ALTRA INDUSTRIAL MOTION

Clutch/Brakes for Lawn & Garden Equipment

Warner® Electric

An Altra Industrial Motion Company

What makes Warner Electric Clutch/Brakes so superior to other brands?

Warner Electric's BBC-II Offers

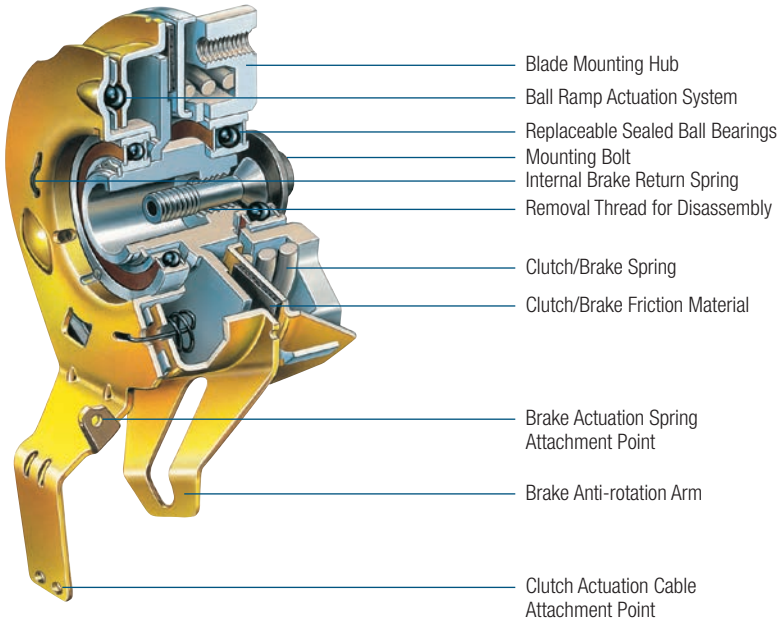
- Meets required ANSI/OPEI B71.1 standards
- 2 second blade stop capability
- Proven application through 7 HP / 21" blade diameters
- Two piece subassembly for quick installation
- Bolt which mounts hub to crankshaft is integral to unit
- Available with integral key or keyway
- Disassembles for ease of service
- Heavy-duty for residential and commercial applications
- Assembly/installation time dramatically reduced over competing designs
- No adjustment required
- Zinc/clear dichromate plating improves corrosion resistance

Warner Electric's MagStop® Offers

- Permanent Magnet Braking System
- Proven application through 37 HP / 96" decks
- 60–250 lb.ft. nominal static torque, depending on the model
- Preassembled — one piece for quick installation
  - "D" drive mounting system provides means for crankshaft restraint while tightening mounting bolt to proper torque
  - Integral key
- Maintenance-free — no adjustment
- Zinc/clear dichromate plating enhances corrosion protection and product appearance

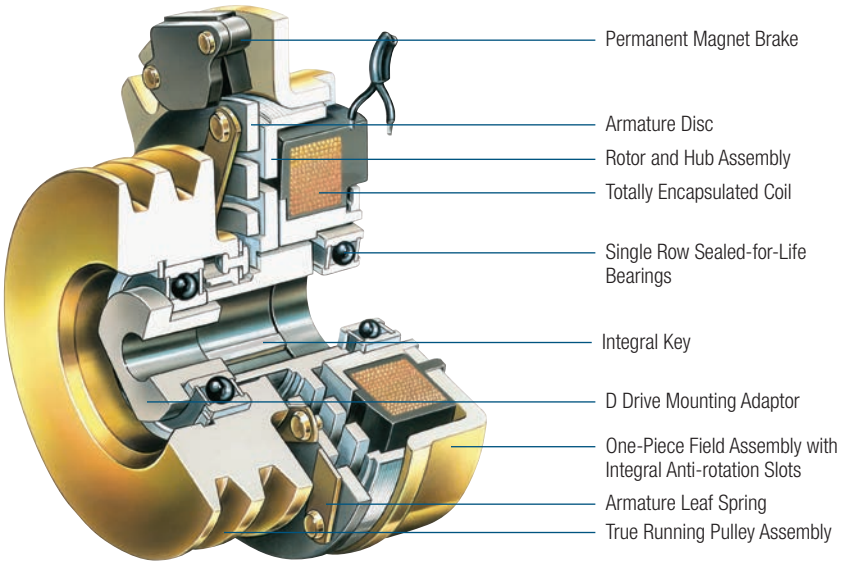
Blade Brake Design

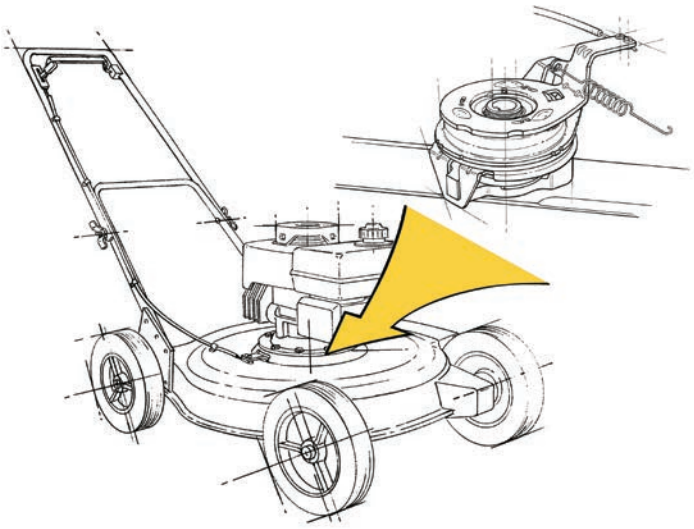
Blade Brake Clutches (BBCs) are engaged by actuating the operator presence lever and pushing the blade engagement handle. This action rotates the ball ramp mechanism, causing three small internal springs inside of the clutch/brake to lift the brake plate clear of the friction disk, assuring drag free, quiet operation. As the brake plate is released from the friction disk, a heavy coil spring at the base of the unit pushes the friction disk against the rotating input hub which is bolted to the engine's crankshaft. The clutch is then engaged and the blade rotates. Releasing the operator presence lever causes the loaded brake spring to rotate the ball ramp mechanism in the opposite direction, which forces the brake plate against the outer portion of the friction disk, releasing the clutch and braking the blade to a stop.



Permanent Magnet Design

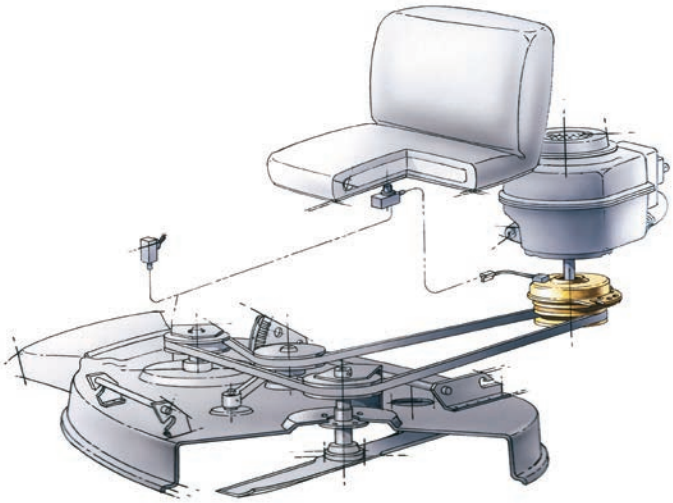
The MagStop clutch/brakes combine an electric friction clutch with a permanent magnet brake. Electric current applied to the clutch coil draws the armature to the rotating rotor, engaging the clutch and rotating the blade through the pulley. Stopping current flow to the coil causes the armature leaf springs to pull the backside of the armature (which acts as the braking surface) into contact with the permanent magnet braking surfaces so the braking torque generated by those magnets can stop the blade within three to seven seconds, depending on the application.





Maintenance-free Blade Brake Clutches for walk behind mowers

Warner Electric's Blade Brake Clutches (BBCs) are designed to provide operator safety through blade control on walk behind mowers. When the operator presence lever on the mower control handle is released, the BBC brakes the mower blade to a stop within two seconds.



MagStop PTO clutch/brakes for riding mowers provide engineered efficiency

Warner Electric's patented MagStop PTO clutch/brakes combine permanent magnet brake technology with an electric clutch to achieve high torque and maintenance-free operation in a compact package. MagStop is equally at home on either residential or commercial riding mowers with power ratings through 37 HP.

Full Line Overview

SERIES NUMBER	SERIES NAME	AVAILABLE TORQUE	CURRENT DRAW RANGE	AVAILABLE BORES*	PULLEY GROOVE AVAILABILITY	EXISTING PULLEY DIAMETERS**	ELECTRICAL CONNECTION	MOUNTING
5217-XX	RMS	60 & 80 ft.lb.	1.6 to 3.97 amps	1"	A, A/B, B	5.2 to 7.48"	Integral	Standard & Reverse
5219-XX	TG	105 & 125 ft.lb.	3.25 to 4.23 amps	1", 1-⅛"	A, A/B, B, 3V, 5L, 5V, HA	2.893 to 7.3"	Integral & Lead Wire	Standard & Reverse
5218-XX	CMS	175 & 200 ft.lb.	4.85 to 5.53 amps	1", 1-⅛"	A, A/B, B, 3V, 5L, 5V, HA, 8M, GT2	3.35 to 7.345"	Integral & Lead Wire	Standard & Reverse
5228-XX	CMS 250	225 & 250 ft.lb.	6.65 to 6.86 amps	1", 1-⅛", 1-¼", 1-7/16"	A, A/B, B, C	6.121 to 7.153"	Integral & Lead Wire	Standard & Reverse
5227-XX	GT 300	300 ft.lb.	6.0 to 7.0 amps	1", 1-⅛", 1-¼", 1-7/16"	A, B, C Flange	4.75 to 9.34"	Screw Terminal	Standard & Reverse

* Other clutch bores may be available depending on application and yearly volume
** Other pulley or flange configurations available depending on application and yearly volume

CMS 250 Performance Specifications

LIFE	• B_{10} life of 25,000 cycles at 2000 hours
APPLICATION SIZE ENGINE	• Up to 37 HP
DECK	• Commercial applications up to 96" decks • Stop deck in less than 7.0 seconds for a minimum of 10,000 cycles
ENVIRONMENT	• Ambient – 40°F to +200°F • Bearing operating temperatures – 40°F to +350°F
OPERATING SPEED	• Input speeds up to 3600 rpm
ELECTRICAL SPECIFICATIONS	• System voltages of 12.0 to 14.0 volts with a steady state current between 6 to 7 amps

CMS 250 Key Features

Integral Key
- Reduced material and labor costs
- Lower Part count
- Full length key to engage with D-drive spacer

D-Drive Spacer
- Lower Part count
- Easier assembly (no loose washer) and removal (for service)

Integral Connector
- Lower cost
- Minimizes clutch damage in case of belt failure
- No chance of ground drive pulley cutting into lead wire

Commercial Mowers

The CMS 250 Series Commercial MagStop clutch/brakes are designed for heavy-duty mowers with up to 96" decks and engines up to 37 HP. Rugged design for continuous duty and long life.

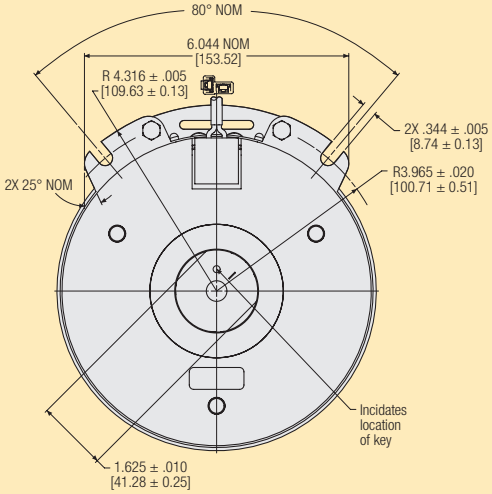
CMS 250 Clutch/Brakes

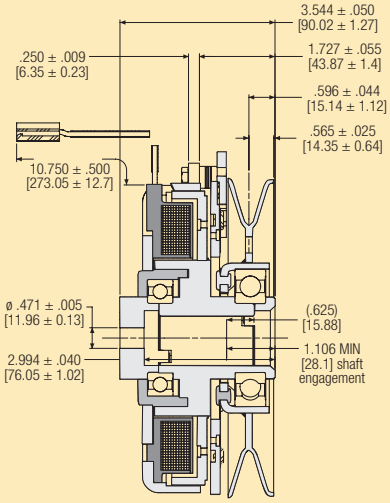
Featuring a high 300 ft.lb. torque capacity, GT 300 PTO clutch/brakes are rated to 40 HP. Units are simple to install and easy to operate.

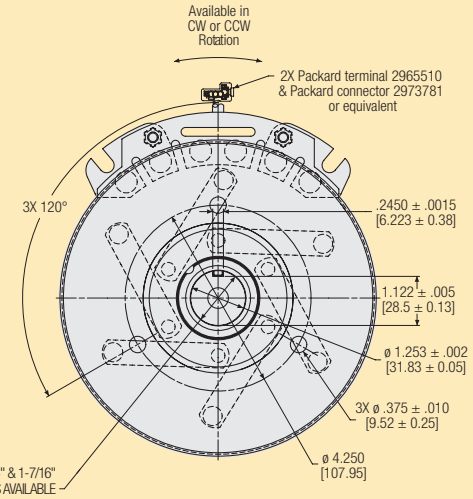
GT 300 Clutch/Brakes

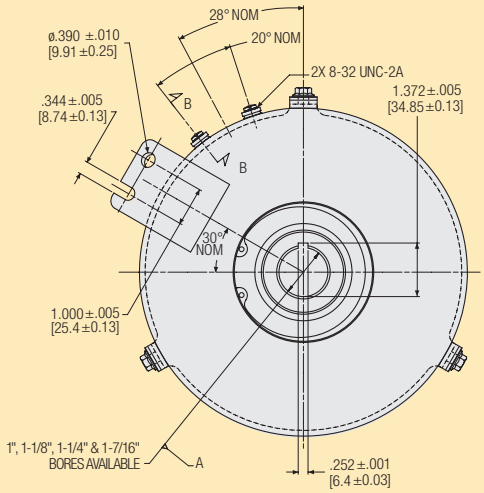
Commercial MagStop clutch/brakes for heavy-duty mowers for large grounds maintenance requirements. Rugged design for continuous duty, long life, and two frame sizes.

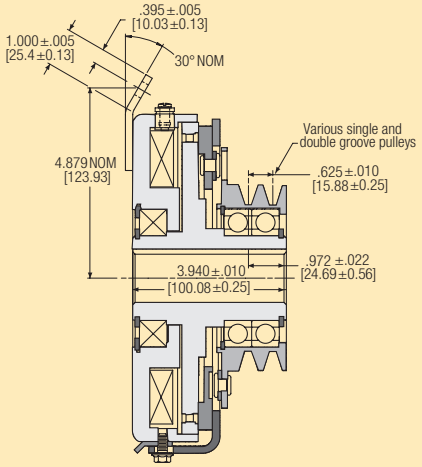
Commercial MagStop Clutch/Brakes

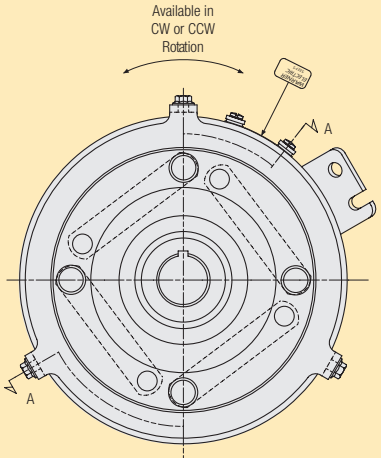

80° NOM
6.044 NOM
[153.52]
R 4.316 ± .005
[109.63 ± 0.13]
2X .344 ± .005
[8.74 ± 0.13]
2X 25° NOM
R3.965 ± .020
[100.71 ± 0.51]
Incidates
location
of key
1.625 ± .010
[41.28 ± 0.25]

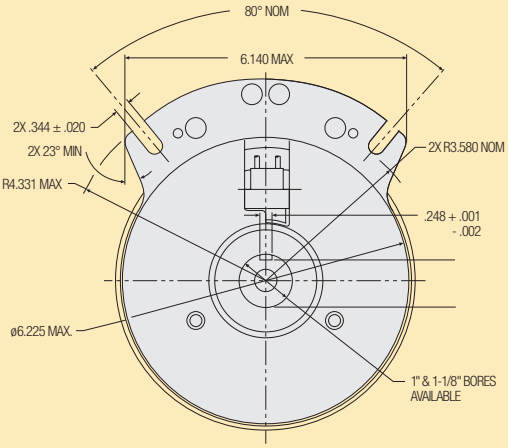

3.544 ± .050
[90.02 ± 1.27]
.250 ± .009
[6.35 ± 0.23]
1.727 ± .055
[43.87 ± 1.4]
.596 ± .044
[15.14 ± 1.12]
.565 ± .025
[14.35 ± 0.64]
10.750 ± .500
[273.05 ± 12.7]
ø .471 ± .005
[11.96 ± 0.13]
(.625)
[15.88]
1.106 MIN
[28.1] shaft
engagement
2.994 ± .040
[76.05 ± 1.02]

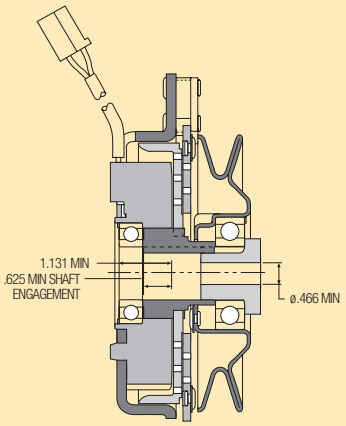

Available in
CW or CCW
Rotation
2X Packard terminal 2965510
& Packard connector 2973781
or equivalent
3X 120°
.2450 ± .0015
[6.223 ± 0.38]
1.122 ± .005
[28.5 ± 0.13]
ø 1.253 ± .002
[31.83 ± 0.05]
3X ø .375 ± .010
[9.52 ± 0.25]
ø 4.250
[107.95]
1", 1-1/8", 1-1/4" & 1-7/16"
BORES AVAILABLE

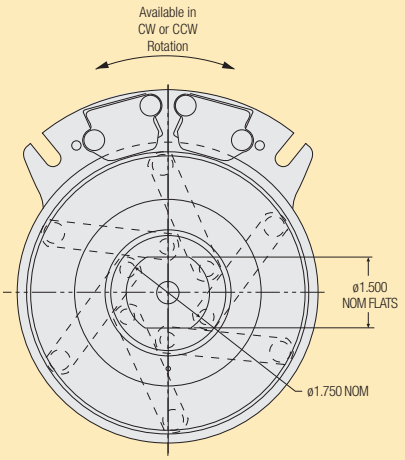

28° NOM
ø.390 ±.010
[9.91 ±0.25]
20° NOM
2X 8-32 UNC-2A
.344 ±.005
[8.74 ±0.13]
1.372 ±.005
[34.85 ±0.13]
A
B
B
30°
NOM
1.000 ±.005
[25.4 ±0.13]
1", 1-1/8", 1-1/4" & 1-7/16"
BORES AVAILABLE
A
.252 ±.001
[6.4 ±0.03]


.395 ±.005
[10.03 ±0.13]
1.000 ±.005
[25.4 ±0.13]
30° NOM
Various single and
double groove pulleys
4.879 NOM
[123.93]
.625 ±.010
[15.88 ±0.25]
.972 ±.022
[24.69 ±0.56]
3.940 ±.010
[100.08 ±0.25]


Available in
CW or CCW
Rotation
A
A


80° NOM
6.140 MAX
2X .344 ± .020
2X 23° MIN
R4.331 MAX
2X R3.580 NOM
.248 + .001
- .002
ø6.225 MAX.
1" & 1-1/8" BORES
AVAILABLE


1.131 MIN
.625 MIN SHAFT
ENGAGEMENT
ø.466 MIN


Available in
CW or CCW
Rotation
ø1.500
NOM FLATS
ø1.750 NOM

Garden Tractors

TG2000 incorporates the extended duty features of Warner Electric's Commercial MagStop clutch/ brakes into a design specifically for tractors, ZTR's and wide area mowers in this class.

TG2000 Clutch/Brakes

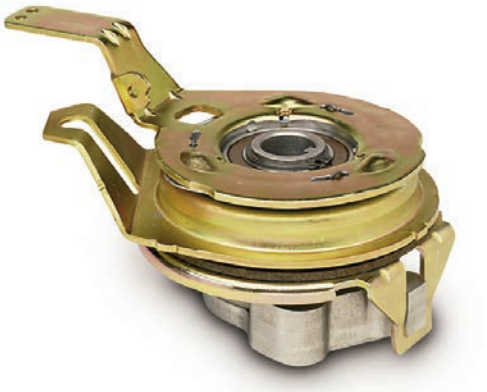
Lawn Tractors

Residential MagStop (RMS) clutch/brakes for mower decks and other implements controlled by a dashboard switch. No belt tighteners or mechanical linkage, simple electrical connection. Adjustment and maintenance free.

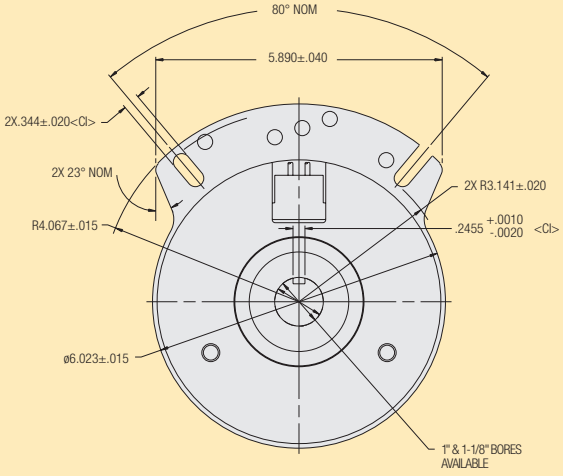
RMS Clutch/Brakes

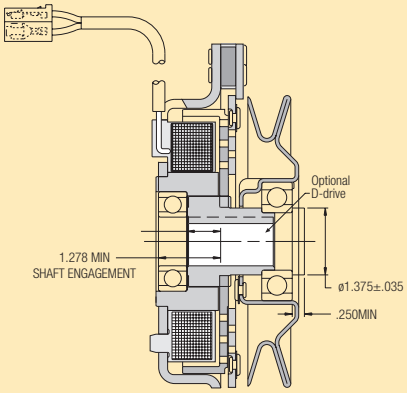
Walk Behind Mowers

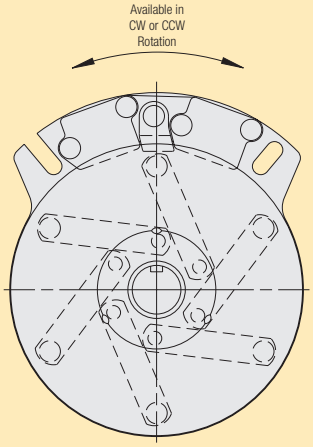
BBC-II clutch/brake allows motor to continue running while blade is stopped. Cable operated. No adjustment, maintenance free.

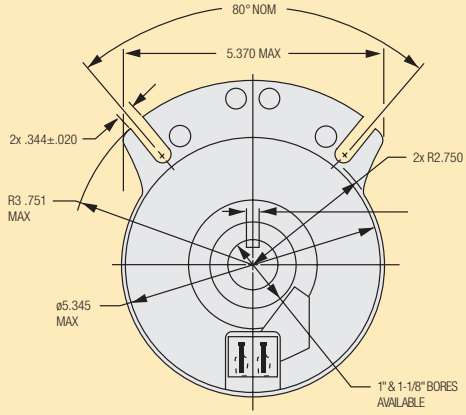


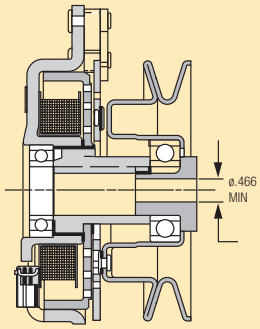
BBC-II Clutch/Brakes

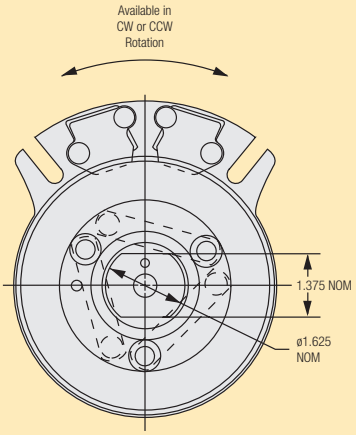

80° NOM
5.890±.040
2X.344±.020<CI>
2X 23° NOM
R4.067±.015
2X R3.141±.020
.2455 +.0010 -.0020 <CI>
ø6.023±.015
1" & 1-1/8" BORES AVAILABLE

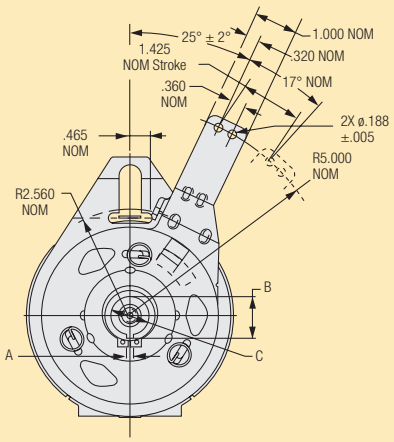

Optional D-drive
1.278 MIN SHAFT ENGAGEMENT
ø1.375±.035
.250MIN

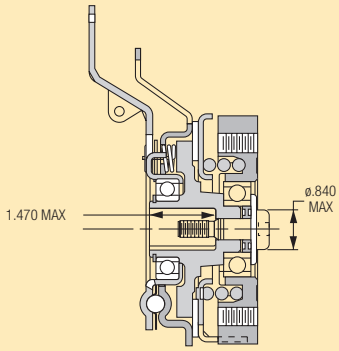

Available in CW or CCW Rotation

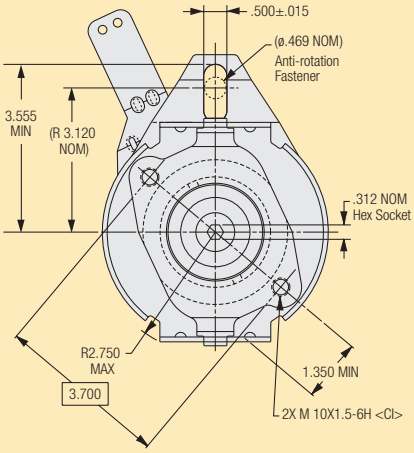

80° NOM
5.370 MAX
2x .344±.020
2x R2.750
R3 .751 MAX
ø5.345 MAX
1" & 1-1/8" BORES AVAILABLE


ø.466 MIN


Available in CW or CCW Rotation
1.375 NOM
ø1.625 NOM


25° ± 2°
1.000 NOM
1.425 NOM Stroke
.320 NOM
.360 NOM
17° NOM
2X ø.188 ±.005
.465 NOM
R5.000 NOM
R2.560 NOM
B
A
C


1.470 MAX
ø.840 MAX


.500±.015
(ø.469 NOM) Anti-rotation Fastener
3.555 MIN
(R 3.120 NOM)
.312 NOM Hex Socket
R2.750 MAX
1.350 MIN
3.700
2X M 10X1.5-6H <CI>

Altra Industrial Motion

All Customer Service phone numbers shown in bold

Electromagnetic Clutches and Brakes

Warner Electric

Electromagnetic Clutches and Brakes

New Hartford, CT - USA
1-800-825-6544

For application assistance: 1-800-825-9050

St Barthelemy d'Anjou, France
+33 (0) 2 41 21 24 24

Precision Electric Coils and Electromagnetic Clutches and Brakes

Columbia City, IN - USA
1-260-244-6183

Matrix International

Electromagnetic Clutches and Brakes, Pressure Operated Clutches and Brakes

Brechin, Scotland
+44 (0) 1356 602000

New Hartford, CT - USA
1-800-825-6544

Inertia Dynamics

Spring Set Brakes; Power On and Wrap Spring Clutch/Brakes

New Hartford, CT - USA
1-800-800-6445

Linear Products

Warner Linear

Linear Actuators

Belvidere, IL - USA
1-800-825-6544

For application assistance: 1-800-825-9050

St Barthelemy d'Anjou, France
+33 (0) 2 41 21 24 24

Couplings

Ameridrives Couplings

Mill Spindles, Ameriflex, Ameridisc

Erie, PA - USA
1-814-480-5000

Gear Couplings

San Marcos, TX - USA
1-800-458-0887

Bibby Turboflex

Disc, Gear, Grid Couplings, Overload Clutches

Dewsbury, England
+44 (0) 1924 460801

Boksburg, South Africa
+27 11 918 4270

TB Wood's

Elastomeric Couplings

Chambersburg, PA - USA
1-888-829-6637– Press #5

For application assistance: 1-888-829-6637 – Press #7

General Purpose Disc Couplings

San Marcos, TX - USA
1-888-449-9439

Ameridrives Power Transmission

Universal Joints, Drive Shafts, Mill Gear Couplings

Green Bay, WI - USA
1-920-593-2444

Huco Dynatork

Precision Couplings and Air Motors

Hertford, England
+44 (0) 1992 501900

Chambersburg, PA - USA
1-888-829-6637

Lamiflex Couplings

Flexible Couplings, Bearing Isolators, and Coupling Guards

São Paulo, SP - Brasil
+55-11-5679-6533

Heavy Duty Clutches and Brakes

Wichita Clutch

Pneumatic Clutches and Brakes

Wichita Falls, TX - USA
1-800-964-3262

Bedford, England
+44 (0) 1234 350311

Twiflex Limited

Caliper Brakes and Thrusters

Twickenham, England
+44 (0) 20 8894 1161

Industrial Clutch

Pneumatic and Oil Immersed Clutches and Brakes

Waukesha, WI - USA
1-262-547-3357

Svendborg Brakes

Industrial Brakes and Brake Systems

Vejstrup, Denmark
+45 63 255 255

Gearing

Boston Gear

Enclosed and Open Gearing, Electrical and Mechanical P.T. Components

Charlotte, NC - USA
1-800-825-6544

For application assistance: 1-800-816-5608

Bauer Gear Motor

Geared Motors

Esslingen, Germany
+49 (711) 3518 0

Somerset, NJ - USA
1-732-469-8770

Nuttall Gear and Delroyd Worm Gear

Worm Gear and Helical Speed Reducers

Niagara Falls, NY - USA
1-716-298-4100

Overrunning Clutches

Formsprag Clutch

Overrunning Clutches and Holdbacks

Warren, MI - USA
1-800-348-0881– Press #1

For application assistance: 1-800-348-0881 – Press #2

Marland Clutch

Roller Ramp and Sprag Type Overrunning Clutches and Backstops

South Beloit, IL - USA
1-800-216-3515

Stieber Clutch

Overrunning Clutches and Holdbacks

Heidelberg, Germany
+49 (0) 6221 30 47 0

Belted Drives and Sheaves

TB Wood's

Belted Drives

Chambersburg, PA - USA
1-888-829-6637 – Press #5

For application assistance: 1-888-829-6637 – Press #7

Engineered Bearing Assemblies

Kilian Manufacturing

Engineered Bearing Assemblies

Syracuse, NY - USA
1-315-432-0700

For information concerning our sales offices in Asia Pacific check our website www.altramotion.com.cn

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P-1698-WE 5/14 Printed in USA