Control

Unit Size	Energy Rate		Maximum RPM	Minimum ² Torque (lb.ft.)	Maximum ³ Dynamic Torque (lb.ft.)	Amps	Ohms	Watts
	Continuous	Alternate ¹						
TB-170	0.02 HP	0.03 HP	5000	0.000	0.500	.215	111.2	5.16
TB-260	0.04 HP	0.06 HP	5000	0.060	1.700	.400	60	9.6
TB-425	0.08 HP	0.13 HP	5000	0.120	5.200	.317	76	7.6
TB-500	0.13 HP	0.24 HP	5000	0.150	18.500	1.0	24	24
TB-825	0.27 HP	0.48 HP	3000	0.360	43.200	1.18	20	28
TB-1000	0.48 HP	0.88 HP	2400	0.790	88.000	1.22	20	29
TB-1225	0.70 HP	1.27 HP	2000	1.430	172.000	1.08	22	26
TB-1525	1.09 HP	2.12 HP	1600	2.130	256.000	1.21	20	29

Notes

1. Alternate duty operation is defined as 30 minutes run-time with 30 minutes off-time
2. Minimum torque is with Warner Electric tension control providing anti-residual current to brake in off state. Minimum torques will be higher when controls without anti-residual current are used.
3. Dynamic torques are based on 30 RPM slip speed

Electric Brakes

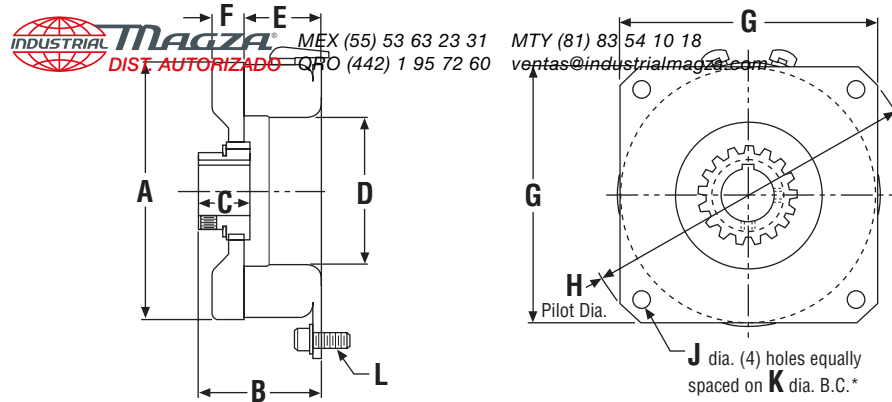
TB Series – Basic Tension Brakes

Dimensions

TB-170

TB-260

TB-425



* Mounting holes are within .010" (.254) of true position relative to pilot diameter.

inches (mm)

Model	A Max.	B Max.	C	D	E	F	G Max.	H	J	K	L
TB-170	1.813 (46.05)	1.203 (30.55)	.404 (10.26)	.750 (19.05)	.812 (20.64)	.281 (7.14)	1.828 (46.43)	2.437/2.435 (61.90/61.85)	.204/.187 (5.18/4.75)	2.125 (53.98)	#8-32 UNC-3A
TB-260	2.719 (69.06)	1.906 (48.42)	.6875 (17.46)	1.375 (34.93)	1.250 (31.75)	.4688 (11.91)	2.641 (67.08)	3.500/3.498 (88.90/88.85)	.204/.187 (5.18/4.75)	3.125 (79.38)	#8-32 UNC-3A
TB-425	4.375 (111.13)	2.047 (51.99)	.875 (22.23)	2.437 (61.91)	1.250 (31.75)	.5625 (14.29)	4.266 (108.36)	5.625/5.623 (142.88/142.82)	.296/.280 (7.52/7.11)	5.000 (12.70)	#1/4-20 UNC-3A

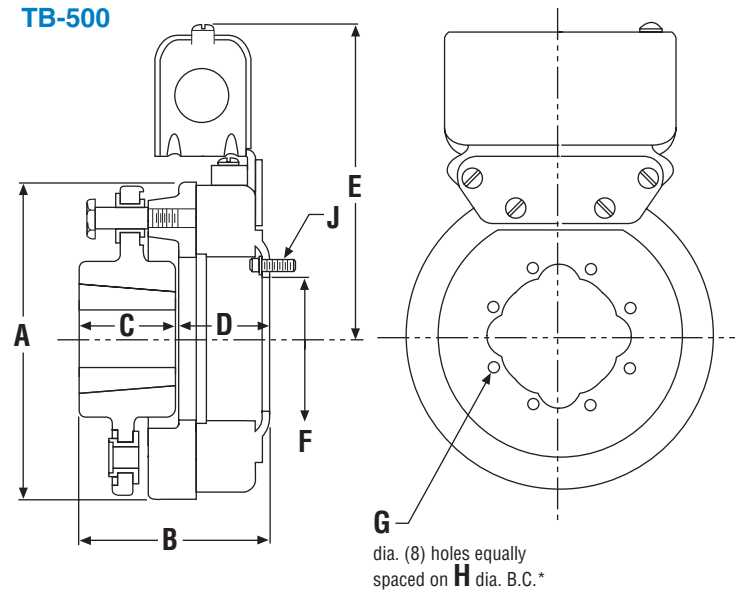
Bore and Keyway Data

Model No.	Part No.	Voltage	Bore	Keyway
TB-170	5375-1	6V	1/4"	none
	5375-4	24V	1/4"	none
	5375-2	6V	5/16"	none
	5375-5	24V	5/16"	none
	5375-3	6V	3/8"	none
	5375-6	24V	3/8"	none
TB-260	5365-2	6V	3/8"	3/32" x 3/64"
	5365-8	24V	3/8"	3/32" x 3/64"
	5365-3	6V	7/16"	1/8" x 1/16"
	5365-9	24V	7/16"	1/8" x 1/16"
	5365-4	6V	1/2"	3/16" x 3/32"
	5365-10	24V	1/2"	3/16" x 3/32"
	5365-5	6V	5/8"	3/16" x 3/32"
	5365-11	24V	5/8"	3/16" x 3/32"
	5365-6	6V	3/4"	3/16" x 3/32"
5365-12	24V	3/4"	3/16" x 3/32"	
TB-425	5367-5	6V	1/2"	1/8" x 1/16"
	5367-9	24V	1/2"	1/8" x 1/16"
	5367-6	6V	5/8"	3/16" x 3/32"
	5367-10	24V	5/8"	3/16" x 3/32"
	5367-7	6V	3/4"	3/16" x 3/32"
	5367-11	24V	3/4"	3/16" x 3/32"
	5367-8	6V	7/8"	3/16" x 3/32"
	5367-12	24V	7/8"	3/16" x 3/32"

Model No.	Part No.	Voltage	Bushing	Bore	Keyway
TB-500	5310-2	6V	Dodge 1215	1/2–9/16	1/8" x 1/16"
	5310-24	24V	(see pg 155 for for specific P/N)	5/8–7/8 15/16–1-1/4	3/16" x 3/32" 1/4" x 1/8"

Dimensions

TB-500



* Mounting holes are within .010" (.254) of true position relative to pilot diameter.

inches (mm)

Model	A Max.	B Max.	C	D	E Max.	F	G	H	J
TB-500	5.125 (130.18)	3.140 (79.77)	1.500 (38.10)	1.594 (40.48)	5.062 (128.59)	2.062 (52.39)	.208/.201 (5.28/5.11)	2.375 (60.33)	#8-32 UNC-3A

For replacement parts list and exploded view drawing, see page 76.

Note: All dimensions are nominal unless otherwise noted.

Electric Brakes

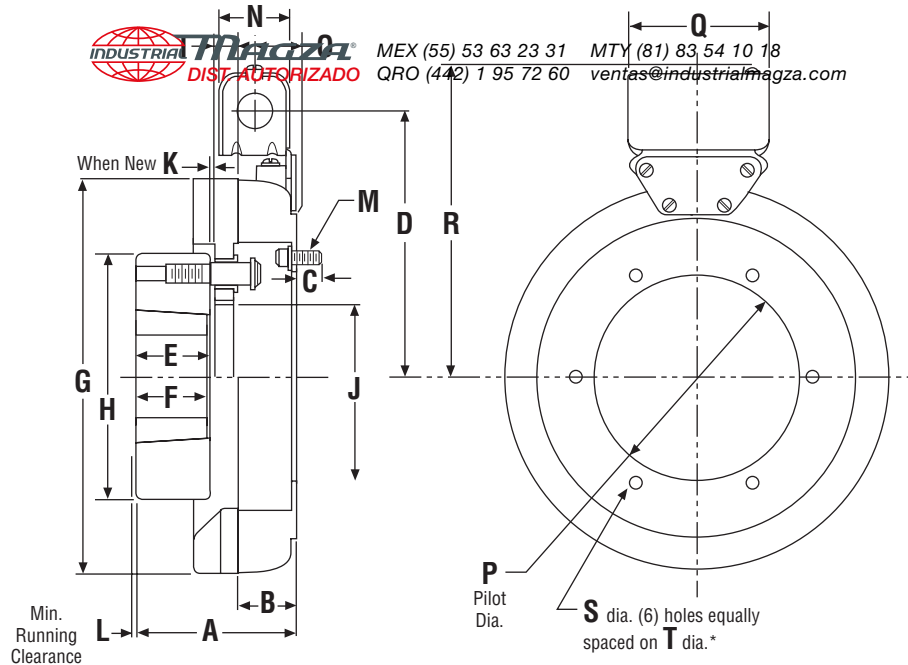
TB Series – Basic Tension Brakes

Dimensions

TB-825

TB-1000

TB-1225



* Mounting holes are within .010" (.254) of true position relative to pilot diameter.

inches (mm)

Model	A Max.	B	C Max.	D	E	F	G Max.	H Dia.	I	J Dia.
TB-825	3.671 (93.24)	1.312 (33.32)	.562 (14.27)	5.656 (143.66)	1.593 (40.146)	1.500 (38.10)	8.468 (215.09)	4.625 (117.48)	.609 (15.47)	2.187 (55.55)
TB-1000	4.109 (104.37)	1.453 (36.91)	.562 (14.27)	6.531 (165.89)	1.906 (48.41)	1.750 (44.45)	10.187 (258.75)	6.250 (158.75)	.609 (15.47)	3.875 (94.83)
TB-1225	5.390 (136.91)	1.6740 (41.66)	.562 (14.27)	7.531 (191.29)	3.000 (76.20)	3.000 (76.20)	12.437 (315.90)	6.875 (174.63)	.609 (15.47)	4.500 (114.30)

Model	K Min.	L	M	N	O	P Max.	Q	R	S	T
TB-825	.093 (2.36)	.062 (12.57)	5/16-18 UNC-3A	1.546 (39.27)	.921 (23.39)	3.503/3.501 (88.98/88.93)	3.750 (95.25)	6.406 (162.71)	.358/.338 (9.09/8.59)	4.250 (107.95)
TB-1000	.093 (2.36)	.062 (1.57)	5/16-18 UNC-3A	1.546 (39.27)	.921 (23.39)	5.378/5.376 (136.60/136.55)	3.750 (95.25)	7.687 (195.25)	.358/.338 (9.09/8.59)	6.125 (155.58)
TB-1225	.093 (2.36)	.062 (1.57)	5/16-18 UNC-3A	1.546 (39.27)	.921 (23.39)	6.378/6.376 (162.00/161.95)	3.750 (95.25)	8.687 (220.65)	.358/.338 (9.09/8.59)	7.250 (184.15)

See page 155 for specific bushing part numbers.

Bore and Keyway Data

Model #	Part #	Voltage	Bushing	Bore	Keyway
TB-825	5311-2	6V	Dodge 1615	1/2-9/16	1/8" x 1/16"
	5311-24	24V	(see pg 159 for specific P/N)	5/8-7/8	3/16" x 3/32"
				15/16-1-1/4	1/4" x 1/8"
				1-5/16-1-3/8	5/16" x 5/32"
				1-7/16-1-1/2	3/8" x 3/16"
TB-1000	5312-1	6V	Dodge 2517	1/2-9/16	1/8" x 1/16"
	5312-24	24V	(see pg 159 for specific P/N)	5/8-7/8	3/16" x 3/32"
				15/16-1-1/4	1/4" x 1/8"
				1-5/16-1-3/8	5/16" x 5/32"
				1-7/16-1-3/4	3/8" x 3/16"

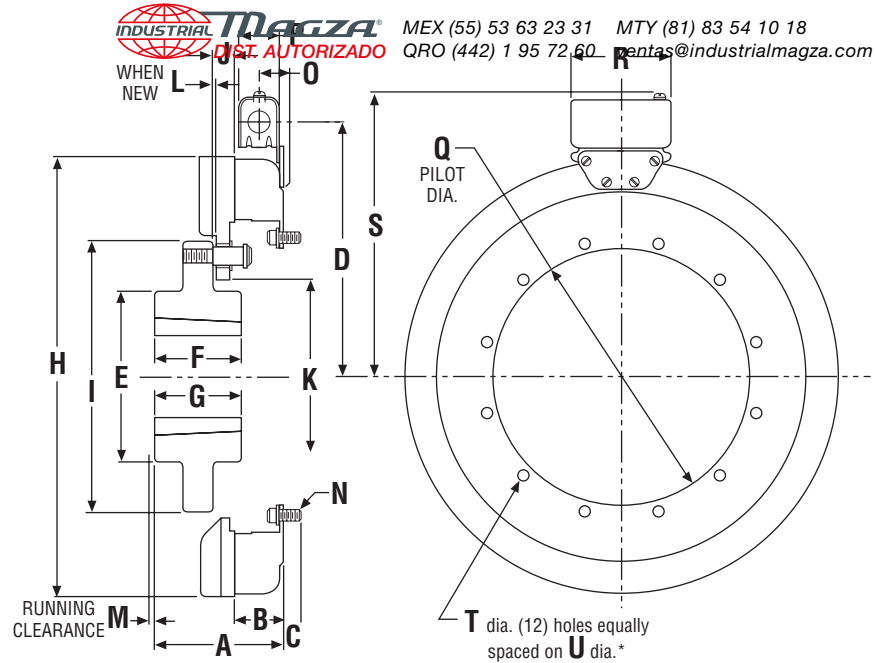
Model #	Part #	Voltage	Bushing	Bore	Keyway
TB-1225	5313-1	6V	Dodge 3030	15/16-1-1/4	1/4" x 1/8"
	5313-24	24V	(see pg 155 for specific P/N)	1-5/16-1-3/8	5/16" x 5/32"
				1-7/16-1-3/4	3/8" x 3/16"
				1-13/16-2-1/4	1/2" x 1/4"
				2-5/16-2-3/4	5/8" x 5/16"
TB-1525	5314-1	6V	Dodge 3030	15/16-1-1/4	1/4" x 1/8"
	5314-24	24V	(see pg 155 for specific P/N)	1-5/16-1-3/8	5/16" x 5/32"
				1-7/16-1-3/4	3/8" x 3/16"
				1-13/16-2-1/4	1/2" x 1/4"
				2-5/16-2-3/4	5/8" x 5/16"

For replacement parts list and exploded view drawing, see page 77.

Note: All dimensions are nominal unless otherwise noted.

Dimensions

TB-1525



inches (mm)

* Mounting holes are within .010" (.254) of true position relative to pilot diameter.

Model	A Max.	B	C Max.	D	E Dia.	F	G	H Dia.	I Dia.	J Dia.	K Dia.
TB-1525	4.531 (115.09)	1.750 (44.45)	.562 (14.27)	9.187 (233.35)	6.000 (152.40)	3.000 (76.2)	3.000 (76.2)	15.562 (395.27)	9.500 (241.30)	.609 (15.47)	7.125 (180.98)

Model	L	M Min.	N	O	P Max.	Q	R	S	T	U
TB-1525	.093 (2.36)	.062 (1.57)	5/16-18 UNC-3A	.921 (23.39)	1.546 (39.27)	9.002/9.000 (228.65/228.60)	3.750 (95.25)	10.343 (262.71)	.358/.338 (9.09/8.59)	9.750 (247.65)

See page 155 for specific bushing part numbers.

For replacement parts list and exploded view drawing, see page 77.

Note: All dimensions are nominal unless otherwise noted.

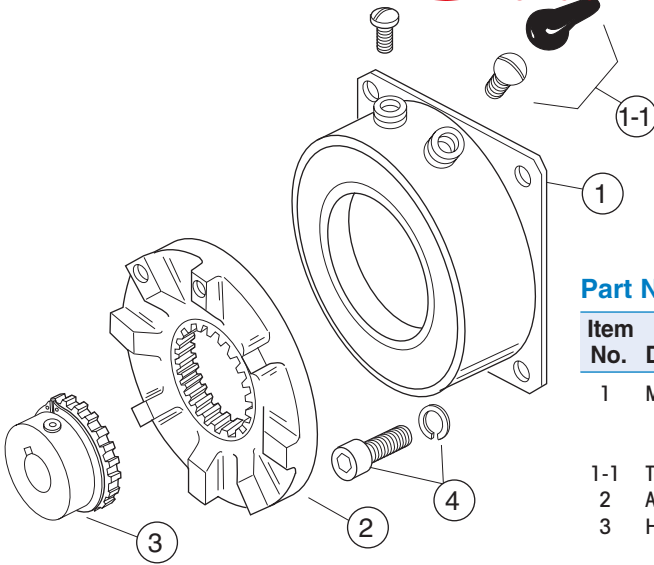
Brake Assemblies and Part Numbers

TB Series – Basic Tension Brakes

TB-170, TB-260, TB-425



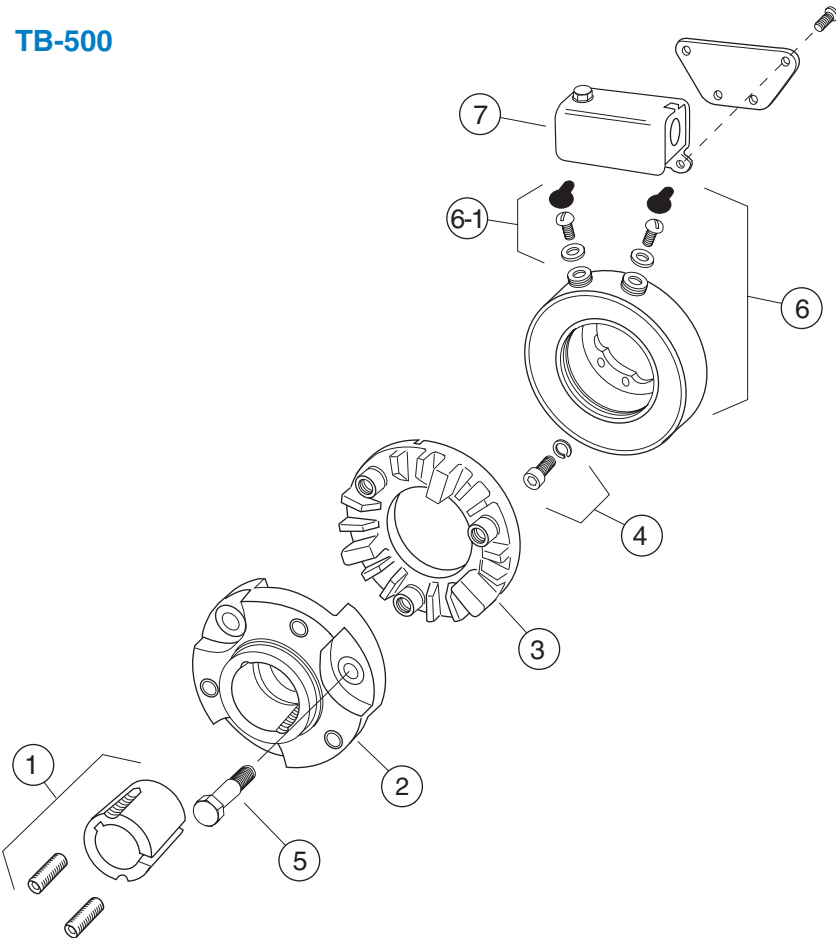
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Part Numbers

Item No.	Description	TB-170		TB-260		TB-425	
		Qty.	P/N	Qty.	P/N	Qty.	P/N
1	Magnet, O.M.	1		1		1	
	6 Volt		5375-631-010		5365-631-013		5367-631-007
	24 Volt		5375-631-012		5365-631-016		5367-631-008
1-1	Terminal Accessory		—	1	5103-101-002	1	5103-101-003
2	Armature	1	110-0096	1	110-0097	1	110-0098
3	Hub Assembly	1		1		1	
	1/4" Bore		5102-541-002		—		—
	5/16" Bore		5102-541-003		—		—
	3/8" Bore		5102-541-004		5103-541-002		—
	1/2" Bore		—		5103-541-004		5104-541-002
	5/8" Bore		—		5103-541-006		5104-541-004
	3/4" Bore		—		5103-541-008		5104-541-006
	7/8" Bore		—		—		5104-541-007
4	Mounting Accessories ¹	1	5102-101-001	1	5102-101-001	1	5104-101-002

TB-500



Part Numbers

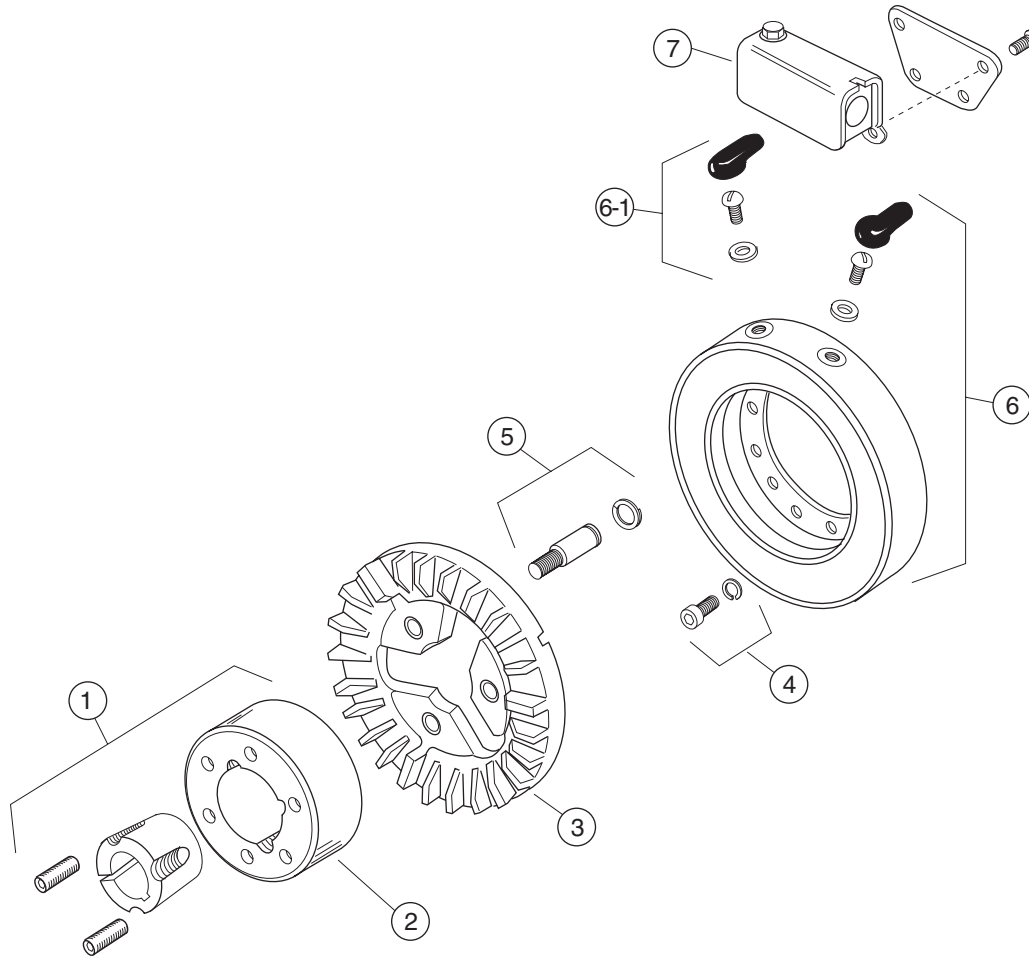
Item No.	Description	TB-500	
		Qty.	P/N
1	Bushing Taperlock*	1	180-0116 to 180-0128
2	Hub, Armature	1	5300-541-004
3	Armature	1	110-0047
4	Magnet Mounting Acc.		
	Inside Mounted	2	5102-101-001
	Outside Mounted	1	5300-101-008
5	Drive Pin	3	5300-101-003
6	Magnet		
	6 Volt I.M.	1	5300-631-019
	6 Volt O.M.	1	5300-631-024
	24 Volt I.M.	1	5300-631-040
	24 Volt O.M.	1	5300-631-051
6-1	Terminal Accessory	1	5311-101-001
7	Conduit Box	1	5200-101-010

* See page 155 for specific shaft sizes and bushing numbers.

Brake Assemblies and Part Numbers

TB Series – Basic Tension Brakes

TB-825, TB-1000, TB-1225  **INDUSTRIAL MAGZA** MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
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Part Numbers

Item No.	Description	TB-825		TB-1000		TB-1225		TB-1525	
		Qty.	P/N	Qty.	P/N	Qty.	P/N	Qty.	P/N
1	Bushing Taperlock*	1	180-0131 to 180-0149	1	180-0185 to 180-0217	1	180-0262 to 180-0295	1	180-0262 to 180-0295
2	Hub, Armature	1	540-0394	1	540-0313	1	540-0015	1	540-0314
3	Armature	1	5301-111-019	1	5302-111-021	1	5303-111-011	1	5304-111-005
4	Magnet Mounting Acc.								
	Inside Mounting	1	5321-101-001	1	5321-101-001	1	5321-101-001	2	5321-101-001
5	Drive Pin & Retainer	3	5301-101-001	3	5301-101-001	4	5301-101-001	4	5301-101-001
6	Magnet	1		1		1		1	
	6 Volt I.M.		5311-631-024		5312-631-018		5313-631-017		5314-631-002
	24 Volt I.M.		5311-631-040		5312-631-034		5313-631-031		5314-631-022
6-1	Terminal Accessory	1	5311-101-001	1	5311-101-001	1	5311-101-001	1	5311-101-001
7	Conduit Box	1	5200-101-011	1	5200-101-011	1	5200-101-011	1	5200-101-011

* See page 155 for specific shaft sizes and bushing numbers.

These units, when used with the correct Warner Electric conduit box, meet the standards of UL-508 and are listed under the guide card #NMTR, file #59164 and are CSA Certified under file #LR11543.

Electric Brakes and Clutches

ATT Series – Advanced Technology Brakes and Clutches

Advanced Technology – A new design concept!



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Warner Electric's ATT Series clutches and brakes are rugged and durable.

Besides providing the ultimate in long life and durability, the ATT units are easily repairable... and, for the first time, mounting a standard sheave, pulley or sprocket to the clutch is a snap.

AT Clutches and Brakes are completely assembled at the factory and have been specifically designed to match the torque ratings of standard motors, reducers, and other power transmission components. Easy to select and easy to install.



Features:

ATT Tension Clutches and Brakes

- Ideal for intermediate range applications
- Both brake and clutch models for winders and unwinders
- .284 to .9 thermal horsepower capacity
- Brake wear faces replaceable on the shaft for limited downtime
- Full range of control options. See pages 44-45.

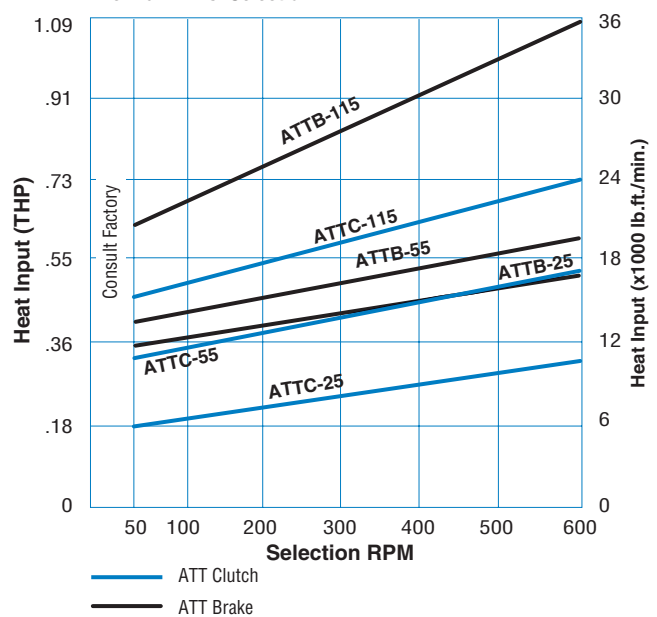
Unit Size	Maximum RPM	Continuous ¹ Dynamic Torque	Overcurrent E-Stop Torque
ATT Brakes			
ATTB-25	3600	8 lb.ft.	15 lb.ft.
ATTB-55	3600	15 lb.ft.	21 lb.ft.
ATTB-115	3600	62 lb.ft.	83 lb.ft.
ATT Clutches			
ATTC-25	3600	7 lb.ft.	*2
ATTC-55	3600	12 lb.ft.	*
ATTC-115	3600	41 lb.ft.	*

Notes

1. Dynamic torque is constant over a speed range of 0–600 RPM
2. Overcurrent is not used on clutch applications for tensioning

Continuous Operation

Thermal HP vs. Selection RPM



Electric Brakes and Clutches

ATT Series – Advanced Technology Brakes and Clutches

Special Coil Designs

High temperature coil wire improves durability in the face of high temperature environments and high cycle rates or high inertia cycling that generate large amounts of heat. High temperature Teflon leads are very resistant to accidental abrasion and cutting.



Replaceable Friction Discs

Friction disc is designed as separate assembly from clutch rotor or brake magnet, allowing for replacement of the wear surface without the expense of replacing other valuable unit components. Provides superior wear life with reduced engagement noise level.

Advanced Technology Tension Clutches and Brakes

- Ideal for intermediate range applications
- Both brake and clutch models for winders and unwinders
- .284 to .9 thermal horsepower capacity
- Wear faces replaceable on the shaft for limited downtime
- Full range of control options



Magza Complete Control Capability

MEX (55) 53 83 23 31 - MTY (81) 83 54 10 18
 QRO (442) 1 95 72 60 ventas@industrialmagza.com



Optional Accessories

Warner Electric offers a number of optional accessories as well as rebuild kits, which may make an ATT clutch or

brake easier to apply to your machine. See pages 44-45 for controls.

Unit	Model No.	Clutch Restraining Strap	Repair Kits	
			Friction Face Replacement	Rebuild
Clutch	ATTC-25	5162-101-004	5161-101-008	5161-101-009
	ATTC-55	5162-101-004	5162-101-008	5162-101-009
	ATTC-115	5163-101-004	5163-101-008	5163-101-009
Brake	ATTB-25	—	5161-101-008	—
	ATTB-55	—	5162-101-008	—
	ATTB-115	—	5163-101-008	—

Bore Sizes/Part Numbers

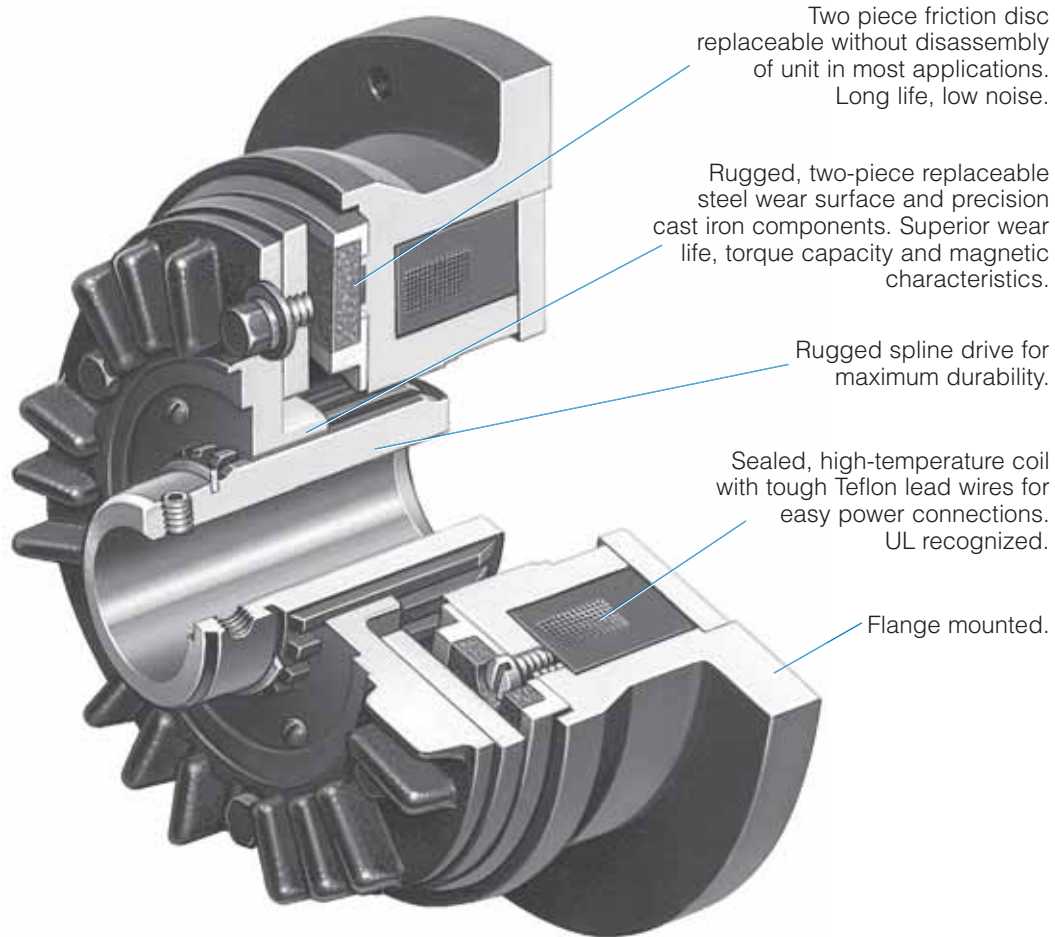
Size	Bore Size (Inch)	24 VDC		90 VDC	
		Clutch (ATTC)	Brake (ATTB)	Clutch (ATTC)	Brake (ATTB)
ATT-25	1/2"	5161-271-021	5191-6	5161-271-025	5191-10
	5/8"	5161-271-022	5191-7	5161-271-026	5191-11
	3/4"	5161-271-023	5191-8	5161-271-027	5191-12
	7/8"	5161-271-024	5191-9	5161-271-028	5191-13
ATT-55	3/4"	5162-271-021	5192-6	5162-271-025	5192-10
	7/8"	5162-271-022	5192-7	5162-271-026	5192-11
	1"	5162-271-023	5192-8	5162-271-027	5192-12
	1-1/8"	5162-271-024	5192-9	5162-271-028	5192-13
ATT-115	1-1/8"	5163-271-021	5193-6	5163-271-025	5193-10
	1-1/4"	5163-271-022	5193-7	5163-271-026	5193-11
	1-3/8"	5163-271-023	5193-8	5163-271-027	5193-12
	1-1/2"	5163-271-024	5193-9	5163-271-028	5193-13

Electric Brakes and Clutches

ATT Series – Advanced Technology Brakes and Clutches

ATTB Brake

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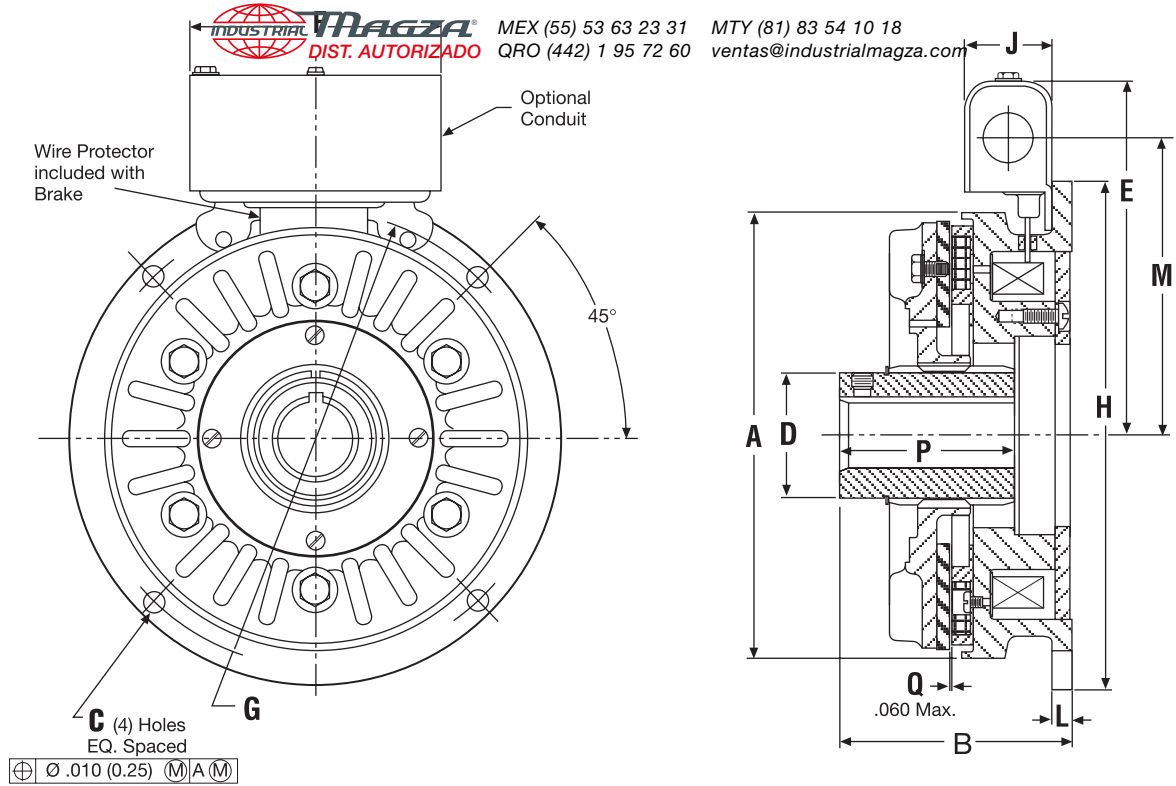


Specifications

Unit	Model No.	Mechanical Data			Electrical Data		
		Total Weight (lbs.)	Max Speed (RPM)	Inertia WR^2 (lb.ft. ²)	24 VDC		
					Resistance (ohms)	Current (amperes)	Power (watts)
	ATTB-25	7	3600	0.038	20.6	1.16	28.0
Brake	ATTB-55	15	3600	0.126	19.6	1.22	29.4
	ATTB-115	24	3600	0.383	16.5	1.46	34.9

Electric Brakes and Clutches

ATT Series – Advanced Technology Brakes and Clutches



Customer shall maintain:

1. Squareness of brake mounting face with armature hub shaft within .006 T.I.R.
2. Concentricity of brake mounting pilot diameter with armature hub shaft within .010 T.I.R.

Shaft Bore and Keyway Dimensions

Model	Unit Bore	Key
ATTB-25	.5025 (12.76)	1/8 Sq.
	.5005 (12.71)	
ATTB-25	.6275 (15.94)	3/16 Sq.
	.6255 (15.89)	
ATTB-25	.7525 (19.11)	3/16 Sq.
	ATTB-55 .7505 (19.06)	
ATTB-25	.8775 (22.29)	3/16 Sq.
	ATTB-55 .8755 (22.24)	

Model	Unit Bore	Key
ATTB-55	1.0025 25.46	1/4 Sq.
	1.0005 25.41	
ATTB-55	1.1275 28.64	1/4 Sq.
ATTB-115	1.1255 28.59	
ATTB-115	1.2525 31.81	1/4 Sq.
	1.2505 31.76	
ATTB-115	1.7775 34.99	5/16 Sq.
	1.3755 34.94	
ATTB-115	1.5025 38.16	3/8 Sq.
	1.5005 38.11	

inches (mm)

Model	A Max. Dia.	B Max.	C Min. Dia.
ATTB-25	4.822 (122.48)	2.730 (69.34)	.264 (6.70)
ATTB-55	6.271 (159.28)	3.010 (77.97)	.330 (8.38)
ATTB-115	7.906 (200.81)	3.625 (12.07)	.330 (8.38)

inches (mm)

Model	D Max.	E Nom.	F Max.	G Dia.	H Pilot Dia.	J Nom.	L Max.	M Nom.	P Max.
ATTB-25	1.345 (34.16)	4.748 (120.60)	3.767 (95.68)	5.250 (133.35)	5.625/5.623 (142.87/142.82)	1.544 (39.22)	.225 (5.71)	3.586 (91.08)	2.080 (52.83)
ATTB-55	1.765 (44.83)	5.37 (136.40)	3.767 (95.68)	6.875 (174.62)	7.315/7.313 (187.33/181.21)	1.544 (39.22)	.491 (12.47)	4.208 (106.88)	1.960 (49.87)
ATTB-115	2.150 (54.61)	6.278 (159.46)	3.767 (95.68)	8.500 (215.90)	9.000/8.998 (228.60/228.55)	1.544 (39.22)	.463 (11.76)	5.116 (129.95)	3.105 (78.87)

For replacement parts list and exploded view drawing, see page 84.

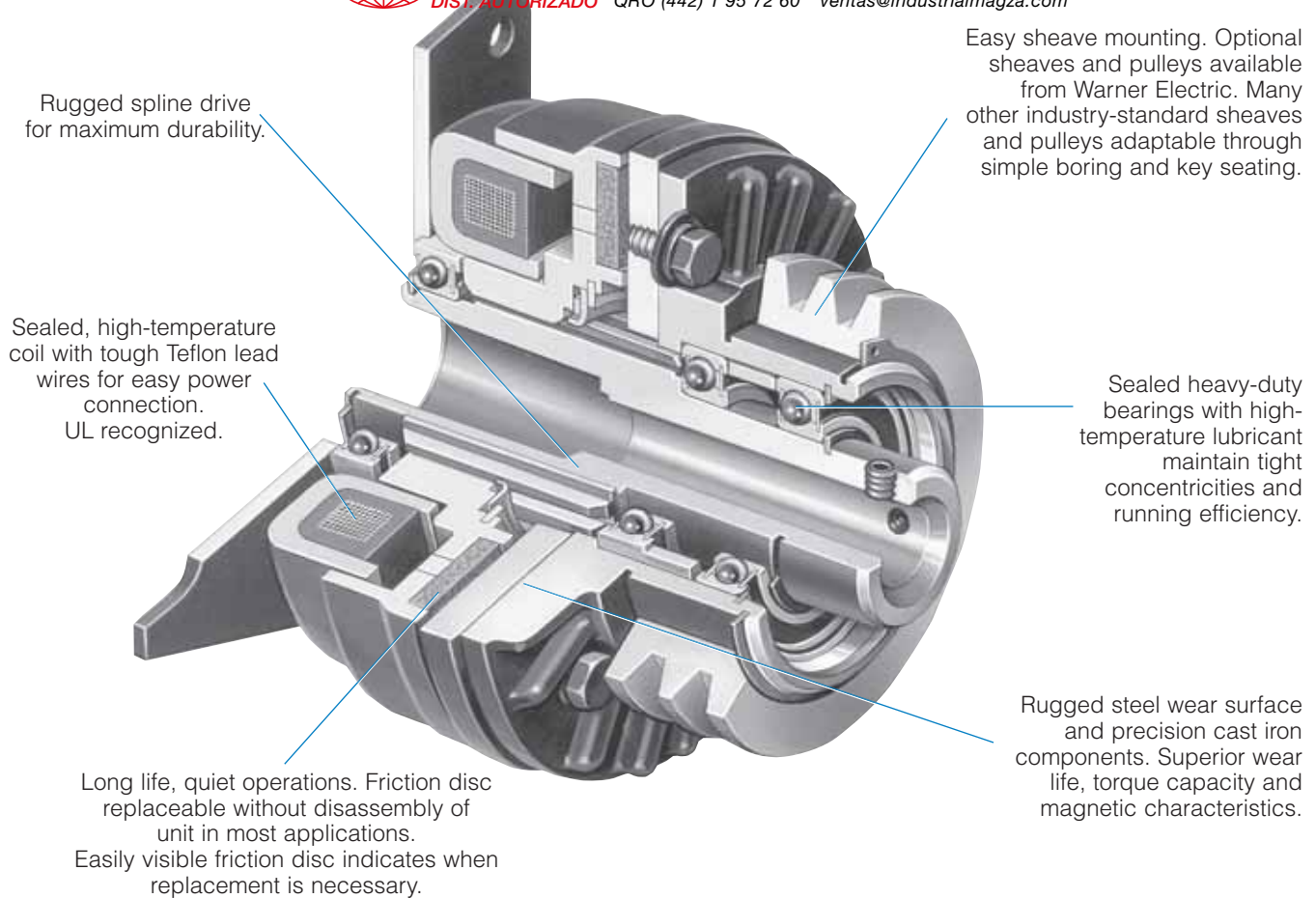
Note: All dimensions are nominal unless otherwise noted.

Electric Brakes and Clutches

ATT Series – Advanced Technology Brakes and Clutches

ATTC Clutch

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Specifications

Model No.	Mechanical Data			Electrical Data		
	Total Weight (lbs.)	Max Speed (RPM)	Inertia WR ² (lb. ft. ²)	24 VDC		
				Resistance (ohms)	Current (amperes)	Power (watts)
ATTC-25	8	3600	0.048	20.6	1.16	28.0
ATTC-55	18	3600	0.173	19.6	1.22	29.4
ATTC-115	28	3600	0.483	16.5	1.46	34.9

Dimensions

inches (mm)

Model	A Max. Dia.	B Max.	C Nom.	D Nom. Dia.	E Max.	F Max.	G Max.	H Max.	J Max Dia.	K Max.	L Max.	M Max.	T Nom.
ATTC-25	3.60 (91.44)	4.39 (111.51)	2.375 (60.33)	1.080 (27.43)	4.748 (120.60)	3.767 (95.68)	3.282 (83.36)	5.11 (129.79)	4.822 (122.49)	1.68 (42.67)	1.003/991 (25.48/25.17)	.715/.703 (18.16/17.86)	.375 (9.53)
ATTC-55	3.95 (100.33)	4.935 (125.35)	2.925 (74.30)	1.40 (35.56)	5.182 (131.62)	3.767 (95.68)	4.032 (102.41)	5.11 (129.79)	6.275 (159.39)	1.817 (46.15)	1.113/1.101 (28.27/27.97)	—	.375 (9.53)
ATTC-115	5.254 (133.45)	5.977 (151.82)	3.102 (78.79)	1.86 (47.24)	6.089 (154.66)	3.767 (95.68)	4.246 (107.85)	10.11 (256.79)	7.906 (200.81)	2.467 (62.66)	1.539/1.523 (39.09/38.68)	—	.375 (9.53)

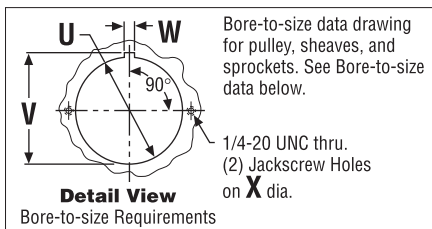
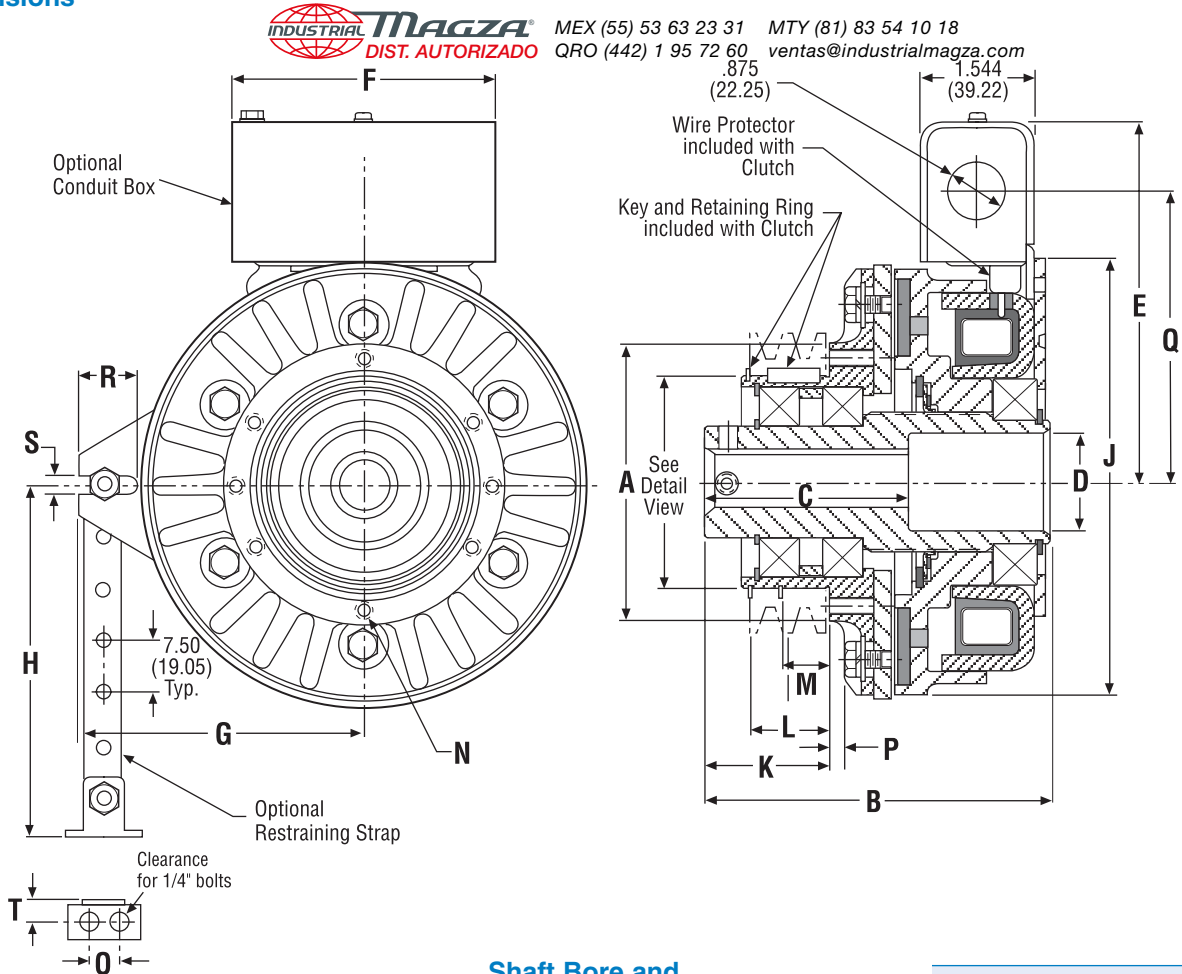
For replacement parts list and exploded view drawing, see page 85.

Note: All dimensions are nominal unless otherwise noted.

Electric Brakes and Clutches

ATT Series – Advanced Technology Brakes and Clutches

Dimensions



Shaft Bore and Keyway Dimensions

Model	Unit Bore	Key
ATTC-25	.5025 (12.76) .5005 (12.71)	1/8 Sq.
ATTC-25	.6275 (15.94) .6255 (15.89)	3/16 Sq.
ATTC-25	.7525 (19.11) .7505 (19.06)	3/16 Sq.
ATTC-25	.8775 (22.29) .8755 (22.24)	3/16 Sq.

Model	Unit Bore	Key
ATTC-55	1.0025 (25.46) 1.0005 (25.41)	1/4 Sq.
ATTC-55	1.1275 (28.64) 1.1255 (28.59)	1/4 Sq.
ATTC-115	1.2525 (31.71) 1.2505 (31.76)	1/4 Sq.
ACCT-115	1.3775 (34.99) 1.3755 (34.94)	5/16 Sq.
ATTC-115	1.5025 (38.16) 1.5005 (38.11)	3/8 Sq.

inches (mm)

Model	No. of Holes	N Thread Size	Max. Depth	Bolt Circle	O Nom.	Q Nom.	R Min.	S Min.
ATTC-25	3	1/4-20	.500	3.00	.500 (12.7)	3.586 (91.08)	.752 (19.08)	.279 (7.09)
ATTC-55	4	1/4-20	.635	3.50	.500 (12.7)	4.156 (105.56)	.722 (18.34)	.265 (6.73)
ATTC-115	4	5/16-18	.830	4.75	.500 (12.7)	4.927 (125.15)	.504 (12.80)	.265 (6.73)

Bore-to-Size Data

U Bore Dia.	V Keyway Height	W Keyway Width	X Bolt Circle
2.502/2.500 (63.55/63.50)	2.601/2.591 (66.06/65.81)	.1905/.1885 (4.84/4.79)	3.00 (76.20)
3.002/3.000 (76.25/76.20)	3.099/3.089 (78.71/78.46)	.1905/.1885 (4.84/4.79)	3.50 (88.90)
4.002/4.000 (101.65/101.60)	4.127/4.117 (104.83/104.57)	.378/.376 (9.60/9.55)	4.50 (114.30)

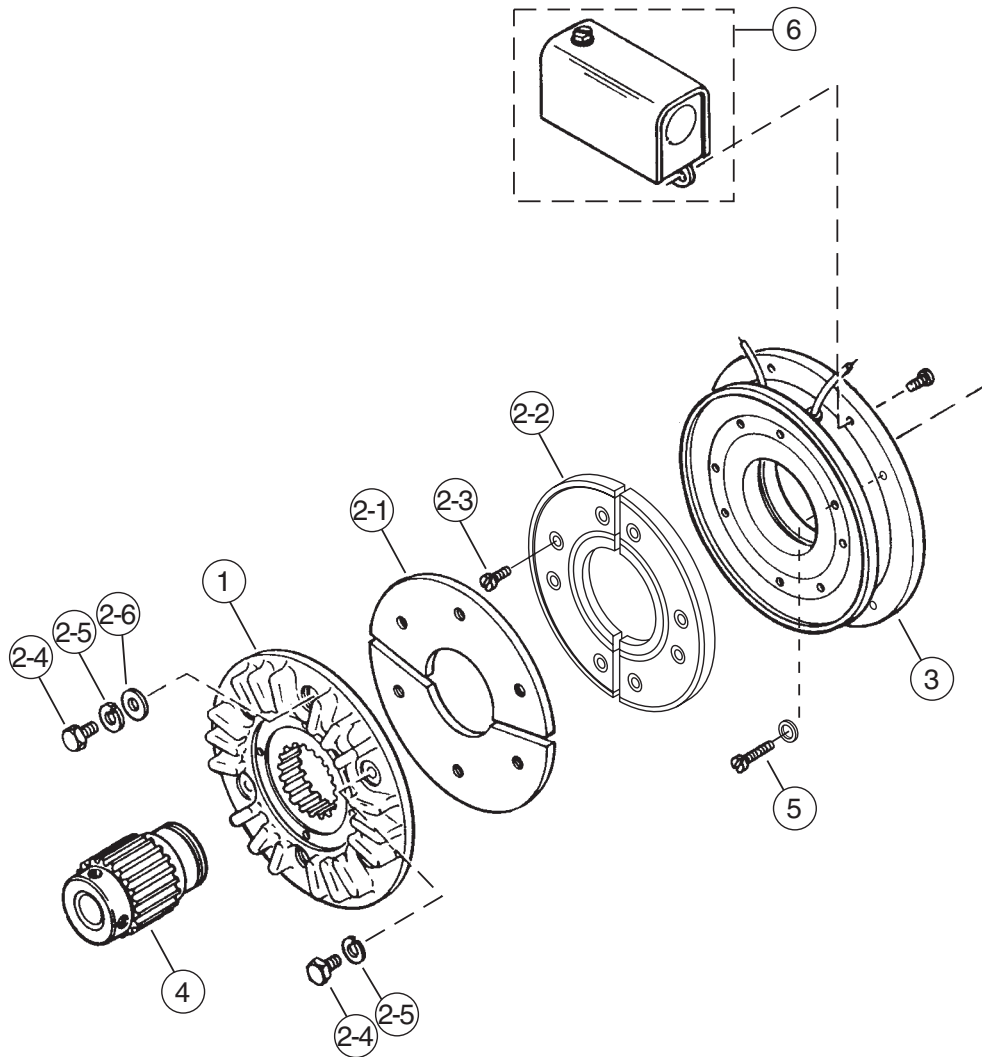
For replacement parts list and exploded view drawing, see page 85.

Note: All dimensions are nominal unless otherwise noted.

Brake Assemblies and Part Numbers

ATT Series – Advanced Technology Brakes

ATTB-25, ATTB-55, ATTB-115  **MAGZA** MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
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Brake Assemblies

Unit Size	Voltage	Part No.
ATTB-25-1/2	24	5191-6
ATTB-25-1/2	90	5191-10
ATTB-25-5/8	24	5191-7
ATTB-25-5/8	90	5191-11
ATTB-25-3/4	24	5191-8
ATTB-25-3/4	90	5191-12
ATTB-25-7/8	24	5191-9
ATTB-25-7/8	90	5191-13
ATTB-55-3/4	24	5192-6
ATTB-55-3/4	90	5192-10
ATTB-55-7/8	24	5192-7
ATTB-55-7/8	90	5192-11
ATTB-55-1	24	5192-8
ATTB-55-1	90	5192-12
ATTB-55-1-1/8	24	5192-9
ATTB-55-1-1/8	90	5192-13
ATTB-115-1-1/8	24	5193-6
ATTB-115-1-1/8	90	5193-10
ATTB-115-1-1/4	24	5193-7
ATTB-115-1-1/4	90	5193-11
ATTB-115-1-3/8	24	5193-8
ATTB-115-1-3/8	90	5193-12
ATTB-115-1-1/2	24	5193-9
ATTB-115-1-1/2	90	5193-13

Part Numbers

Item No.	Description	ATTB-25		ATTB-55		ATTB-115		Item No.	Description	ATTB-25		ATTB-55		ATTB-115	
		Qty.	Part No.	Qty.	Part No.	Qty.	Part No.			Qty.	Part No.	Qty.	Part No.	Qty.	Part No.
1	Armature Hub	1	540-0908	1	540-0851	1	540-0864								
2-1	Armature	1	110-0220	1	110-0218	1	110-0223								
2-2	Facing Assem.	1	5191-445-003	1	5192-445-003	1	5193-445-003								
2-3	Screw	6	797-1389	8	797-1389	8	797-1389								
2-4	Screw	4	797-1020	6	797-1387	6	797-1174								
2-5	Lockwasher	-	-	6	950-0355	6	950-0355								
2-6	Flatwasher	-	-	2	950-0023	2	950-0023								
3	Magnet Assem.	1	-	1	-	1	-								
	24 Volts D.C.	-	5191-631-007	-	5192-631-007	-	5193-631-014								
	90 Volts D.C.	-	5191-631-008	-	5192-631-008	-	5193-631-015								
4	Splined Hub	1	-	1	-	1	-								
	1/2" Bore	-	5191-541-002	-	-	-	-								
	5/8" Bore	-	5191-541-003	-	-	-	-								
	3/4" Bore	-	5191-541-004	-	5192-541-002	-	-								
	7/8" Bore	-	5191-541-005	-	5192-541-003	-	-								
	1" Bore	-	-	-	5192-541-004	-	-								
	1-1/8" Bore	-	-	-	5192-541-005	-	5193-541-002								
	1-1/4" Bore	-	-	-	-	-	5193-541-003								
	1-3/8" Bore	-	-	-	-	-	5193-541-004								
	1-1/2" Bore	-	-	-	-	-	5193-541-005								
5	Mtg. Acc'y.	1	5191-101-007	1	5192-101-007	1	5192-101-007								
Optional Accessory Items															
6	Conduit Box	1	5162-101-002	1	5162-101-002	1	5162-101-002								
Kit Items															
7	Friction Face Replacement Kit	1	5161-101-008	1	5162-101-008	1	5163-101-008								
(includes items 2-1, 2-2, 2-3, 2-4, 2-5, 2-6)															

Electric Brakes

MTB Series – Modular Tension Brakes

One of the keys to the Warner Electric tensioning system is the Electro Disc tension brake. Electro Disc brake systems are capable of continuous slip from full roll to core diameter while providing outstandingly consistent and accurate control of unwind tension throughout the process. Electro Disc brakes operate smoothly and quietly. They respond instantly for emergency stops. Wear life is remarkable. Electronic control systems are easily interfaced with Warner Electric controls. Selection of the right brake for virtually any web processing application, from film to boxboard, is made possible through a building-block modular design.

Simple Maintenance

Rugged design eliminates most moving parts. No diaphragms to break down. Asbestos-free brake pads are quickly and easily replaced. Brake wear does not affect torque as with some other types of brakes.

Easy Installation

Electro Disc tension brakes fit within tight space restrictions. Bushings adapt to most standard and metric shafts. Electrical installation replaces complex pneumatic plumbing, valves and compressors.

Long Life, High Heat Dissipation

A replaceable face armature disc provides extremely long life and maximum heat dissipation. Standard armature discs can be mounted singly or in tandem as shown here to increase the heat dissipation and torque capability.

Accurate, Consistent Control

The responsiveness of electric brakes coupled with specially designed controls provides accurate tensioning from beginning to end of roll, even during emergency stops and flying splices.

Brake Modularity

With one to sixteen magnets and single or double armature discs, Electro Disc tension brakes offer torque control and continuous slip capacity to meet a broad spectrum of requirements for virtually any web processing application.

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Patented Design

The patented Electro Disc design is a proven concept, featuring a simple, yet powerful tension brake ... easy-to-control, smooth, quiet and accurate. The speed of response and controllability, especially near zero tension, far exceeds that of other braking technologies.

Simple. Powerful. Controllable.

The electromagnetic principle, as applied to the Electro Disc tension brake, results in a brake design that features outstanding control from zero torque to the maximum limits of the brake. Complex moving parts are eliminated.

Smooth Operation with Minimal Maintenance

The friction pads are made of a unique composite of asbestos-free friction materials specially designed to produce smooth, powerful, yet quiet engagement between the magnet and armature discs. Since the replaceable friction pads and armature disc are the only parts which receive regular wear, the electromagnets can be reused indefinitely. An indicator notch on the friction pad, as well as an optional electric wear indicator, makes routine checking for remaining wear life quick and easy.

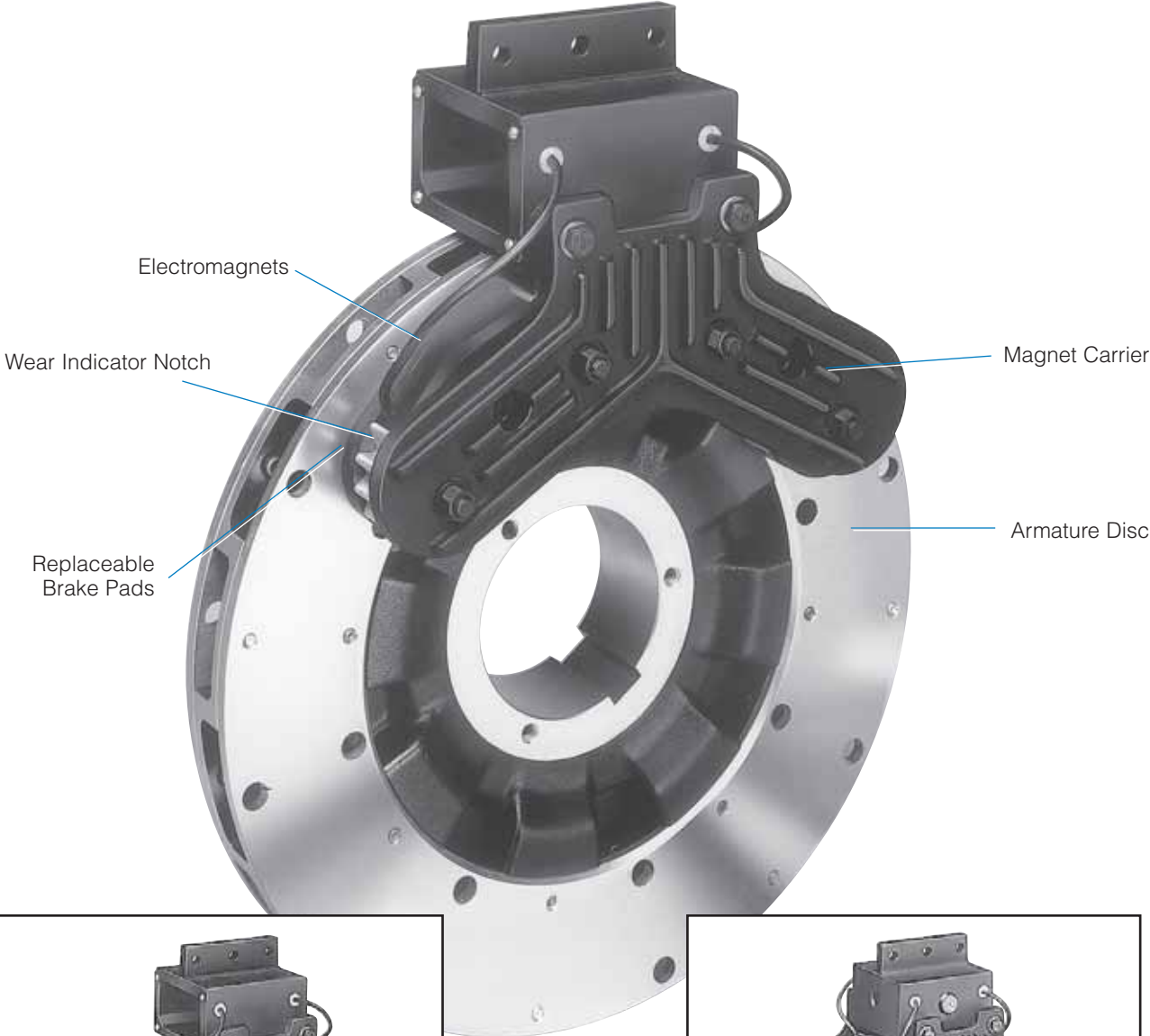
Electric Brakes

MTB Series – Modular Tension Brakes

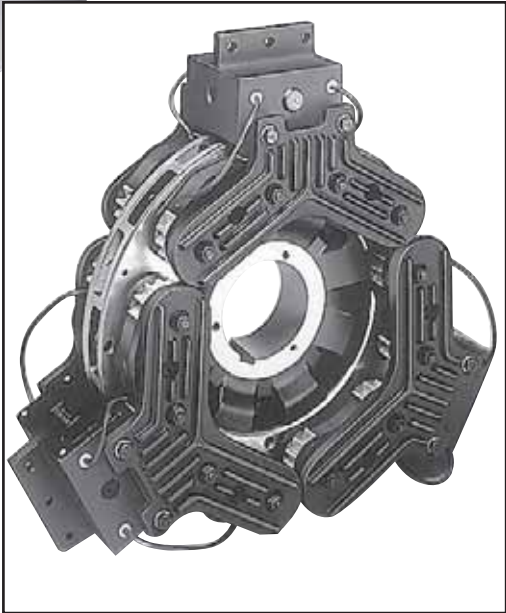
MTB-II ... the second generation



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Single disc, 2 magnets

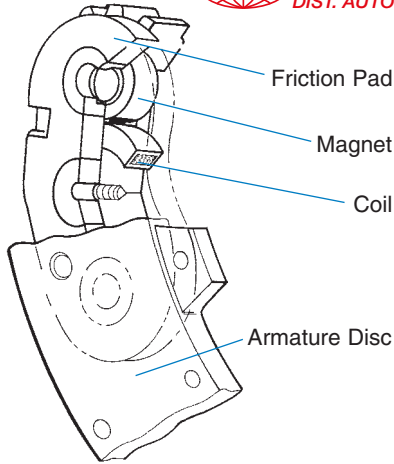


Dual disc, 12 magnets

Electric Brakes

MTB Series – Modular Tension Brakes

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Principle of Operation

Warner Electric tension brakes operate on the electromagnetic principle. The brake's two basic parts, an electromagnet and an armature disc, pull into contact as power is applied. At the center of the Warner Electric tension brake magnet is the electric coil, consisting of numerous layers of tightly wound wire, which gives Warner Electric brakes their torque capability. By simply increasing or decreasing the current to the electric coil, proportionately more or less braking torque will be generated.

MTB-II...The Second Generation

The ED magnet has been redesigned following years of engineering tests and evaluation. The result is a unique, patent pending design providing more than double the life of the previous Electro Disc brakes ... without any loss in smoothness or controllability.



New pole geometry

The geometry of the magnetic poles has been redesigned (Patent Pending) to minimize the "leading edge wear" common to all pin mounted friction brakes. Magnet mounting holes do not extend through the face for freer, axial movement.



New armature design

New aluminum armature carriers for 10", 13" and 15" systems provide inertial reduction up to 40%, allowing improved tension control as high speed machines accelerate to core. The radial blower design improves air flow and cooling. Systems run cooler and last longer.



New friction system

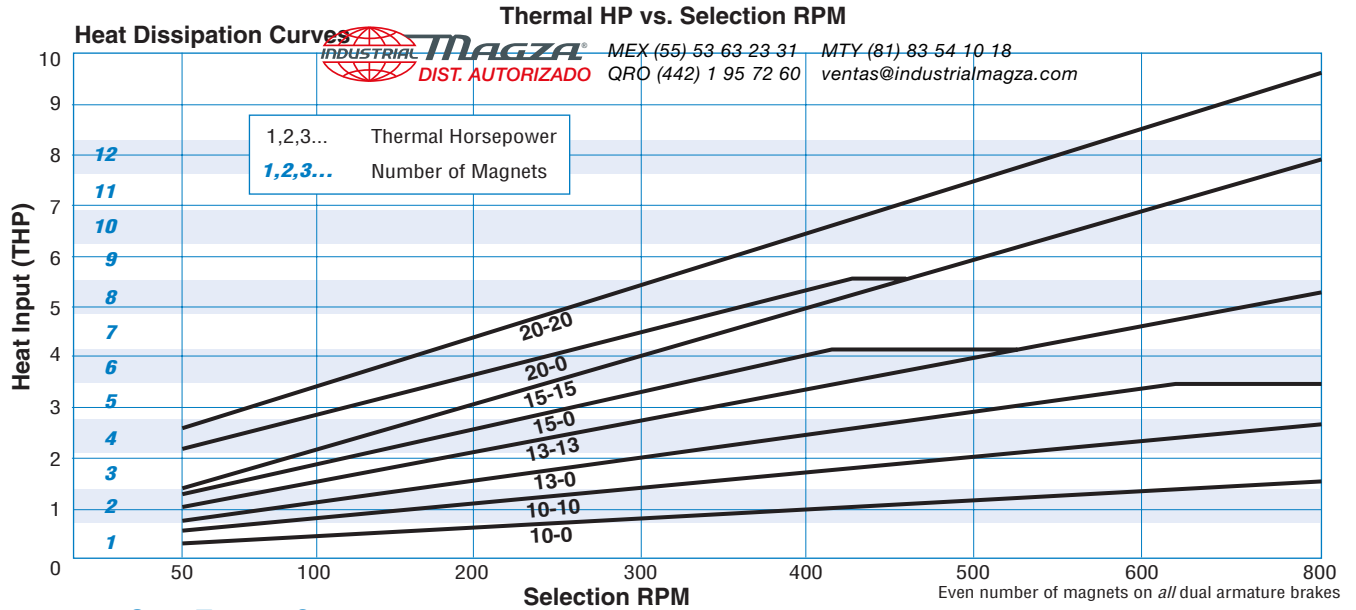
The friction system features three important benefits:

- A new, long wearing friction pad material.
- A new, improved balance between the wear rate of the magnetic poles and the friction material.
- A replaceable face friction pad for fast, easy maintenance.



New electronic wear indicator option

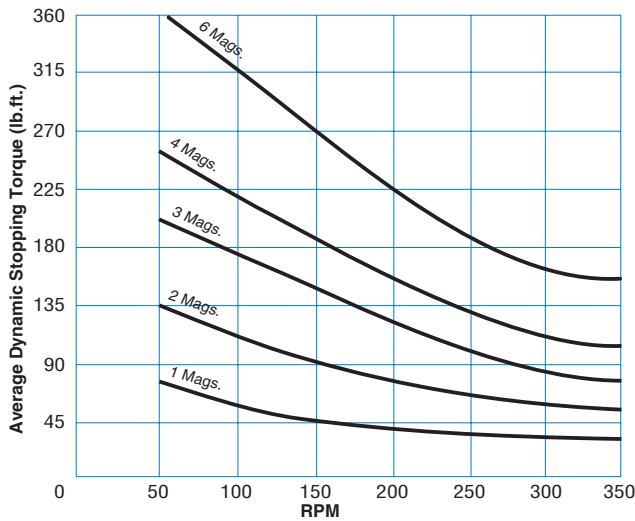
An optional, electronic wear indicator is imbedded into the magnets to aid in planning maintenance requirements. An indicator on the Warner Electric control illuminates at the point where 15% of brake life still remains.



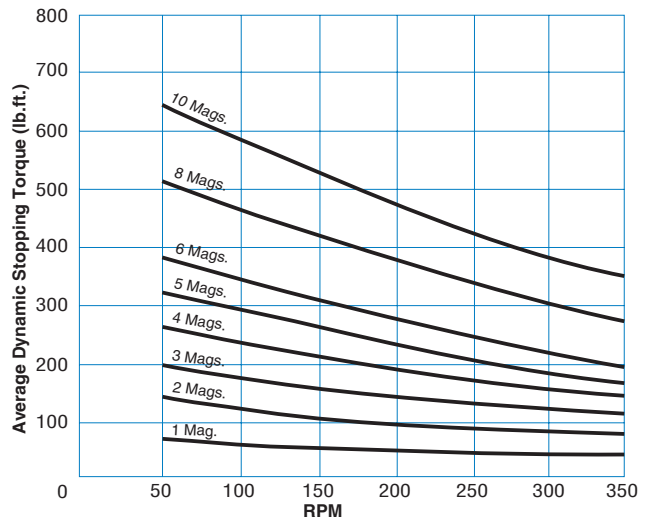
Emergency Stop Torque Curves

Note: The following curves are for emergency stop torques. For normal running dynamic torque, multiply the emergency stop torque value by .54.

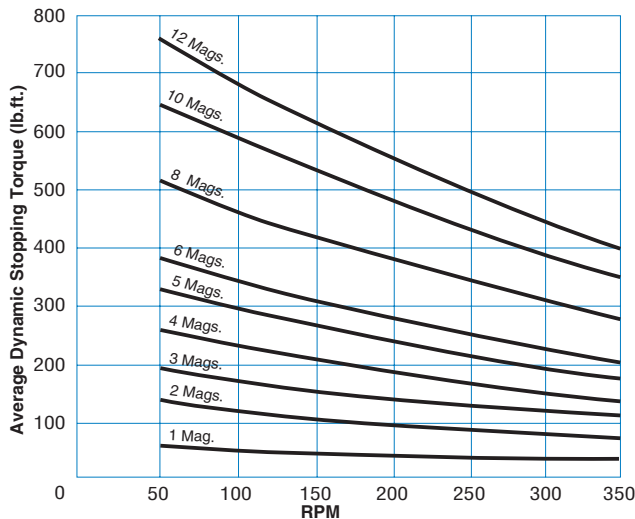
Electro Disc – 10"**



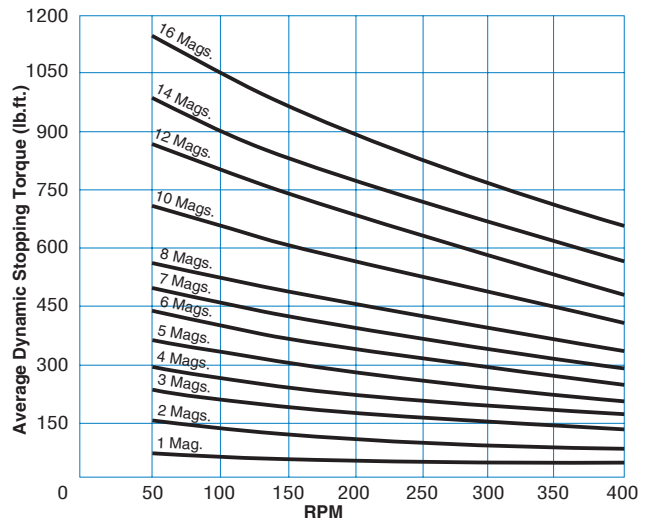
Electro Disc – 13"**



Electro Disc – 15"**



Electro Disc – 20"**



* MTB II Dynamic Torques at 500 mA per magnet, available from TCS series controls during emergency stop.

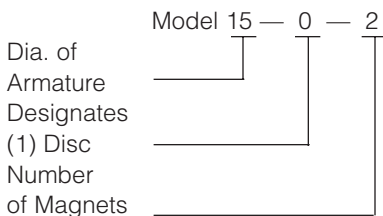
Electric Brakes

MTB Series – Modular Tension Brakes

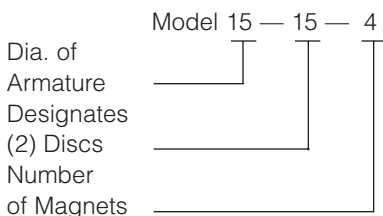
Model number designation



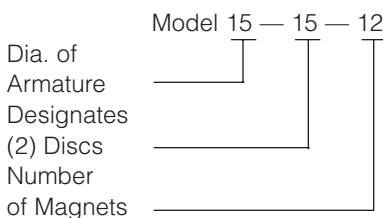
Single Disc, 2 Magnets



Dual Discs, 4 Magnets



Dual Discs, 12 Magnets



Specifications



Model	No. of Discs	No. of Magnets	Resistance @20°C Ohms ¹	Current Amps	Watts ¹	Max. Allowable Disc Speed RPM
10-0-1	1	1	69.10	0.35	8.33	3600
10-0-2	1	2	34.55	0.69	16.67	3600
10-0-3	1	3	23.03	1.04	25.01	3600
10-10-2	2	2	34.55	0.69	16.67	3600
10-10-4	2	4	17.28	1.39	33.33	3600
10-10-6	2	6	11.52	2.08	50.0	3600
13-0-1	1	1	69.10	0.35	8.33	2500
13-0-2	1	2	34.55	0.69	16.67	2500
13-0-3	1	3	23.03	1.04	25.01	2500
13-0-4	1	4	17.28	1.39	33.33	2500
13-0-5	1	5	13.82	1.74	41.68	2500
13-13-2	2	2	34.55	0.69	16.67	2500
13-13-4	2	4	17.28	1.39	33.33	2500
13-13-6	2	6	11.52	2.08	50.0	2500
13-13-8	2	8	8.64	2.78	66.67	2500
13-13-10	2	10	6.91	3.47	83.36	2500
15-0-1	1	1	69.10	0.35	8.33	2500
15-0-2	1	2	34.55	0.69	16.67	2500
15-0-3	1	3	23.03	1.04	25.01	2500
15-0-4	1	4	17.28	1.39	33.33	2500
15-0-5	1	5	13.82	1.74	41.68	2500
15-0-6	1	6	11.52	2.08	50.0	2500
15-15-2	2	2	34.55	0.69	16.67	2500
15-15-4	2	4	17.28	1.39	33.33	2500
15-15-6	2	6	11.52	2.08	50.0	2500
15-15-8	2	8	8.64	2.78	66.67	2500
15-15-10	2	10	6.91	3.47	83.36	2500
15-15-12	2	12	5.76	4.17	100.0	2500
20-0-1	1	1	69.10	0.35	8.33	1600
20-0-2	1	2	34.55	0.69	16.67	1600
20-0-3	1	3	23.03	1.04	25.01	1600
20-0-4	1	4	17.28	1.39	33.33	1600
20-0-5	1	5	13.82	1.74	41.68	1600
20-0-6	1	6	11.52	2.08	50.0	1600
20-0-7	1	7	9.87	2.43	58.36	1600
20-0-8	1	8	8.64	2.78	66.67	1600
20-20-2	2	2	34.55	0.69	16.67	1600
20-20-4	2	4	17.28	1.39	33.3	1600
20-20-6	2	6	11.52	2.08	50.0	1600
20-20-8	2	8	8.64	2.78	66.67	1600
20-20-10	2	10	6.91	3.47	83.36	1600
20-20-12	2	12	5.76	4.17	100.0	1600
20-20-14	2	14	4.94	4.86	116.60	1600
20-20-16	2	16	4.32	5.56	133.33	1600

Notes: 1. Electrical data based on magnets connected in parallel.

Armature Data

Brake Size	No. of Armatures	Total Brake Inertia (lb.ft. ²)	Armature and Hub* Total Weight (lbs.)
10"	1	0.9	9.4
	2	1.4	14.6
13"	1	2.9	16.6
	2	4.6	25.0
15"	1	4.6	22.3
	2	7.5	32.5
20"	1	20.0	70.0
	2	36.0	105.0

*Armature, hub and bushing rotate

Torque Ratings per Magnet

Brake Size	Dynamic Torque* (lb.ft.)	Drag Torque (lb.ft.)	E-Stop** (lb.ft.)
10"	28.5	.21	62
13"	30	.32	64
15"	33	.37	65
20"	37	.51	70

* Per magnet @ 50 rpm; 270 ma coil current

** Per magnet @ 50 rpm; 500 ma coil current

Modular Design ... tailored to meet your requirements

To select the proper size Electro Disc tension brake, it is important to understand that the brakes are fully modular. This feature enables matching requirements for heat dissipation and emergency stopping torque to the tension brake configuration that optimizes these features.

Selection

The easy-to-use selection charts on page 89 specifies a particular modular combination as listed in the accompanying chart. (See page 90 for selection of basic tension brakes.)

Determining two factors are all that's required.

1. Diameter
Basically heat dissipation capacity is directly proportional to the diameter of the disc.
2. Number of magnets
Torque capacity is proportional to the number of magnets. See page 89 for torque and heat dissipation sizing to meet the specific requirements of your application.



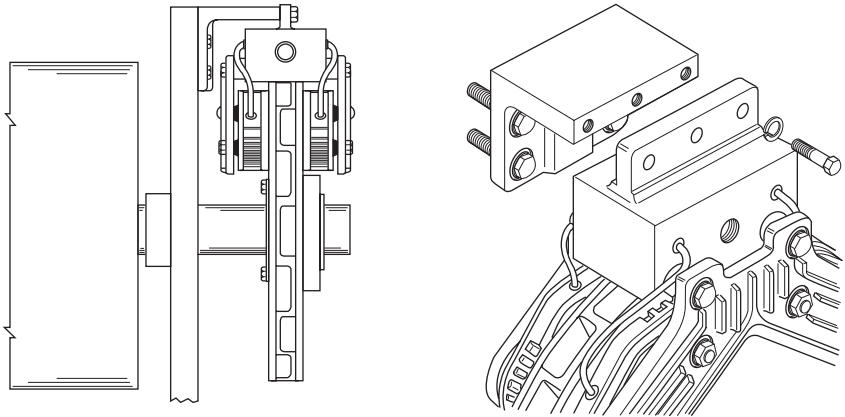
Mounting Configurations

INDUSTRIAL MAGZA MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
DIST. AUTORIZADO QRO (442) 1 95 72 60 ventas@industrialmagza.com

Thrust bearings, side loading, and special supports are a thing of the past!

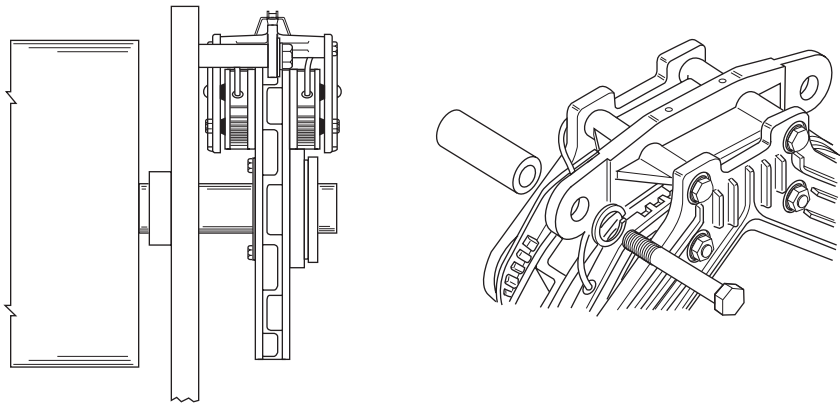
Universal Mounting Bracket

With addition of a simple "L" shaped bracket (Customer supplied), the universal mount provides a perfectly easy retrofit on older machines.



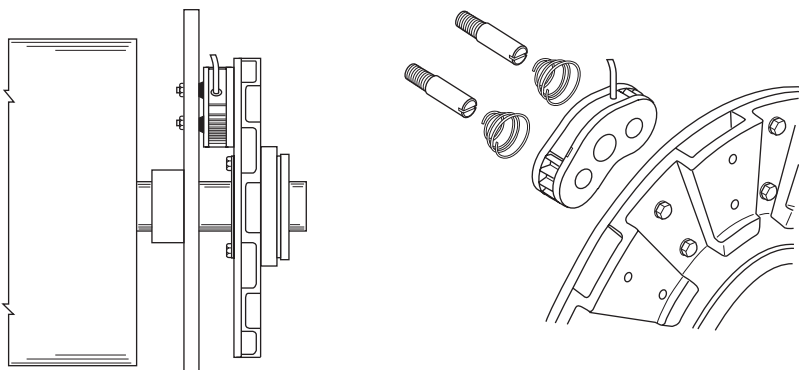
Bulk Head Mounting Bracket

Use of the bulkhead mount reduces the overall diameter to allow mounting in more constricted or enclosed locations.



Direct (Free) Mounting

For the Machine Builder or retrofitter, the free mount provides the simplest, least expensive option with low profile and diameter advantages. Mounting directly to the side frame of the machine offers all support necessary for performance requirements.



Electric Brakes

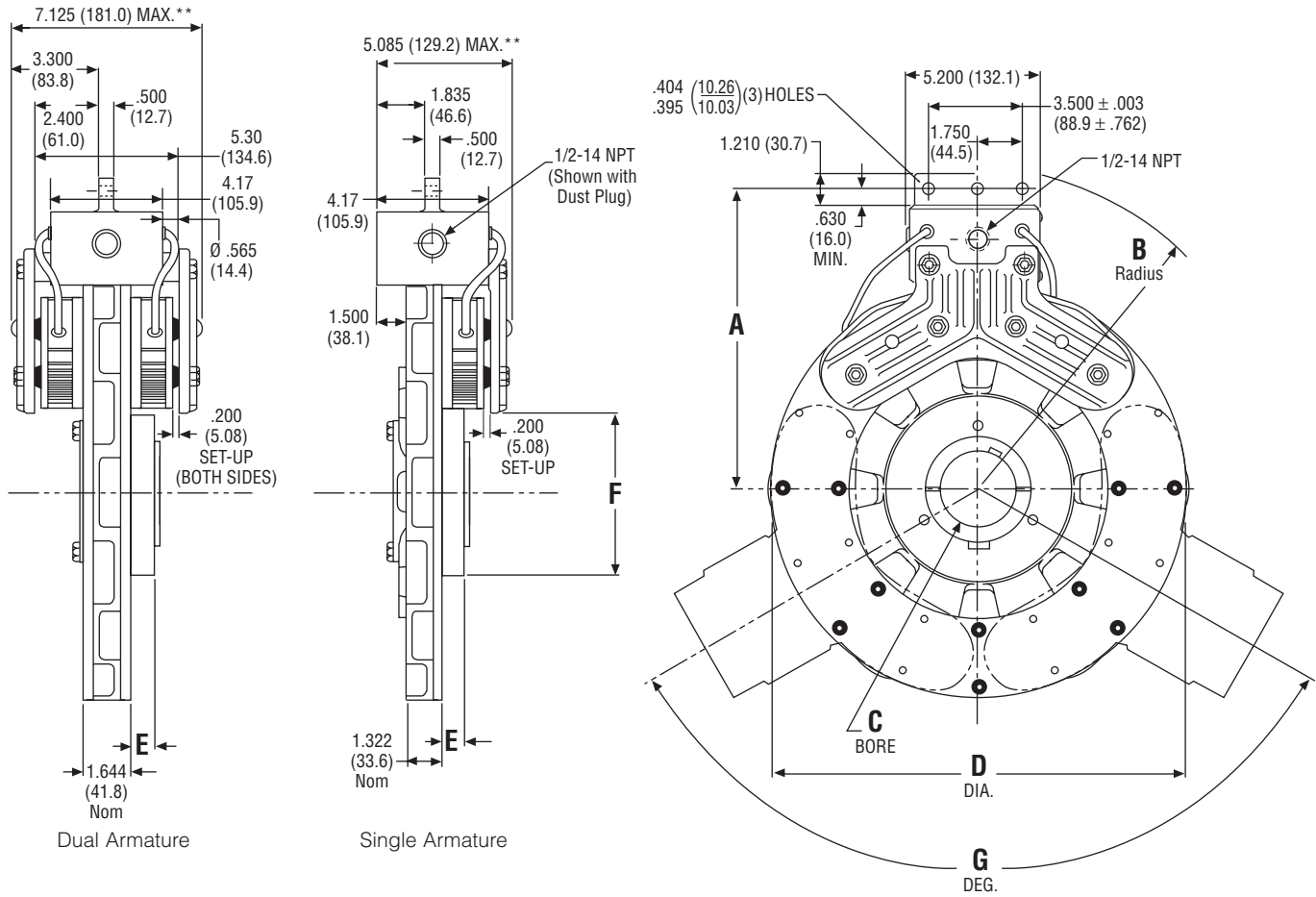
MTB Series – Modular Tension Brakes

MTB-II Dimensions

... with Universal Mounting Brackets



MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
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inches (mm)

Armature Size	A	B Max.	C BORE			D Max.	E Max.	F Max.	G Degree
			Stock*	Bushing	Browning				
10"	8.625 ± .020 (219.0 ± 0.5)	9.500 (241.3)	1.750 (44.45)	.500–1.750 (14.0–42.0)	P-1	10.020 (254.5)	.479 (12.2)	3.550 (88.9)	180
13"	10.187 ± .020 (258.7 ± 0.5)	11.000 (279.4)	3.375 (85.73)	1.125–3.750 (28.0–95.0)	R-1	13.520 (343.4)	1.219 (31.0)	5.687 (144.4)	108 & 144
15"	11.125 ± .020 (282.6 ± 0.5)	12.000 (304.8)	3.375 (85.73)	1.125–3.750 (28.0–95.0)	R-1	15.325 (389.3)	1.219 (31.0)	6.875 (174.6)	120
20"	13.470 ± .020 (340.4 ± 0.5)	14.250 (362.0)	—	2.375–5.500 —	U-0	20.020 (508.5)	2.720 (69.1)	4.380 (111.3)	—

* Stock bore is straight bore for use with Trantorque bushing.

For replacement parts list and exploded view drawing, see page 96.

** Width dimension is the same for single or dual magnet carriers. (Dual magnet carrier shown.)

Consult factory for dimensional information on MTB-I.

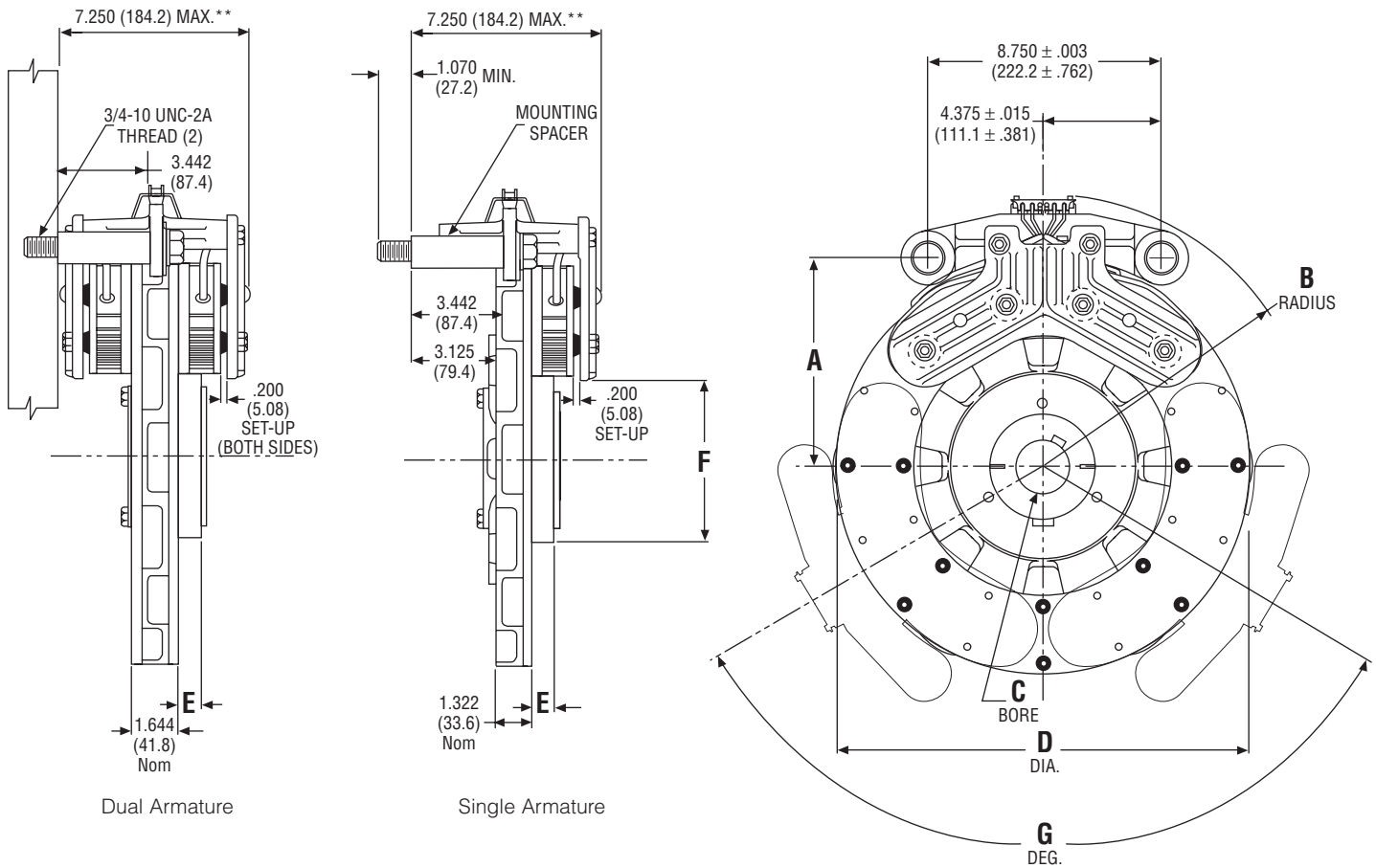
Note: All dimensions are nominal unless otherwise noted.

MTB-II Dimensions

... with Bulk Head Mounting Brackets



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inches (mm)

Armature Size	A	B Max.	C BORE			D Max.	E Max.	F Max.	G Degree
			Stock*	Bushing	Browning				
10"	5.260 ± .020 (133.6 ± 0.5)	7.750 (196.9)	1.750 (44.45)	.500–1.750 (14.0–42.0)	P-1	10.020 (254.5)	.479 (12.2)	3.55 (88.9)	180
13"	6.822 ± .020 (173.3 ± 0.5)	9.300 (236.2)	3.375 (85.73)	1.125–3.750 (28.0–95.0)	R-1	13.520 (343.4)	1.219 (31.0)	5.687 (144.4)	108 & 144
15"	7.760 ± .020 (197.1 ± 0.5)	10.230 (259.9)	3.375 (85.73)	1.125–3.750 (28.0–95.0)	R-1	15.325 (389.3)	1.219 (31.0)	6.875 (174.6)	120
20"	10.250 ± .020 (260.4 ± 0.5)	12.500 (317.5)	—	2.375–5.500 —	U-0	20.020 (508.5)	2.720 (69.1)	4.380 (111.3)	—

* Stock bore is straight bore for use with Trantorque bushing.

For replacement parts list and exploded view drawing, see page 96.

** Width dimension is the same for single or dual magnet carriers. (Dual magnet carrier shown.)

Consult factory for dimensional information on MTB-I.

Note: All dimensions are nominal unless otherwise noted.

Electric Brakes

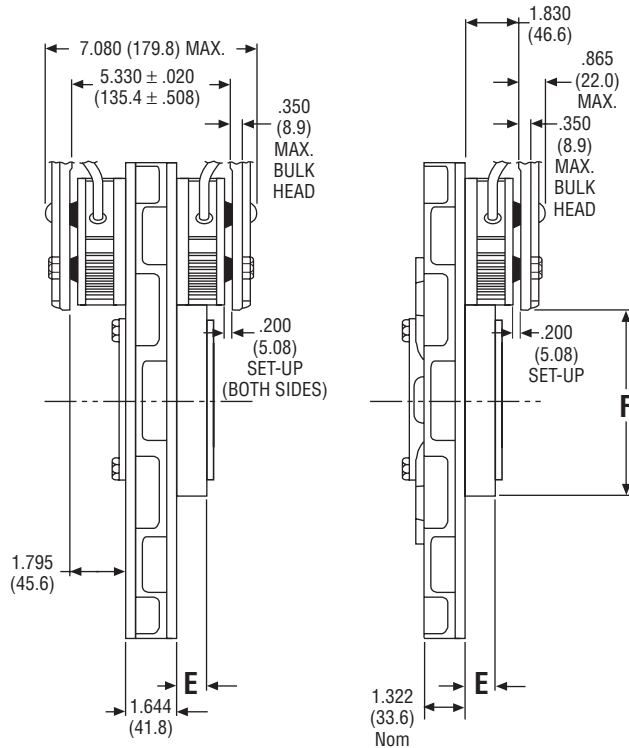
MTB Series – Modular Tension Brakes

MTB-II Dimensions

... with Direct Mounting

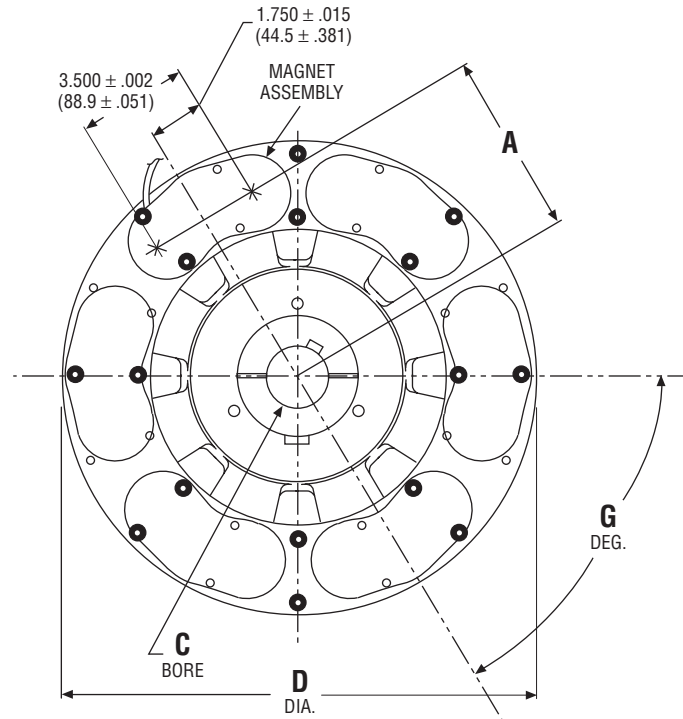


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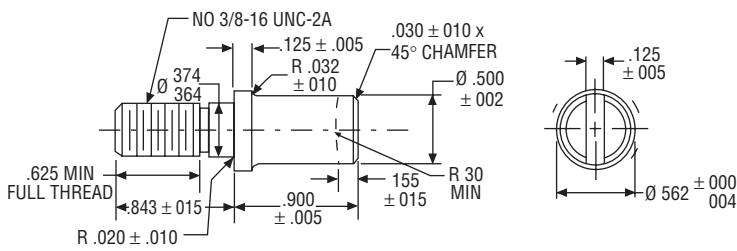


Dual Armature

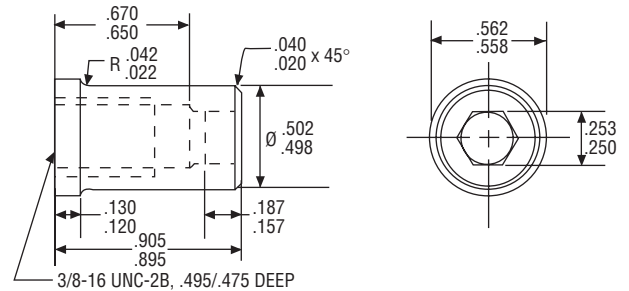
Single Armature



Male Pins



Female Pins



inches (mm)

Armature Size	A	C BORE			D Max.	E Max.	F Max.	G Degree
		Stock*	Bushing	Browning				
10"	3.350 ± .020 (85.1 ± 0.5)	1.750 (44.45)	.500–1.750 (14.0–42.0)	P-1	10.020 (254.5)	.479 (12.2)	3.550 (88.9)	120
13"	5.215 ± .020 (132.5 ± 0.5)	3.375 (85.73)	1.125–3.750 (28.0–95.0)	R-1	13.520 (343.4)	1.219 (31.0)	5.687 (144.4)	72
15"	5.850 ± .020 (148.6 ± 0.5)	3.375 (85.73)	1.125–3.750 (28.0–95.0)	R-1	15.325 (389.3)	1.219 (31.0)	6.875 (174.6)	60
20"	8.125 ± .040 (206.4 ± 1.0)	—	2.375–5.500 —	U-0	20.020 (508.5)	2.720 (69.1)	—	—

* Stock bore is straight bore for use with Trantorque bushing.
 For replacement parts list and exploded view drawing, see page 96.
 Consult factory for dimensional information on MTB-I.

Note: All dimensions are nominal unless otherwise noted.

Retrofit/Upgrade of MTB to MTB-II

INDUSTRIAL **MAGZA**® MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
 SALES & SERVICE DEPT. QRO (442) 1 95 72 60 ventas@industrialmagza.com

New MTB-II magnets and armature carriers are available to easily retrofit and upgrade existing MTB applications.

MTB Magnet Weight
 3 lb. 4.5 oz. each Magnet

1. **Magnets only** – Existing applications can extend the life of the friction system by installing MTB-II components.

If presently using... MTB MAGNETS

Magnet 5216-631-004

that should go with...

Magnet Carriers

Dual 10" 5216-295-002
 13" None
 15" & 20" 5216-295-001
Single All 5216-295-003

OR (if Free Mounting)...

Free Mount Pins 5216-101-010
 5216-101-008

Upgrade with... MTB-II MAGNETS

Standard Magnet 5216-631-010
or
Magnet with electronic wear indicator 5216-631-009

that should go with...

Dual 10" 5216-295-005
 13" 5216-295-006
 15" & 20" 5216-295-007
Single All 5216-295-004

OR (if Free Mounting)...

Free Mount Pins 5216-101-029
 5216-101-030



- Note:** a) The same number of magnets should be used unless additional considerations exist (consult factory).
 b) MTB-II Free Mount Pins (5216-101-029) may replace the pins in the MTB carriers to convert them into MTB-II carriers.

2. **Aluminum Armature Carriers** – Existing applications may be upgraded to aluminum armature carriers with the benefit of reducing armature inertia. This may be done with or without upgrading the magnets.

If presently using... MTB ARMATURE & HUB

10" Armature 5216-111-001

that should go with...

10" Hub 540-0842

15" Armature 5216-111-003

that should go with...

15" Hub 540-1382

Upgrade with... MTB-II ARMATURE & CARRIER

10" Armature 5216-101-025

that should go with...

Tapered Bore Carrier 295-0021
OR
Straight Bore Carrier 295-0026

15" Armature 5216-101-024

that should go with...

Tapered Bore Carrier 295-0019
OR
Straight Bore Carrier 295-0028

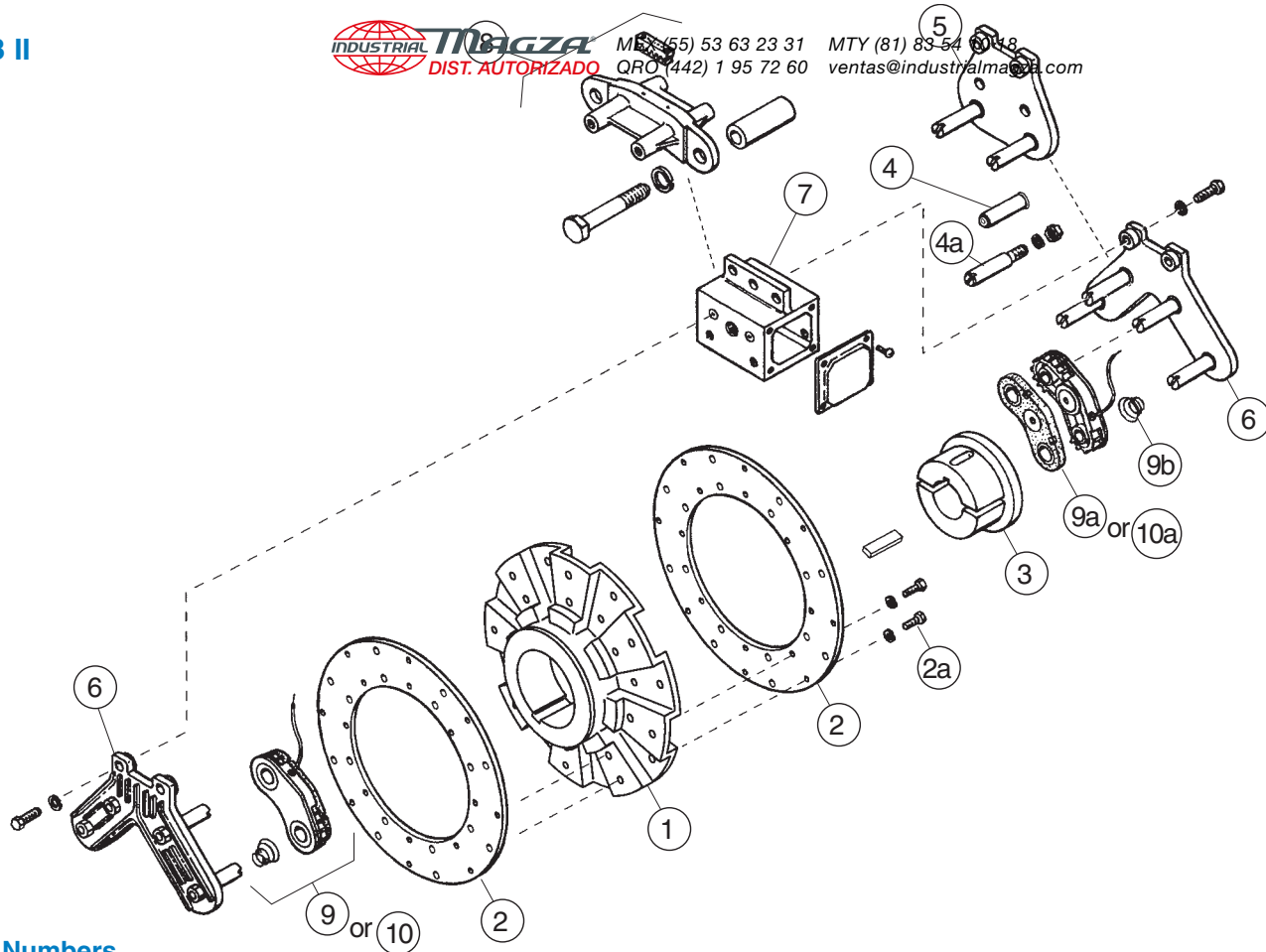
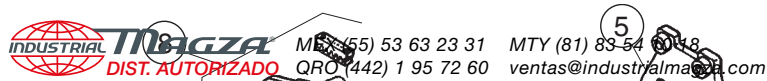


- Note:** Due to the orientation of the tapered bore in the integral hub of the MTB-II armature carrier, some existing MTB applications may not readily retrofit to the new assembly (consult factory).

Brake Assemblies and Part Numbers

MTB Series – Modular Tension Brakes

MTB II



Part Numbers

Item Description	10" Armature	13" Armature	15" Armature	20" Armature*
Armatures				
1 Armature Carrier (Bushing Enters from Flush Side of Carrier as Shown)	295-0021	295-0023	295-0019	—
Armature Carrier Reverse Taper (Bushing Enters from Extended Side of Carrier)	295-0031	295-0030	295-0029	—
Armature Carrier (Straight Bore)	295-0026	295-0027	295-0028	—
2 Armature (Replaceable Face)	5216-101-025	5216-101-026	5216-101-024	—
2a Armature Mounting Accessory (Included with Armature)	5216-101-023	5216-101-023	5216-101-023	—
3 Bushing (Customer Supplied) Taper Bore	Browning P1	Browning R1	Browning R1	—
Straight Bore	Use Trantorque. Consult Warner Electric			—
4 Female Pin Kit (Includes 2 Pins)	5216-101-030	5216-101-030	5216-101-030	5216-101-030
4a Male Pin Kit (Includes 2 Pins with Nuts and Lockwashers)	5216-101-029	5216-101-029	5216-101-029	5216-101-029
Magnet Carriers				
5 Single Magnet Carrier Assembly	5216-295-004	5216-295-004	5216-295-004	5216-295-004
6 Dual Magnet Carrier Assembly	5216-295-005	5216-295-006	5216-295-007	5216-295-007
Carrier Brackets				
7 Universal Mounting Bracket, Series 10-0, 13-0, & 20-0 (2)	5216-101-020	5216-101-020	5216-101-020	5216-101-020
Universal Mounting Bracket, Series 10-10, 13-13, & 20-20 (2)	5216-101-021	5216-101-021	5216-101-021	5216-101-021
8 Bulk Head Mounting Bracket (3)	5216-101-022	5216-101-022	5216-101-022	5216-101-022
Magnets				
9 Magnet Assembly, Standard	5216-631-010	5216-631-010	5216-631-010	5216-631-010
Magnetic Assembly, HICO	5216-631-013	5216-631-013	5216-631-013	5216-631-013
9a Friction Pad, Standard (Replacement Part Only)	5216-101-028	5216-101-028	5216-101-028	5216-101-028
Friction Pad, HICO (4)	5216-101-031	5216-101-031	5216-101-031	5216-101-031
9b Preload Spring (1) (Included with Magnets)	808-0008	808-0008	808-0008	808-0008
10 Magnet Assembly with Wear Indicator	5216-631-009	5216-631-009	5216-631-009	5216-631-009
10a Friction Pad with Wear Indicator (Replacement Part Only)	5216-101-027	5216-101-027	5216-101-027	5216-101-027

(1) Two of each required for each brake magnet.

(2) Includes magnet carrier (4 & 5) mounting hardware.

(3) Includes magnet mounting hardware, bracket mounting bolts and spacers.

(4) HICO friction pads can be identified by orange paint mark near wear notch.

* 20" armature components – see page 97.

Browning is a registered trademark of Emerson Electric Co.

Trantorque is a registered trademark of Trantorque Corporation.

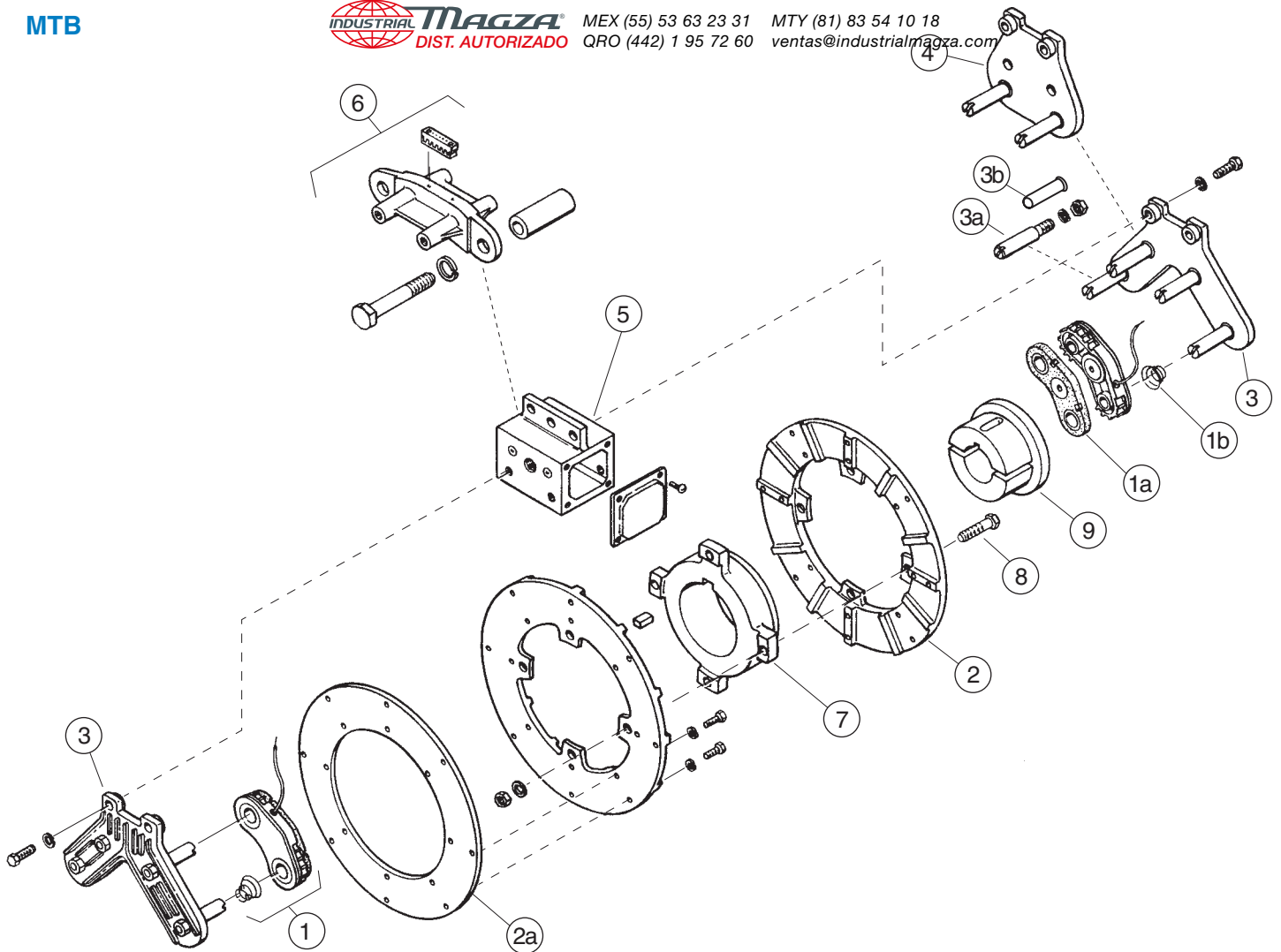
Brake Assemblies and Part Numbers

MTB Series – Modular Tension Brakes

MTB



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Part Numbers

Item	Description	10" Armature	15" Armature	20" Armature
1	Magnet Assembly	5216-631-004	5216-631-004	5216-6310-004
1a	Friction Pad (Replacement Part Only)	5216-101-003	5216-101-003	5216-101-003
1b	Preload Spring ¹	808-0008	808-0008	808-0008
2	Armature (Replaceable Face & Carrier)	5216-111-001	5216-111-003	5216-111-004
2a	Steel Replacement Face	5216-101-012	5216-101-011	5216-101-013
3	Dual Magnet Carrier Assembly	5216-295-002	5216-295-001	5216-295-001
3a	Male Pin Only (Includes Nut & Lockwasher)	5216-101-010	5216-101-010	5216-101-010
3b	Female Pin Kit	5216-101-008	5216-101-008	5216-101-008
4	Single Magnet Carrier Assembly	5216-295-003	5216-295-003	5216-295-003
5	Series 10-0, 15-0, & 20-0 Universal Mounting Bracket (2)	5216-101-020	5216-101-020	5216-101-020
	Series 10-10, 15-15, & 20-20 Universal Mounting Bracket (2)	5216-101-021	5216-101-021	5216-101-021
6	Bulk Head Mounting Bracket (3)	5216-101-022	5216-101-022	5216-101-022
7	Hub	540-0842	540-1382	540-1399
8	Series 10-0, 15-0, & 20-0 Armature Mounting Accessory	5216-101-004	5216-101-004	5216-101-018
	Series 10-10, 15-15, & 20-20 Armature Mounting Accessory	5216-101-005	5216-101-005	5216-101-019
9	Bushing (Customer Supplies)	Browning Type P-1	Browning Type R-1	Browning Type U-0

(1) Two of each required for each brake magnet.

(2) Includes magnet carrier (3 & 4) mounting hardware.

(3) Includes magnet mounting hardware, bracket mounting bolts and spacers.

Browning is a registered trademark of Emerson Electric Co.

Magnetic Brakes and Clutches

M Series – Permanent Magnet

Fast, precise torque adjustment



MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
QRO (442) 1 95 72 60 ventas@industrialmagza.com

Precision Tork™ clutches and brakes

Precision Tork units provide constant torque independent of slip speed. They offer excellent overload and jam protection for all drive train components and also provide soft starts with zero slip when a preset torque is reached. Precision Tork permanent magnet clutches and brakes do not require maintenance and provide extremely long life. Since they operate from permanent magnets, no outside control or power source is required.

Features and Benefits

Fast, precise torque adjustment

- Torque is set with a large knurled adjustment ring.
- Infinite adjustability between minimum and maximum settings. This allows units to be fine tuned to your unique requirement.
- Easy to read graduations.

Torque is constant with respect to speed

- Torque is extremely consistent and smooth at low, as well as high, speeds.
- By using the Precision Tork unit, you can solve almost any torque control problem.

No external control or power source

- Simple to install
- Nothing to monitor
- Unaffected by power interruption or power fluctuation
- Safe to use

Dependable performance

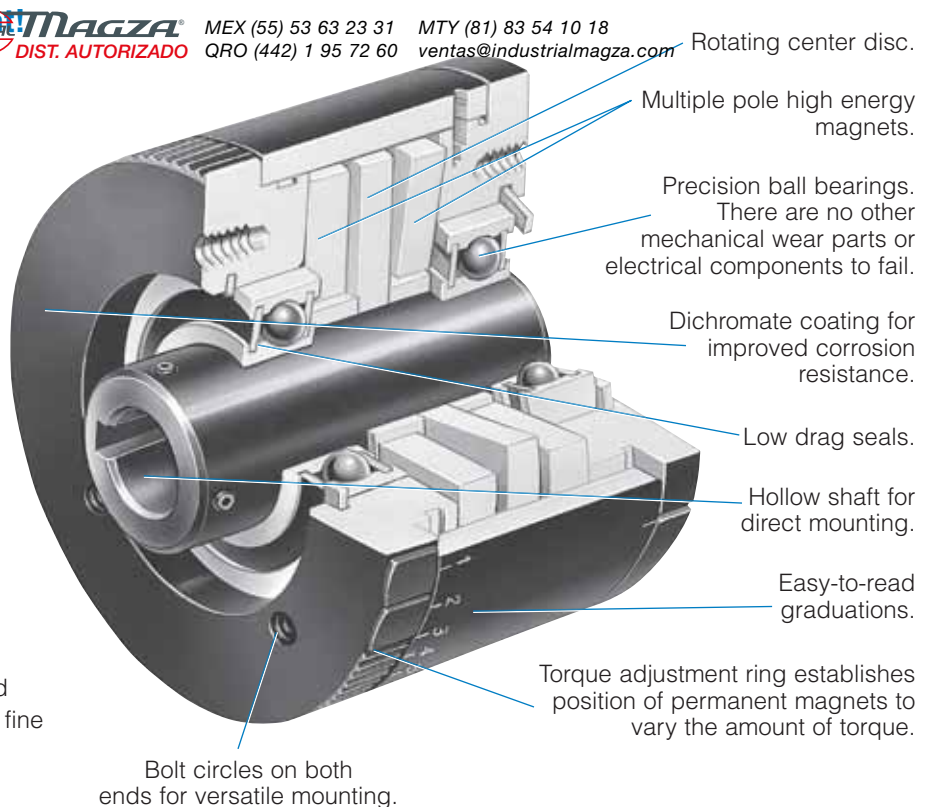
- Smallest possible transition from static to dynamic torque. Virtually eliminates the “stick-slip” phenomenon associated with friction devices.
- Long life. The only wearing parts are the ball bearings.
- Extremely accurate. Precision Tork units out-perform all other devices at low RPM.

Versatile mounting: Easy to retrofit

- Clutches are available with hollow bores for mounting on motor shafts or jack shafts.
- Bolt circles allow for fixed mounting, adding a pulley, or stub shaft adapter.
- Brakes are available with solid shaft outputs.

Distributor item

- Off the shelf availability.
- Interchangeable with competitors' products.



Special Applications

Specials are our business. . .

- Special shaft bores and keyways
- Shaft extensions
- System retrofits
- Metric bores and keyways
- Stainless steel construction
- Fixed torque units



Magnetic Brakes and Clutches

M Series – Permanent Magnet

Unwind tension control

Brake mounted on shaft of unwinding spool or bobbin.



Film unwind
Tension provided by hysteresis units.

Information required:

Full roll diameter (in.) = 6 in.
Core diameter (in.) = 4 in.
Average tension (lbs.) = 4 lbs.
Velocity (feet per min.) = 100 fpm

How to size:

$$\text{Average radius (in.)} = \frac{\text{Full roll dia. (in.)} + \text{Core dia. (in.)}}{4}$$

$$= \frac{6 + 4}{4} = 2.5 \text{ in.}$$

Torque (lb.in.) =

$$\text{Avg. tension (lbs.)} \times \text{Avg. radius (in.)} = 4 \times 2.5 = 10 \text{ lb.in.}$$

Check tension range:

$$\text{Max. tension} = \text{Torque (lb.in.)} \times \frac{2}{\text{Core dia. (in.)}} = 10 \times \frac{2}{4} = 5 \text{ lbs.}$$

Min. tension = Torque (lb.in.) x

$$\frac{2}{\text{Full roll dia. (in.)}} = 10 \times \frac{2}{6} = 3.3 \text{ lbs.}$$

Slip watts =

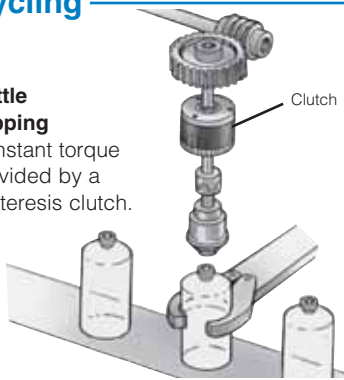
$$\frac{\text{Max. tension (lbs.)} \times \text{velocity (fpm)}}{44.2} = \frac{5 \times 100}{44.2} = 11.3 \text{ watts}$$

Select Model MC4

Cycling

Bottle capping

Constant torque provided by a hysteresis clutch.



Information required:

Slip RPM = 500 RPM
Torque = 8 lb.in.
% slip time of total cycle time = 25%

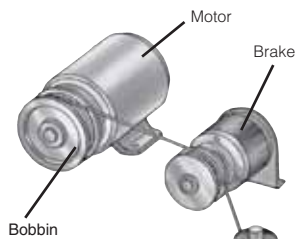
How to size:

$$\text{*Watts} = .0118 \times \text{torque (lb.in.)} \times \text{slip RPM} \times \% \text{ slip time} = .0118 \times 8 \times 500 \times .25 = 11.8 \text{ watts}$$

Select an MC4 from the specification chart.

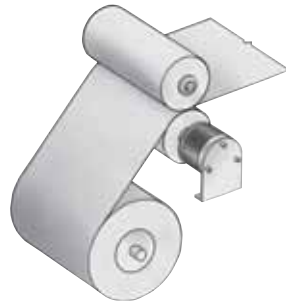
*Note: Consult factory if peak slip watts are extremely high or if duration of slip period is in excess of 1 minute.

Nip roll or pulley tension control



Coil winding

Constant tension provided by hysteresis unit.



Film tensioning

Constant tensioning supplied by hysteresis unit.

Information required:

Pulley or nip roll diameter = 4 in. Tension = 6 lbs. Velocity = 100 fpm

How to size:

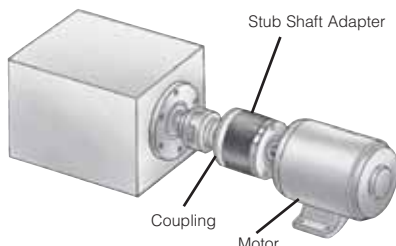
$$\text{Torque (lb.in.)} = \text{Tension (lbs.)} \times \frac{\text{Dia. (in.)}}{2} = 6 \times \frac{4}{2} = 12 \text{ lb.in.}$$

$$\text{Slip watts} = \frac{\text{Tension (lbs.)} \times \text{velocity (fpm)}}{44.2} = \frac{6 \times 100}{44.2} = 13.5 \text{ watts}$$

Select Model MC5

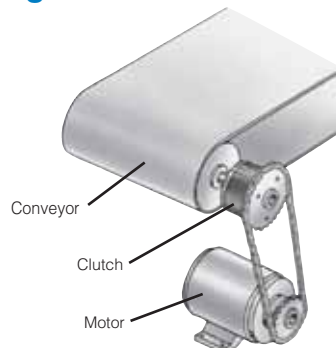
Overload protection/Torque limiting/Soft start

Motor horsepower method



Torque limiting

Hysteresis clutch provides overload protection.



Material handling

Hysteresis clutch can provide overload protection and soft start.

Information required:

Motor HP = 1/2 HP
Motor RPM = 1750 RPM

How to size:

$$\text{Torque (lb.in.)} = \frac{\text{HP} \times 63000}{\text{RPM}} = \frac{1/2 \times 63000}{1750} = 18 \text{ lb.in.}$$

Select an MC5 from the specification chart.

Magnetic Brakes and Clutches

M Series – Permanent Magnet

Specifications

Model Size	Torque	Power Dissipation (watts)	Inertia (oz.in./sec. ²)	Bending Moment (lb.in.)	Max. RPM	Weight (lbs.)	Bore Range/Shaft Dia. (in.)
MC1.5	1–10 oz.in.	10	0.7×10^{-3}	5	3600	11 oz.	1/4
MC2	1–22 oz.in.	10	0.7×10^{-3}	5	3600	11 oz.	1/4
MC3	0.3–6.0 lb.in.	18	6.5×10^{-3}	10	1800	2	3/8
MC4	0.5–11 lb.in.	22	13.3×10^{-3}	10	1800	2.5	3/8, 1/2, 5/8
MC5	1–30 lb.in.	72	77×10^{-3}	25	1800	9	3/8, 1/2, 5/8, 3/4, 7/8, 1
MC5.5	1–50 lb.in.	110	120×10^{-3}	25	1800	11	5/8, 3/4, 7/8, 1
MC6	2–70 lb.in.	150	196×10^{-3}	25	1800	12	5/8, 3/4, 7/8, 1
MC9	15–300 lb.in.	345	600×10^{-3}	50	1200	45	5/8, 3/4, 7/8, 1, 1-1/8, 1-1/4
MB1	0-1.1 oz.in.	3	3.5×10^{-5}	1	3600	2 oz.	3/16
MB1.5	1-10 oz.in.	10	0.9×10^{-3}	5	3600	11 oz.	1/4
MB2	1–22 oz.in.	10	0.9×10^{-3}	5	3600	11 oz.	1/4
MB3	0.3–6.0 lb.in.	18	6.9×10^{-3}	10	1800	2	3/8
MB4	0.5–11 lb.in.	22	13.7×10^{-3}	10	1800	2.5	5/8
MB5	1–30 lb.in.	72	82×10^{-3}	25	1800	9	1
MB5.5	1–50 lb.in.	110	125×10^{-3}	25	1800	11	1
MB6	2–70 lb.in.	150	201×10^{-3}	25	1800	12	1
MB9	15–300 lb.in.	345	600×10^{-3}	50	1200	45	1

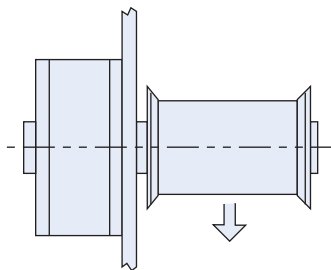
Clutches



Brakes

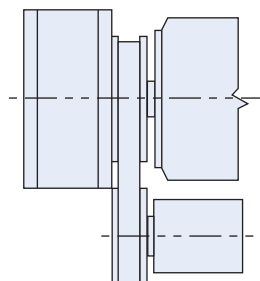


Typical Mounting Arrangements



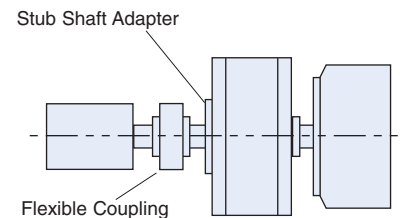
Brake:

Typical setup for tensioning wire, film and fibers.



Clutch:

Typical setup for material handling, soft starts and torque limiting.



Clutch Coupling:

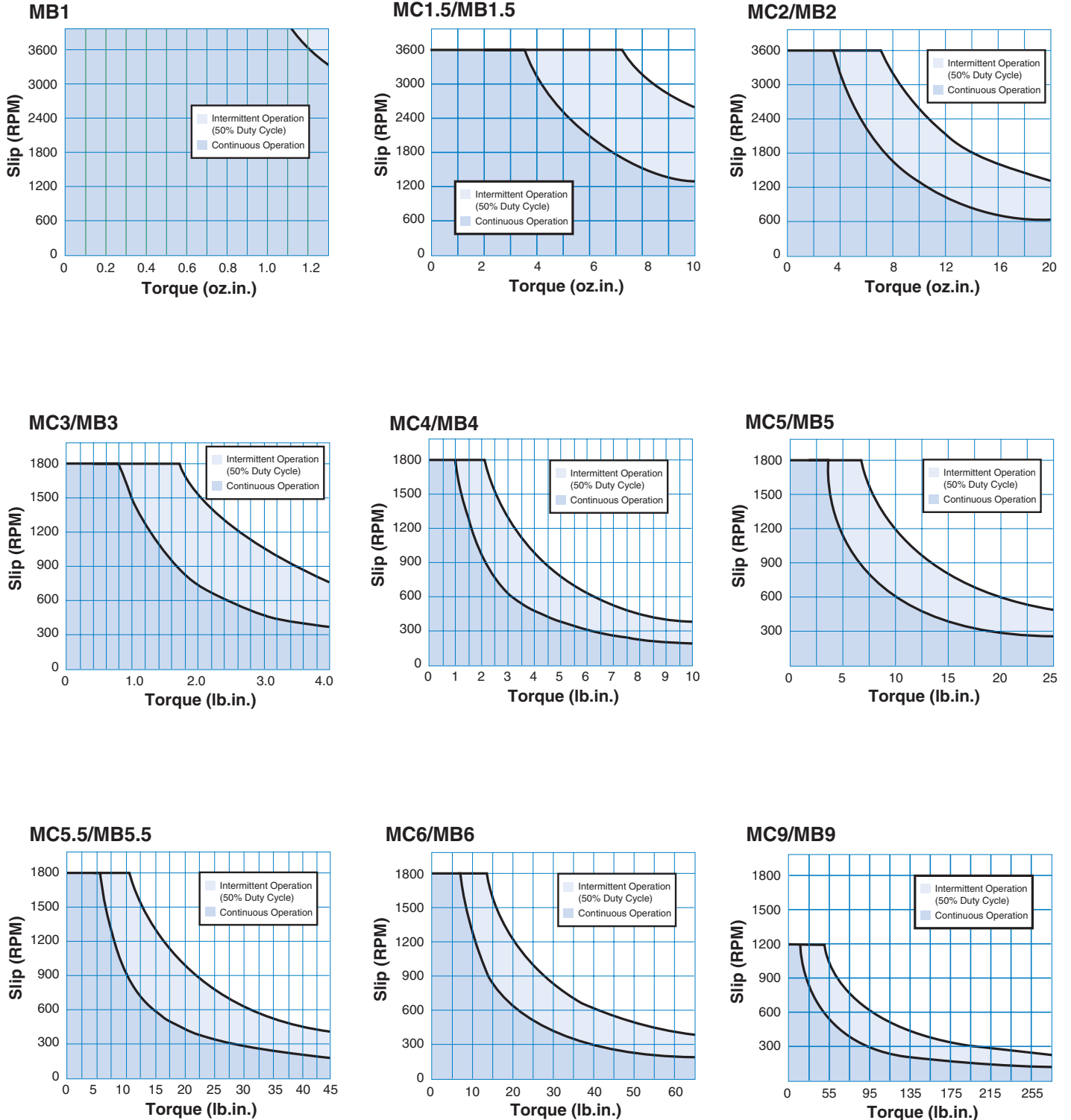
Typical setup for torque limiting protection used for labeling, capping and printing applications.

Magnetic Brakes and Clutches

M Series – Permanent Magnet

Heat Dissipation Chart  **INDUSTRIAL MAGZA** MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
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Clutches/Brakes



Note: Torque output at a given setting will vary up to 3% from unit to unit. Matched units are available upon request.

Magnetic Brakes and Clutches

M Series – Permanent Magnet

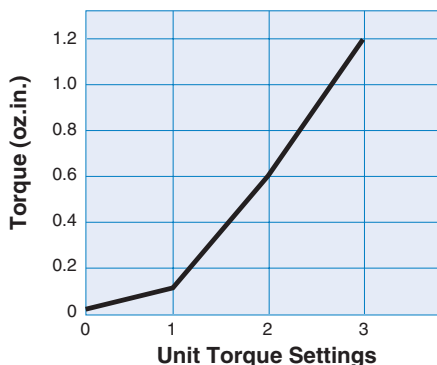
Torque Setting Charts



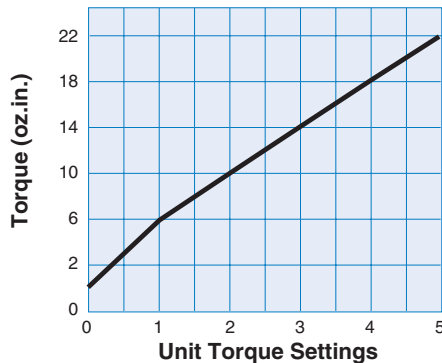
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Clutches/Brakes

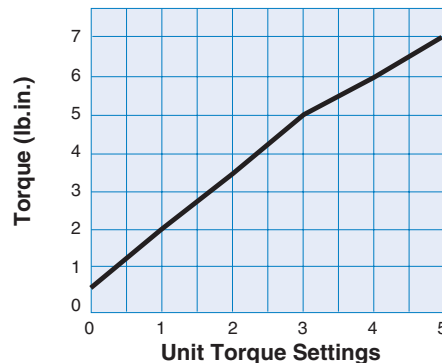
MB1



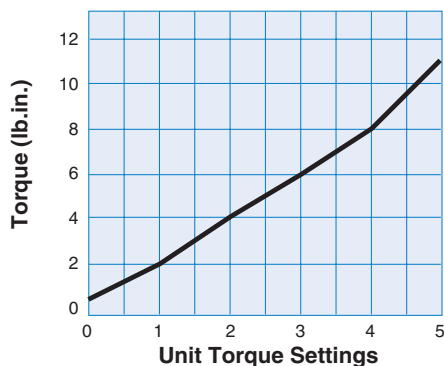
MC2/MB2



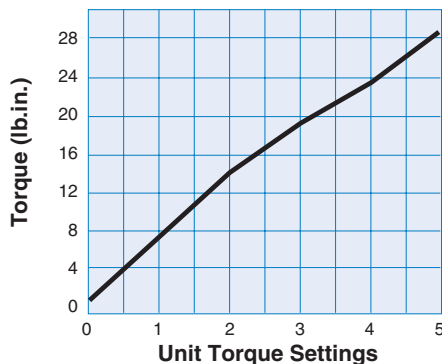
MC3/MB3



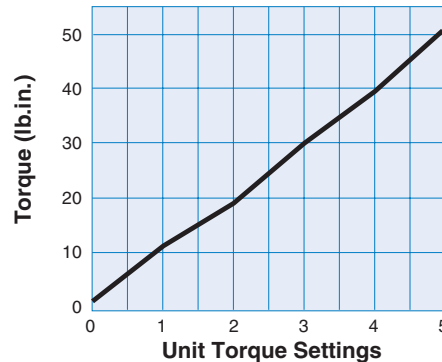
MC4/MB4



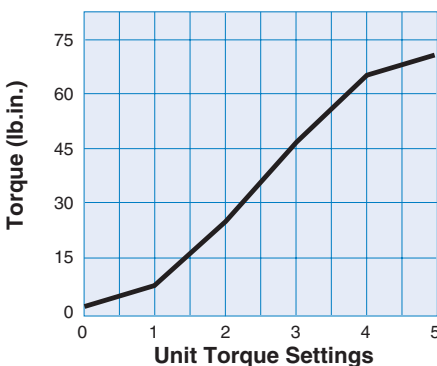
MC5/MB5



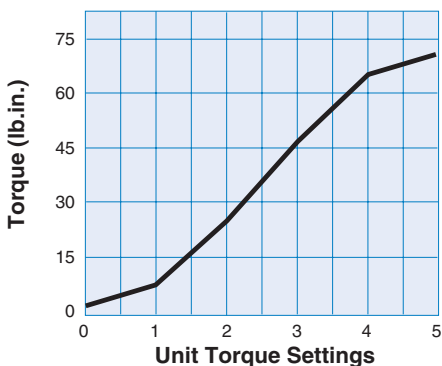
MC5.5/MB5.5



MC6/MB6



MC9/MB9

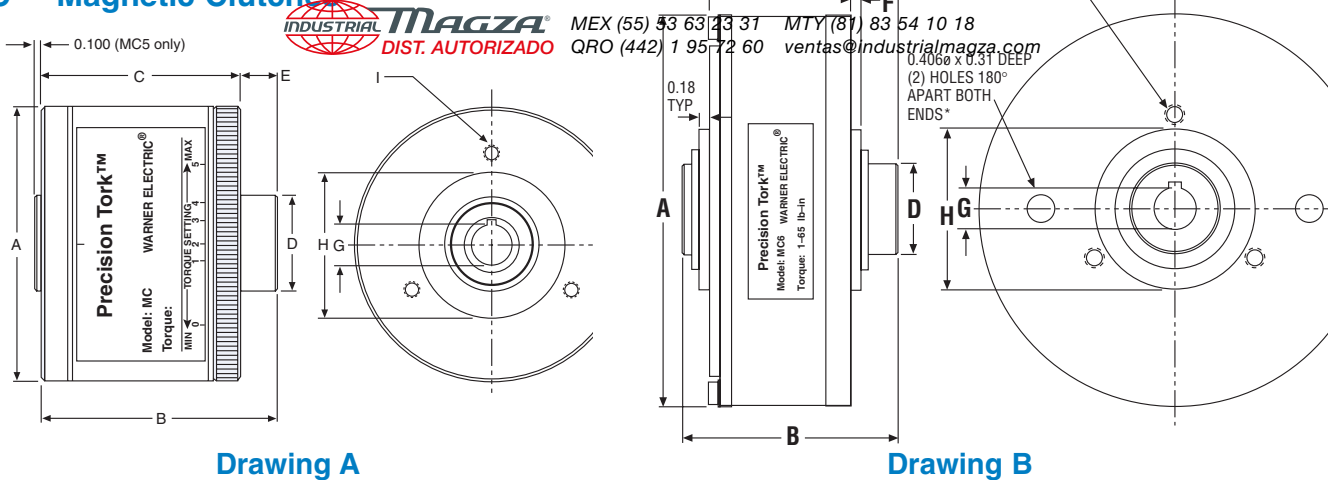


Note: Torque output at a given setting will vary up to 3% from unit to unit. Matched units are available upon request.

Magnetic Brakes and Clutches

M Series – Permanent Magnet

MC – Magnetic Clutches



Model	Drawing	A	B	C	D	E	F
MC1.5*	A	1.85	1.61	1.35	0.375	0.26	–
MC2*	A	1.85	1.61	1.35	0.375	0.26	–
MC3*	A	2.75	2.24	2.00	0.590	0.24	–
MC4*	A	3.23	2.26	2.00	0.984	0.26	–
MC5*	A	4.65	3.18	2.65	1.378	0.42	–
MC5.5*	A	5.29	3.25	2.65	1.378	0.60	–
MC6**	B	6.10	3.18	2.04	1.378	0.73	0.18
MC9**	B	9.4	4.17	3.49	1.77	0.55	0.13

* Set screw adjustment

** Spanner wrench required for adjustment. Spanner wrench P/N YZ00-0007

Bore & Keyseat Sizes

Model	Keyseat	Lockdown Method	G (Bore)	H (Pilot-Both Ends)	I (Both Ends)
MC1.5	None	3/32 Roll Pin	1/4	0.875/0.874 x 0.08 dp	3) 6-32 x 5/16 dp 1.25 B.C.
MC2	None	3/32 Roll Pin	1/4	0.875/0.874 x 0.08 dp	3) 6-32 x 5/16 dp 1.25 B.C.
MC3	None	2) Set Screws	3/8	1.383/1.381 x .120 dp	3) 10-32 x 7/16 dp 1.875 B.C.
MC4	None	3/32 Roll Pin	3/8	1.850x1.849 x 0.08 dp	3) 10-32 x 7/16 dp 2.375 B.C.
	1/8 Key	2) Set Screws	1/2		
MC5	3/16 Key	2) Set Screws	5/8	2.441/2.440 x .100 dp	3) 10-32 x 1/2 dp 3.00 B.C.
	None	2) Set Screws	3/8		
	1/8 Key	2) Set Screws	1/2		
	3/16 Key	2) Set Screws	5/8		
	3/16 Key	2) Set Screws	3/4		
MC5.5	3/16 Key	2) Set Screws	7/8	2.441/2.440 x .100 dp	3) 10-32 x 1/2 dp 3.00 B.C.
	1/4 Shallow	2) Set Screws	1		
	3/16 Key	2) Set Screws	5/8		
	3/16 Key	2) Set Screws	3/4		
MC6	3/16 Key	2) Set Screws	7/8	2.441/2.440	3) 1/4-20 x 5/16 dp 2.875 B.C.
	1/4 Shallow	2) Set Screws	1		
	3/16 Key	2) Set Screws	5/8		
MC9	3/16 Key	2) Set Screws	3/4	3.250/3.248	4) 5/16-18 x 1/2 dp 5.875 B.C.
	3/16 Key	2) Set Screws	7/8		
	1/4 Key	2) Set Screws	1		
	1/4 Key	2) Set Screws	1-1/8		
	1/4 Key	2) Set Screws	1-1/4		

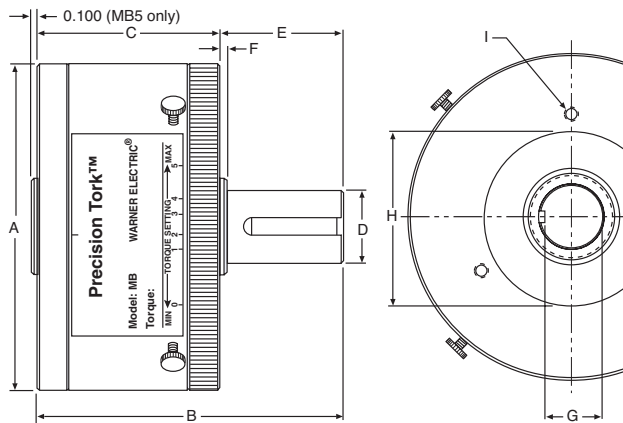
Magnetic Brakes and Clutches

M Series – Permanent Magnet

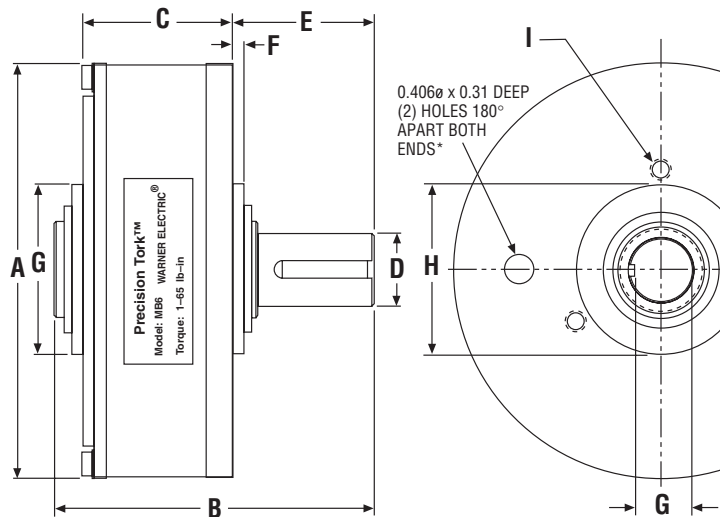
MB – Magnetic Brakes



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Drawing C



Drawing D

Optional Mounting brackets, see page 127

Model	Drawing	A	B	C	D (Shaft)	E	F	G	H (Pilot-Both Ends)	I (Both Ends)
MB1*	C	1.00	1.39	0.85	3/16	0.58	–	0.170 Flat	0.301/0.302 x 0.100 dp	3) 4-40 x 1/4 dp 0.610 B.C.
MB1.5*	C	1.85	2.35	1.35	1/4	1.00	–	0.230 Flat	0.875/0.874 x 0.08 dp	3) 6-32 x 5/16 dp 1.250 B.C.
MB2*	C	1.85	2.35	1.35	1/4	1.00	–	0.230 Flat	0.875/0.874 x 0.08 dp	3) 6-32 x 5/16 dp 1.250 B.C.
MB3*	C	2.75	3.02	2.00	3/8	1.03	0.03	0.350 Flat	1.383/1.381 x 0.12 dp	3) 10-32 x 7/16 dp 1.875 B.C.
MB4*	C	3.23	2.97	2.00	5/8	0.97	0.09	0.518/0.503	1.850/1.849 x 0.08dp	3) 10-32 x 7/16 dp 2.375 B.C.
MB5*	C	4.65	4.40	2.65	1	1.75	0.11	0.859/0.844	2.441/2.440 x 0.100 dp	3) 10-32 x 1/2 dp 3.000 B.C.
MB5.5*	C	5.29	4.53	2.65	1	1.88	0.25	0.859/0.844	2.441/2.440 x 0.100 dp	3) 10-32 x 1/2 dp 3.000 B.C.
MB6**	D	6.10	4.50	2.04	1	2.22	0.18	0.859/0.844	2.441/2.440	3) 1/4-20 x 5/16 dp 2.875 B.C.
MB9**	D	9.40	5.41	3.49	1	1.80	0.13	0.859/0.844	3.250/3.248	3) 5/16-18 x 1/2 dp 5.875 B.C.

* Thumb screw adjustment

** Spanner wrench required for adjustment. Spanner wrench P/N YZ00-0007

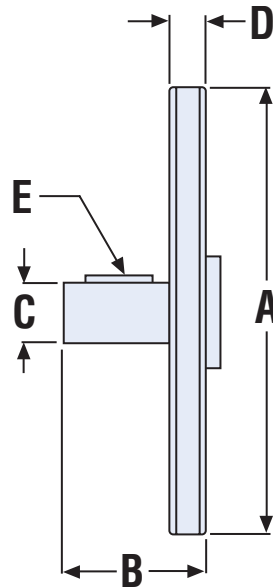
Magnetic Brakes and Clutches

M Series – Permanent Magnet

Stub Shaft Adapter



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- Utilized when "clutch coupling" configuration is desired.
- Comes complete with attachment hardware and drive key.
- Stub shaft adapters should be used in conjunction with a flexible coupling.

Model Size	Clutch Model	A	B	C	D	E
A2-14	MC2	1.60	0.78	1/4	0.15	Flat
A3-38	MC3	2.36	1.19	3/8	0.19	Flat
A4-38	MC4	2.86	1.19	3/8	0.19	Flat
A4-58	MC4	2.86	1.19	5/8	0.19	3/16" Key
A5-1	MC5, MC5.5	3.45	1.72	1	0.27	1/4" Key
A5-12	MC5, MC5.5	3.45	1.47	1/2	0.27	1/8" Key
A6-34	MC6	3.40	1.70	3/4	0.35	3/16" Key

Magnetic Particle Brakes and Clutches

Accurate torque control with instantaneous engagement!



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Available in a wide range of models and sizes

Warner Electric's magnetic particle brakes and clutches are quiet and clean and provide outstanding performance in slipping and torque control applications. They are ideal for unwind, rewind, and intermittent (point to point) tension applications. They are also ideal for controlled starting or stopping, torque limiting and cycling applications.

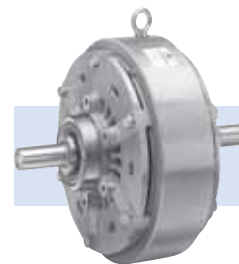
These units use high quality materials and unique designs to provide precision performance, superior heat dissipation and extremely long life. The magnetic powder, made from a patented alloy, provides extreme resistance to heat and wear, and, therefore, promotes long life and high thermal ratings. Also, one of the brake models, the PTB, incorporates a patented heat pipe that further extends its thermal capability. PTB units have thermal ratings three times higher than brakes with natural cooling and equivalent to water-cooled brakes.



Brakes

Six different brake models are available: four with male shafts and two

with hollow bores. The units with hollow bores can be shaft-mounted, if desired. Final selection is determined by torque and thermal requirements. The product selection section provides more specific information on these models.



Clutches

Three different clutch models, each with several sizes, are available to

handle a variety of applications. The face-mounted models can be used in parallel or inline applications. The shaft-mounted units offer a second option for parallel shaft applications and are ideal for tension rewind applications. Please see the product selection section for more specific information.



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Features and Benefits

Precise Control

- Spherical particles provide smooth torque independent of speed. Low speed chatter is also eliminated.
- The magnetic circuit is designed to produce torque proportional to current.
- Unique design requires only one powder seal, thus reducing drag torque and allowing for a wider operating range.

Extremely Long Life

- Spherical particles made from a patented alloy provide outstanding resistance to corrosion and mechanical breakdown.

High Heat Dissipation

- One of the models, the PTB, uses a patented heat pipe that provides heat dissipation levels equal to water-cooled units and several times greater than natural cooling.
- The shaft mounted clutches provide self-cooling through the use of an integral fan that rotates with the input.

Clean Operation

- All models are completely enclosed. Ideal for applications where clean operation is desired.

Easy to Mount

- Precision pilots are provided to position units for easy installation.
- Clutches and brakes with hollow bores are offered for applications where shaft mounting is desired.

Smooth Engagement

- Torque characteristics provide for smooth and controllable acceleration or deceleration of the load.

Fast Response

- Fine particles respond quickly to field for millisecond engagement, if required.

No Maintenance

- Adjustment or lubrication is not required.

Quiet Operation

- Engagement is smooth and quiet.

Low Current Draw

- Efficient magnetic circuit design allows for minimal current draw.

Torque independent of slip speed

Torque is transmitted through magnetic particle chains that are formed by an electromagnetic field. The torque is independent of slip speed, depending only on circuit current, and is infinitely variable from 0 (disengaged) to rated torque.

No wearing parts

There are no friction surfaces to grab or wear, and the units are not affected by changes in atmospheric or other environmental conditions.

Efficient/Compact design

High torque to size ratio and low electric power consumption.

Versatile mounting

Convenient bolt circle for easy mounting. Mounting brackets available for all sizes. Brakes are available with solid shafts and through bores. Can be mounted horizontally or vertically to solve virtually any motion control requirement.

Distributor Item

Off the shelf availability. Interchangeable with industry standard sizes.

Specials Designs

▪ **Special Shaft Configurations**

Customer specified shaft configurations for easy machine mounting and retrofitting.

▪ **Wash Down Environment**

Stainless steel units available for extreme environments.

▪ **Special Torque**

Maximum torque configurations to meet customer specifications.

▪ **Special Mounting Configurations**

Customer specified bolt patterns, special mounting brackets.

▪ **Metric units**

Magnetic Particle Brakes and Clutches

Design and Operation

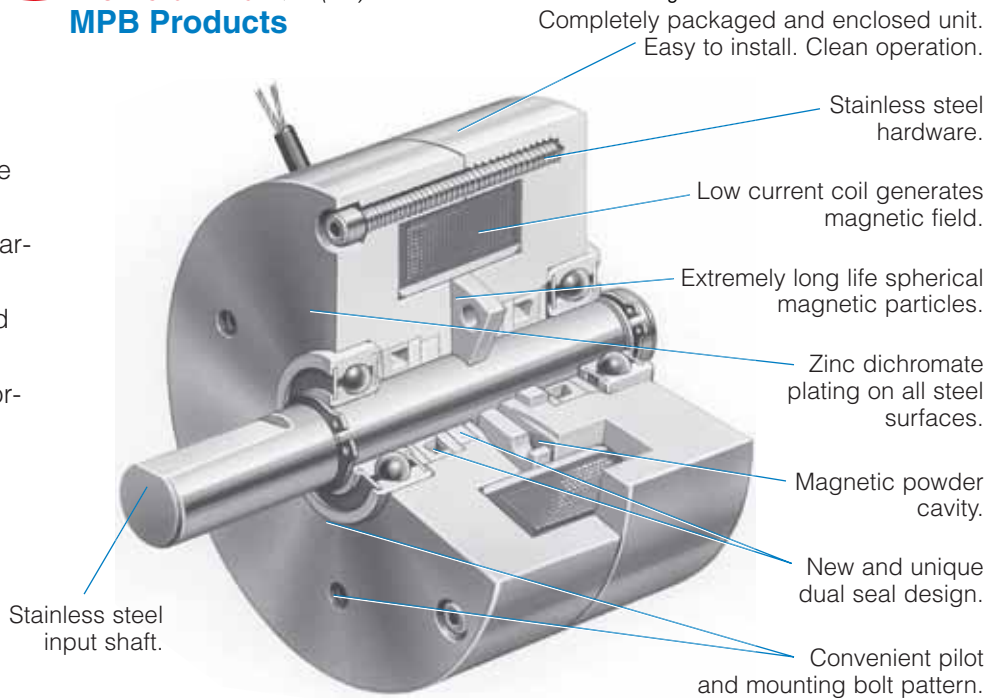


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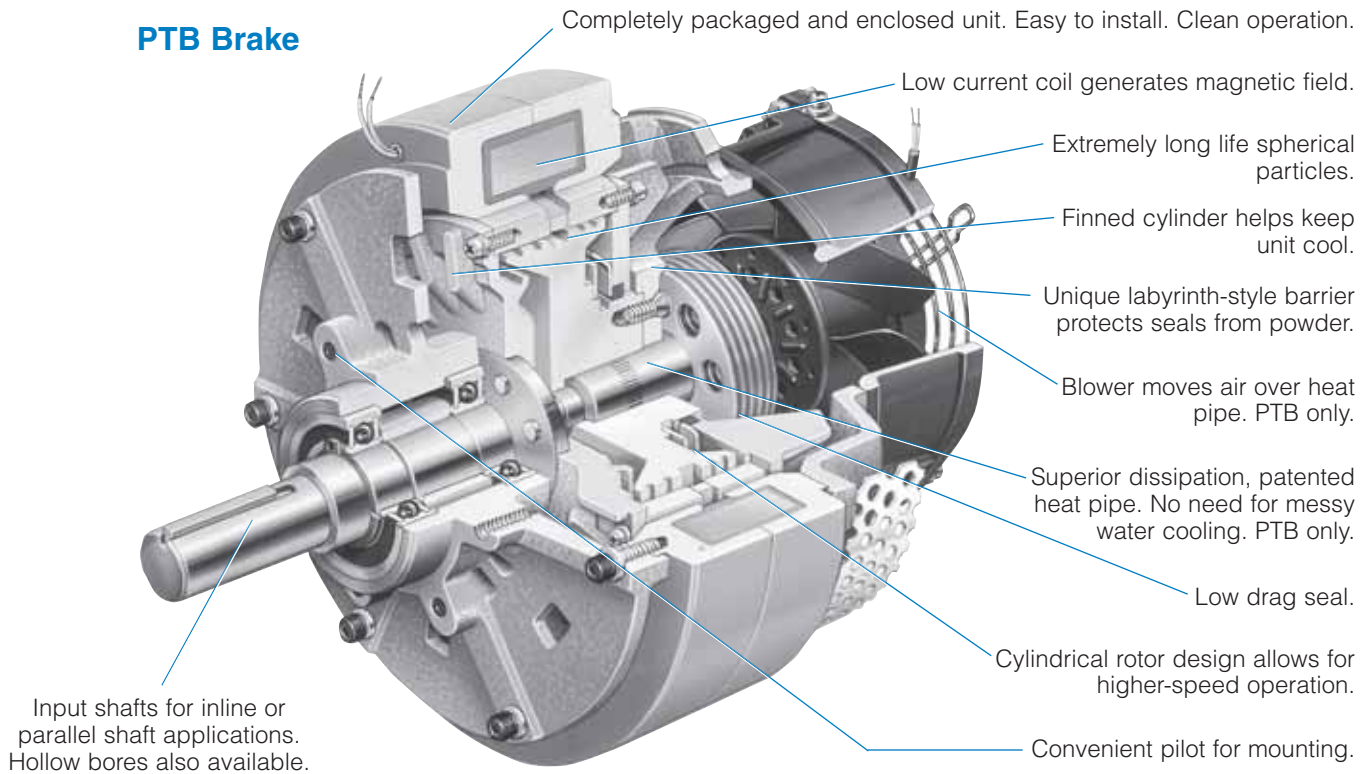
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MPB Products

Warner Electric magnetic particle clutches and brakes are unique because of the wide operating torque range available. Torque to current is almost linear and can be controlled very accurately. The unique features of the magnetic particle clutches and brakes make them ideal for tension control, load simulation, cycling/indexing, and soft starts and stops. Controls information starts on page 44.



PTB Brake

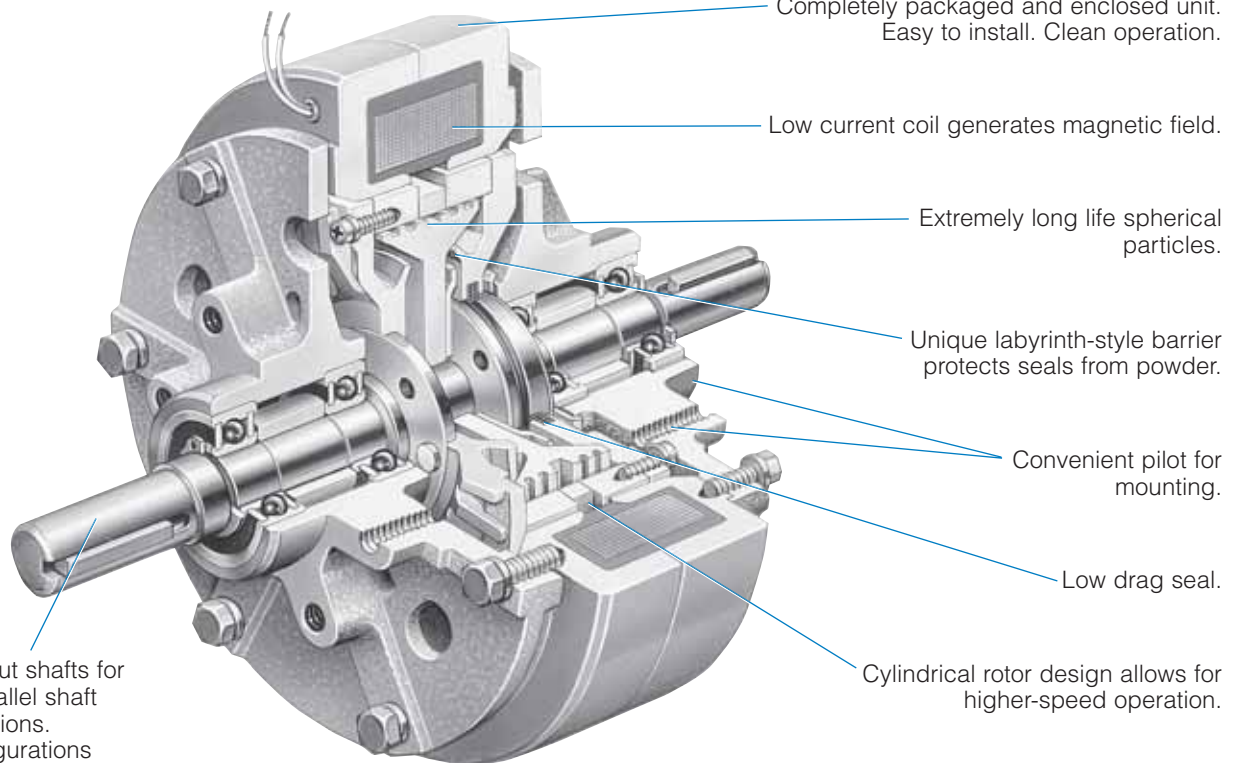


Magnetic Particle Brakes and Clutches

POC Clutch



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Principle of Operation

The magnetic particle unit consists of four main components: 1) housing; 2) shaft/disc; 3) coil and 4) magnetic powder. The coil is assembled inside the housing. The shaft/disc fits inside the housing/coil assembly with an air gap between the two; the air gap is filled with fine magnetic powder.

Engagement

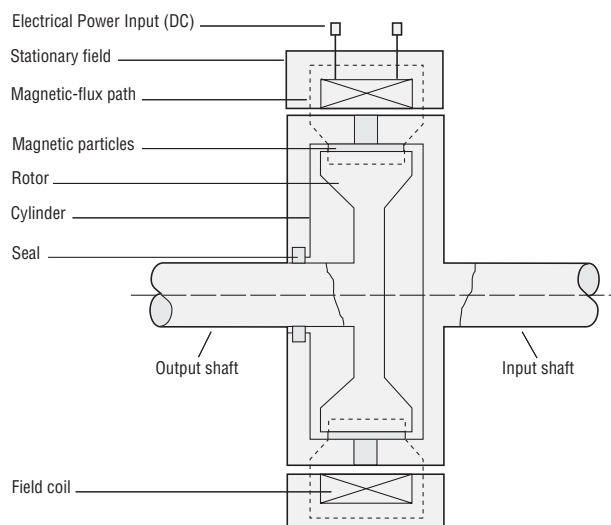
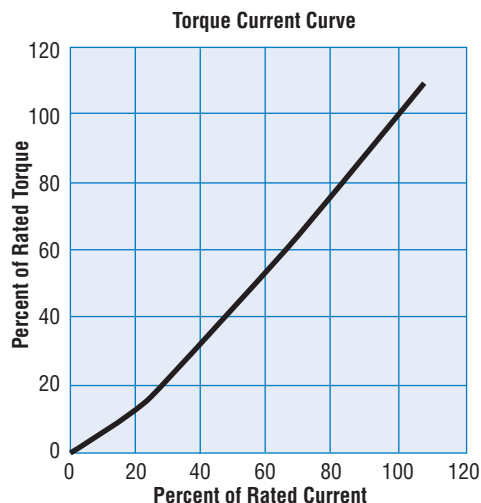
When DC current is applied to the magnetic particle unit, a magnetic flux (chain) is formed, linking the shaft/disc to the housing. As the current is increased, the magnetic flux becomes stronger, increasing the torque. The magnetic flux creates extremely smooth torque and virtually no "stick-slip".

Disengagement

When DC current is removed, the magnetic powder is free to move within the cavity, allowing the input shaft to rotate freely.

Cycling

A cycling effect is achieved by turning the current to the coil on and off.



Magnetic Particle Brakes and Clutches

Selection









Unit torque ratings go from as low as 2.0 lb.in. to as high as 578 lb.ft. Also, many models are available to handle specific mounting requirements. The clutch family has three options. The MPC and POC have shaft inputs and outputs and is ideal for inline applications. The PHC models have a hollow bore and can be shaft-mounted for parallel shaft applications. The PMC clutch covers the lower end of the torque range and has a flanged input hub. Also, this unit is often mounted as a brake.

The brake family includes seven models. The MPB covers the low torque ranges and comes with shaft inputs or hollow bores. The POB is a shaft input brake that covers the medium and high torque extremes of the torque range. The PRB series covers the mid range. With four models that have different input and housing options. The PTB model uses a patented heat pipe cooling method that has a cooling capacity equivalent to water-cooled units, but without the hassles of water cooling.

Selection Requirements

To properly size a magnetic particle brake or clutch, torque transmitted and heat generated must be considered. If you know these values, refer to the specifications and thermal curves to select a unit. For sizing and selection calculation see pages 16 through 28. To select a control for your application refer to the control section on page 44.

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Product	Model	Torque Ratings (lb.ft.)	Heat Dissipation Ratings Watts [HP]
Brake	MPB 	0.17 lb.ft.–20 lb.ft.	10–200 [0.013 to 0.27]
	POB 	2.1 to 578	60 to 4,000 [0.080 to 5.36]
	PRB-H 	8.6 to 144	95 to 575 [0.13 to 0.77]
	PTB-BL ₃ 	18 to 144	500 to 4,100 [0.67 to 5.50]
Brake or Clutch	PMC-A ₃ 	0.72 to 2.8 (8.6 to 34 lb. in.)	30 to 66 [0.040 to 0.088]
Clutch	MPC 	0.17 lb.ft. to 10.0 lb.ft.	10 to 140 [0.13 to 0.188]
	PHC-R 	4.3 to 144	70 to 1,150 [0.094 to 1.54]
	POC 	2.1 to 578	60 to 4,000 [0.080 to 5.36]

Magnetic Particle Brakes and Clutches



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**Dimension
 Drawings
 (page no.)**

Description	Cooling Method	Applications	Dimension Drawings (page no.)
Low and high torque units. Light duty thermal. All brakes have output shafts and pilots for mounting. Optional brackets available.	Natural	Tension unwind, light duty unwind	116
Low and high torque units are offered in this model. All units have male input shafts and pilots for mounting, except for the size 80, which is foot-mounted.	Natural	Tension unwind	118-119
This is the basic PRB model. It is offered with a hollow bore and a pilot for mounting.	Natural	Tension unwind	120
The PTB-BL ₃ offers superior heat dissipation capability. Units are pilot-mounted and a male input shaft is provided for connecting to the load.	Heat Pipe with 115VAC blower	Tension unwind, load for testing. Ideal for applications requiring high heat dissipation	117
These units offer precise control in the small tension ranges. They have flanged input hubs and double-ended output shafts for maximum mounting flexibility. They can be easily mounted as clutches or brakes.	Natural	Tension unwind or rewind, soft start or stop, torque limiting	121-122
Low and medium torque units for light duty rewind applications. Shaft in–shaft out with pilots, allow for sample mounting. Optional brackets available.	Natural	Tension rewind, light duty rewind	123
This model has a hollow bore, making it ideal for applications where shaft mounting is preferred. It has a piloted input flange for pulley or sprocket attachment.	Self-cooling with integral fan	Tension rewind, soft start	124
This model is preferred in many applications. It is offered with male input and output shafts and all units are pilot mounted, except for the size 80. This largest unit, the size 80, is footmounted.	Natural	Tension rewind	125–126

Magnetic Particle Brakes and Clutches

Mechanical and Electrical Data (24 VDC)

Model	Size	Torque	Drag Torque	Max. Speed	Magnetic Q ₁	Resistance	Current	Max. Heat Diss. Watts	Weight lbs.
		(lb.in.)	(lb.in.)	(RPM)	(lb.in. ²)	75°F	75°F	@ Max. RPM	
MPB	2	(2)	(.40)	1800	(1.31 x 10 ⁻³)	303	0.079	10	1
	15	(15)	(.40)	1000	(1.39 x 10 ⁻²)	80	0.302	20	3
	70	(70)	(1)	1000	(8.03 x 10 ⁻²)	35	0.677	100	7
	120	(120)	(2)	1000	(3.75 x 10 ⁻¹)	33	0.742	140	12
	240	(240)	(4)	1000	(1.35)	14	1.693	200	20
POB	0.3	2.1	.065	1800	.0128	35.6	.674	105	5.5
	0.6	4.3	.13	1800	.0173	21.1	1.14	80	7.9
	1.2	8.6	.26	1800	.0304	20.6	1.16	145	12
	2.5	18	.54	1800	.0973	15.8	1.52	195	22
	5	36	1.1	1800	.249	8.8	2.74	290	38
	10	72	2.2	1800	1.04	9.0	2.68	460	77
	20	144	4.3	1800	2.23	7.2	3.34	790	128
	40	289	8.7	1800	5.93	5.1	4.66	1990	220
80	578	17	1800	23.5	4.3	5.57	3900	551	
PRB-H	1.2	8.6	.26	1800	.104	31.6	.760	95	11
	2.5	18	.54	1800	.161	25.6	.937	118	15
	5	36	1.1	1800	.453	19.3	1.24	170	29
	10	72	2.2	1800	1.51	14.8	1.62	355	57
20	144	4.3	1800	4.46	12.5	1.93	570	101	
PTB	2.5	18	.54	1800	.0973	15.8	1.52	880	24
	5	36	1.1	1800	.249	8.8	2.74	1850	38
	10	72	2.2	1800	1.04	9.0	2.68	3050	76
	20	144	4.3	1800	2.23	7.20	3.34	4400	114
PMC-A ₃	10	(8.6)	(.25)	1800	.239	35.1	.684	30	2
	20	(17)	(.51)	1800	.413	31.6	.760	40	2.9
	40	(34)	(1)	1800	1.14	26.3	.912	68	5.5
MPC	2	(2)	(.40)	1800	(1.33 x 10 ⁻³)	303	0.079	10	1
	15	(15)	(.40)	1000	(1.48 x 10 ⁻²)	80	0.302	20	6
	70	(70)	(1)	1000	(8.89 x 10 ⁻²)	35	0.677	100	17
	120	(120)	(2)	1000	(3.62 x 10 ⁻¹)	33	0.742	140	22
PHC-R	0.6	4.3	.13	1800	.0223	21.1	1.14	105	9.3
	1.2	8.6	.26	1800	.0392	20.6	1.16	200	13
	2.5	18	.54	1800	.126	15.8	1.52	395	22
	5	36	1.1	1800	.323	8.8	2.74	620	38
	10	72	2.2	1500	1.42	9.0	2.68	940	95
20	144	4.3	1500	3.01	7.20	3.34	1350	154	
POC	0.3	2.1	.065	1800	.0128	35.6	.674	105	5.5
	0.6	4.3	.13	1800	.0173	21.1	1.14	80	7.9
	1.2	8.6	.26	1800	.0304	20.6	1.16	145	12
	2.5	18	.54	1800	.0973	15.8	1.52	195	22
	5	36	1.1	1800	.249	8.8	2.74	290	38
	10	72	2.2	1800	1.04	9.0	2.68	460	77
	20	144	4.3	1800	2.23	7.2	3.34	790	128
	40	289	8.7	1800	5.93	5.1	4.66	1990	220
	80	578	17	1800	23.5	4.3	5.57	3900	551

Magnetic Particle Brakes and Clutches

Selection Requirements

Torque

The torque required is calculated differently for different applications. For tension applications, torque is a function of roll radius and tension. For controlled starting and stopping, torque is a function of inertia, speed, and desired time to start or stop the load. For torque limiting applications, allowable drive through torque is used to select a unit. Please follow the selection example that applies to your application to determine the torque required in units of pound-feet.

Heat

When a brake or clutch is slipping, heat is generated. This is the result of

mechanical energy being converted to heat. Excessive applications of heat will destroy the unit. Heat generated is a function of tension and linear material speed and is generally described in terms of "thermal horsepower" (HPT). For starting and stopping applications, heat is generated when the unit slips during the stopping and starting of the load. Here heat is a function of speed, inertia, and cycle rate, and is described in terms "energy rate" (ft. lbs./min.). The selection example that fits your application will determine heat in the appropriate units.

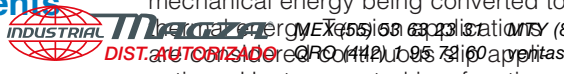
The amount of energy the application produces must be less than the capabilities of the clutch or brake to dissipate. If the energy generated by the

application is greater, then the controlling device will be destroyed from excessive heat buildup.

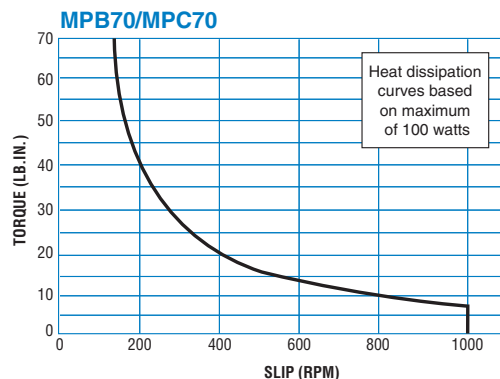
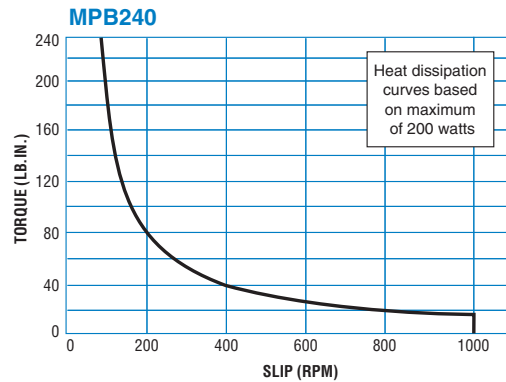
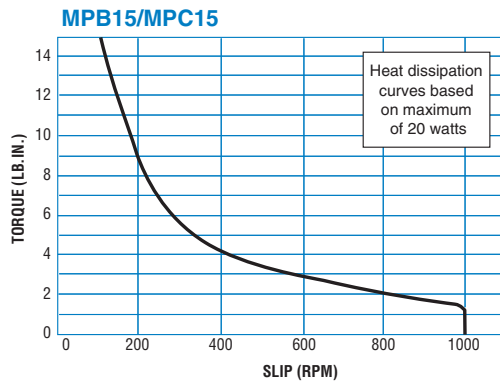
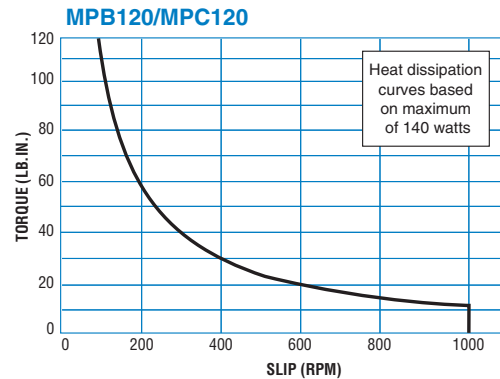
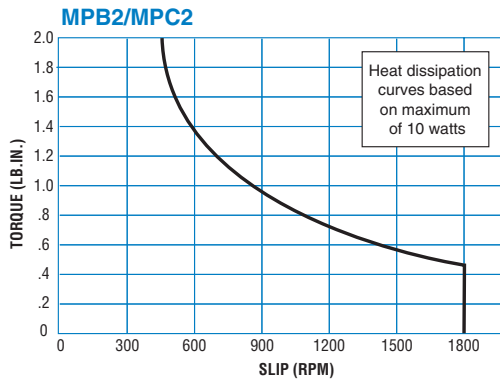
Environmental considerations such as -25°F to +140°F (-31.7°C to +60°C) high ambient temperature can reduce the unit's ability to dissipate heat. For applications with high ambient temperatures or where heat dissipation is marginal, fans or blowers may be used to improve dissipation.

Heat Dissipation Curves

Determine your slip RPM requirements and torque requirements. Where the two points intersect must be under the curve for the unit selected. Remember to check at both minimum and maximum torque-speed conditions.

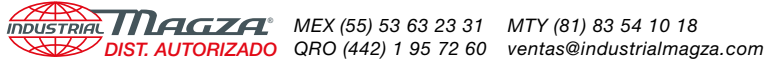


MPC/MPB Clutches/Brakes



Magnetic Particle Brakes and Clutches

Heat Dissipation Curves



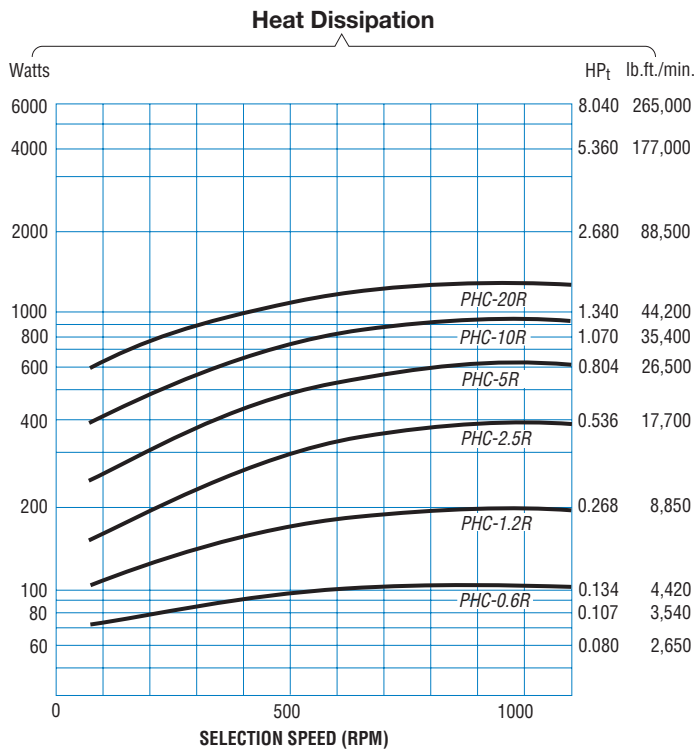
Operating Temperature

The surface temperature of the unit must be less than the temperature indicated in the following chart.

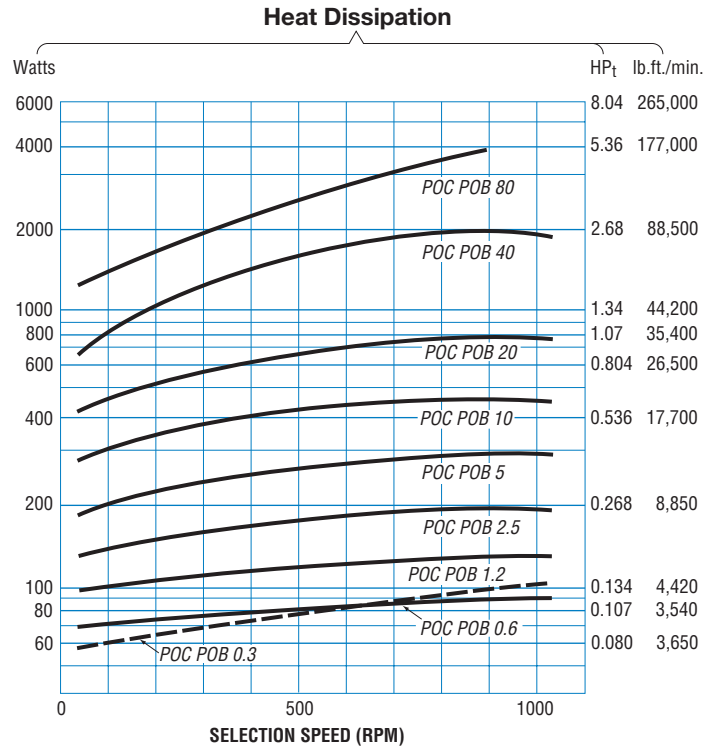
Maximum Surface Temperature

Model	Temp (°F)
PMC-A ₃	167
POC/PHC-R/POB	176
PRB/PTB-BL ₃	194

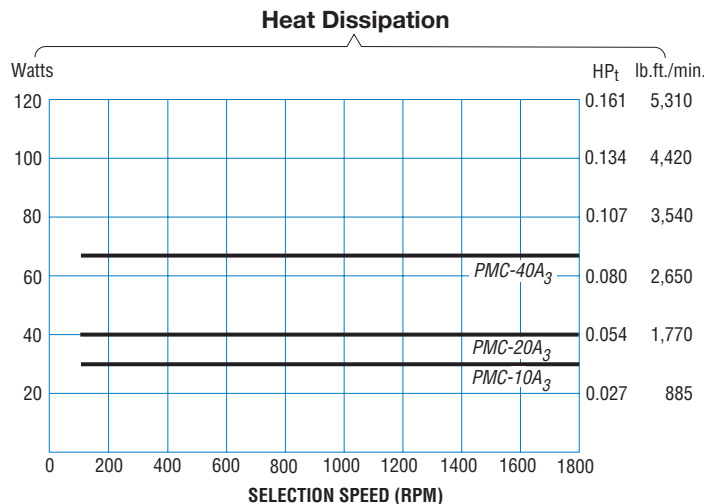
PHC-R Clutches



POC/POB Clutches/Brakes



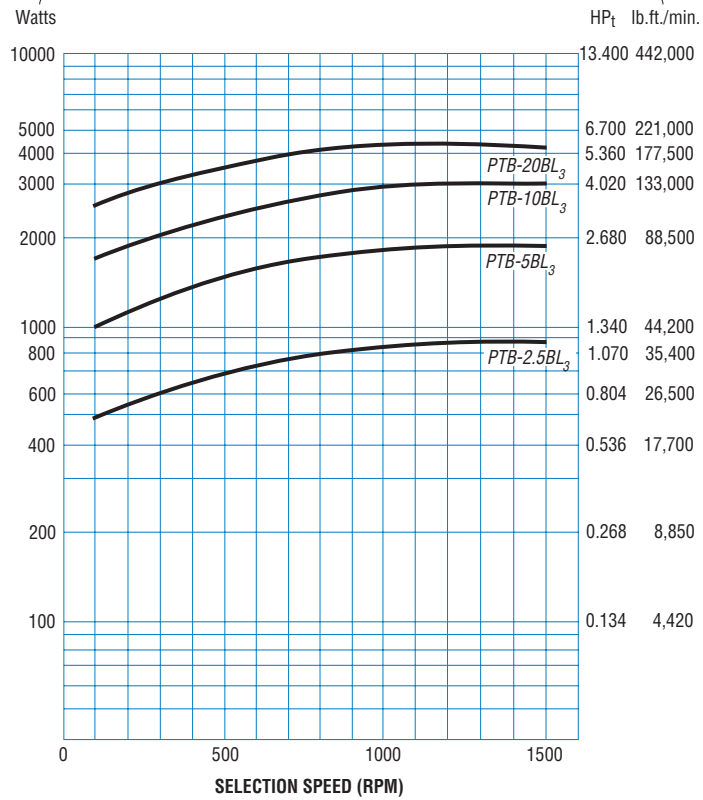
PMC-A₃ Clutches or Brakes



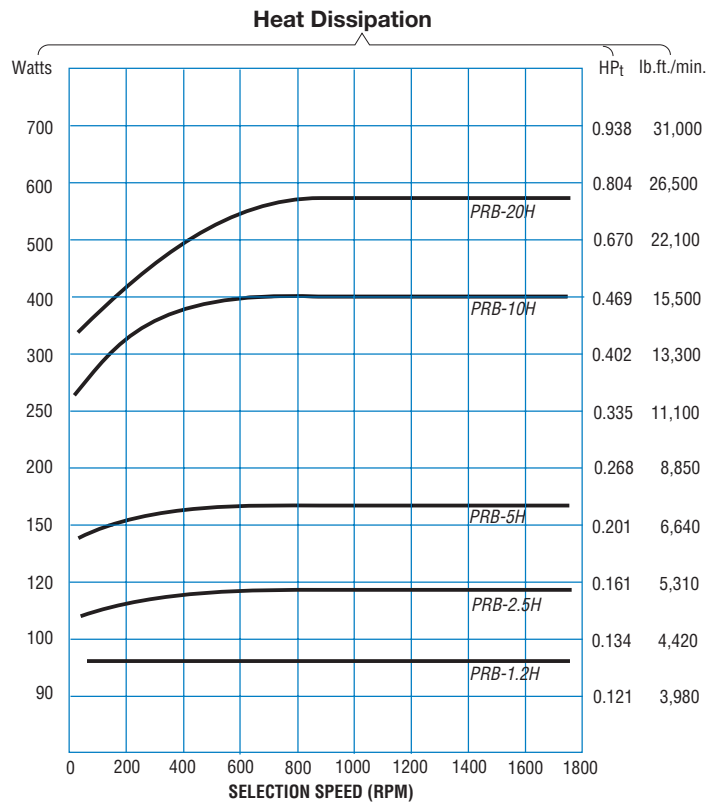
Magnetic Particle Brakes and Clutches

PTB-BL₃ Brakes

INDUSTRIAL **MAGZA** Heat Dissipation
 DIST. AUTORIZADO MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
 95 72 60 ventas@industrialmagza.com

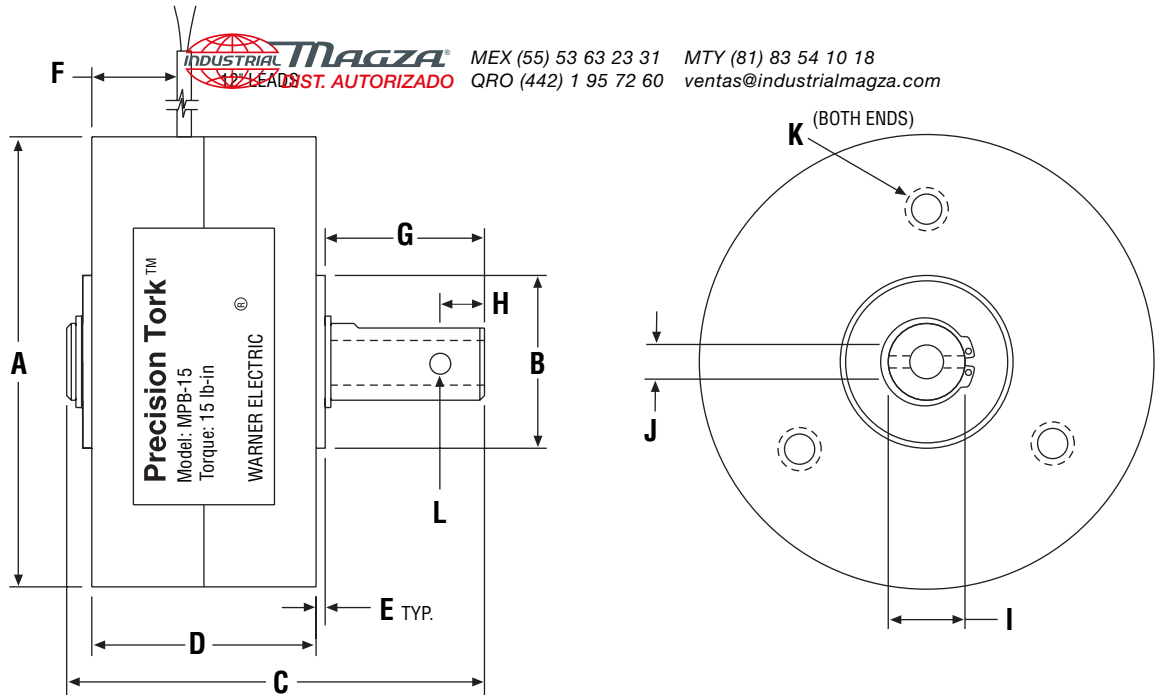


PRB-1.2H, 2.5H, 5H, 10H and 20H



MPB Series Brakes

Low and high torque units. Light duty thermal. All brakes have output shafts and pilots for mounting. Optional brackets available.



Optional mounting bracket, see page 127.

Dimensions inches

Model	A	B	C	D	E	F	G	H	I (Shaft)	J (Bore)	K	L
MPB2-1	2.11	0.750/0.749	2.23	1.15	0.06	0.72	0.88	—	0.2947/0.2492	Solid Shaft	(3) #6-32 on 1.350 BC	1 Flat
MPB15-1	2.93	1.125/1.124	3.05	1.46	0.07	0.86	1.35	—	0.3747/0.3742	Solid Shaft	(3) #8-32 on 2.000 BC	1 Flat
MPB15-2	2.93	1.125/1.124	2.05	1.46	0.07	0.86	0.35	0.18	0.499	0.375/0.376	(3) #8-32 on 2.000 BC	0.125 Thru Hole
MPB15-3	2.93	1.125/1.124	2.70	1.46	0.07	0.86	1.00	—	0.4997/0.4992	Solid Shaft	(3) #8-32 on 2.000 BC	1 Flat
MPB70-1	4.48	1.625/1.624	2.62	1.76	0.10	0.98	0.50	0.18	0.749	0.500/0.501	(4) #10-32 on 4.228 BC	0.125 Thru Hole
MPB70-2	4.48	1.625/1.624	3.37	1.76	0.10	0.98	1.25	—	0.7497/0.7492	Solid Shaft	(4) #10-32 on 4.228 BC	0.188 Keyway
MPB120-1	5.25	1.625/1.624	4.02	2.17	0.10	1.18	1.50	0.50	0.749	0.500/0.501	(4) #1/4-20 on 4.812 BC	0.156 Thru Hole
MPB120-2	5.25	1.625/1.624	4.02	2.17	0.10	1.18	1.50	—	0.7497/0.7492	Solid Shaft	(4) #1/4-20 on 4.812 BC	0.188 Keyway
MPB240-1	6.21	2.441/2.440	4.66	2.65	0.10	1.46	1.65	—	0.7497/0.7492	Solid Shaft	(4) #1/4-20 on 5.875 BC	0.188 Keyway
MPB240-2	6.21	2.441/2.440	3.51	2.65	0.10	1.46	0.50	—	1.377	0.875/0.876	(4) #1/4-20 on 5.875 BC	0.188 Keyway
MPB240-3	6.21	2.441/2.440	3.51	2.65	0.10	1.46	0.50	—	1.377	1.000/1.001	(4) #1/4-20 on 5.875 BC	0.250 Shallow Keyway

Specifications

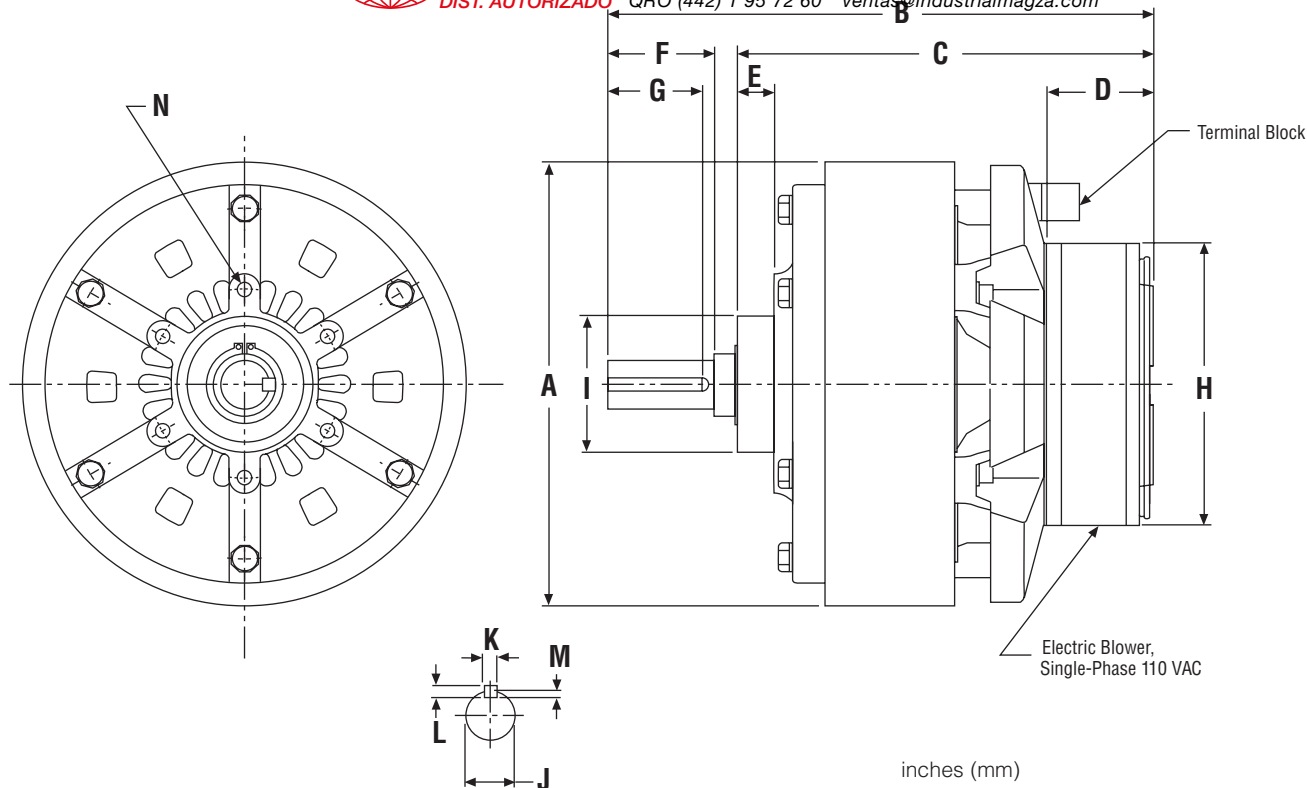
Model Number	Max. Drag Torque 0 Excit. (lb.in.)	Rated Torque (lb.in.)	Rated Voltage	Resistance (Ohms)	Rated Current (Amps)	Build Up Time		Inertia of Output Shaft (lb.in. ²)	Max. Heat Dissipation (watts)	Max. Speed Recom. (RPM)	Weight
						W/out OEX (Millisec)	With OEX (Millisecs)				
MPB2	0.40	2	24	92	0.261	8	4	1.31×10^{-3}	10	1,800	1
	0.40	2	90	1,552	0.058	8	4	1.31×10^{-3}	10	1,800	1
MPB15	0.40	15	24	80	0.302	25	9	1.39×10^{-2}	20	1,000	3
	0.40	15	90	1,501	0.060	25	9	1.39×10^{-2}	20	1,000	3
MPB70	1.00	70	24	35	0.677	70	17	8.03×10^{-2}	100	1,000	7
	1.00	70	90	613	0.147	70	17	8.03×10^{-2}	100	1,000	7
MPB120	2.00	120	24	33	0.742	90	25	3.75×10^{-1}	140	1,000	12
	2.00	120	90	475	0.190	90	25	3.75×10^{-1}	140	1,000	12
MPB240	4.00	240	24	19	1.286	150	45	1.35	200	1,000	20
	4.00	240	90	246	0.366	150	45	1.35	200	1,000	20

Note: All dimensions are nominal unless otherwise noted.

The PTB-BL₃ offers superior heat dissipation capability. Units are pilot mounted and a male input shaft is provided for connecting to the load.

Dimensions

INDUSTRIAL MAGZA MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
 DIST. AUTORIZADO QRO (442) 1 95 72 60 ventas@industrialmagza.com



inches (mm)

Shaft Dimensions				
Size	J	K	L	M
2.5	0.7874/0.7866 (20.000/19.979)	0.1978/0.1973 (5.024/5.012)	0.20 (5)	0.12 (3)
5	0.9843/0.9834 (25.000/24.979)	0.2768/0.2762 (7.030/7.015)	0.28 (7)	0.16 (4)
10	1.1811/1.1803 (30.000/29.979)	0.2768/0.2762 (7.030/7.015)	0.28 (7)	0.16 (4)
20	1.3780/1.3770 (35.000/34.975)	0.3949/0.3943 (10.030/10.015)	0.31 (8)	0.18 (4.5)

Specifications

Model	Nominal Part Number	Nominal Torque (lb. ft.)	E-Stop Torque (lb. ft.)	Nominal Drag Torque (lb. ft.)	Maximum Speed (rpm)	Inertia Input (lb. ft. ²)	Max. Heat Diss. Watts @ Max. RPM	Weight (lbs.)
2.5	5401-169-141	18	23	.54	1,800	.0973	880	24
5	5401-169-151	36	47	1.1	1,800	.249	1,850	38
10	5401-169-161	72	88	2.2	1,800	1.04	3,050	76
20	5401-169-171	144	180	4.3	1,800	2.23	4,400	114

inches (mm)

Size	A	B	C	D	E	F	G	H*	I	N			
										Thread Size	Depth	Num. of Holes	Bolt Circle
2.5	7.17 (182)	8.72 (221.5)	6.67 (169.5)	1.69 (43)	0.59 (15)	1.69 (43)	1.50 (38)	□ 4.72 □ (120)	2.1654/2.1642 (55.000/54.970)	M6	0.51 (13)	6	3.071 (78)
5	8.62 (219)	10.81 (274.5)	8.19 (208)	2.42 (61.5)	0.91 (23)	2.24 (57)	1.85 (47)	○ 5.91 ○ (150)	2.9134/2.9122 (74.000/73.970)	M6	0.51 (13)	6	3.937 (100)
10	11.42 (290)	13.19 (335)	10.12 (257)	2.42 (61.5)	0.98 (25)	2.64 (67)	2.20 (56)	○ 5.91 ○ (150)	3.9370/3.9356 (100.000/99.965)	M10	0.71 (18)	6	5.512 (140)
20	13.19 (335)	13.88 (352.5)	10.61 (269.5)	2.42 (61.5)	0.98 (25)	2.80 (71)	2.36 (60)	○ 5.91 ○ (150)	4.3307/4.3293 (110.000/109.965)	M10	0.71 (18)	6	5.906 (150)

*Adjacent symbol denotes shape of blower.

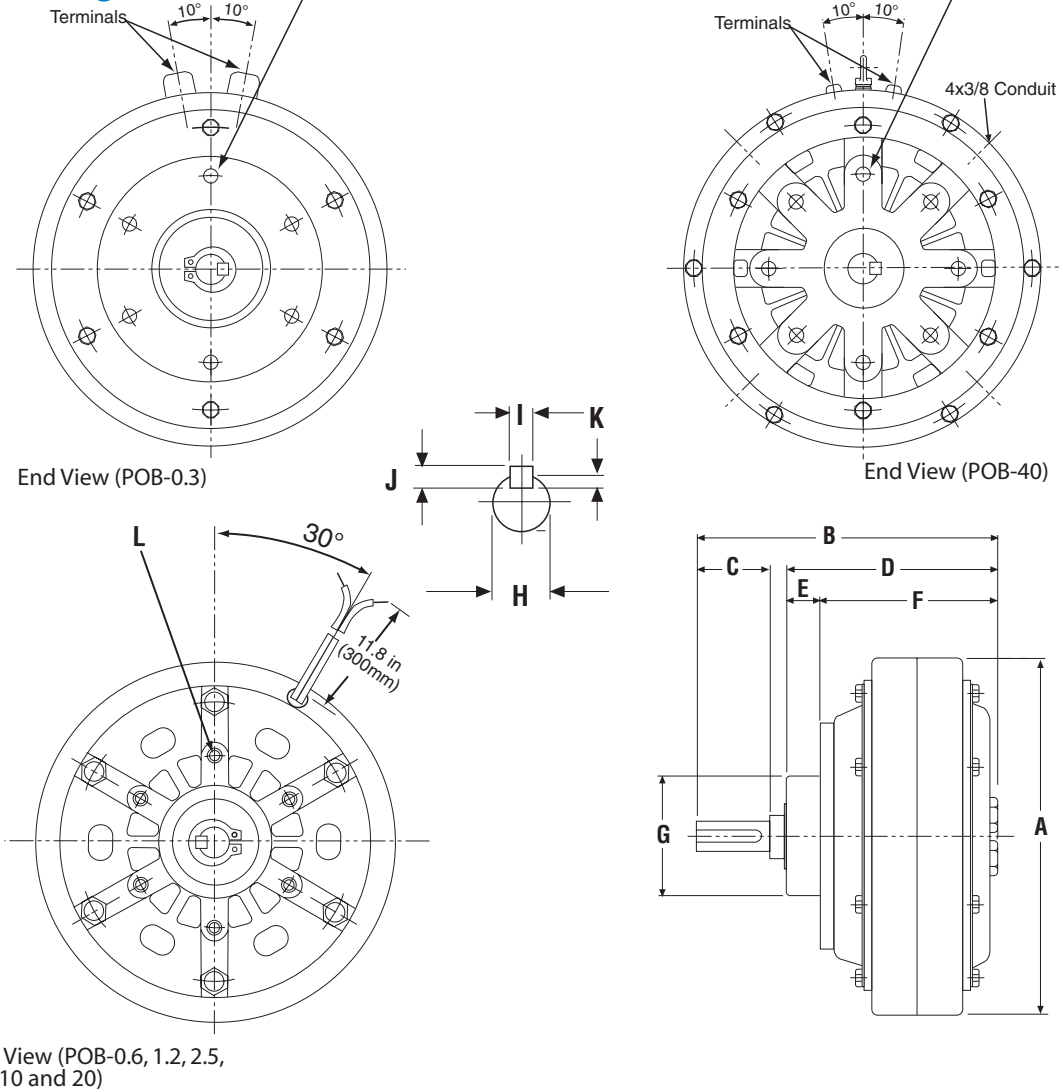
Note: All dimensions are nominal unless otherwise noted.

POB Series Brakes

Low and high torque units are offered in this model. All units have male input shafts and pilots for mounting, except for the size 80, which is foot-mounted.

Dimensions Sizes 0.3 through 40

INDUSTRIAL MAGZA MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
 DIST. AUTORIZADO QRO (442) 1 95 72 60 ventas@industrialmagza.com



inches (mm)

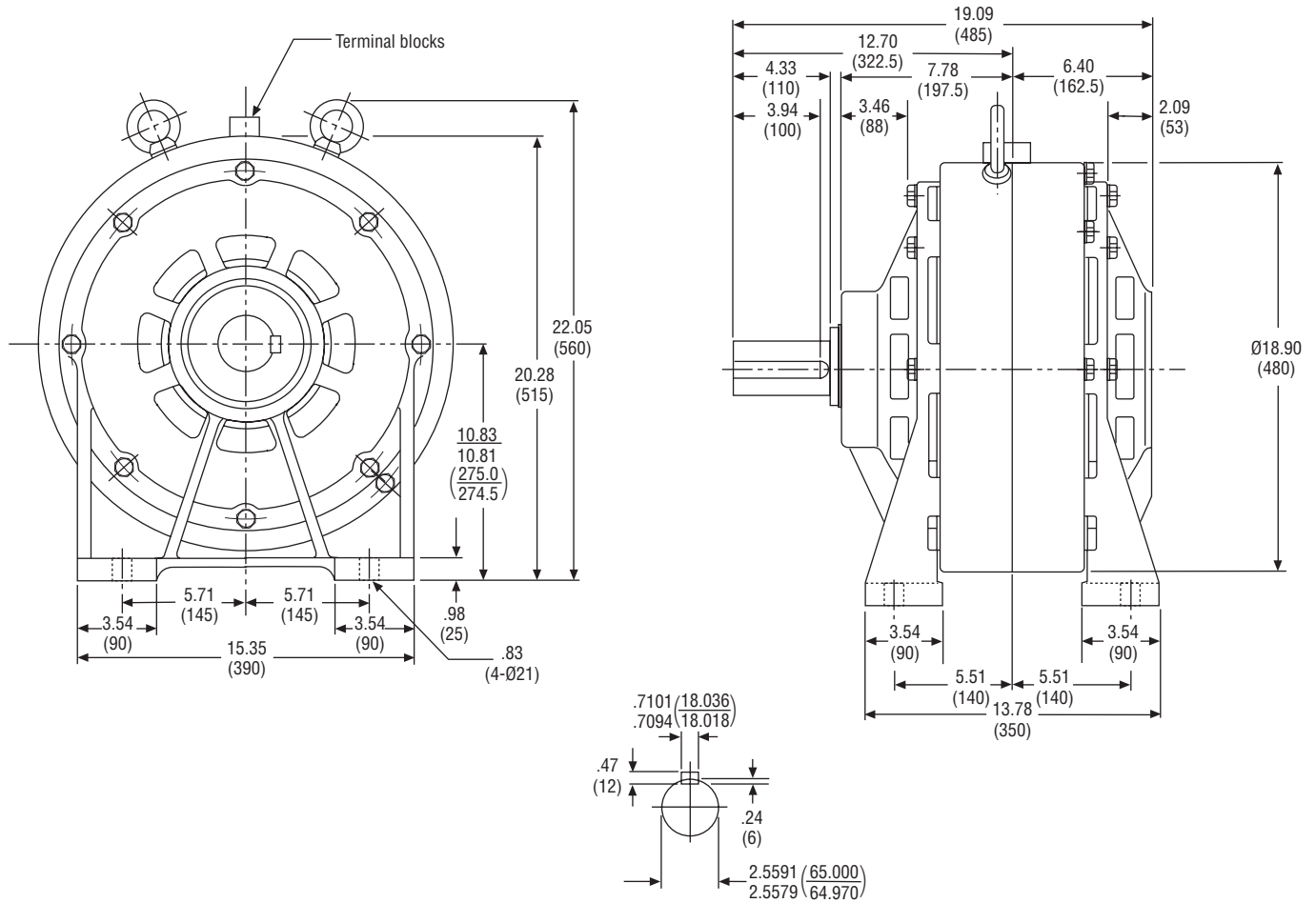
Model	Shaft Dimensions						L								
	A	B	C	D	E	F	G	H	I	J	K	Thread Size	Depth	No. of Holes	Bolt Circle
POB-0.3	4.72 (120)	4.13 (105)	0.91 (23)	2.95 (75)	0.43 (11)	2.52 (64)	1.6535/1.6526 (42.000/41.975)	0.3937/0.3931 (10.000/9.985)	0.1584/0.1580 (4.024/4.012)	0.16 (4)	0.10 (2.5)	M5	0.39 (10)	6	2.520 (64)
POB-0.6	5.28 (134)	4.29 (109)	1.02 (26)	3.01 (76.5)	0.39 (10)	2.62 (66.5)	1.6535/1.6526 (42.000/41.975)	0.4724/0.4717 (12.000/11.982)	0.1584/0.1580 (4.024/4.012)	0.16 (4)	0.10 (2.5)	M5	0.43 (11)	6	2.520 (64)
POB 1.2	5.98 (152)	5.14 (130.5)	1.36 (34.5)	3.52 (89.5)	0.51 (13)	3.01 (76.5)	1.6535/1.6526 (42.000/41.975)	0.5906/0.5898 (15.000/14.982)	0.1978/0.1973 (5.024/5.012)	0.20 (5)	0.12 (3.0)	M6	0.51 (13)	6	2.520 (64)
POB 2.5	7.17 (182)	6.10 (155)	1.69 (43)	4.06 (103)	0.59 (15)	3.46 (88)	2.1654/2.1642 (55.000/54.970)	0.7874/0.7866 (20.000/19.979)	0.1978/0.1973 (5.024/5.012)	0.20 (5)	0.12 (3.0)	M6	0.51 (13)	6	3.071 (78)
POB 5.0	8.62 (219)	7.44 (189)	2.24 (57)	4.82 (122.5)	0.91 (23)	3.92 (99.5)	2.9134/2.9122 (74.000/73.970)	0.9843/0.9834 (25.000/24.979)	0.2768/0.2762 (7.030/7.015)	0.28 (7)	0.16 (4.0)	M6	0.51 (13)	6	3.937 (100)
POB 10	11.42 (290)	9.19 (233.5)	2.64 (67)	6.12 (155.5)	0.98 (25)	5.14 (130.5)	3.9370/3.9356 (100.000/99.965)	1.1811/1.1803 (30.000/29.979)	0.2768/0.2762 (7.030/7.015)	0.28 (7)	0.16 (4.0)	M10	0.71 (18)	6	5.512 (140)
POB 20	13.19 (335)	10.37 (263.5)	2.80 (71)	7.11 (180.5)	0.98 (25)	6.12 (155.5)	4.3307/4.3293 (110.000/109.965)	1.3780/1.3770 (35.000/34.975)	0.3949/0.3943 (10.030/10.015)	0.31 (8)	0.18 (4.5)	M10	0.71 (18)	6	5.906 (150)
POB-40	15.55 (395)	12.99 (330)	3.62 (92)	8.82 (224)	1.30 (33)	7.52 (191)	5.1181/5.1165 (130.000/129.960)	1.7717/1.7707 (45.000/44.975)	0.4739/0.4731 (12.036/12.018)	0.31 (8)	0.18 (4.5)	M12	0.79 (20)	8	2.520 (200)

Note: All dimensions are nominal unless otherwise noted.

Size 80



MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
 QRO (442) 1 95 72 60 ventas@industrialmagza.com



Specifications

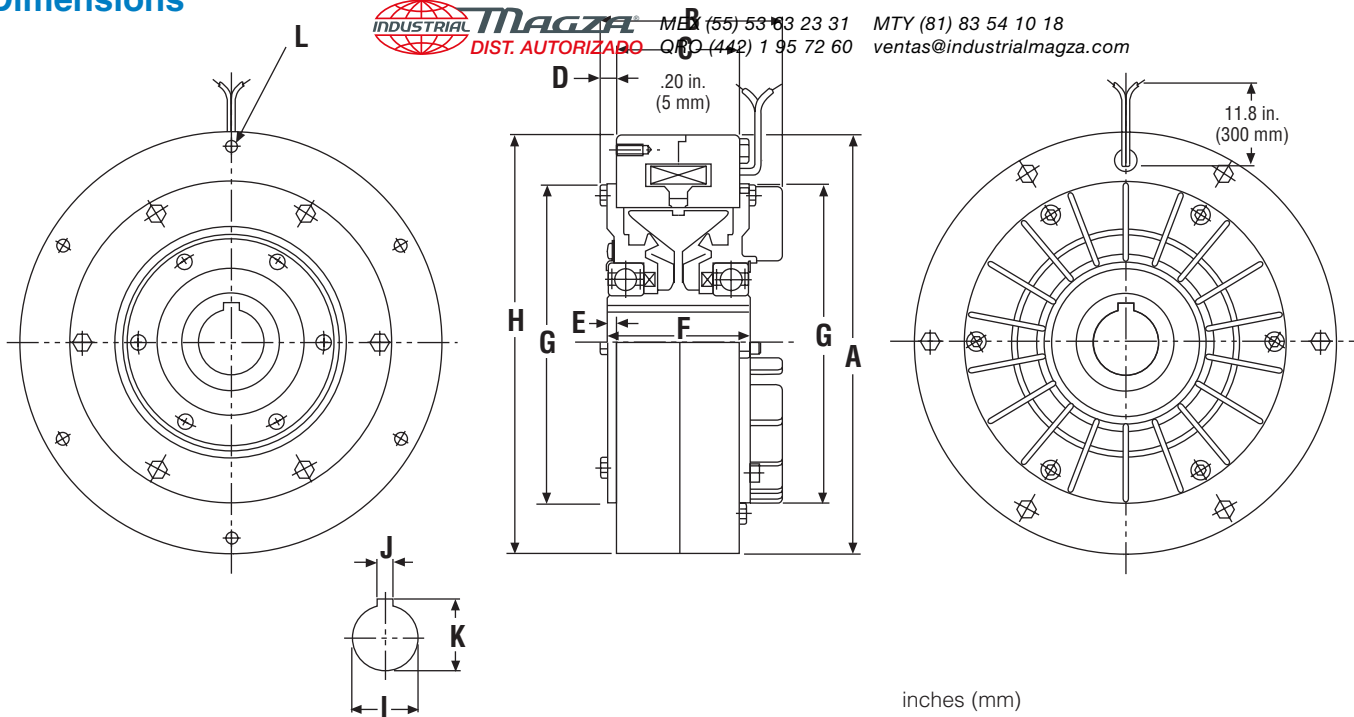
Size	Part Number	Rated Torque (lb. ft.)	E-Stop Torque (lb. ft.)	Drag Torque (lb. ft.)	Maximum Speed (rpm)	Inertia Input (lb. ft. ²)	Max. Heat Diss. Watts @ Max. RPM	Weight (lbs.)
0.3	5401-169-211	2.1	3.0	.065	1,800	.0128	105	5.3
0.6	5401-169-221	4.3	5.9	.13	1,800	.0173	80	7.5
1.2	5401-169-231	8.6	12.0	.26	1,800	.0304	145	11.5
2.5	5401-169-241	18	23.0	.54	1,800	.0973	195	24.3
5.0	5401-169-251	36	43.0	1.1	1,800	.0249	290	35.3
10	5401-169-261	72	101.0	2.2	1,800	1.04	460	72.8
20	5401-169-271	144	180.0	4.3	1,800	2.23	790	106
40	5401-169-281	289	361	8.7	1,800	5.93	1,990	176
80	5401-169-291	578	723	17	1,500	23.5	3,900	573

Note: All dimensions are nominal unless otherwise noted.

PRB-H Series Brakes

This is the basic PRB model. It is offered with a hollow bore and a pilot for mounting.

Dimensions



inches (mm)

Size	Bore Sizes		
	I	J	K
1.2	0.5913/0.5906 (15.018/15.000*)	0.1980/0.1972 (5.028/5.010)	0.6791/0.6693 (17.250/17.000)
2.5	0.7882/0.7874 (20.021/20.000*)	0.1980/0.1972 (5.028/5.010)	0.8760/0.8661 (22.250/22.000)
5	1.1819/1.1811 (30.021/30.000*)	0.2770/0.2761 (7.035/7.013)	1.3091/1.2992 (33.250/33.000)
10	1.1819/1.1811 (30.021/30.000)	0.2770/0.2761 (7.035/7.013)	1.3091/1.2992 (33.250/33.000)
20	1.5758/1.5748 (40.025/40.000)	0.3951/0.3942 (10.035/10.013)	1.7224/1.7126 (43.750/43.500)

* For availability of inch series bores, contact your Warner Electric representative.

Specifications

Size	Part Number	Torque (lb. ft.)	E-Stop Torque (lb. ft.)	Drag Torque (lb. ft.)	Maximum Speed (rpm)	Inertia Input (lb. ft. ²)	Max. Heat Diss. Watts @ Max. RPM	Weight (lbs.)
1.2	5401-169-331	8.6	12	.26	1,800	.104	95	11
2.5	5401-169-341	18	23	.54	1,800	.161	118	15
5	5401-169-351	36	43	1.1	1,800	.453	170	29
10	5401-169-361	72	101	2.2	1,800	1.51	355	57
20	5401-169-371	144	180	4.3	1,800	4.46	570	101

inches (mm)

Size	A	B	C	D	E	F	G	H	L			
									Thread Size	No. of Depth	Bolt Holes	Circle
1.2	5.35 (136)	2.48 (63)	1.65 (42)	0.28 (7)	0.22 (5.5)	2.09 (53)	4.29 (109)	5.3543/5.3528 (136.000/135.960)	M5	0.39 (10)	6	4.92 (125)
2.5	6.30 (160)	2.87 (73)	1.85 (47)	0.30 (6.5)	0.26 (6.5)	2.36 (60)	4.88 (124)	6.2992/6.2976 (160.000/159.960)	M5	0.39 (10)	6	5.83 (148)
5	7.68 (195)	3.33 (84.5)	2.24 (57)	0.31 (8)	0.20 (5)	2.64 (67)	5.87 (149)	7.6772/7.6754 (195.000/194.954)	M6	0.47 (12)	6	7.13 (181)
10	9.84 (250)	4.09 (104)	2.68 (68)	0.33 (8.5)	0.20 (5)	3.07 (78)	7.40 (188)	9.8425/9.8407 (250.000/249.954)	M6	0.47 (12)	8	9.17 (233)
20	12.01 (305)	5.06 (128.5)	3.15 (80)	0.47 (12)	0.30 (7.5)	3.74 (95)	9.21 (234)	12.0079/12.0058 (305.000/304.948)	M8	0.47 (12)	8	11.10 (282)

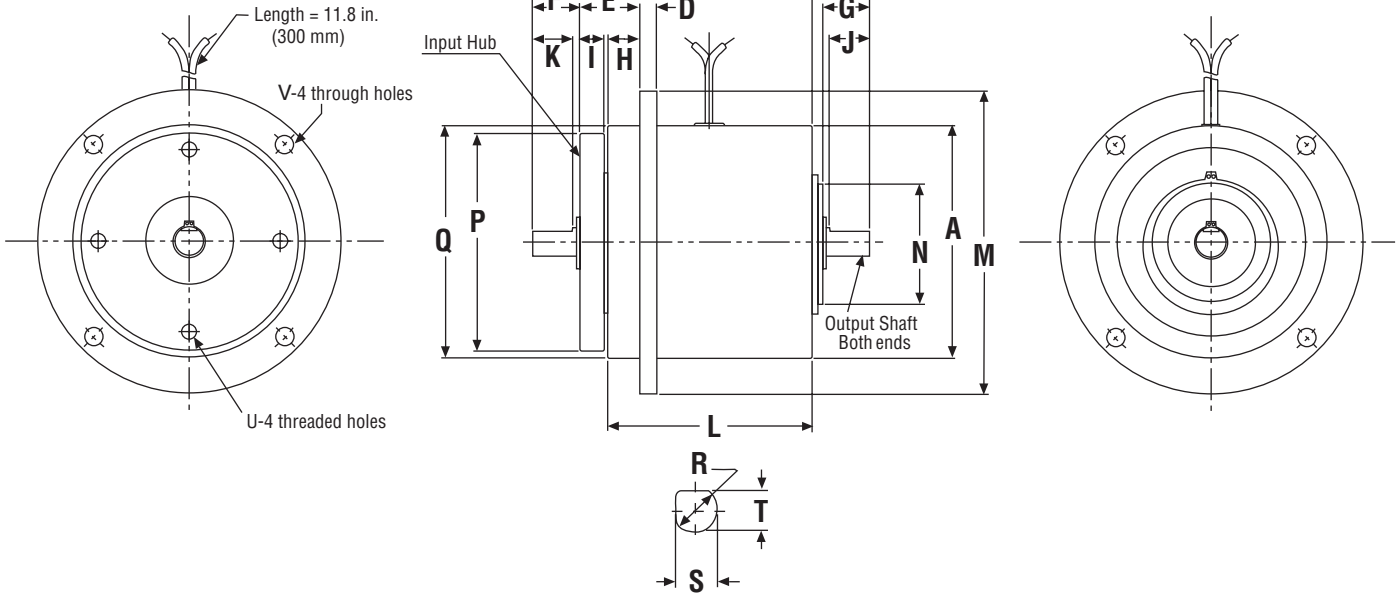
Note: All dimensions are nominal unless otherwise noted.

These units offer precise control in the small tension ranges. They have flanged input hubs and double-ended output shafts for maximum mounting flexibility. They can be easily mounted as clutches or brakes.

PMC Series Clutches/Brakes

Dimensions Sizes 10 and 20

INDUSTRIAL **MAGZA** MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
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Specifications

Size	Part Number	Torque (lb. in.)	E-Stop Torque (lb. in.)	Drag Torque (lb. in.)	Maximum Speed (rpm)	Inertia Input (lb. in. ²)	Output (lb. in. ²)	Max. Heat Diss. Watts @ Max. RPM	Weight (lbs.)
10	5401-270-111	8.6	11.5	.25	1,800	.239	.0291	30	2.0
20	5401-270-121	17	20.4	.51	1,800	.413	.0752	40	2.9

inches (mm)

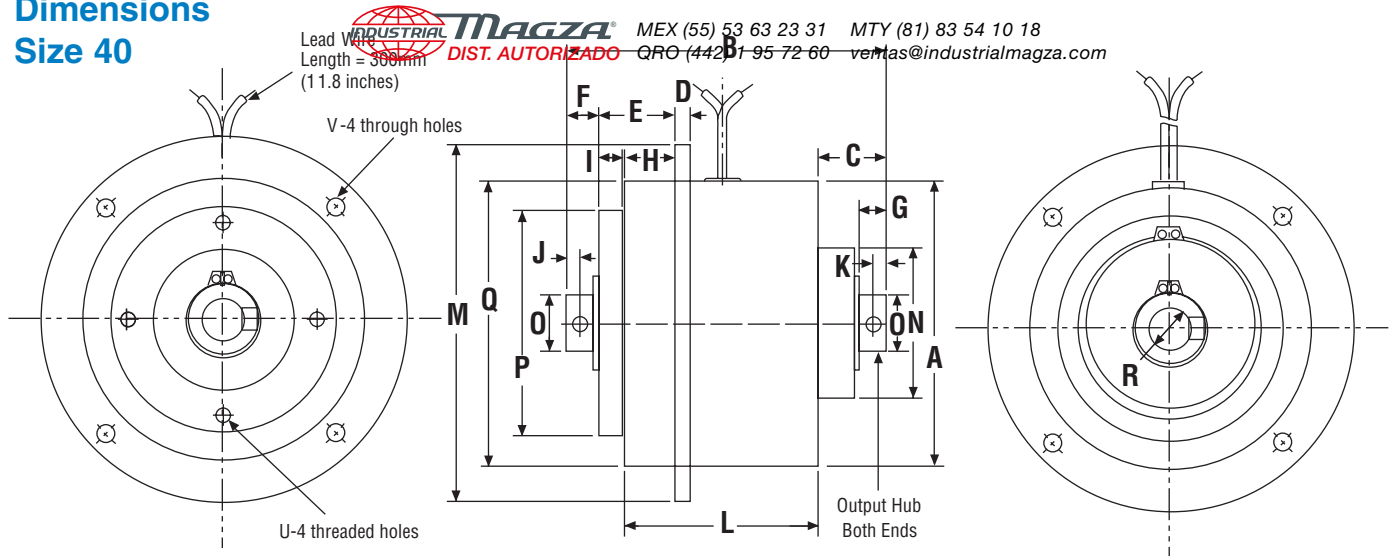
Size	A	B	C	D	E	F	G	H	I	J	K	L	M	N
10	2.28 (58)	3.03 (77)	0.55 (14)	0.16 (4)	0.59 (15)	0.47 (12)	0.47 (12)	0.31 (8)	0.24 (6)	0.39 (10)	0.39 (10)	2.01 (51)	2.99 (76)	1.18 (30)
20	2.72 (69)	4.57 (116)	1.30 (33)	0.16 (4)	0.87 (22)	0.98 (25)	0.94 (24)	0.59 (15)	0.24 (6)	0.79 (20)	0.79 (20)	2.01 (51)	3.62 (92)	1.38 (35)

Size	Shaft Dimensions					U		V		
	P	Q	R	S	T	Thread Size	Depth	Bolt Circle	Hole Size	Bolt Circle
10	2.1260/2.1248 (54.000/53.970)	2.2835/2.2823 (58.000/57.970)	0.2756/0.2750 (7.000/6.985)	0.24 (6)	—	M4	0.24 (6)	1.81 (46)	0.18 (4.5)	2.68 (68)
20	2.1260/2.1248 (54.000/53.970)	2.7165/2.7154 (69.000/68.970)	0.4724/0.4720 (12.000/11.988)	0.45 (11.5)	0.45 (11.5)	M4	0.24 (6)	1.81 (46)	0.18 (4.5)	3.23 (82)

Note: All dimensions are nominal unless otherwise noted.

PMC Series Clutches/Brakes

Dimensions Size 40



Specifications

Size	Part Number	Torque (lb. in.)	E-Stop Torque (lb. in.)	Drag Torque (lb. in.)	Maximum Speed (rpm)	Inertia Input (lb. in. ²)	Inertia Output (lb. in. ²)	Max. Heat Diss. Watts @ Max. RPM	Weight (lbs.)
40	5401-270-131	34	42.5	1.0	1,800	1.14	.372	68	5.5

inches (mm)

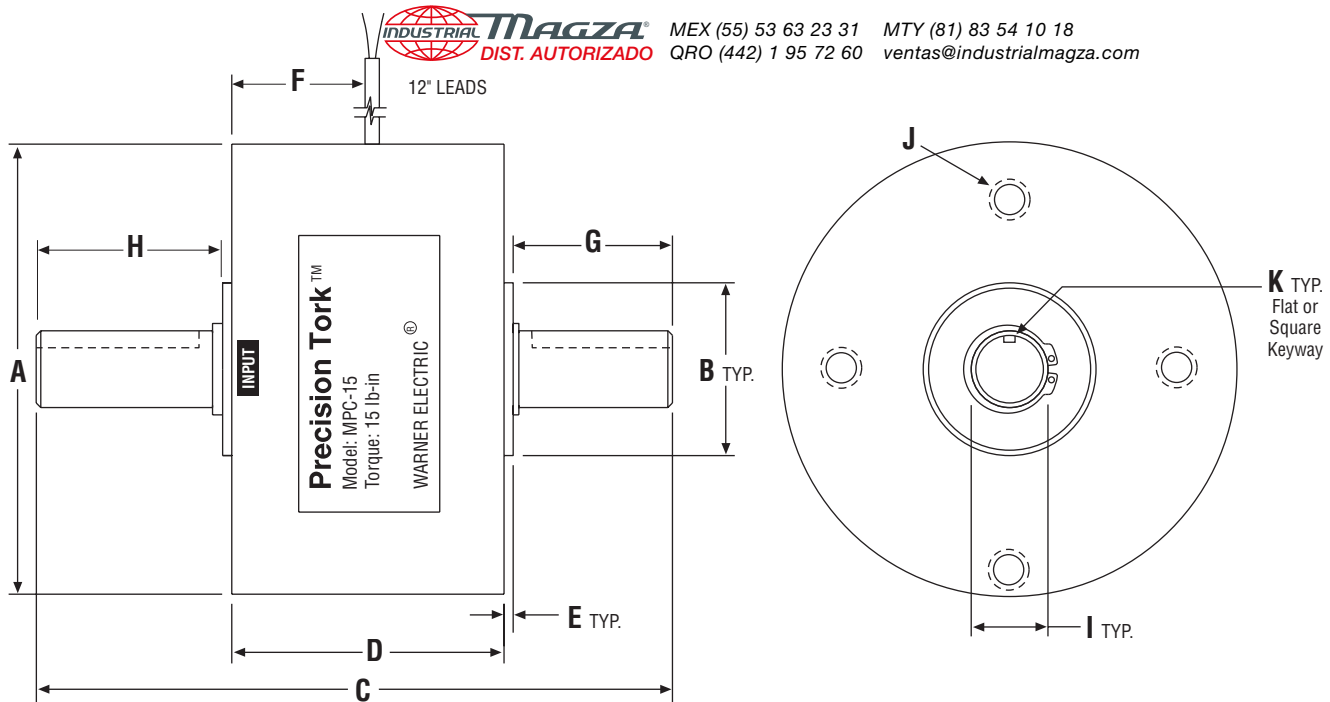
Size	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
40	3.39 (86)	3.82 (97)	0.83 (21)	0.16 (4)	0.87 (22)	0.39 (10)	0.34 (8.7)	0.59 (15)	0.24 (6)	0.16 (4)	0.16 (4)	2.32 (59)	4.41 (112)	1.97 (50)	0.79 (20)

Size	Bore			U	V			
	P	Q	R	Thread Size	Depth	Bolt Circle	Hole Size	Bolt Circle
40	2.7559/2.7547 (70.000/69.970)	3.3858/3.3844 (86.000/85.965)	0.4731/0.4724 (12.018/12.000)	M4	0.24 (6)	2.36 (60)	0.18 (4.5)	3.94 (100)

Note: All dimensions are nominal unless otherwise noted.

MPC Series Clutches

Low and medium torque units for light duty rewind applications. Shaft in-shaft out with pilots, allow for sample mounting. Optional brackets available.



Optional mounting bracket, see page 127.

Dimensions inches

Model	A	B	C	D	E	F	G (Output)	H (Input)	I	J	K
MPC2	2.11	0.750/0.749	3.82	1.86	0.06	1.14	0.88	0.88	0.2497/0.2492	(3) #6-32 on 1.350 BC	Flat
MPC15	2.96	1.125/1.124	4.81	2.80	0.07	1.67	1.00	1.00	0.4997/0.4992	(3) #8-32 on 2.000 BC	Flat
MPC70	4.48	1.625/1.624	6.55	3.67	0.10	2.08	1.35	1.35	0.7497/0.7492	(4) #10-32 on 4.228 BC	0.188 Keyway
MPC120	5.25	1.625/1.624	7.02	4.00	0.10	2.40	1.50	1.35	0.7497/0.7492	(4) #1/4-20 on 4.812 BC	0.188 Keyway

Specifications

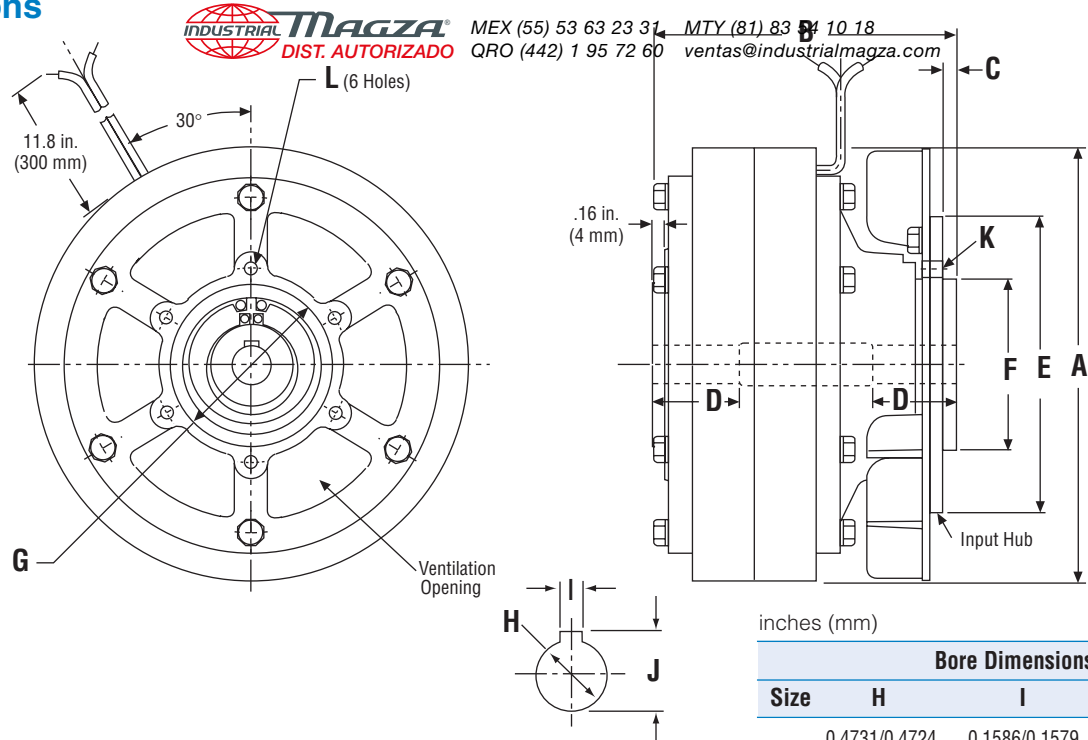
Model Number	Max. Drag Torque		Rated Torque (lb.in.)	Rated Voltage	Resistance (Ohms)	Rated Current (Amps)	Build Up Time		Inertia of Output Shaft (lb.in. ²)	Max. Heat Dissipation (watts)	Max. Speed Recom. (RPM)	Weight
	0 Excit. (lb.in.)						W/out OEX (Millisec)	With OEX (Millisecs)				
MPC2	0.40	2	24	92	1552	0.261	8	4	1.33 x 10 ⁻³	10	1,800	1
	0.40	2					8	4				
MPC15	0.40	15	24	80	1501	0.302	25	9	1.48 x 10 ⁻²	20	1,000	6
	0.40	15					25	9				
MPC70	1.00	70	24	35	613	0.677	70	17	8.84 x 10 ⁻²	100	1,000	17
	1.00	70					70	17				
MPC120	2.00	120	24	33	475	0.742	90	25	3.82 x 10 ⁻¹	140	1,000	22
	2.00	120					90	25				

Note: All dimensions are nominal unless otherwise noted.

PHC-R Series Clutches

This model has a hollow bore, making it ideal for applications where shaft mounting is preferred. It has a piloted input flange for pulley or sprocket attachment.

Dimensions



Specifications

Size	Part Number	Nominal Torque (lb. ft.)	Nominal Drag Torque (lb. ft.)	Maximum Speed (rpm)	Inertia Input (lb. ft. ²)	Output (lb. ft. ²)	Max. Heat Diss. Watts @ Max. RPM	Weight (lbs.)
0.6	5401-270-321	4.3	.13	1,800	.0223	.00712	105	9.3
1.2	5401-270-331	8.6	.26	1,800	.0392	.0171	200	13
2.5	5401-270-341	18	.54	1,800	.126	.0494	395	22
5	5401-270-351	36	1.1	1,800	.323	.138	620	38
10	5401-270-361	72	2.2	1,500	1.42	.617	940	95
20	5401-270-371	144	4.3	1,500	3.01	1.30	1,350	154

Size	Bore Dimensions		
	H	I	J
0.6	0.4731/0.4724 (12.018/12.000)	0.1586/0.1579 (4.028/4.010)	0.5413/0.5315 (13.75/13.50)
1.2	0.5913/0.5906 (15.018/15.000)	0.1980/0.1972 (5.028/5.010)	0.6791/0.6693 (17.25/17.00)
2.5	0.9851/0.9843 (25.021/25.000)	0.2770/0.2761 (7.035/7.013)	1.1122/1.1024 (28.25/28.00)
5	1.3789/1.3780 (35.025/35.000)	0.3951/0.3942 (10.035/10.013)	1.5256/1.5157 (38.75/38.50)
10	1.7726/1.7717 (45.025/45.000)	0.4741/0.4731 (12.043/12.016)	1.9193/1.9094 (48.75/48.50)
20	2.1665/2.1654 (55.030/55.000)	0.5922/0.5912 (15.043/15.016)	2.3720/2.3622 (60.25/60.00)

inches (mm)

Size	A	B	C	D	E	F	G	K			L				
								Thread Size	Depth	Num. of Holes	Bolt Circle	Thread Size	Depth	Num. of Holes	Bolt Circle
0.6	5.28 (134)	3.62 (92)	0.16 (4)	1.00 (25.5)	3.50 (89)	1.9685/1.9675 (50.000/49.975)	1.9685/1.9675 (50.000/49.975)	M4	0.24 (6)	6	2.362 (60)	M4	0.24 (6)	6	2.362 (60)
1.2	5.98 (152)	3.78 (96)	0.16 (4)	0.98 (25)	3.50 (89)	1.7717/1.7707 (45.000/44.975)	2.7559/2.7547 (70.000/69.970)	M5	0.24 (6)	6	2.165 (55)	M4	0.31 (8)	6	3.150 (80)
2.5	7.17 (182)	5.20 (132)	0.20 (5)	1.77 (45)	5.51 (140)	2.7559/2.7547 (70.000/69.970)	2.7559/2.7429 (70.000/69.670)	M6	0.39 (10)	6	3.150 (80)	M6	0.35 (9)	6	3.150 (80)
5	8.62 (219)	5.83 (148)	0.16 (4)	1.57 (40)	6.50 (165)	3.4252/3.4238 (87.000/86.965)	3.4252/3.4238 (87.000/86.965)	M8	0.39 (10)	6	4.016 (102)	M8	0.39 (10)	6	4.016 (102)
10	11.42 (290)	7.22 (183.5)	0.24 (6)	2.36 (60)	7.48 (190)	4.1339/4.1325 (105.000/104.965)	4.3307/4.3293 (110.000/109.965)	M10	0.51 (13)	6	4.724 (120)	M8	0.39 (10)	6	4.724 (120)
20	13.19 (335)	8.74 (222)	0.35 (9)	2.95 (75)	8.66 (220)	5.1181/5.1165 (130.000/129.960)	5.1181/5.1165 (130.000/129.960)	M10	0.59 (15)	6	5.906 (150)	M10	0.53 (13.5)	6	5.906 (150)

Note: This is a stationary field clutch. The tapped holes "L" in the field are for securing the housing to prevent it from rotating. This can be done with capscrews or with a restraining strap. Do not block ventilation openings when mounting.

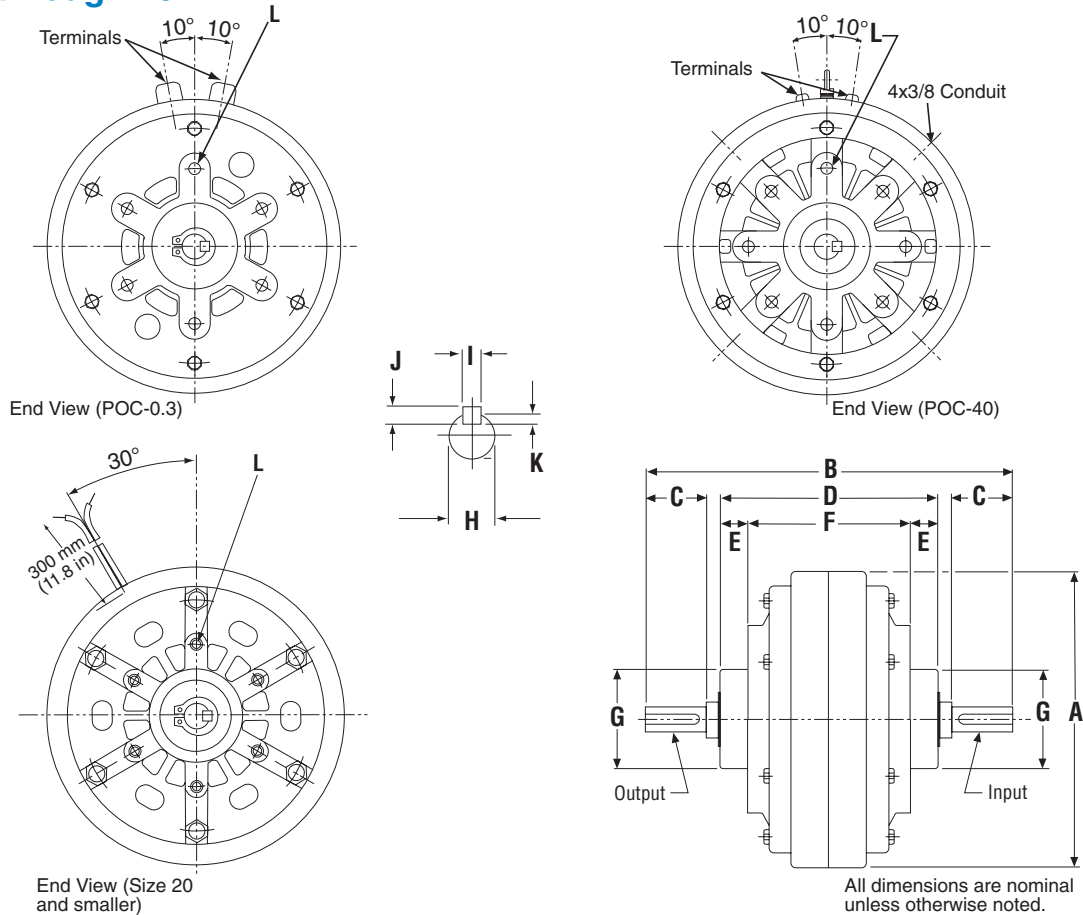
Note: All dimensions are nominal unless otherwise noted.

This model is preferred in many applications. It is offered with male input and output shafts and all units are pilot mounted, except for the size 80. This largest unit, the size 80, is foot mounted.

POC Series Clutches

Dimensions Sizes 0.3 through 40

INDUSTRIAL MAGZA MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
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inches (mm)

Model	A	B	C	D	E	F	Shaft Dimensions					Thread Size	L Depth	No. of Holes	Bolt Circle
							G	H	I	J	K				
POC-0.3	4.72 (120)	5.79 (147)	0.91 (23)	3.43 (87)	0.43 (11)	2.56 (65)	1.6535/1.6526 (42.000/41.975)	0.3937/0.3931 (10.000/9.985)	0.1584/0.1580 (4.024/4.012)	0.16 (4)	0.10 (2.5)	M5	0.39 (10)	6 x 2	2.520 (64)
POC-0.6	5.28 (134)	6.10 (155)	1.02 (26)	3.54 (90)	0.39 (10)	2.76 (70)	1.6535/1.6526 (42.000/41.975)	0.4724/.4717 (12.000/11.9820)	0.1584/0.1580 (4.024/4.012)	0.16 (4)	0.10 (2.5)	M5	0.43 (11)	6 x 2	2.520 (64)
POC-1.2	5.98 (152)	7.40 (188)	1.36 (34.5)	4.17 (106)	0.51 (13)	3.15 (80)	1.6535/1.6526 (42.000/41.975)	0.5906/0.5898 (15.000/14.982)	0.1978/0.1973 (5.024/5.012)	0.20 (5)	0.12 (3)	M6	0.51 (13)	6 x 2	2.520 (64)
POC-2.5	7.17 (182)	8.96 (227.5)	1.69 (43)	4.86 (123.5)	0.59 (15)	3.68 (93.5)	2.1654/2.1642 (55.000/54.970)	0.7874/0.7866 (20.000/19.979)	0.1978/0.1973 (5.024/5.012)	0.20 (5)	0.12 (3)	M6	0.51 (13)	6 x 2	3.071 (78)
POC-5	8.62 (219)	11.18 (284)	2.24 (57)	5.94 (151)	0.91 (23)	4.13 (105)	2.9134/2.9122 (74.000/73.970)	0.9843/0.9834 (25.000/24.979)	0.2768/0.2762 (7.030/7.015)	0.28 (7)	0.16 (4)	M6	0.51 (13)	6 x 2	3.937 (100)
POC-10	11.42 (290)	13.70 (348)	2.64 (67)	7.56 (192)	0.98 (25)	5.59 (142)	3.9370/3.9356 (100.000/99.965)	1.1811/1.1803 (30.000/29.979)	0.2768/0.2762 (7.030/7.015)	0.28 (7)	0.16 (4)	M10	0.71 (18)	6 x 2	5.512 (140)
POC-20	13.19 (335)	15.04 (382)	2.80 (71)	8.50 (216)	0.98 (25)	6.54 (166)	4.3307/4.3293 (110.000/109.965)	1.3780/1.3770 (35.000/34.975)	0.3949/0.3943 (10.030/10.015)	0.31 (8)	0.18 (4.5)	M10	0.71 (18)	6 x 2	5.906 (150)
POC-40	15.55 (395)	19.29 (490)	3.62 (92)	10.94 (278)	1.30 (33)	8.35 (212)	5.1181/5.1165 (130.000/129.960)	1.7717/1.7707 (45.000/44.975)	0.4739/0.4731 (12.036/12.018)	0.31 (8)	0.18 (4.5)	M12	0.79 (20)	8 x 2	7.874 (200)

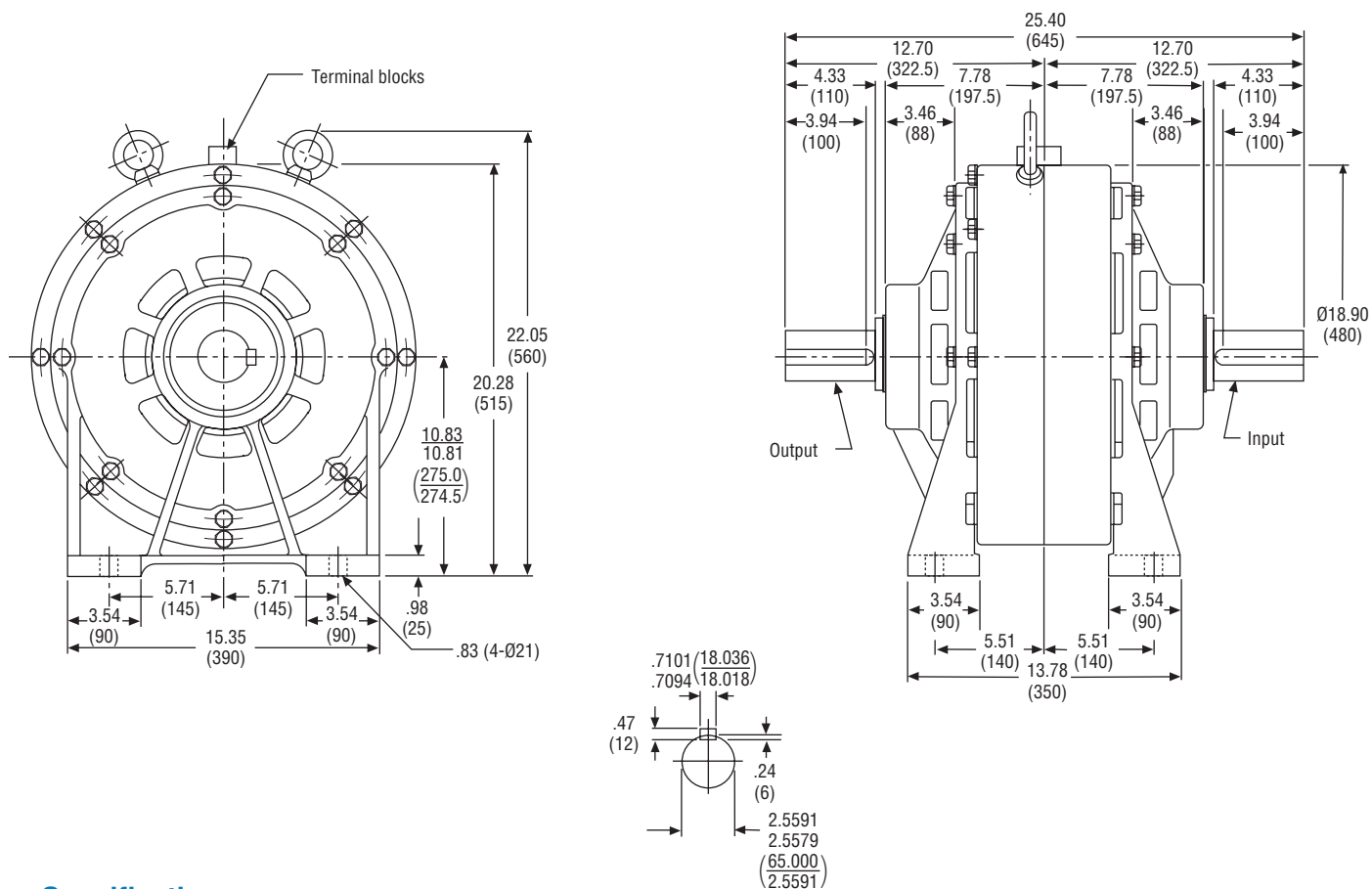
* Air inlet for optional forced air cooling. Consult factory.

Note: All dimensions are nominal unless otherwise noted.

POC Series Clutches

Dimensions Size 80

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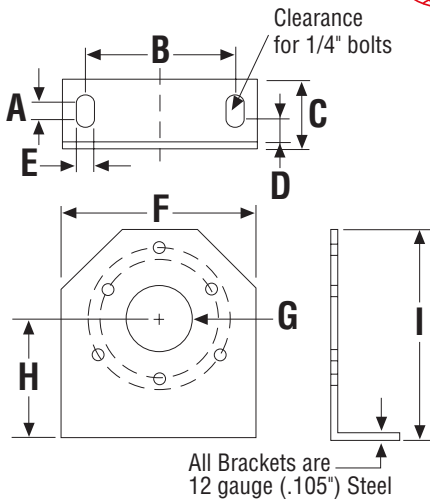


Specifications inches

Size	Part Number	Torque (lb. ft.)	Drag Torque (lb. ft.)	Maximum Speed (rpm)	Inertia Input (lb. ft. ²)	Output (lb. ft. ²)	Max. Heat Diss. Watts @ Max. RPM	Weight (lbs.)
0.3	5401-270-211	2.1	.065	1,800	.0128	.00477	105	5.5
0.6	5401-270-221	4.3	.13	1,800	.0173	.00570	80	7.9
1.2	5401-270-231	8.6	.26	1,800	.0304	.0104	145	12
2.5	5401-270-241	18	.54	1,800	.0973	.0387	195	22
5	5401-270-251	36	1.1	1,800	.249	.114	290	38
10	5401-270-261	72	2.2	1,800	1.04	.437	460	77
20	5401-270-271	144	4.3	1,800	2.23	1.19	790	128
40	5401-270-281	289	8.7	1,800	5.93	3.08	1,990	220
80	5401-270-291	578	17	1,500	23.5	15.2	3,900	551

Optional Mounting Bracket (for mounting MPB Brakes and MPC Clutches)

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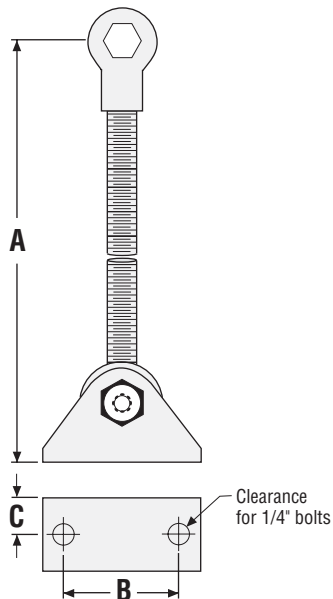
inches (mm)

Model	Fits Size (See Note)	A	B	C	D	E	F	G	H	I
MPB-2B	MB2/MC2	0.270 (6.9)	1.750 (44.5)	1.155 (29.3)	0.390 (9.9)	0.280 (7.1)	2.500 (63.5)	0.750 (19.1)	1.500 (38.1)	3.000 (76.2)
MPB-15B	MB3/MC3, MB4/MC4	0.270 (6.9)	2.500 (63.5)	1.155 (29.3)	0.390 (9.9)	0.280 (7.1)	3.500 (88.9)	1.125 (28.6)	2.000 (50.8)	4.000 (101.6)
MPB-70B	MB5/MC5	0.270 (6.9)	4.875 (123.8)	1.155 (29.3)	0.390 (9.9)	0.280 (7.1)	6.000 (152.4)	1.625 (41.3)	3.500 (88.9)	6.000 (152.4)
MPB-120B	MB5.5/MC5.5	0.270 (6.9)	4.875 (123.8)	1.155 (29.3)	0.390 (9.9)	0.280 (7.1)	6.000 (152.4)	1.625 (41.3)	3.500 (88.9)	6.250 (158.8)
MPB-240B	MB6/MC6	0.270 (6.9)	4.875 (123.8)	1.155 (29.3)	0.390 (9.9)	0.280 (7.1)	6.500 (165.1)	2.441 (62.0)	4.000 (101.6)	7.500 (190.5)

Note: All dimensions are nominal unless otherwise noted.

All MPC Series clutches require 2 mounting brackets.
 MPB Series brakes require 1 mounting bracket.

Optional Torque Arm (for shaft mounting PRB-H and PRB-HF Brakes)



inches (mm)

Model	Part Number	A inches (mm)	B inches (mm)	C inches (mm)
PRB-1.2H	5401-101-001	9.03 (229.4)	1.50 (38.1)	0.31 (7.9)
PRB-2.5H	5401-101-001	9.03 (229.4)	1.50 (38.1)	0.31 (7.9)
PRB-5H	5401-101-002	11.19 (284.2)	1.50 (38.1)	0.38 (9.5)
PRB-10H	5401-101-002	11.19 (284.2)	1.50 (38.1)	0.38 (9.5)
PRB-20H	5401-101-003	19.31 (490.5)	2.38 (60.3)	0.38 (9.5)

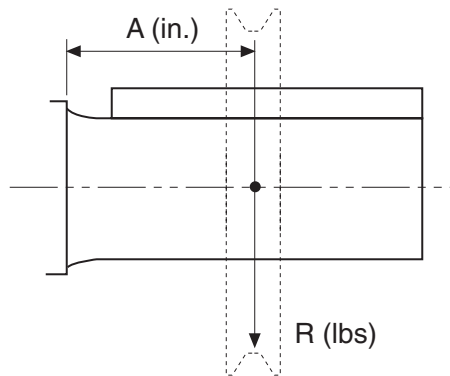
Note: All dimensions are nominal unless otherwise noted.

Magnetic Particle Brakes and Clutches

Overhung Load

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When an overhung load (side load) is applied to the shaft, verify that this load does not exceed the maximum allowable. Operating speed and where the load is applied to the shaft (see Dimension A, below) must be known. For speed, determine the speed coefficient from the coefficient table. Also, determine the allowable overhung load from the chart based on Dimension A. Multiply the load from the chart times the speed coefficient to determine the allowable load for the application.



Overhung Load

Note: Shaft extensions are not recommended.

Pulley or Sprocket Load

For most applications, the overhung load is caused by pulleys or sprockets. The smaller the pitch diameter (PD) of the pulley or sprocket, the higher the belt or chain tension, and, therefore, the greater the overhung load. To determine the minimum pulley diameter for the application, use the following equation:

$$\text{Minimum PD (in.)} = \frac{24 TK}{CR}$$

T = Torque (lb.ft.) This is the torque actually being transmitted, not necessarily the maximum torque capacity of the brake.

K = Safety factor for the tension in type of drive. Use 1.2 to 1.5 for sprockets, 2 to 4 for belts.

C = Speed coefficient from table.

R = Radial load allowable at 1,000 RPM. (The allowable radial loads for various locations on the shaft are given in the Allowable Load chart.)

Example: Determine the minimum sprocket diameter that can be used on a PRS-5S. Dimension A is 1.1 inches, the torque requirement is 20 lb.ft. and the speed is 600 RPM.

$$\begin{aligned} \text{Minimum PD (in.)} &= \frac{24 \times 20 \times 1.5}{1.2 \times 214} \\ &= 2.8 \text{ inch minimum PD} \end{aligned}$$

Magnetic Particle Brakes and Clutches

Allowable Overhung Load



MAGZA
INDUSTRIAL
DIST. AUTORIZADO

MEX (55) 53 63 23 31 MTY (81) 83 54 10 18

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Type	A (in.)	R (lbs.)	A (in.)	R (lbs.)	A (in.)	R (lbs.)
MPB2/MPC2	.40	5	.50	4	.80	2.5
MPB15/MPC15	.40	25	.50	20	1	10
MPB70/MPC70	.40	37.5	.50	30	1.25	12
MPB120/MPC120	.50	30	1	15	1.5	10
MPB240	.50	50	1	25	1.5	16
POC/POB-0.3	.40	30	.50	28	.90	22
POC/POB-0.6	.40	45	.50	42	1.0	29
POC/POB-1.2	.40	52	.70	43	1.4	31
POC/POB-2.5	.40	88	.90	67	1.7	48
PTB-2.5BL3	.40	125	.90	104	1.7	82
POC/POB-5	.40	204	1.1	136	2.2	93
PTB-5BL3	.40	204	1.1	136	2.2	93
POC/POB-10	.40	313	1.3	235	2.6	159
PTB-10BL3	.40	433	1.3	368	2.6	282
POC/POB-20	.40	379	1.4	265	2.8	198
PTB-20BL3	.40	379	1.4	265	2.8	198
POC/POB-40	.40	581	1.8	432	3.6	324
POC/POB-80	.40	860	2.2	648	4.3	498

Note: This table is based on 1,000 rpm and a bearing life of 6,000 hours. Also, this table assumes that no thrust load is applied.

Speed Coefficient

Speed (rpm)	Speed Coefficient	Speed (rpm)	Speed Coefficient
50	2.74	1,000	1.00
100	2.18	1,200	0.95
200	1.72	1,400	0.89
400	1.37	1,600	0.86
600	1.20	1,800	0.82
800	1.09	2,000	0.80

Pneumatic Brakes

Mistral Brakes

Modular design permits variable tensioning capacity



MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
QRO (442) 1 95 72 60 ventas@industrialmagza.com



Wichita Clutch's Mistral pneumatic tension brakes are ideally suited to the needs of the corrugating market for which it was originally designed. It is also a versatile product which is finding favor in additional tensioning applications. Wichita Clutch designers and engineers consulted extensively with mill roll stand manufacturers and users to offer a tension brake ideally suited to the needs of this particular market. The result is a compact, high performance, versatile brake capable of handling the tensioning needs of the latest machine designs, as well as existing equipment. The Mistral paves the way for increasing line speeds by 5.4 feet/sec. from 810 feet/min. (or slower) to 1,140 feet/min.

Varying number of actuators provide optimum tension control

Each brake may be specified with a varying number of pneumatic actuators, allowing precise selection of brake torque capacity for optimum tension control.

Compact Design

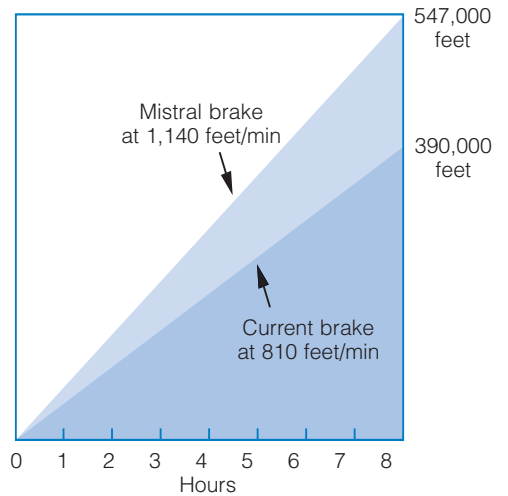
Mistral brakes are compact at only 11.6" or 16.1" in diameter. Their size facilitates the pickup of small, part reels

used in short batch runs. For automatic reel loading machines, Mistral offers optional infrared and speed sensor installation within the brake. And their modern, industrial styling enhances the appearance of any machine on which they are used.

Easy Access with Removable Cover Panel

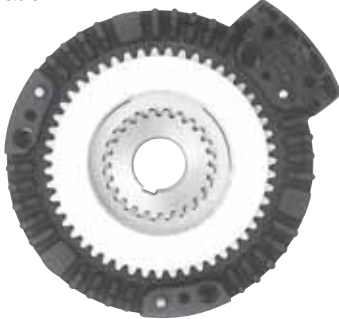
By removing just three cap screws, the Mistral's front cover can be detached for easy and fast access to internal parts. Cover removal automatically disconnects both air and electricity.

Performance Curve



Mounting Ease

Three bolts mount the brake to the stand or machine frame and an optional pilot location makes fitting to both new and existing machines a simple operation.



Wear Indicator

A brake wear indicator, which is conveniently located for easy visual inspection, means no down time to check remaining friction material life.

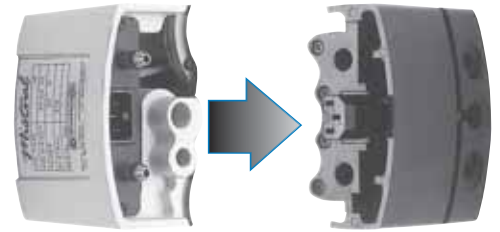
Easy Connection

Air and electrical connections are easily accessible for fast, simple installation and maintenance.



Safety

MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
 QRO (44) 952 96 90
 The front cover is designed to reduce the cost and effort of installing external guards. Operator safety is further enhanced by automatic air and electric disconnects when the front cover is removed.



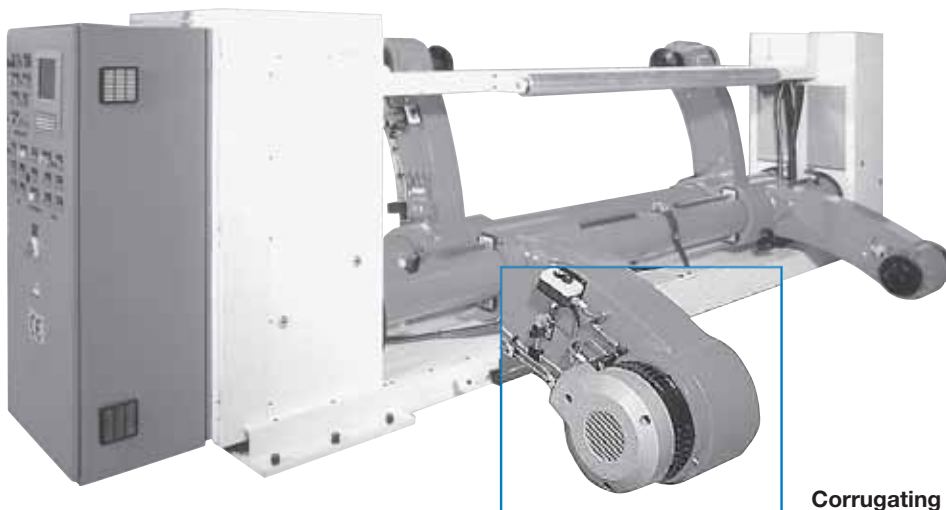
Integral Cooling

A rugged, high performance, low energy usage fan is housed within the brake for high heat dissipation — a must for increased productivity through controlled tension at many roll speeds.



Fan and Connection Data

Model	Fan Voltages	Fan Power	Electric	Pneum.
200	220VAC 50/60 Hz	20W	M16	1/8 BSP
	110VAC 50/60 Hz		PG9	1/8 BSP
	24VDC		3/8 NPT	1/8 NPT
280	220VAC 50/60 Hz	25W	M16	1/8 BSP
	110VAC 50/60 Hz		PG9	1/8 BSP
	24VDC		3/8 NPT	1/8 NPT



Corrugating Press Installation

Pneumatic Brakes

Mistral Brakes

Specifications



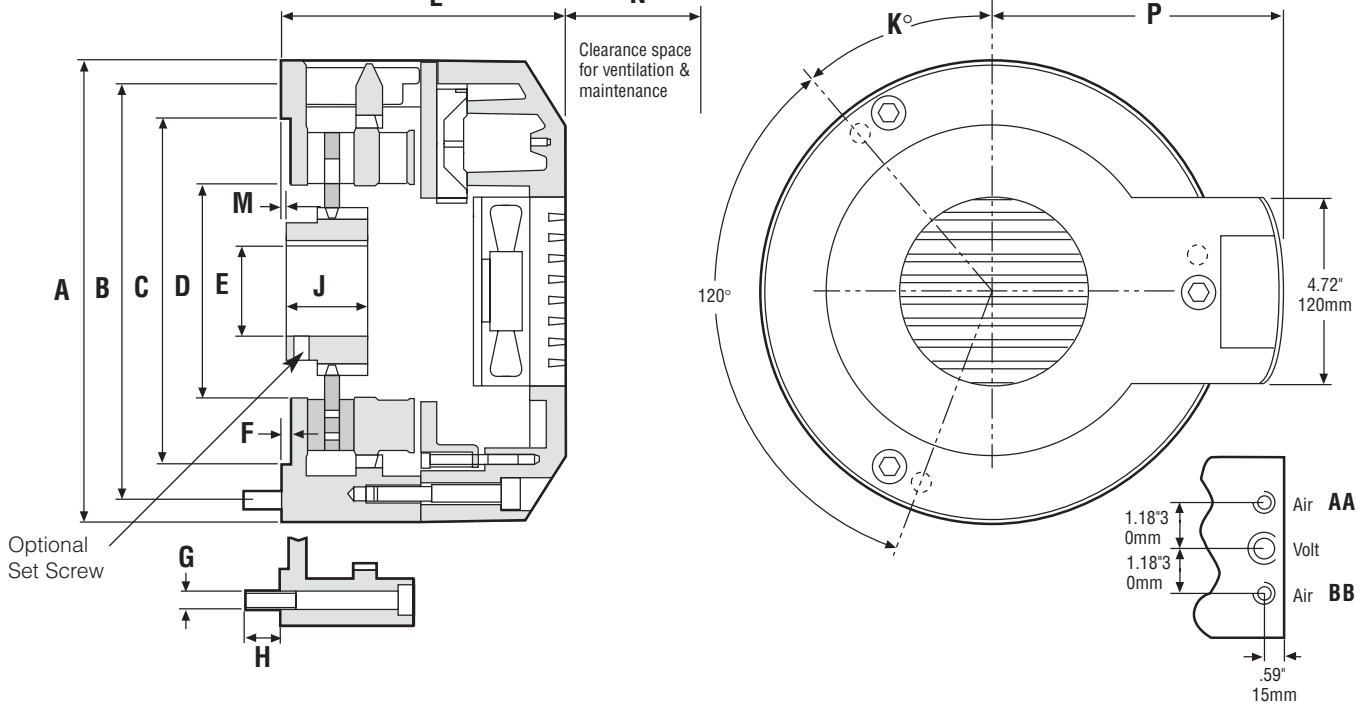
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 QRO (442) 1 95 72 60 ventas@industrialmagza.com

Model	Dynamic Slipping Torque Capacity				Heat Transfer Capacity with fan				Maximum Speed	Inertia of Rotating Parts		Weight				Fan Power Rating
	Air Pressure (lb.in.) (Nm)				Continuous Operation		:30 On/:30 Off Operation			Wr ²	J=mr ²	Total Brake		Rotating Parts		
	min* 3 psi	max. 80 psi	min* 0.2 BAR	max. 5.5 BAR	(hp)	(kW)	(hp)	(kW)	(rev./min.)			(lb.ft. ²)	(kgm ²)	(lb.)	(kg)	(lb.)
200/2/LC	62	1770	7	200	3.2	2.4	3.5	2.6	2860	0.40	0.017	77	35	9.92	4.5	20
200/2	97	2655	11	300	3.2	2.4	3.5	2.6	2860	0.40	0.017	77	35	9.92	4.5	20
200/4/LC	124	3540	14	400	3.2	2.4	3.5	2.6	2860	0.40	0.017	77	35	9.92	4.5	20
200/4	195	5310	22	600	3.2	2.4	3.5	2.6	2860	0.40	0.017	77	35	9.92	4.5	20
200/6/LC	195	5310	22	600	3.2	2.4	3.5	2.6	2860	0.40	0.017	77	35	9.92	4.5	20
200/6	292	7965	33	900	3.2	2.4	3.5	2.6	2860	0.40	0.017	77	35	9.92	4.5	20
280/3/LC	133	3540	14	400	6.4	4.8	7	5.2	2090	1.80	0.076	110	50	20.72	9.4	25
280/3	199	5310	21	600	6.4	4.8	7	5.2	2090	1.80	0.076	110	50	20.72	9.4	25
280/6/LC	265	7080	28	800	6.4	4.8	7	5.2	2090	1.80	0.076	110	50	20.72	9.4	25
280/6	399	10620	42	1200	6.4	4.8	7	5.2	2090	1.80	0.076	110	50	20.72	9.4	25
280/9/LC	399	10620	42	1200	6.4	4.8	7	5.2	2090	1.80	0.076	110	50	20.72	9.4	25
280/9	597	15930	63	1800	6.4	4.8	7	5.2	2090	1.80	0.076	110	50	20.72	9.4	25

* Lower minimum torques possible with appropriate control.

Dimensions

INDUSTRIAL MAGZA MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
 DIST. AUTORIZADO QRO (442) 1 95 72 60 ventas@industrialmagza.com



Bore and Keyway Dimension "E" inches (mm)

Model	Minimum Bore (No Keyway)		Maximum Bore with Keyway	
	200	1.00 (25)	2 3/8 (60)	5/8 x 7/32 (18 x 4.4)
280	1.00 (25)	2 5/8 (65)	3/4 x 1/4 (18 x 4.4)	

inches (mm)

Model	A	B (H.C.)	F	G	H	J	K (DEG)	L	M	N	P
200	11.61 (295)	10.236 (260)	.24 (6)	1/2 (M12)	.98 (25)	1.97 (50)	40° (40°)	7.01 (178)	N/A (N/A)	2.76 (70)	7.19 (182.5)
280	16.14 (410)	13.976 (355)	0 (0)	5/8 (M16)	1.18 (30)	2.36 (60)	20° (20°)	7.56 (192)	0.37 (9.5)	3.15 (80)	9.47 (240.5)

Model	Mounting Pilot	Mounting Bolts Qty. and Size
200	Dim. "C" 8.661 +.003 / -.000 (220 +.08 / -.00)	3 @ 1/2-13 UNC (3 @ M12 x 1-3/4)
280	Dim. "D" 6.890 +.003 / -.000 (175 +.08 / -.00)	3 @ 5/8-11 UNC (3 @ M16 x 2)

Actuator/Inlet				
Model	No. of Actuators	No. of Air Inlets	No. of Actuators Per Air Inlets	
			AA	BB
200/2	2	2	2	0
200/4	4	2	2	2
200/6	6	2	2	4
280/3	3	2	3	0
280/6	6	2	3	3
280/9	9	2	3	6

Pneumatic Brakes

Magnum Brakes

Totally Enclosed with a Wide Range of Torque Capacities

INDUSTRIAL MAGZA MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
VENTAS AUTORIZADO QRO (442) 1 95 72 60 ventas@industrialmagza.com

Magnum series unwind tension brakes offer high performance in a compact, easy to install package. Air vents and an impeller-type disk are tuned to achieve highly efficient air flow. Heat dissipation is further enhanced by the use of an integral fan (optional). Four sizes are available with torque capacities from 17 lb.in. through 14,160 lb.in.

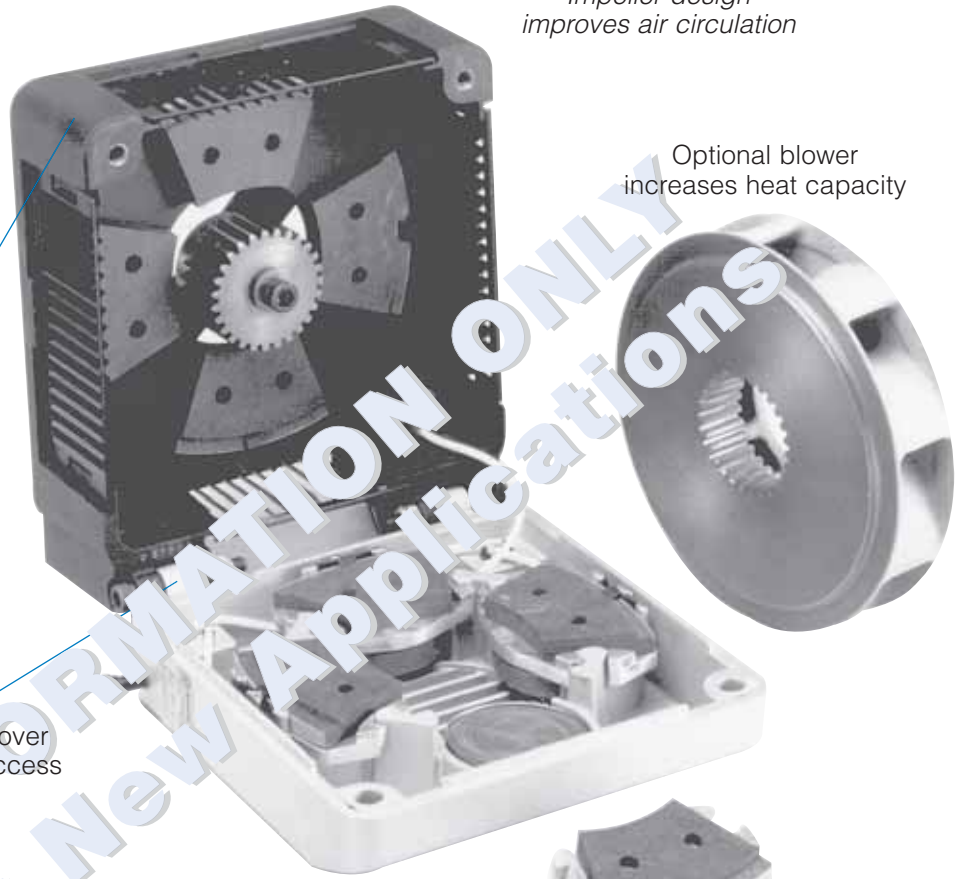
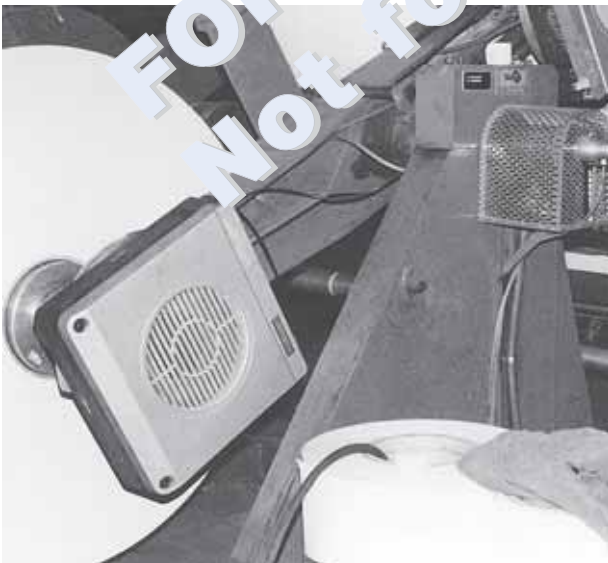
Totally enclosed. No guard required.

Hinged cover for easy access

Quick replacement friction pads

Impeller design improves air circulation


Optional blower increases heat capacity



Pneumatic Brakes

Magnum Brakes

Specifications


MAGZA MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
 DIST. AUTORIZADO QRO (442) 1 95 72 60 ventas@industrialmagza.com

Model No.	Dynamic Slipping Torque Cap. lb.in. ¹		Brake	Heat Transfer Capacity for Continuous Operation HP ²				Maximum Speed (rpm)		Inertia of brake disc + hub (lb.ft. ²)	Weight						
	*Min 3 PSI	Max 80 PSI		HP Heat Transfer Cap.	Forced Cooled at 50 rpm	100 rpm	200 rpm	500 rpm	Medium Speed brake disc (rpm)		High Speed brake disc (rpm)	Brake (lb.)	disc + Hub (lb.)				
260/1LC	17	440	Mag.	1.3	1.5	1.9	2.9	2530	4427	.74	31	13.7					
260/1	26	660															
260/2LC	43	880															
260/2	60	1320															
260/3LC	60	1320															
260/3	85	1980															
260/4LC	85	1760	Mag. Plus	Fan	Fan	Fan	Fan										
260/4	113	2640															
340/1LC	35	687	Mag.	2.3	2.7	3.3	4.7	2040	3570	2.4	45	23					
340/1	43	1030															
340/2LC	70	1373	Mag. Thin	1.1	1.3	1.6	2.6										
340/2	86	2060															
340/3LC	95	2060															
340/3	129	3090	Mag. Thin	Fan	Fan	Fan	Fan										
340/4LC	129	2748															
340/4	172	4120	Mag. B	3.6	4.0	4.8	5.6										
340/5LC	163	3435		Fan	Fan	Fan	Fan										
340/5	215	5150															
340/6LC	198	4120	Mag. Plus	3.9	4.3	5	5.7										
340/6	258	6180		Fan	Fan	Fan	Fan										
400/2LC	86	1774	Mag.	3.5	4.0	5.2	8.8	1712	2996	5.7	71	41					
400/2	113	2660															
400/3LC	129	2660															
400/3	172	3990															
400/4LC	172	3548											Mag. B	4.9	5.7	7.1	8.8
400/4	225	5320												Fan	Fan	Fan	Fan
400/5LC	215	4435															
400/5	286	6650											Mag. Plus	6.0	7.0	8.4	9.4
400/6LC	252	5322												Fan	Fan	Fan	Fan
400/6	238	7980															
400/7LC	285	6210															
400/7	400	9310															
400/8LC	338	7096	Mag.	4.7	6.0	8.7	14.7										
400/8	451	10640															
500/2LC	113	2360	Mag. B	10.0	11.4	12.6	14.7	1308	2289	17	127	60					
500/2	146	3540															
500/3LC	172	3540															
500/3	225	5310															
500/4LC	225	4720															
500/4	304	7080															
500/5LC	286	5900											Mag. Plus	Fan	Fan	Fan	Fan
500/5	382	8850															
500/6LC	338	7080															
500/6	451	10620															
500/7LC	400	8260															
500/7	530	12390															
500/8LC	451	9440															
500/8	608	14160															

Notes

- The dynamic slipping torque range for a given brake model can be changed by switching the actuators in or out by means of the hand slide valves provided e.g. a 340/3 to a 340/2 or a 340/1.
- The heat transfer ratings in the above chart assume a forward rotation of the brake disc. For reverse rotation, the heat ratings of models Magnum 260 and Magnum 340 should be reduced by 15%. If in doubt, please contact your Wichita Clutch engineer.

* Lower minimum torques possible with appropriate control.

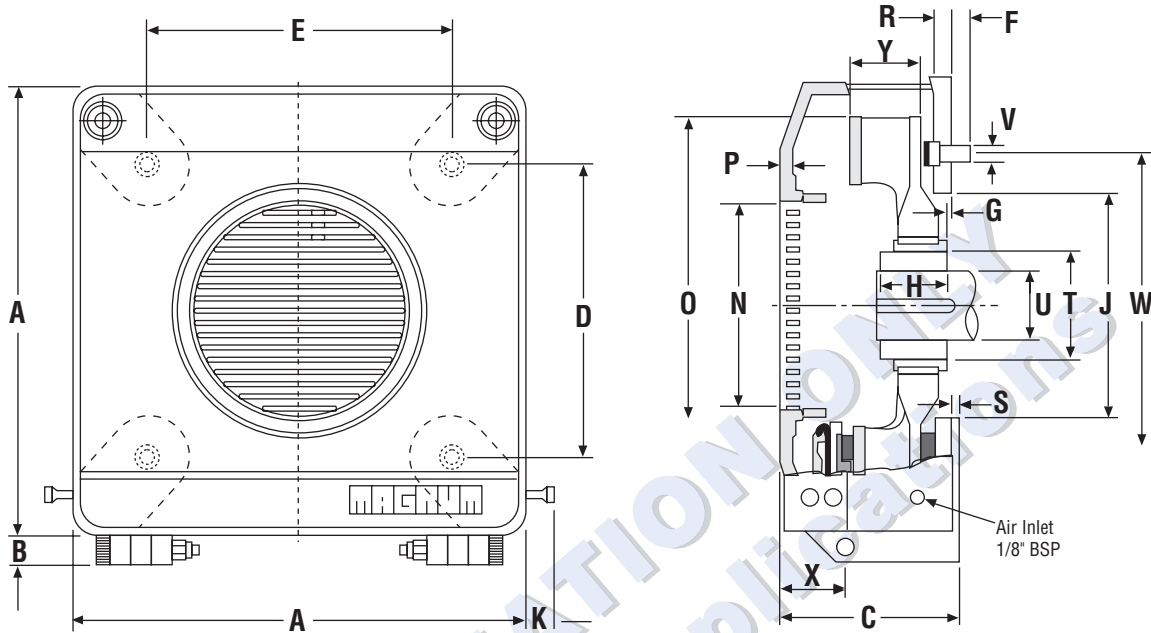
Pneumatic Brakes

Magnum Brakes

Dimensions

INDUSTRIAL MAGZA MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
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Magnum



inches (mm)

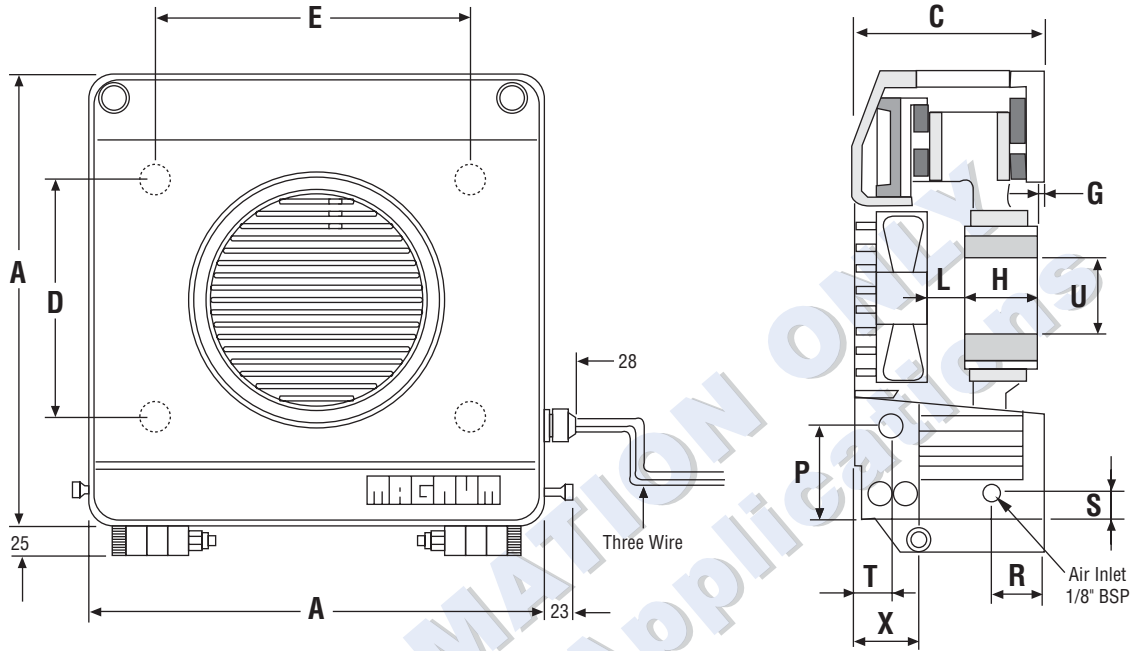
Model No.	A	A1	B	B1	C	C1	D	E	F	G	H	J	K
260	10.4 (264)	10.6 (270)	1.0 (25)	0.8 (20)	5.7 (145)	7.7 (195)	7.0 (176.8)	7.0 (176.8)	0.8 (20)	0.2 (5)	2.2 (55)	3.9 (100)	0.9 (23)
340	13.6 (346)	13.8 (350)	1.0 (25)	0.8 (20)	5.7 (145)	8.0 (205)	5.5 (140.0)	9.5 (242.5)	0.9 (22)	0.2 (5)	2.2 (55)	6.9 (175)	0.9 (23)
340 Thin	13.6 (346)	13.8 (350)	1.0 (25)	0.8 (20)	5.12 (130)	8.0 (205)	5.5 (140.0)	9.5 (242.5)	0.9 (22)	0.2 (5)	2.2 (55)	6.9 (175)	0.9 (23)
400	16 (406)	16.1 (410)	1.0 (25)	0.8 (20)	5.7 (145)	7.7 (195)	10.4 (265.2)	10.4 (265.2)	1.1 (27)	0.2 (5)	2.4 (60)	7.9 (200)	0.9 (23)
500	19.9 (506)	2.0 (510)	1.1 (28)	0.8 (20)	5.7 (150)	8.0 (205)	13.3 (339.4)	13.3 (339.4)	1.2 (30)	0.2 (5)	2.4 (60)	12.6 (320)	0.9 (23)

Model No.	L	N	O	P	R	S	T	U	V	W	X	Y	Z	
								Min	Max	PCD				
260	2.0 (50)	3.7 (95)	9.0 (230)	.24 (6)	.59 (15)	.20 (5)	2.44 (62)	.59 (15)	1.77 (45)	4 off-M12 X 35	9.84 (250)	1.969 (50)	2.36 (60)	.47 (12)
340	2.0 (50)	5.5 (14)	11.0 (280)	.24 (6)	.51 (13)	.28 (7)	3.62 (92)	.98 (25)	2.24 (57)	4 off-M12 x 30	11.02 (280)	1.969 (50)	2.32 (59)	.47 (12)
340 Thin	2.0 (50)	5.5 (14)	11.0 (280)	.24 (6)	.51 (13)	.28 (7)	3.62 (92)	.98 (25)	2.24 (57)	4 off-M12 x 30	11.02 (280)	1.969 (50)	2.32 (59)	.47 (12)
400	1.0 (25)	7.9 (200)	13.4 (340)	.31 (8)	.51 (13)	.12 (3)	4.69 (119)	1.38 (35)	2.56 (65)	4 off-M16 x 40	14.76 (375)	2.047 (52)	2.36 (60)	.47 (12)
500	1.0 (25)	11.1 (283)	17.5 (445)	.44 (11)	.59 (15)	.08 (2)	5.6 (140)	1.38 (35)	4.08 (102)	4 off-M20 x 45	18.1 (480)	2.2 (55)	2.32 (59)	.47 (12)

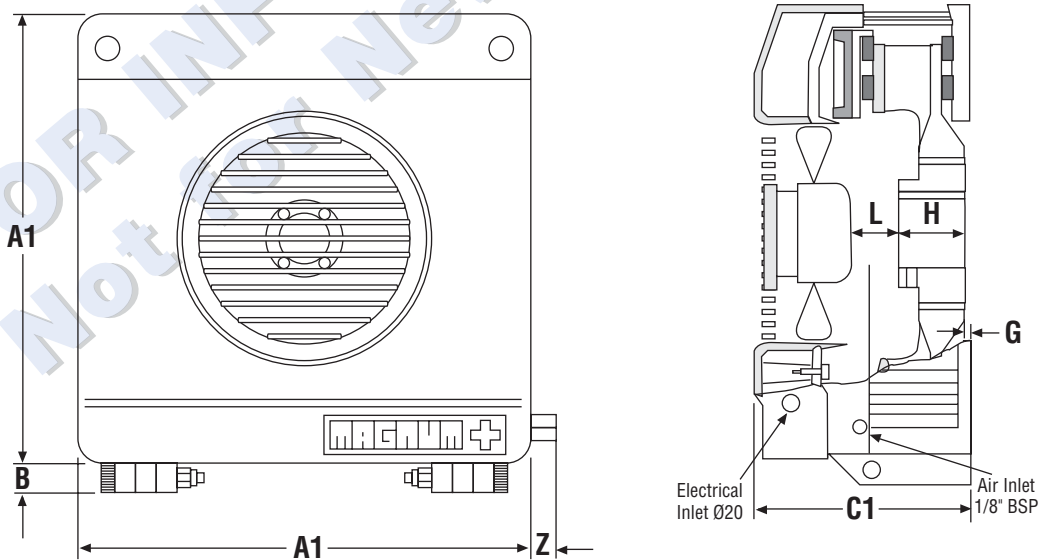
Certified prints showing exact dimensions are sent with every order acknowledgement, and these should always be obtained before finalizing any design detail.

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Magnum B



Magnum Plus



Pneumatic Brakes

AD Series – Air Disc® Brakes



MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
QRO (442) 1 95 72 60 ventas@industrialmagza.com

The Wichita Clutch Air Disc is a pneumatic unwind brake for those heavy-duty applications where high thermal capacity and/or high tension requirements exceed the range of electrically actuated products.

The Wichita Clutch Air Disc pneumatic brake offers effective web control under heavy working conditions through innovative engineering features such as low inertia and high thermal conductivity rotor discs, which allow high work loads and still afford control as the roll reaches core.

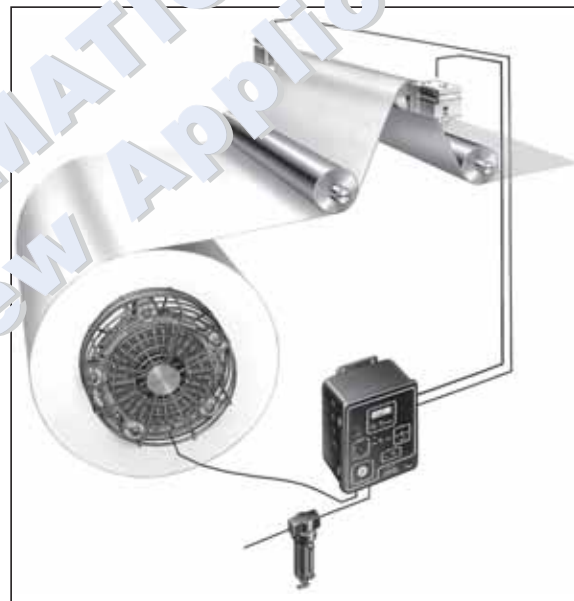
Unique actuators float freely to compensate for run-out and less than ideal roll conditions. Simple pad replacement makes maintenance a breeze – especially when factoring in the long life of the components.



Typical Applications



**Dancer
Tension Control System**



**Load Cell
Control System**



**Analog
Tension Control System**

Selection

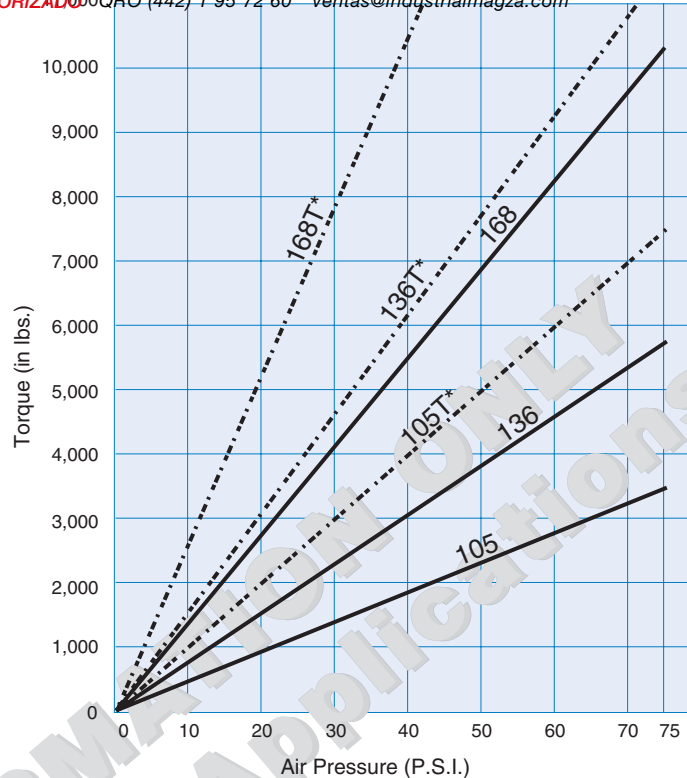
Selecting any tension braking device requires consideration of many interrelated factors. By using the data sheet on pages 16-28, the correct sizing information can be organized. Provisions for selection calculations are also made on this form.

If you need assistance, please copy this form and forward it to Wichita Clutch. Your local Wichita Clutch market representative or your local Wichita Clutch Authorized Distributor can also provide selection assistance.

Torque Characteristics

Torque produced by the Air Disc is proportional to the air pressure applied. Refer to the chart at the right to see the relationship of air pressure to torque.

Torque Characteristics
 MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
 QRO (442) 1 95 72 60 ventas@industrialmagza.com
 INDUSTRIAL MAGZA
 DIST. AUTORIZADO



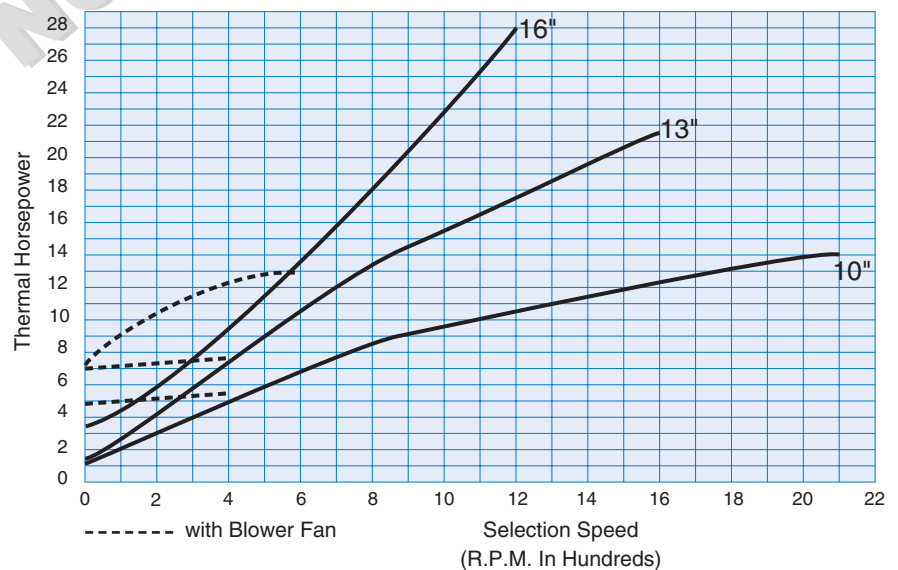
NOTE: Torque is proportional to air pressure as shown above.

Rotor Inertia and Weights

Brake Size	Rotor and Hub* Total Weight (Lbs)	Total Brake Inertia (lb.ft. ²)
10"	28.3	2.6
13"	53.2	6.5
16"	81.0	23.7

*Both Rotor and Hub Rotate

Table 2. Thermal Horsepower



Pneumatic Brakes

AD Series – Air Disc® Brakes

Table 3. Capacities



MAGZA
DIST. AUTORIZADO

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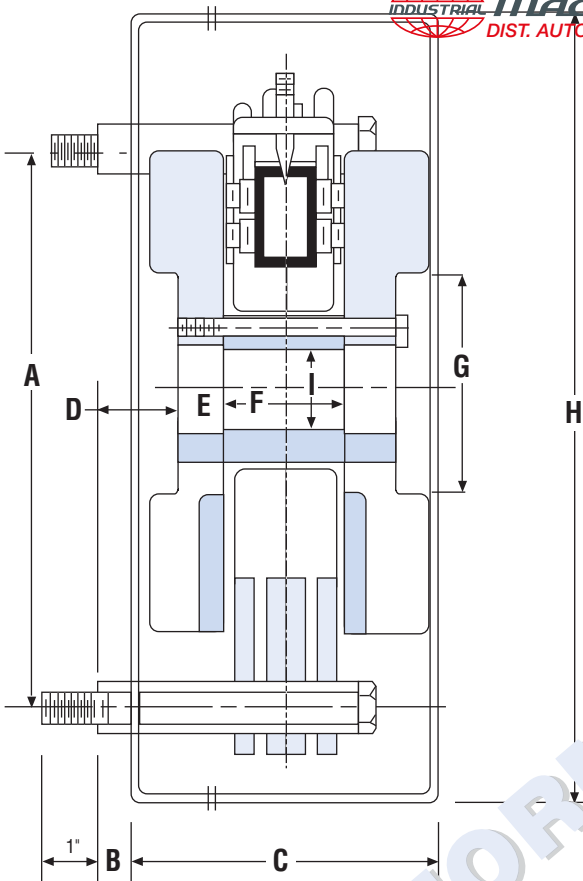
Model No.	Dia. of Friction Plates	No. of Actuators	Approx. Total Weight (lbs.)	Max Speed* (RPM)	Rated Torque At 75 P.S.I. Air Pressure (lb.in./lb.ft.)
101	10"	1	50	2,100	700/58
101T	10"	1	50		1,470/120
102	10"	2	53	2,100	1,400/117
102T	10"	2	53		2,940/245
103	10"	3	56	2,100	2,100/175
103T	10"	3	56		4,410/365
104	10"	4	59	2,100	2,800/233
104T	10"	4	59		5,880/490
105	10"	5	62	2,100	3,500/292
105T	10"	5	62		7,350/610
131	13"	1	78	1,600	950/79
131T	13"	1	78		1,995/165
132	13"	2	81	1,600	1,900/158
132T	13"	2	81		3,990/330
133	13"	3	84	1,600	2,850/238
133T	13"	3	84		5,985/495
134	13"	4	87	1,600	3,800/317
134T	13"	4	87		7,980/665
135	13"	5	90	1,600	4,750/396
135T	13"	5	90		9,975/830
136	13"	6	93	1,600	5,700/475
136T	13"	6	93		11,970/995
161	16"	1	111	1,300	1,275/106
161T	16"	1	111		2,675/220
162	16"	2	114	1,300	2,550/213
162T	16"	2	114		5,355/445
163	16"	3	117	1,300	3,825/319
163T	16"	3	117		8,030/665
164	16"	4	120	1,300	5,100/425
164T	16"	4	120		10,710/890
165	16"	5	123	1,300	6,375/531
165T	16"	5	123		13,385/1,115
166	16"	6	126	1,300	7,650/638
166T	16"	6	126		16,065/1,335
167	16"	7	129	1,300	8,926/744
167T	16"	7	129		18,745/1,560
168	16"	8	132	1,300	10,200/850
168T	16"	8	132		21,420/1,785

"T" Designates high coefficient friction material. Available as an option upon request.

* Max Speed is with standard friction plate. A high speed friction plate capable of 50% higher speed is available. Thermal capacity is reduced with high speed friction plate to 60% of values shown on thermal curves.

Dimensions

INDUSTRIAL **MAGZA** MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
 DIST. AUTORIZADO QRO (442) 1 95 72 60 ventas@industrialmagza.com



Model No.	A	B	C	D	E	F	G
101-105	13.00	.75	6.25	1.59	.88	2.72	6.00
131-136	14.75	.75	6.25	1.59	.88	2.72	8.00
161-168	17.50	1.25	6.25	2.09	.88	2.72	10.50

H	Max. Bore Rect. Key		J	K
	Max.	Min.		
16.60	1.875	1.0	5/8"-11	5
18.00	3.000	1.0	5/8"-11	6
21.50	4.500	1.0	5/8"-11	8

J = Size of Mounting Bolts
 K = Number of Mounting Bolts

Guard and Hose Kit

Size	Basic Unit	Guard Kit	Hose Kit
101	7-810-100-100-5	4-610-021-009-3	8-610-070-007-1
102	7-810-200-100-5	4-610-021-009-3	8-610-070-007-2
103	7-810-300-100-5	4-610-021-009-3	8-610-070-007-3
104	7-810-400-100-5	4-610-021-009-3	8-610-070-007-4
105	7-810-500-100-5	4-610-021-009-3	8-610-070-007-5
131	7-813-100-100-5	4-613-021-010-3	8-613-070-007-1
132	7-813-200-100-5	4-613-021-010-3	8-613-070-007-2
133	7-813-300-100-5	4-613-021-010-3	8-613-070-007-3
134	7-813-400-100-5	4-613-021-010-3	8-613-070-007-4
135	7-813-500-100-5	4-613-021-010-3	8-613-070-007-5

Size	Basic Unit	Guard Kit	Hose Kit
136	7-813-600-100-5	4-613-021-010-3	8-613-070-007-6
161	7-816-100-100-5	4-616-021-007-3	8-616-070-007-1
162	7-816-200-100-5	4-616-021-007-3	8-616-070-007-2
163	7-816-300-100-5	4-616-021-007-3	8-616-070-007-3
164	7-816-400-100-5	4-616-021-007-3	8-616-070-007-4
165	7-816-500-100-5	4-616-021-007-3	8-616-070-007-5
166	7-816-600-100-5	4-616-021-007-3	8-616-070-007-6
167	7-816-700-100-5	4-616-021-007-3	8-616-070-007-7
168	7-816-800-100-5	4-616-021-007-3	8-616-070-007-8

Notes:

- Wichita Clutch does not recommend using a hose kit without a guard kit.
- The guard kit uses the bolt spacer kit that comes with the basic unit kits for mounting. Using the 10" guard with a unit with fewer than 3

actuators requires one guard bolt spacer kit. 13" & 16" guard kits require two guard bolt spacer kits when utilizing fewer than 4 and 6 actuators, respectively. With 4 and 6 actuators, only one guard bolt spacer kit is required. No guard bolt spacer kit is required with 5 or 7 actuators.

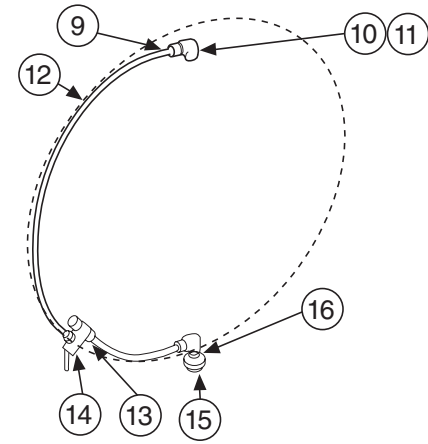
Pneumatic Brakes

AD Series – Air Disc® Brakes

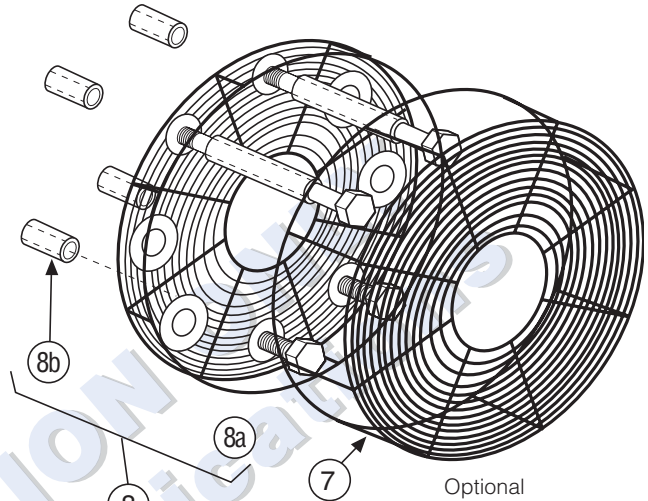
Component Parts



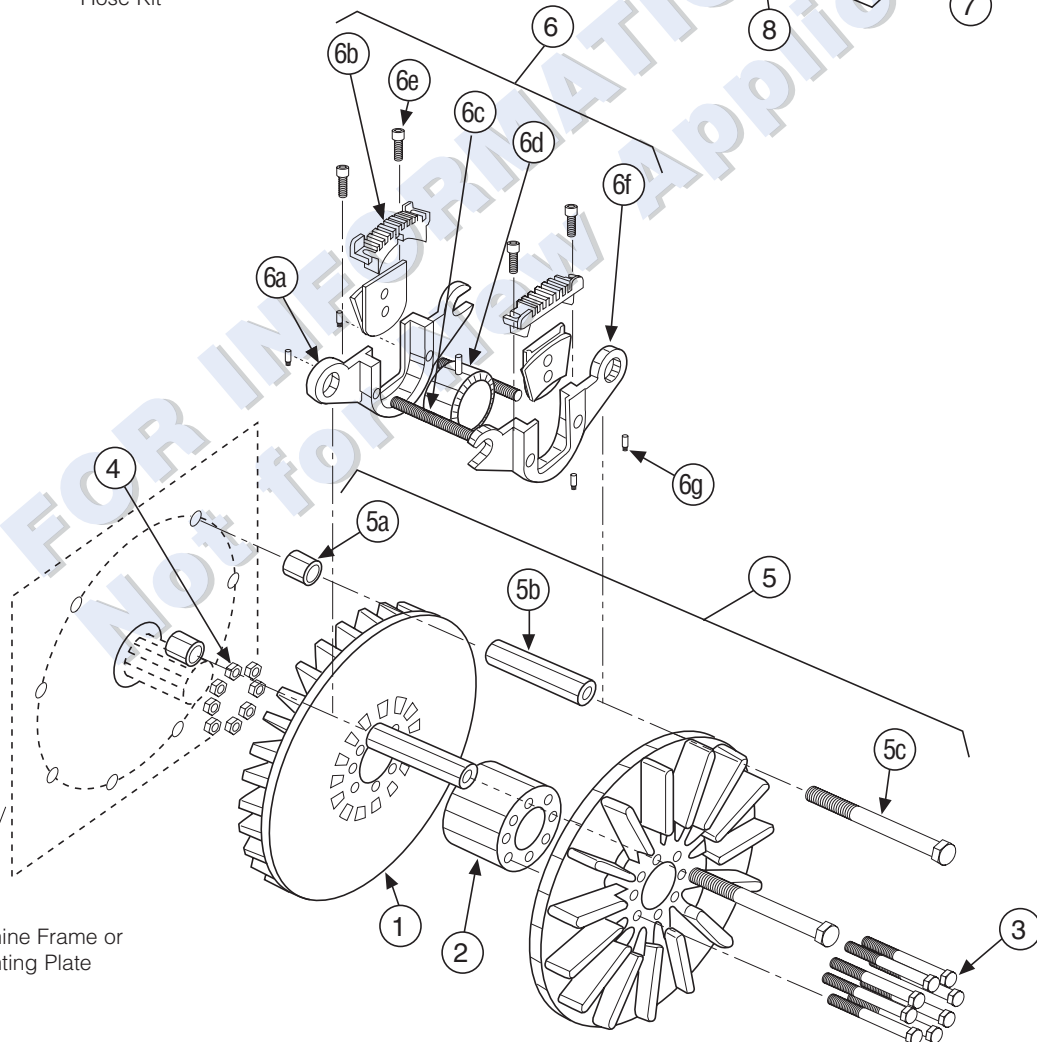
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Optional
Hose Kit



Optional
Guard Kit




Machine Frame or
Mounting Plate

Pneumatic Brakes

AD Series – Air Disc® Brakes

Parts List


INDUSTRIAL MAGZA® MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
 DIST. AUTORIZADO QRO (442) 1 95 72 60 ventas@industrialmagza.com

Item Description	10" Rotor	13" Rotor	16" Rotor	
Basic Brake	1. Friction Plate	4-610-001-001-1	4-613-001-001-1	4-616-001-001-1
	2. Hub	4-610-001-002-3	4-613-001-000-3	4-616-001-000-3
	3. HHCS 3/8 x 5"	2-173-037-050-0	2-173-037-050-0	2-173-037-050-0
	4. Nut 3/8	2-112-037-012-0	2-112-037-012-0	2-112-037-012-0
	5. Bolt/Spacer Kit	8-610-010-001-0	8-610-010-001-0	8-610-010-001-0
	5.a Short Spacer	4-616-015-000-3	4-616-015-000-3	4-616-015-000-3
	5.b Spacer	4-613-015-002-3	4-613-015-002-3	4-613-015-002-3
	5.c HHCS 5/8 x 7"	2-173-062-070-0	2-173-062-070-0	2-173-062-070-0
	6. Airtube Carrier Assembly	8-610-002-001-5	8-613-002-003-5	8-616-002-001-5
	6.a Airtube Carrier	4-610-002-001-5	4-613-002-003-5	4-616-002-001-5
	6.b Airtube Carrier Cap	4-613-002-004-5	4-613-002-004-5	4-613-002-004-5
	6.c Spring	4-613-033-000-4	4-613-033-000-4	4-613-033-000-4
	6.d Airtube Assembly	8-613-020-008-0	8-613-020-008-0	8-613-020-008-0
	6.e SHCS 1/4 x 3/4"	2-177-025-006-0	2-177-025-006-0	2-177-025-006-0
	6.f Friction Puck Assembly, STD	8-613-007-000-0	8-613-007-000-0	8-613-007-000-0
	Friction Pad Assembly, HICO	8-613-507-000-0	—	—
	6.g Spring Pin	4-613-033-001-4	4-613-033-001-4	4-613-033-001-4
Guard Kit	7. Guard	4-610-021-009-3	4-613-021-010-3	4-616-021-007-3
	8. Guard Bolt/Spacer Kit	8-610-010-002-0	8-610-010-002-0	8-610-010-002-0
	8.a HHCS 5/8 x 2 1/4	2-173-062-022-0	2-173-062-022-0	2-173-062-022-0
	8.b Short Spacer	4-616-015-000-3	4-616-015-000-3	4-616-015-000-3
Hose Kit	9. Coupling 1/8 x 1/8	4-613-072-006-0	4-613-072-006-0	4-613-072-006-0
	10. Elbow 1/8 x 10-32	4-613-072-007-0	4-613-072-007-0	4-613-072-007-0
	11. Tee 10-32 x 10-32 x 1/8	4-613-072-008-0	4-613-072-008-0	4-613-072-008-0
	12. Teflon Tubing	4-610-074-001-0	4-610-074-001-0	4-610-074-001-0
	13. 10-32 Hex Plug	4-613-072-004-0	4-613-072-004-0	4-613-072-004-0
	14. 3-Way Switch	4-613-071-002-0	4-613-071-002-0	4-613-071-002-0
	15. 10-32 Straight Fitting	4-613-072-002-0	4-613-072-002-0	4-613-072-002-0
	16. Washer	4-137-050-111-0	4-137-050-111-0	4-137-050-111-0
	17. Extension 1/8	2-308-001-001-0	2-308-001-001-0	2-308-001-001-0

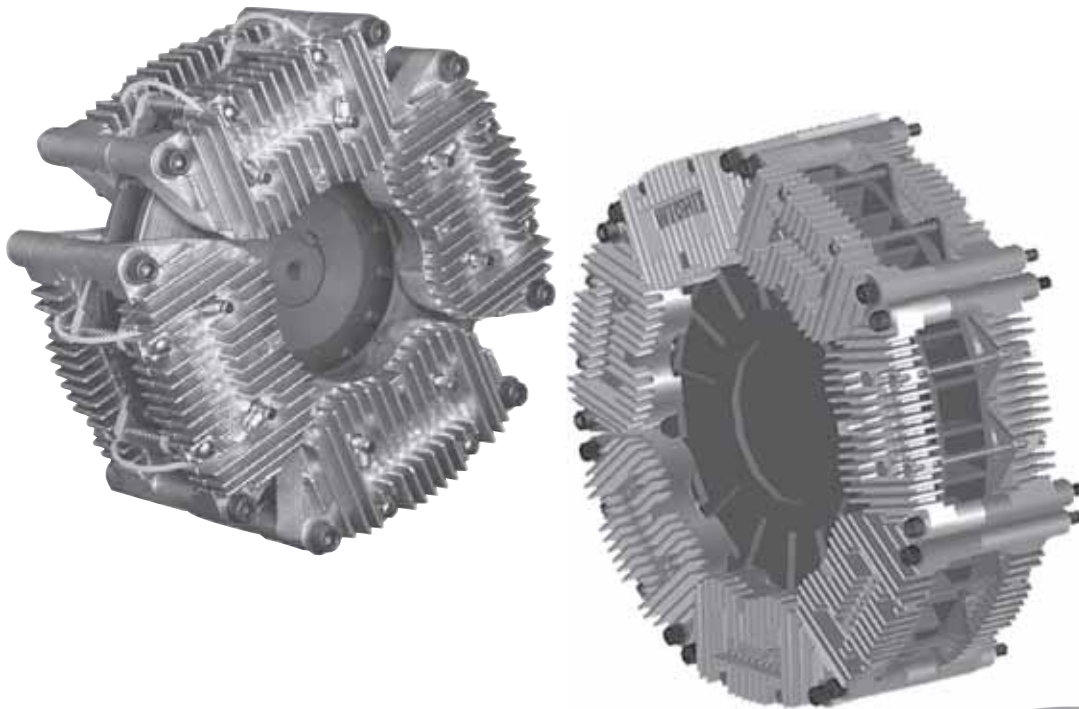
ModEvo

Pneumatic Brakes

ModEvo Tension Brakes



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Brake Discs and Cooling

The ModEvo brake disc was developed at the Bedford, UK factory using Finite Element Analysis techniques to ensure maximum strength with minimum weight. The design is optimized to make best use of the cooling air available at slow speeds, and being bidirectional, it achieves high heat dissipation capacity in either rotational direction, unlike some other brakes. An optional electric cooling fan is available where space is limited or more extreme heat handling is required.

Available in five sizes: 250 mm, 300 mm, 350 mm, 400 mm and 450 mm diameters, all discs are the same thickness and use the same brake modules and actuators. Each disc can be specified with a minimum of a single module, up to the maximum number of modules that can be fitted around the disc. This allows torque-

handling capabilities ranging from a maximum of 659 lb.ft. for the 250 mm disc, up to 3181 lb.ft. for the 450 mm disc.

NOTE: If using a high speed ductile iron disc the catalog heat rating should be reduced by 10% as the thermal conductivity of the ductile iron is less than grey cast iron.

Maximum Rotational Speed		
Disc Diameter mm	Standard Speed rev./min.	High Speed rev./min.
250	2,250	3,375
300	1,900	2,850
350	1,650	2,475
400	1,450	2,175
450	1,250	1,875



Actuator Options

Newly developed rolling diaphragm actuators are used in ModEvo, producing more force than previous designs to allow higher torque ratings. However, the sensitivity for which rolling diaphragms are favored is not compromised. Three actuator options are available, offering clamping forces of 100%, 60% or 25%.

The finned, die cast aluminum brake module is common to all brake disc diameters. Each module houses two pairs of actuators, and allows friction pads to be changed quickly without dismantling the module.



100%



60%



25%

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Friction Pad Options

To provide maximum flexibility when selecting the required torque/tension range for an application, two pad options are available, with different coefficients of frictions: Low ($\mu=0.20$), color-coded yellow; Standard ($\mu=0.35$), color-coded red. Pad types may be mixed within a single brake assembly to provide an exact match to the machine requirements.



ModEvo 300/8 with Fan



Brake Size (fan Diameter)	24v DC	115v AC	230v AC
250 (150 mm)	Yes	Yes	Yes
300 (150 mm)	Yes	Yes	Yes
350 (150 mm)	Yes	Yes	Yes
400 (150 mm)	Yes	Yes	Yes
(200 mm)	not available	Yes	Yes
450 (150 mm)	Yes	Yes	Yes
(200 mm)	not available	Yes	Yes
(250 mm)	not available	Yes	Yes

Optional Guard

The optional guard has a plastic front with 'ModEvo' molded in and a metal ventilated perimeter.

Mounting is by four brackets on customer's machine frame.

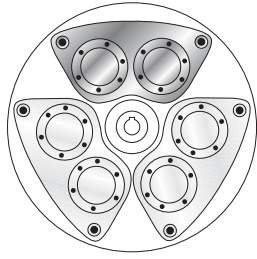
The center of the guard is designed such that it may be cut-out by customer to suit the diameter of the shaft in through-shaft installations.



ModEvo

Pneumatic Brakes

ModEvo Model 250



Model	Minimum Torques lb.ft.(Nm)					
	LC ²		Std ³		Std ³	
	25% Actuators		60% Actuators		100 % Actuators	
250/1	0.6 (0.8)	0.93 (1.3)	1.3 (1.8)	2.2 (3)	2.2 (3)	3.7 (5)
250/2*	1.1 (1.5)	1.9 (2.5)	2.6 (3.6)	4.4 (6)	4.4 (6)	7.4 (10)
250/4*	2.2 (3)	3.7 (5)	5.3 (7.2)	8.8 (12)	8.8 (12)	14.7 (20)
250/6*	3.3 (4.5)	5.5 (7.5)	7.9 (10.8)	13.2 (18)	13.2 (18)	22 (30)

Maximum Torques Maximum (87 PSI) (6 Bars) lb.ft.(Nm)

250/1	15.8 (21.3)	27.5 (37.3)	37.8 (51)	66 (89.4)	63 (85)	110 (149)
250/2*	31.3 (42.5)	53.25 (72.3)	75 (102)	127.8 (173.4)	125 (170)	213 (289)
250/4*	62.8 (85)	110 (149)	150.6 (204)	264 (357.6)	251 (340)	440 (596)
250/6*	94 (127.5)	164.8 (223.5)	225.6 (306)	395.4 (536.4)	376 (510)	659 (894)

* For single actuator operation torques for 250/1 are applicable.

Model ⁶	Speed ⁴ Max. RPM	Heat Capacity for Effective Cooling Speeds							Inertia Rotating Parts lb.ft. ² (kgm ²)	Weight	
		HP(kW) ⁵								Total	Rotating
		50 RPM	100 RPM	200 RPM	300 RPM	400 RPM	500 RPM	600 RPM			
250/1	2250	Without Fan							1.424 (0.060)	27.337 (12.4)	19.180 (8.7)
250/2	2250	1.61 (1.2)	1.88 (1.4)	2.55 (1.9)	3.22 (2.4)	3.62 (2.7)	4.02 (3.0)	4.29 (3.2)		29.101 (13.2)	
250/4	2250	With Electric Cooling Fan								38.801 (17.6)	
250/6	2250	4.56 (3.4)	4.69 (3.5)	5.10 (3.8)	5.36 (4.0)	5.36 (4.0)	5.36 (4.0)	5.36 (4.0)	48.772 (22.1)		

¹ Minimum torques were calculated using a multiplier of 0.6 for LC times Standard.


² LC - Low Coefficient based on 0.2 Coefficient of friction.

³ Standard based on 0.35 Coefficient of friction.

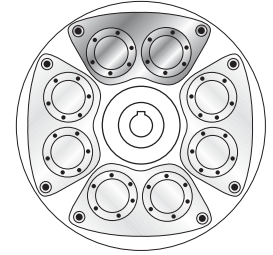
⁴ Max. speed is with standard brake disc. A high speed brake disc capable of 50% higher speed is also available. Heat Capacity reduced by 10% when high speed disc is used.

⁵ Limit LC to 70% of heat capacity.

⁶ When selecting number of actuators, use a limit of 3.35 HP per actuator pair (2.5 kW per Actuator pair) for duty w/o fan and 3.75 HP per Actuator pair (2.8 kW per Actuator pair) when fan cooled.


Magza MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
 Minimum Torques DIST. AUTHORIZED QRO (442) 1 95 72 60 ventas@industrialmagza.com
 Minimum (3 PSI) (0.2 Bars)¹
 lb.ft.(Nm)

ModEvo Model 300



Model	LC ²		Std ³		LC ²		Std ³		LC ²		Std ³	
	25% Actuators				60% Actuators				100 % Actuators			
	LC ²	Std ³	LC ²	Std ³	LC ²	Std ³	LC ²	Std ³	LC ²	Std ³	LC ²	Std ³
300/1	0.7 (0.9)	1.1 (1.5)	1.6 (2.2)	2.6 (3.6)	2.6 (3.6)	5.2 (7)						
300/2*	1.6 (2.1)	2.6 (3.5)	3.7 (5)	6.2 (8.4)	6.2 (8.4)	10.3 (14)						
300/4*	3.1 (4.2)	5.2 (7)	7.4 (10.1)	12.4 (16.8)	12.4 (16.8)	20.6 (28)						
300/6*	4.5 (6.3)	7.7 (10.5)	11.1 (15.1)	18.5 (25.2)	18.5 (25.2)	30.9 (42)						
300/8*	6.2 (8.4)	10.3 (14)	14.9 (20.2)	24.8 (33.6)	24.8 (33.6)	41.3 (56)						

Maximum Torques
Maximum (87 PSI) (6 Bars)
lb.ft.(Nm)

300/1	19.8 (27)	34.9 (47.3)	47.4 (64.8)	83.6 (113.4)	79 (108)	139.4 (189)
300/2*	39.8 (54)	69.7 (94.5)	95.4 (129.6)	167.3 (226.8)	159 (216)	278.8 (378)
300/4*	79.5 (108)	139.4 (189)	190.8 (259.2)	334.6 (453.6)	318 (432)	557.6 (756)
300/6*	119.3 (162)	209.1 (283.5)	286.2 (388.8)	501.8 (680.4)	477 (648)	836.4 (1,134)
300/8*	159.3 (216)	278.8 (378)	382.2 (518.4)	669 (907.2)	637 (864)	1,115 (1,512)

* For single actuator operation torques for 300/1 are applicable.

Model ⁶	Speed ⁴ Max. RPM	Heat Capacity for Effective Cooling Speeds								Inertia Rotating Parts lb.ft. ² (k _{bm} ²)	Weight	
		HP(kW) ⁵									Total	Rotating
		50 RPM	100 RPM	200 RPM	300 RPM	400 RPM	500 RPM	600 RPM	lbs.(kg)			
300/1	1900	Without Fan								2.966 (0.125)	38.140 (17.3)	29.883 (13.6)
300/2	1900	2.82 (2.1)	3.22 (2.4)	4.02 (3.0)	4.69 (3.5)	5.36 (4.0)	6.04 (4.5)	6.71 (5.0)	39.904 (18.1)			
300/4	1900	With Electric Cooling Fan									49.604 (22.5)	
300/6	1900	6.71 (5.0)	6.71 (5.0)	6.71 (5.0)	6.71 (5.0)	7.38 (5.5)	8.05 (6.0)	8.05 (6.0)	59.525 (27.0)			
300/8	1900										69.446 (31.5)	

¹ Minimum torques were calculated using a multiplier of 0.6 for LC times Standard.

² LC - Low Coefficient based on 0.2 Coefficient of friction.

³ Standard based on 0.35 Coefficient of friction.

⁴ Max. speed is with standard brake disc. A high speed brake disc capable of 50% higher speed is also available. Heat Capacity reduced by 10% when high speed disc is used.

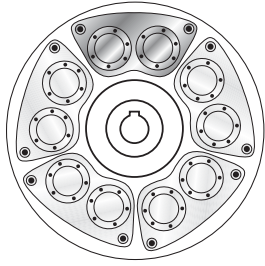
⁵ Limit LC to 70% of heat capacity.

⁶ When selecting number of actuators, use a limit of 3.35 HP per actuator pair (2.5 kW per Actuator pair) for duty w/o fan and 3.75 HP per Actuator pair (2.8 kW per Actuator pair) when fan cooled.

ModEvo

Pneumatic Brakes

ModEvo Model 350



Model	Minimum Torques Maximum (87 PSI) (6 Bars) lb.ft. (Nm)							
	LC ²		Std ³		LC ²		Std ³	
	25% Actuators		60% Actuators		100 % Actuators			
350/1	0.9 (1.2)	1.5 (2)	2.1 (2.9)	3.5 (4.8)	3.5 (4.8)	5.9 (8)		
350/2*	1.8 (2.4)	3.0 (4)	4.3 (5.8)	7.1 (9.6)	7.1 (9.6)	11.8 (16)		
350/4*	3.6 (4.8)	5.9 (8)	8.5 (11.5)	14.2 (19.2)	14.2 (19.2)	23.6 (32)		
350/6*	5.3 (7.2)	8.9 (12)	12.7 (17.3)	21.2 (28.8)	21.2 (28.8)	35.4 (48)		
350/8*	7.1 (9.6)	11.8 (16)	17 (9.6)	28.3 (38.4)	28.3 (38.4)	47.2 (64)		
350/10*	8.9 (12)	14.8 (20)	21.2 (28.8)	35.4 (48)	35.4 (48)	59.0 (80)		

Model	Maximum Torques Maximum (87 PSI) (6 Bars) lb.ft. (Nm)					
	LC ²	Std ³	LC ²	Std ³	LC ²	Std ³
350/1	24 (32.5)	42 (57)	57.55 (78)	101 (137)	95.9 (130)	168 (228)
350/2*	48 (65)	84.1 (114)	115.1 (156)	201.8 (273.6)	191.8 (260)	336.4 (456)
350/4*	95.9 (130)	168.2 (228)	230.2 (312)	403.6 (547.2)	383.6 (520)	672.7 (912)
350/6*	143.8 (195)	252.3 (342)	345.2 (468)	605.4 (820.8)	575.3 (780)	1009 (1,368)
350/8*	190.5 (260)	336.4 (456)	457.3 (624)	807.2 (1,094.4)	762.1 (1,040)	1,345.4 (1,824)
350/10*	239.7 (325)	420.4 (570)	575.3 (780)	1,009 (1,368)	9,58.9 (1,300)	1,681.7 (2,280)

* For single actuator operation torques for 350/1 are applicable.

Model ⁶	Speed ⁴ Max. RPM	Heat Capacity for Effective Cooling Speeds								Inertia Rotating Parts lb.ft. ² (kbm ²)	Weight	
		HP(kW) ⁵									Total	Rotating
		50 RPM	100 RPM	200 RPM	300 RPM	400 RPM	500 RPM	600 RPM	lbs. (kg)			
350/2	1650	Without Fan								5.458 (0.230)	57.982 (24.8)	46.958 (20.3)
350/4	1650	3.75 (2.8)	4.16 (3.1)	5.63 (4.2)	6.44 (4.8)	7.38 (5.5)	8.85 (6.6)	9.66 (7.2)	69.005 (29.2)			
350/6	1650	With Electric Cooling Fan									80.248 (33.7)	
350/8	1650	7.8 (5.8)	8.45 (6.3)	8.72 (6.5)	8.72 (6.5)	8.72 (6.5)	8.72 (6.5)	8.72 (6.5)	91.271 (38.2)			
350/10	1650										102.294 (42.7)	

¹ Minimum torques were calculated using a multiplier of 0.6 for LC times Standard.

² LC - Low Coefficient based on 0.2 Coefficient of friction.

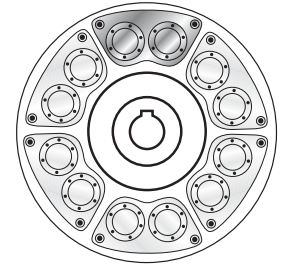
³ Standard based on 0.35 Coefficient of friction.

⁴ Max. speed is with standard brake disc. A high speed brake disc capable of 50% higher speed is also available. Heat Capacity reduced by 10% when high speed disc is used.

⁵ Limit LC to 70% of heat capacity.

⁶ When selecting number of actuators, use a limit of 3.35 HP per actuator pair (2.5 kW per Actuator pair) for duty w/o fan and 3.75 HP per Actuator pair (2.8 kW per Actuator pair) when fan cooled.

Model	Minimum Torques Maximum (87 PSI) (6 Bars) (442) 1 95 72 60 ventas@industrialmagza.com					
	lb.ft.(Nm)					
	LC ²		Std ³		Std ³	
	25% Actuators		60% Actuators		100 % Actuators	
400/1	1.1 (1.5)	1.9 (2.5)	2.6 (3.6)	4.4 (6)	4.4 (6)	7.4 (10)
400/2*	2.2 (3)	3.7 (5)	5.3 (7.2)	8.9 (12)	8.9 (12)	14.8 (20)
400/4*	4.4 (6)	7.4 (10)	10.6 (14.4)	17.7 (24)	17.7 (24)	29.5 (40)
400/6*	6.7 (9)	11.1 (15)	16 (21.6)	26.6 (36)	26.6 (36)	44.3 (60)
400/8*	8.9 (12)	14.8 (20)	21.2 (28.8)	35.4 (48)	35.4 (48)	59.0 (80)
400/10*	11.1 (15)	18.5 (25)	26.6 (36)	44.3 (60)	44.3 (60)	73.8 (100)
400/12*	13.3 (18)	22.1 (30)	31.9 (43.2)	53.1 (72)	53.1 (72)	88.5 (120)



Maximum Torques
Maximum (87 PSI) (6 Bars)
lb.ft.(Nm)

400/1	28.15 (38.15)	49.2 (66.7)	67.5 (91.5)	118 (160)	112.5 (152.5)	196.9 (267)
400/2*	56.3 (76.3)	98.3 (133.5)	135 (183)	236 (320.4)	225 (305)	393.9 (534)
400/4*	112.5 (152.5)	197 (267)	270 (366)	472.7 (640.8)	450 (610)	787.8 (1,068)
400/6*	168.7 (228.8)	295.4 (400.5)	404.9 (549)	708.9 (961.2)	674.9 (915)	1,181.9 (1,602)
400/8*	225 (305)	393.9 (534)	539.9 (732)	945.3 (1,281.6)	899.9 (1,220)	1,575.5 (2,136)
400/10*	281.2 (381.3)	492.4 (667.5)	674.9 (915)	1,181.6 (1,602)	1,124.8 (1,525)	1,969.4 (2,670)
400/12*	337.5 (457.5)	590.8 (801)	809.9 (1,098)	1,417.9 (1,922.4)	1,349.8 (1,830)	2,363.3 (3,204)

* For single actuator operation torques for 400/1 are applicable.

Model ⁶	Speed ⁴ Max. RPM	Heat Capacity for Effective Cooling Speeds								Inertia Rotating Parts lb.ft. ² (kbm ²)	Weight	
		HP(kW) ⁵									Total	Rotating
		50 RPM	100 RPM	200 RPM	300 RPM	400 RPM	500 RPM	600 RPM	lbs.(kg)			
400/2	1450									9.492 (0.400)	69.005 (31.3)	61.509 (26.8)
400/4	1450	Without Fan									78.705 (35.7)	
400/6	1450	4.29 (3.2)	5.10 (3.8)	7.24 (5.4)	8.05 (6.0)	9.12 (6.8)	10.46 (7.8)	11.31 (8.4)	88.626 (40.2)			
400/8	1450	With Electric Cooling Fan									98.547 (44.7)	
400/10	1450	10.06 (7.5)	11.13 (8.3)	11.67 (8.7)	12.47 (9.3)	13.41 (10.0)	13.41 (10.0)	13.41 (10.0)	108.467 (49.2)			
400/12	1450										118.168 (53.6)	

¹ Minimum torques were calculated using a multiplier of 0.6 for LC times Standard.

² LC - Low Coefficient based on 0.2 Coefficient of friction.

³ Standard based on 0.35 Coefficient of friction.

⁴ Max. speed is with standard brake disc. A high speed brake disc capable of 50% higher speed is also available. Heat Capacity reduced by 10% when high speed disc is used.

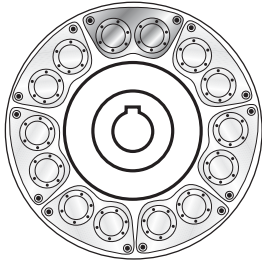
⁵ Limit LC to 70% of heat capacity.

⁶ When selecting number of actuators, use a limit of 3.35 HP per actuator pair (2.5 kW per Actuator pair) for duty w/o fan and 3.75 HP per Actuator pair (2.8 kW per Actuator pair) when fan cooled.


ModEvo

Pneumatic Brakes

ModEvo Model 450



Model	Minimum Torques					
	LC ²		Std ³		Std ³	
	25% Actuators		60% Actuators		100% Actuators	
450/1	1.2 (1.7)	2.0 (2.8)	2.9 (4.0)	4.9 (6.6)	4.9 (6.6)	8.1 (11)
450/2*	2.3 (3.2)	3.9 (5.3)	5.6 (7.6)	9.3 (12.6)	9.3 (12.6)	15.5 (21)
450/4*	4.7 (6.3)	7.8 (10.5)	11.2 (15.1)	18.6 (25.2)	18.6 (25.2)	31.0 (42)
450/6*	7 (9.5)	11.6 (37.8)	16.7 (22.7)	27.9 (37.8)	27.9 (37.8)	46.5 (63)
450/8*	9.3 (12.6)	15.7 (15.5)	22.3 (30.2)	37.7 (50.4)	37.2 (50.4)	62.0 (84)
450/10*	11.6 (15.8)	19.4 (26.3)	27.9 (37.8)	46.5 (63)	46.5 (63)	77.5 (105)
450/12*	13.9 (18.9)	23.2 (31.5)	33.4 (45.4)	55.7 (75.6)	55.7 (75.6)	92.9 (126)
450/14*	13.6 (22.1)	27.1 (27.1)	39 (52.9)	65 (88.2)	65 (88.2)	108.4 (147)


INDUSTRIAL MAGZA
 MEX (55) 531 2000 (3 Bars) (2) Base 10 18
 QRO (442) 1 95 72 60 (ft. (mm))
 DIST. AUTORIZADO
 Email: ventas@industrialmagza.com

Maximum Torques

Maximum (87 PSI) (6 Bars)
lb.ft.(Nm)

450/1	32.45 (44)	56.7 (77)	77.9 (105.6)	136.3 (189.8)	129.8 (176)	227.2 (308)
450/2*	64.9 (88)	113.6 (154)	155.8 (211.2)	272.6 (369.6)	259.6 (352)	454.4 (616)
450/4*	129.8 (176)	227.2 (308)	311.6 (422.4)	545.2 (739.2)	519.3 (704)	908.7 (1,232)
450/6*	194.7 (264)	340.8 (462)	467.3 (633.6)	817.9 (1,108.8)	778.9 (1,056)	1,363.1 (1,848)
450/8*	259.6 (352)	454.4 (616)	623.1 (844.8)	1,090.4 (1,478.4)	1,038.5 (1,408)	1,817.4 (2,464)
450/10*	324.6 (440)	568 (770)	778.9 (1,056)	1,363.1 (1,848)	1,298.2 (1,760)	2,271.8 (3,080)
450/12*	389.5 (528)	681.6 (924)	934.7 (1,267.2)	1,635.7 (2,217.6)	1,557.8 (2,112)	2,726.2 (3,696)
450/14*	454.4 (616)	795.1 (1,078)	1,090.4 (1,478.4)	1,908.3 (2,587.2)	1,817.4 (2,464)	3,180.5 (4,312)

* For single actuator operation torques for 450/1 are applicable.

Model ⁶	Speed ⁴ Max.	Heat Capacity for Effective Cooling Speeds							Inertia Rotating Parts lb.ft. ² (kgm ²)	Weight	
		HP(kW) ⁵								Total	Rotating
	RPM	50 RPM	100 RPM	200 RPM	300 RPM	400 RPM	500 RPM	600 RPM			
450/2	1250								14.475 (0.610)	82.673 (37.5)	72.752 (33.0)
450/4	1250									92.374 (41.9)	
450/6	1250									102.294 (46.4)	
450/8	1250									112.215 (50.9)	
450/10	1250									122.136 (55.4)	
450/12	1250									131.836 (59.8)	
450/14	1250								141.757 (64.3)		

¹ Minimum torques were calculated using a multiplier of 0.6 for LC times Standard.

² LC - Low Coefficient based on 0.2 Coefficient of friction.

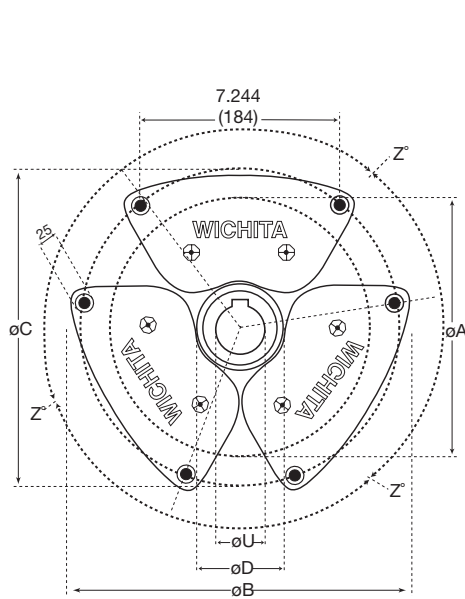
³ Standard based on 0.35 Coefficient of friction.

⁴ Max. speed is with standard brake disc. A high speed brake disc capable of 50% higher speed is also available. Heat Capacity reduced by 10% when high speed disc is used.

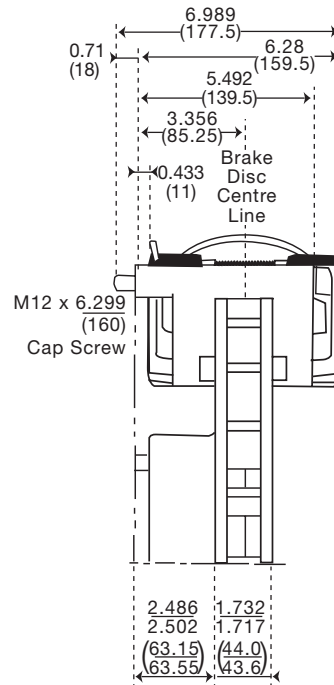
⁵ Limit LC to 70% of heat capacity.

⁶ When selecting number of actuators, use a limit of 3.35 HP per actuator pair (2.5 kW per Actuator pair) for duty w/o fan and 3.75 HP per Actuator pair (2.8 kW per Actuator pair) when fan cooled.

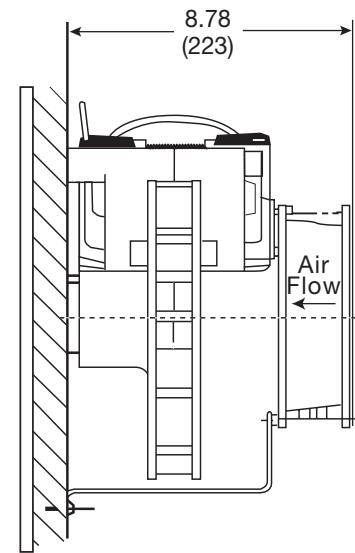
ModEvo Dimensions  MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
 DIST. AUTORIZADO QRO (442) 1 95 72 60 ventas@industrialmagza.com



Front View



Side View



Side View With Fan

Dimensions: inches (mm)

Size	250	300	350	400	450
ØA - Disc Size	9.843 (250)	11.811 (300)	13.78 (350)	15.748 (400)	17.717 (450)
ØB - Overall	12.756 (324)	14.528 (369)	16.339 (415)	18.149 (461)	20.000 (508)
ØC - Bolt P.C.D	11.752 (298.5)	13.524 (343.5)	15.315 (389)	17.146 (435.5)	18.996 (482.5)
ØD - Clearance Diameter	3.543 (90)	5.512 (140)	7.480 (190)	9.449 (240)	11.417 (290)
U - As Cast Bore	0.984 (25)	0.984 (25)	0.984 (25)	0.984 (25)	0.984 (25)
Maximum Bore	2.165 (55)	3.110 (79)	4.606 (117)	5.354 (136)	6.063 (154)
Z' - Angular Position	120°	90°	72°	60°	51.4°
Maximum Number of Brake Modules	3	4	5	6	7
Wichita Generic Drawing Number	73125-000	73130-000	73141-000	73141-000	73145-000
Hose Length/Module 15667-020 W4 6977	39.37 (1,000)	47.25 (1,200)	55.12 (1,400)	63.00 (1,600)	70.87 (1,800)