ZERO-MAX®

SOLVING YOUR MOTION CONTROL NEEDS...

PRODUCT CATALOG

ZERO-MAX®

PRECISE. ROBUST. AVAILABLE

ZERO-MAX A/S

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CD COUPLINGS

CD COUPLINGS
SERIES A1C

CONTROL FLEX COUPLINGS

OVERLOAD SAFETY COUPLINGS
TORQ-TENDER & TLC

ROH'LIX LINEAR ACTUATORS

ADJUSTABLE SPEED DRIVES

OHLA

RIGHT ANGLE CROWN GEAR DRIVES

ZERO-MAX®

CD® Couplings

ZERO-MAX CD® COUPLINGS

- For today's most demanding servo motor and motion control applications. CD Couplings are precise, robust, and available in sizes and models for every application
- High torsional stiffness and high dynamic load capacity ensure reliable machine operation
- Precise positioning under high speed reversing loads without fatigue for reliable 24/7 operation
- Unique patented composite disc design provides misalignment capacity and long operational life
- Clamp style hub design provides a superior method of shaft engagement
- Eco-Friendly, adapted to RoHS Directive with no banned substances

These next-generation CD Couplings allow you to transmit high horsepower in a small envelope. They are ideal for cyclic applications where speed and repeatable accuracy are critical to keep 24/7 systems going.

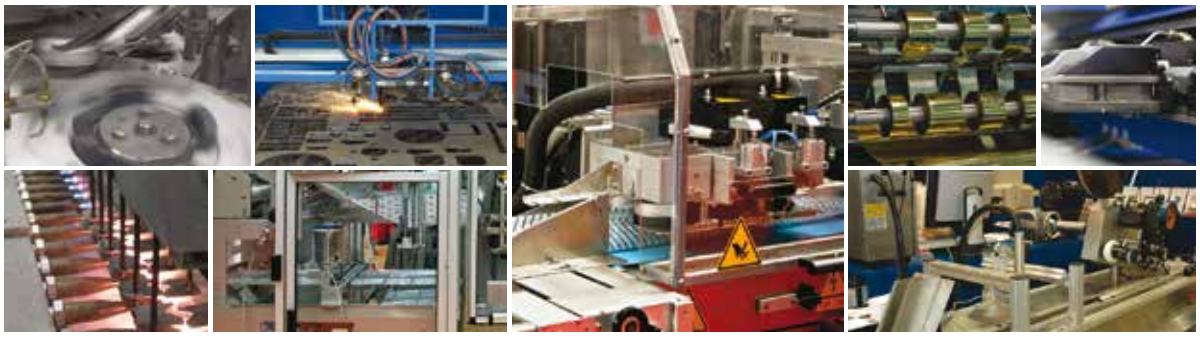
CD Couplings withstand the punishment and stress of a servo motor. In comparison, other couplings may have high torsional stiffness specifications; however, they can be too brittle to withstand the punishment of high speed reversing applications.

The working part of a CD Coupling is made of high precision composite material. This patented design has high torsional stiffness, and yet allows for misalignment in high stress applications. CD Couplings have excellent chemical and moisture resistance and operate without maintenance in hostile environments.

Standard and Custom CD Couplings are available for every application. Do you need higher misalignment and greater torque capacity in your coupling? Need more flexibility and torsional stiffness? Need a very large bore diameter coupling? Or a long spacer coupling? Zero-Max CD Couplings are available in a full range of styles, models and sizes to meet those needs. Zero-Max will design and build a custom CD Coupling to handle your unique application.

CD® COUPLINGS FOR MOST DIFFICULT MOTION APPLICATIONS

- Available in single disc, double disc, stainless steel, floating shaft and custom models
- Single and double disk models available in aluminum clamp style hubs
- Operating temperature range is -70° to +250° F (- 57° to + 121°C)
- Composite discs are resistant to many chemicals
- Hubs are machined to a high level of concentricity for smooth and quiet operation
- Maintenance free
- Ideal for high precision applications including packaging machines, pick and place systems, printing machinery, machine tools and most systems using servo motors
- RoHS compliant – manufactured of RoHS compliant materials and contains no banned substances



CD® COUPLINGS *SINGLE FLEX* STEEL

The Single Flex Composite Disc Coupling is an excellent choice for zero backlash applications. The unique design delivers two features that are not often found in a precision coupling. High torsional stiffness and high durability!

The compact size and clamping system allow this coupling to fit into many applications. This design is also capable of being used in very high speed applications with some modification.

- Zero Backlash
- Torsionally Stiff
- Excellent for Reversing Loads
- Smooth Operation at High Speeds
- Compact

Available with or without keyway on clamp style hubs.

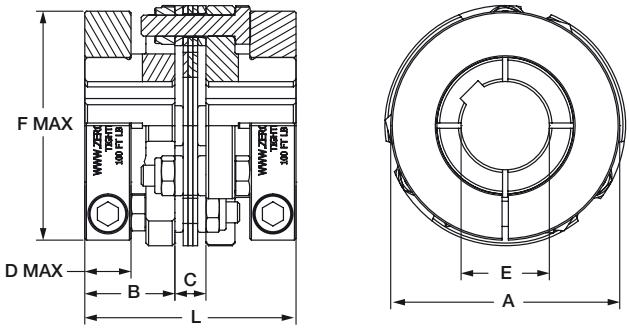
Performance Information

	Continuous Rated Torque	Peak Rated Torque	Torsional Stiffness	Maximum Speed		Misalignments			A Hub		B Hub		Clamped Hub		QD Hubs
				A & B Hub	Clamp Style Hub	Angular	Parallel	Axial	Unit Weight at Max Bore	Unit Inertia at Max Bore	Unit Weight at Max Bore	Unit Inertia at Max Bore	Unit Weight at Max Bore	Unit Inertia at Max Bore	Unit Weight w/ Bushing
	in-lbs (Nm)	in-lbs (Nm)	in-lbs/Deg. (Nm/Rad)	(RPM)	(RPM)	Degrees	Inch (mm)	Inch (mm)	Lb. (kg.)	lb-in^2 (kg-cm^2)	Lb. (kg.)	lb-in^2 (kg-cm^2)	Lb. (kg.)	lb-in^2 (kg-cm^2)	Lb. (kg.)
6A18 6A18C	180 (20)	360 (40)	1,800 (11,650)	14,000	12,000	3	0.004 (0.10)	0.030 (0.8)	0.43 (0.2)	0.16 (0.47)	–	–	0.82 (0.37)	0.35 (1.02)	–
6A22 6A22C	270 (30)	540 (60)	2,680 (17,352)	12,000	11,000	3	0.006 (0.15)	0.036 (0.9)	0.88 (0.4)	0.49 (1.45)	0.96 (0.44)	0.66 (1.92)	1.57 (0.71)	1.08 (3.16)	–
6A26 6A26C	475 (53)	950 (106)	3,100 (20,100)	10,500	9,500	3	0.008 (0.20)	0.043 (1.1)	1.37 (0.62)	0.93 (2.72)	1.37 (0.62)	1.21 (3.54)	1.83 (0.83)	1.57 (4.58)	–
6A30 6A30C	800 (90)	1,600 (180)	6,638 (42,976)	9,000	8,000	3	0.010 (0.3)	0.050 (1.3)	2.0 (0.9)	1.9 (5.5)	2.5 (1.1)	2.8 (8.3)	3.51 (1.59)	4.07 (11.90)	–
6A37 6A37C 6A37QD	1,600 (181)	3,200 (362)	10,374 (67,167)	7,400	6,700	3	0.013 (0.3)	0.070 (1.8)	3.6 (1.6)	5.6 (16.3)	4.2 (1.9)	7.9 (23.0)	6.00 (2.72)	11.69 (34.19)	3.7 (1.7)
6A45 6A45C 6A45QD	2,500 (282)	5,000 (564)	19,138 (123,909)	6,100	5,600	3	0.015 (0.4)	0.090 (2.3)	6.4 (2.9)	14.6 (42.7)	7.2 (3.3)	20.0 (58.5)	10.58 (4.80)	21.2 (62.0)	6.8 (3.1)
6A52 6A52C 6A52QD	3,560 (402)	7,120 (804)	26,049 (168,656)	5,200	4,800	3	0.018 (0.5)	0.110 (2.8)	10.5 (4.8)	32.4 (94.8)	11.4 (5.2)	43.2 (126)	14.65 (6.64)	53.0 (155.1)	11.7 (5.3)
6A60 6A60C 6A60QD	6,350 (718)	12,700 (1,436)	41,485 (268,595)	4,600	4,400	3	0.020 (0.5)	0.130 (3.3)	15.3 (7.0)	61.3 (179)	18.4 (8.4)	90.6 (265)	23.2 (10.5)	116.4 (340.4)	15.8 (7.2)
6A67 6A67C 6A67QD	10,300 (1,164)	20,600 (2,328)	61,948 (401,084)	4,300	4,100	3	0.022 (0.6)	0.150 (3.8)	22.0 (10.0)	111 (325)	26.5 (12.0)	163 (477)	35.0 (15.9)	205.0 (600.0)	20.5 (9.3)
6A77 6A77QD	15,600 (1,763)	31,200 (3,526)	94,107 (609,303)	3,900	–	3	0.025 (0.6)	0.160 (4.6)	31.3 (14.2)	209 (612)	38.5 (17.5)	318 (931)	–	–	29.5 (13.4)
6A90	25,000 (2,825)	50,000 (5,650)	160,653 (1,040,162)	3,600	–	3	0.030 (0.8)	0.180 (4.6)	49.9 (22.7)	461 (1,349)	62.6 (28.5)	722 (2,113)	–	–	–
6A105	34,900 (3,944)	69,800 (7,888)	244,204 (1,581,120)	3,300	–	3	0.035 (0.9)	0.210 (5.3)	81.5 (37.0)	1,046 (3,061)	98.3 (44.7)	1,572 (4,600)	–	–	–
6A120	47,200 (5,333)	94,400 (10,666)	328,095 (2,124,275)	3,000	–	3	0.040 (1.0)	0.250 (6.4)	124.0 (56.4)	2,054 (6,011)	141.0 (64.1)	3,100 (9,070)	–	–	–

- Consult factory for speeds higher than those listed and balancing requirements, if necessary.
- Consult factory for higher torque and higher torsional stiffness couplings.

CD® COUPLINGS *SINGLE FLEX* STEEL

Clamp Style Hub

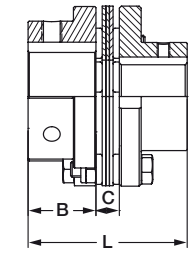


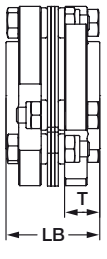
Dimensional Information

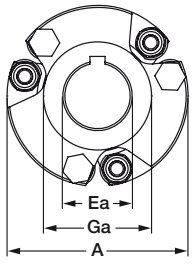
	A	B	C	D	Max Bore E w/kwy	Max Bore E w/o kwy	F	L
	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)
6A18C	1.85 (47.0)	0.81 (20.6)	0.28 (7.1)	0.472 (12)	0.63 (16)	0.813 (21)	1.77 (45)	1.88 (47.8)
6A22C	2.25 (57.2)	1.00 (25.4)	0.31 (7.9)	0.551 (14)	0.75 (20)	0.938 (25)	2.21 (56)	2.31 (58.7)
6A26C	2.60 (66.0)	1.06 (26.9)	0.31 (7.9)	0.551 (14)	1.00 (24)	1.188 (30)	2.36 (60)	2.43 (61.7)
6A30C	3.00 (76.2)	1.25 (31.8)	0.46 (11.7)	0.709 (18)	1.12 (30)	1.37 (35)	2.92 (74)	2.96 (75.2)
6A37C	3.75 (95.3)	1.44 (36.6)	0.52 (13.2)	0.748 (19)	1.50 (38)	1.87 (48)	3.71 (94)	3.40 (86.4)
6A45C	4.50 (114.3)	1.69 (42.9)	0.58 (14.7)	0.866 (22)	1.75 (45)	2.25 (55)	4.29 (109)	3.96 (100.6)
6A52C	5.25 (133.4)	1.94 (49.3)	0.65 (16.5)	0.984 (25)	2.25 (60)	2.62 (65)	4.92 (125)	4.52 (114.8)
6A60C	6.00 (152.4)	2.44 (62.0)	0.77 (19.6)	1.339 (34)	2.62 (70)	3.00 (75)	5.71 (145)	5.64 (143.3)
6A67C	6.75 (171.5)	2.75 (69.9)	0.86 (21.8)	1.339 (34)	2.875 (80)	3.50 (90)	6.50 (165)	6.36 (161.5)

Performance Note: The torque capacity of keyless clamped hubs is governed by many factors, including shaft hub bore diameter, clamp size, and other installation variables. Keyless coupling hubs with bore sizes less than approximately one-half the maximum bore listed may not transmit the torque rating of the coupling. Consult factory if your application is of high torque/small keyless shaft variety.

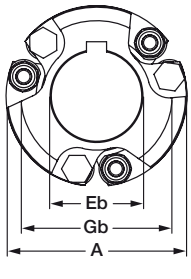
Set Screw and QD Style Hub







A Hub

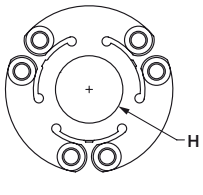


B Hub

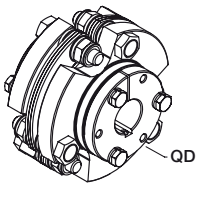
Dimensional Information

	A	B	C	Max Bore Ea A Hub	Max Bore Eb B Hub	Ga A Hub	Gb B Hub	H	L	X	LB	T	QD
	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Bushing Type
6A18	1.85 (47.0)	0.625 (15.9)	0.276 (7.0)	0.625 (16)	–	1.13 (28.6)	–	0.79 (20.1)	1.53 (38.8)	0.0 (0)	–	–	–
6A22	2.25 (57.2)	0.94 (23.8)	0.31 (7.8)	0.625 (16)	1.000 (26)	1.22 (31)	1.88 (47.6)	0.91 (23.1)	2.18 (55.4)	0.51 (13)	–	–	–
6A26	2.59 (66)	1.06 (27.0)	0.31 (7.8)	0.750 (19)	1.250 (32)	1.50 (38.2)	2.16 (54.8)	1.00 (25.4)	2.43 (61.7)	0.39 (9.9)	–	–	–
6A30	3.00 (76.2)	1.25 (31.8)	0.46 (11.7)	1.000 (25)	1.375 (35)	1.71 (43)	2.50 (64)	1.21 (31)	2.96 (75)	0.39 (9.9)	–	–	–
6A37 6A37QD	3.75 (95.3)	1.44 (36.5)	0.52 (13.3)	1.250 (32)	1.813 (46)	2.19 (56)	3.13 (79)	1.51 (38)	3.40 (86)	0.68 (17.3)	1.78 (45.2)	0.63 (16)	JA
6A45 6A45QD	4.50 (114)	1.69 (42.9)	0.58 (14.8)	1.625 (42)	2.250 (60)	2.69 (68)	3.75 (95)	1.81 (46)	3.96 (101)	0.91 (23.1)	2.34 (59.5)	0.88 (22.4)	SH
6A52 6A52QD	5.25 (133)	1.94 (49.2)	0.65 (16.4)	1.875 (45)	2.625 (66)	3.31 (84)	4.38 (111)	2.10 (54)	4.52 (115)	0.73 (18.5)	3.41 (87)	1.38 (35.1)	SD
6A60 6A60QD	6.00 (152)	2.44 (61.9)	0.77 (19.5)	2.250 (60)	3.000 (76)	3.67 (93)	5.00 (127)	2.42 (61)	5.64 (143)	0.69 (17.5)	3.53 (90)	1.38 (35.1)	SD
6A67 6A67QD	6.75 (172)	2.75 (69.9)	0.86 (21.8)	2.625 (65)	3.375 (85)	4.29 (109)	5.63 (143)	2.72 (69)	6.36 (162)	0.41 (10.4)	3.62 (92)	1.38 (35.1)	SK
6A77 6A77QD	7.75 (197)	3.13 (79.4)	1.01 (25.7)	2.875 (75)	3.875 (100)	4.61 (117)	6.46 (164)	3.13 (79)	7.26 (185)	0.89 (22.6)	4.01 (102)	1.50 (38.1)	SF
6A90	9.00 (229)	3.75 (95.3)	1.13 (28.8)	3.000 (75)	4.500 (120)	5.38 (137)	7.50 (191)	3.62 (92)	8.63 (219)	1.39 (35.3)	–	–	–
6A105	10.50 (267)	4.25 (108)	1.45 (36.8)	3.750 (95)	5.125 (130)	6.11 (155)	8.75 (222)	4.23 (107)	9.95 (253)	1.92 (48.8)	–	–	–
6A120	12.00 (305)	4.75 (121)	1.54 (39.0)	4.250 (110)	6.000 (152)	7.34 (186)	10.00 (254)	4.83 (123)	11.04 (280)	1.48 (37.6)	–	–	–

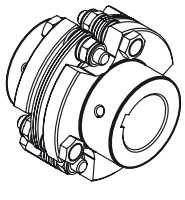
• "X" dimension is the minimum bolt travel required beyond the hub to disassemble the disc pack from the hubs.



Flex Disc



QD Style Hub



Set Screw Hub

QD Style Hub

Set Screw Hub

CD® COUPLINGS *SINGLE FLEX* ALUMINUM

The Aluminum hub version of our Single Flex Composite Disc Coupling has very low weight and inertia, making it an excellent choice for servo motor applications. The unique design delivers two features that are not often found in a precision coupling. High torsional stiffness and high durability!

The compact size, low inertia, and clamping system enable this coupling to fit into many applications.

- Zero Backlash
- Torsionally Stiff
- Excellent for Reversing Loads
- Smooth Operation at High Speeds
- Compact

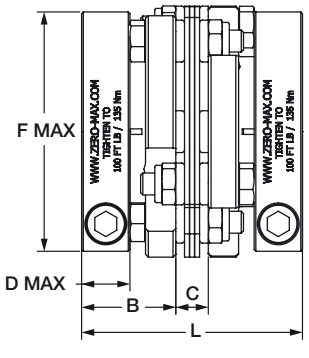
Available with or without keyway on clamp style hubs.

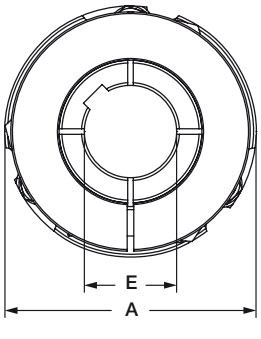
- Consult factory for speeds higher than those listed and balancing requirements, if necessary.
- Consult factory for higher torque and higher torsional stiffness couplings.

Performance Information

	Continuous Rated Torque	Peak Rated Torque	Torsional Stiffness	Maximum Speed Clamp Style Hub	Misalignments Angular	Misalignments Parallel	Misalignments Axial	Clamped Hub Unit Weight at Max Bore	Clamped Hub Unit Weight at 1/2 Max Bore	Clamped Hub Unit Inertia at Max Bore	Clamped Hub Unit Inertia at 1/2 Max Bore
	in-lbs (Nm)	in-lbs (Nm)	in-lbs/Deg. (Nm/Rad)	(RPM)	Degrees	Inch (mm)	Inch (mm)	Lb. (kg.)	Lb. (kg.)	lb-in^2 (kg-cm^2)	lb-in^2 (kg-cm^2)
6A18-AC	180 (20)	360 (40)	1,800 (11,650)	15,000	3	0.004 (0.10)	0.030 (0.8)	0.32 (0.15)	0.31 (0.14)	0.15 (0.43)	0.13 (0.37)
6A22-AC	270 (30)	540 (60)	2,680 (17,352)	13,500	3	0.006 (0.15)	0.036 (0.9)	0.67 (0.30)	0.51 (0.23)	0.50 (1.45)	0.31 (0.90)
6A26-AC	475 (53)	950 (106)	3,100 (20,100)	11,500	3	0.008 (0.20)	0.043 (1.0)	0.77 (0.35)	0.66 (0.30)	0.68 (1.98)	0.45 (1.32)
6A30-AC	800 (90)	1,600 (180)	6,638 (42,976)	9,500	3	0.010 (0.3)	0.050 (1.3)	1.46 (0.66)	1.03 (0.47)	1.78 (5.21)	1.04 (3.04)
6A37-AC	1,600 (181)	3,200 (362)	10,374 (67,167)	8,000	3	0.013 (0.3)	0.070 (1.8)	2.58 (1.17)	1.74 (0.79)	5.17 (15.12)	2.82 (8.26)
6A45-AC	2,500 (282)	5,000 (564)	19,138 (123,909)	6,700	3	0.015 (0.4)	0.090 (2.3)	4.50 (2.04)	3.23 (1.46)	10.00 (29.26)	7.26 (21.24)
6A52-AC	3,560 (402)	7,120 (804)	26,049 (168,656)	5,800	3	0.018 (0.5)	0.110 (2.8)	6.07 (2.75)	5.01 (2.27)	18.9 (55.2)	14.8 (43.4)
6A60-AC	6,350 (718)	12,700 (1,436)	41,485 (268,595)	5,200	3	0.020 (0.5)	0.130 (3.3)	9.74 (4.42)	7.64 (3.46)	40.3 (117.8)	28.3 (82.7)

Clamp Style Hub





Dimensional Information

	A	B	C	D	Max Bore E w/kwy	Max Bore E w/o kwy	F	L
	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)
6A18-AC	1.85 (47.0)	0.81 (20.6)	0.28 (7.1)	0.472 (12)	0.63 (16)	0.813 (21)	1.77 (45)	1.88 (47.8)
6A22-AC	2.25 (57.2)	1.00 (25.4)	0.31 (7.9)	0.551 (14)	0.75 (20)	0.938 (25)	2.21 (56)	2.31 (58.7)
6A26-AC	2.60 (66.0)	1.06 (26.9)	0.31 (7.9)	0.551 (14)	1.00 (24)	1.188 (30)	2.36 (60)	2.43 (61.7)
6A30-AC	3.00 (76.2)	1.25 (31.8)	0.46 (11.7)	0.709 (18)	1.12 (30)	1.37 (35)	2.92 (74)	2.96 (75.2)
6A37-AC	3.75 (95.3)	1.44 (36.6)	0.52 (13.2)	0.748 (19)	1.50 (38)	1.87 (48)	3.71 (94)	3.40 (86.4)
6A45-AC	4.50 (114.3)	1.69 (42.9)	0.58 (14.7)	0.866 (22)	1.75 (45)	2.25 (55)	4.29 (109)	3.96 (100.6)
6A52-AC	5.25 (133.4)	1.94 (49.3)	0.65 (16.5)	0.984 (25)	2.25 (60)	2.62 (65)	4.92 (125)	4.52 (114.8)
6A60-AC	6.00 (152.4)	2.44 (62.0)	0.77 (19.6)	1.339 (34)	2.62 (70)	3.00 (75)	5.71 (145)	5.64 (143.3)

Performance Note: The torque capacity of keyless clamped hubs is governed by many factors, including shaft hub bore diameter, clamp size, and other installation variables. Keyless coupling hubs with bore sizes less than approximately one-half the maximum bore listed may not transmit the torque rating of the coupling. Consult factory if your application is of high torque/small shaft variety.

CD® COUPLINGS *SINGLE FLEX* STAINLESS STEEL

The Single Flex Composite Disc Stainless Steel coupling is an excellent choice for zero backlash applications that require stainless steel. The hub and hardware are made from 300 Series stainless steel and the composite disc material is highly resistant to many harsh chemicals.

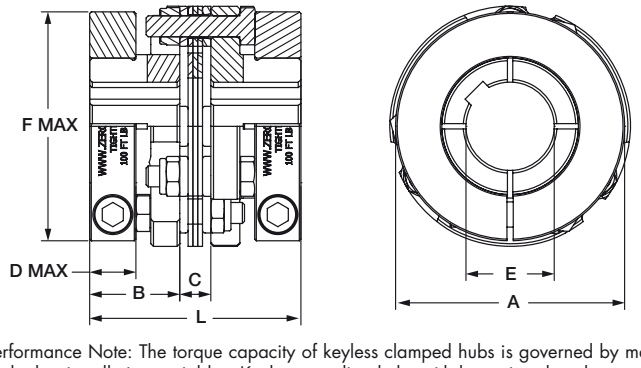
If your needs require a size of coupling that is not shown below, please contact Zero-Max.

- Consult factory for speeds higher than those listed and balancing requirements, if necessary.
- Consult factory for higher torque and higher torsional stiffness couplings.

Performance Information

	Continuous Rated Torque	Peak Rated Torque	Torsional Stiffness	Maximum Speed A & B Hub	Maximum Speed Clamp Style Hub	Misalignments Angular	Misalignments Parallel	Misalignments Axial	A Hub Unit Weight at Max Bore	A Hub Unit Inertia at Max Bore	Clamped Hub Unit Weight at Max Bore	Clamped Hub Unit Inertia at Max Bore
	in-lbs (Nm)	in-lbs (Nm)	in-lbs/Deg. (Nm/Rad)	(RPM)	(RPM)	Degrees	Inch (mm)	Inch (mm)	Lb. (kg.)	lb-in^2 (kg-cm^2)	Lb. (kg.)	lb-in^2 (kg-cm^2)
6A30-SS 6A30C-SS	800 (90)	1,600 (181)	6,638 (42,976)	9,000	8,000	3	0.010 (0.3)	0.050 (1.3)	2.0 (0.9)	1.9 (5.5)	2.88 (1.31)	3.11 (9.11)
6A37-SS 6A37C-SS	1,600 (181)	3,200 (362)	10,374 (67,167)	7,400	6,700	3	0.013 (0.3)	0.070 (1.8)	3.6 (1.6)	5.6 (16.3)	6.04 (2.74)	9.62 (28.13)
6A45-SS 6A45C-SS	2,500 (282)	5,000 (564)	19,138 (123,909)	6,100	5,600	3	0.015 (0.4)	0.090 (2.3)	6.4 (2.9)	14.6 (42.7)	7.65 (3.47)	18.0 (52.6)
6A52-SS 6A52C-SS	3,560 (402)	7,120 (804)	26,049 (168,656)	5,200	4,800	3	0.018 (0.5)	0.110 (2.8)	10.5 (4.8)	32.4 (94.8)	11.93 (5.41)	38.9 (113.8)

Clamp Style Hub

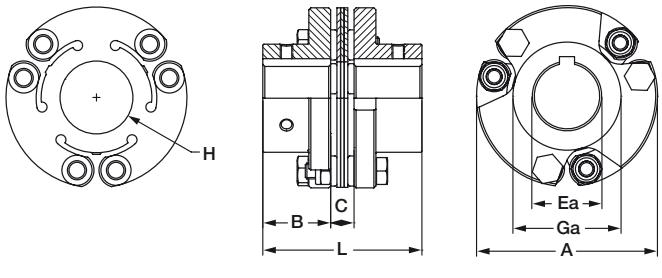


Dimensional Information

	A	B	C	D	Max Bore E w/kwy	Max Bore E w/o kwy	F	L
	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)
6A30C-SS	3.00 (76.2)	1.25 (31.8)	0.46 (11.7)	0.69 (17.5)	1.12 (28)	1.37 (35)	2.63 (66.8)	2.96 (75.2)
6A37C-SS	3.75 (95.3)	1.44 (36.6)	0.52 (13.2)	0.75 (19.1)	1.50 (38)	1.87 (48)	3.25 (82.6)	3.40 (86.4)
6A45C-SS	4.50 (114.3)	1.69 (42.9)	0.58 (14.7)	0.75 (19.1)	1.62 (42)	2.00 (50)	3.50 (88.9)	3.96 (100.6)
6A52C-SS	5.25 (133.4)	1.94 (49.3)	0.65 (16.5)	0.88 (22.4)	2.12 (55)	2.62 (65)	4.25 (108.0)	4.52 (114.8)

Performance Note: The torque capacity of keyless clamped hubs is governed by many factors, including shaft hub bore diameter, clamp size, and other installation variables. Keyless coupling hubs with bore sizes less than approximately one-half the maximum bore listed may not transmit the torque rating of the coupling. Consult factory if your application is of high torque/small shaft variety.

Set Screw Style Hub



Dimensional Information

	A	B	C	Max Bore Ea A Hub	Ga A Hub	H	L	X
	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)
6A30-SS	3.00 (76.2)	1.25 (31.8)	0.46 (11.7)	1.000 (25)	1.71 (43)	1.21 (31)	2.96 (75)	0.39 (9.9)
6A37-SS	3.75 (95.3)	1.44 (36.5)	0.52 (13.3)	1.250 (32)	2.19 (56)	1.51 (38)	3.40 (86)	0.68 (17.3)
6A45-SS	4.50 (114)	1.69 (42.9)	0.58 (14.8)	1.625 (42)	2.69 (68)	1.81 (46)	3.96 (101)	0.91 (23.1)
6A52-SS	5.25 (133)	1.94 (49.2)	0.65 (16.4)	1.875 (45)	3.31 (84)	2.10 (54)	4.52 (115)	0.73 (18.5)

- "X" dimension is the minimum bolt travel required beyond the hub to disassemble the disc pack from the hubs.

CD® COUPLINGS *DOUBLE FLEX* STEEL

The Double Flex Composite Disc Coupling is ideal for precision applications that require more misalignment capacity than our Single Flex design. The coupling's large misalignment capacity, high torsional stiffness, and overall high performance specifications make this coupling a good choice for a wide variety of applications.

- Zero Backlash
- Torsionally Stiff
- Excellent for Reversing Loads
- Smooth Operation at High Speeds
- Compact
- Very low reaction loads on shaft bearings due to misalignment

Available with or without keyway on clamp style hubs.

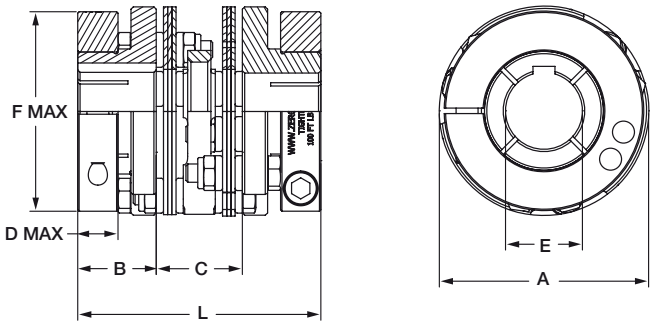
Performance Information

	Continuous Rated Torque	Peak Rated Torque	Torsional Stiffness	Maximum Speed		Misalignments			A Hub		B Hub		Clamped Hub		QD Hubs
				A & B Hub	Clamp Style Hub	Angular	Parallel	Axial	Unit Weight at Max Bore	Unit Inertia at Max Bore	Unit Weight at Max Bore	Unit Inertia at Max Bore	Unit Weight at Max Bore	Unit Inertia at Max Bore	Unit Weight w/Bushing
	in-lbs (Nm)	in-lbs (Nm)	in-lbs/Deg. (Nm/Rad)	(RPM)	(RPM)	Degrees	Inch (mm)	Inch (mm)	Lb. (kg.)	lb-in^2 (kg-cm^2)	Lb. (kg.)	lb-in^2 (kg-cm^2)	Lb. (kg.)	lb-in^2 (kg-cm^2)	Lb. (kg.)
6P18 6P18C	180 (20)	360 (40)	850 (5,500)	14,000	12,000	3	0.022 (0.56)	0.060 (1.5)	0.47 (0.21)	0.19 (0.56)	–	–	0.93 (0.42)	0.40 (1.17)	–
6P22 6P22C	270 (30)	540 (36)	1,310 (8,482)	12,000	11,000	3	0.026 (0.66)	0.072 (1.8)	1.10 (0.50)	0.66 (1.94)	1.18 (0.54)	0.82 (2.41)	1.79 (0.81)	1.25 (3.65)	–
6P26 6P26C	475 (53)	950 (106)	1,500 (9,712)	10,500	9,500	3	0.030 (0.76)	0.086 (2.2)	1.66 (0.75)	1.19 (3.47)	1.66 (0.75)	1.46 (4.28)	2.12 (0.96)	1.82 (5.31)	–
6P30 6P30C	800 (90)	1,600 (181)	3,231 (20,923)	9,000	8,000	3	0.039 (1.0)	0.100 (2.5)	2.5 (1.1)	2.5 (7.3)	3.0 (1.3)	3.5 (10.2)	4.01 (1.82)	4.70 (13.75)	–
6P37 6P37C 6P37QD	1,600 (181)	3,200 (362)	5,051 (32,700)	7,400	6,700	3	0.049 (1.2)	0.140 (3.6)	4.5 (2.1)	7.5 (21.8)	5.1 (2.3)	9.8 (28.6)	6.25 (2.83)	13.59 (39.74)	4.0 (1.8)
6P45 6P45C 6P45QD	2,500 (282)	5,000 (564)	9,317 (60,324)	6,100	5,600	3	0.052 (1.3)	0.180 (4.6)	7.9 (3.6)	19.1 (55.9)	8.7 (4.0)	24.5 (71.7)	12.1 (5.5)	25.7 (75.0)	8.1 (3.7)
6P52 6P52C 6P52QD	3,560 (402)	7,120 (804)	12,682 (82,109)	5,100	4,800	3	0.062 (1.6)	0.220 (5.6)	12.8 (5.8)	41.6 (122)	13.7 (6.2)	52.5 (154)	16.9 (7.6)	62.3 (182.2)	13.9 (6.3)
6P60 6P60C 6P60QD	6,350 (718)	12,700 (1,436)	20,196 (130,763)	4,600	4,400	3	0.069 (1.8)	0.260 (6.6)	18.4 (8.4)	79.3 (232)	21.5 (9.8)	109 (319)	26.3 (11.9)	134.3 (392.9)	18.9 (8.6)
6P67 6P67C 6P67QD	10,300 (1,164)	20,600 (2,328)	30,159 (195,265)	4,300	4,100	3	0.076 (1.9)	0.300 (7.6)	26.2 (11.9)	141 (413)	30.7 (14.0)	193 (565)	39.2 (17.8)	235 (687)	24.7 (11.2)
6P77 6P77QD	15,600 (1,763)	31,200 (3,526)	45,815 (296,634)	3,300	–	3	0.089 (2.3)	0.320 (8.1)	38.5 (17.5)	273 (799)	45.8 (20.8)	381 (1115)	–	–	36.8 (16.7)
6P90	25,000 (2,825)	50,000 (5,650)	78,213 (506,395)	2,800	–	3	0.101 (2.6)	0.360 (9.1)	61.4 (27.9)	596 (1744)	74.1 (33.7)	857 (2508)	–	–	–
6P105	34,900 (3,944)	69,800 (7,888)	118,889 (769,756)	2,500	–	3	0.126 (3.2)	0.420 (10.7)	101 (45.9)	1362 (3986)	118 (53.6)	1888 (5525)	–	–	–
6P120	47,200 (5,333)	94,400 (10,666)	159,730 (1,034,187)	2,100	–	3	0.137 (3.5)	0.500 (12.7)	150 (68.2)	2600 (7609)	167 (76.0)	3646 (10,670)	–	–	–

- Consult factory for speeds higher than those listed and balancing requirements, if necessary.
- Consult factory for higher torque and higher torsional stiffness couplings.

CD® COUPLINGS *DOUBLE FLEX* STEEL

Clamp Style Hub

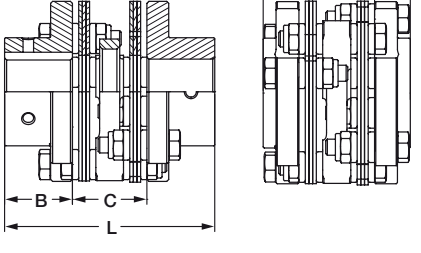


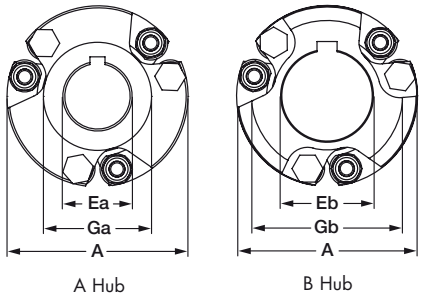
Dimensional Information

	A	B	C	D	Max Bore E w/kwy	Max Bore E w/o kwy	F	L
	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)
6P18C	1.85 (47.0)	0.81 (20.6)	0.80 (20.3)	0.472 (12)	0.63 (16)	0.813 (21)	1.77 (45)	2.42 (61.5)
6P22C	2.25 (57.2)	1.00 (25.4)	0.96 (24.4)	0.551 (14)	0.75 (20)	0.938 (25)	2.21 (56)	2.96 (75.2)
6P26C	2.60 (66.0)	1.06 (26.9)	1.04 (26.4)	0.551 (14)	1.00 (24)	1.188 (30)	2.36 (60)	3.16 (80.3)
6P30C	3.00 (76.2)	1.25 (31.8)	1.42 (36.1)	0.709 (18)	1.12 (30)	1.37 (35)	2.92 (74)	3.92 (99.6)
6P37C	3.75 (95.3)	1.44 (36.6)	1.67 (42.4)	0.748 (19)	1.50 (38)	1.87 (48)	3.71 (94)	4.55 (115.6)
6P45C	4.50 (114.3)	1.69 (42.9)	1.85 (47.0)	0.866 (22)	1.75 (45)	2.25 (55)	4.29 (109)	5.23 (132.8)
6P52C	5.25 (133.4)	1.94 (49.3)	2.11 (53.6)	0.984 (25)	2.25 (60)	2.62 (65)	4.92 (125)	5.98 (151.9)
6P60C	6.00 (152.4)	2.44 (62.0)	2.41 (61.2)	1.339 (34)	2.62 (70)	3.00 (75)	5.71 (145)	7.29 (185.2)
6P67C	6.75 (171.5)	2.75 (69.9)	2.70 (68.6)	1.339 (34)	2.875 (80)	3.50 (90)	6.50 (165)	8.20 (208.3)

Performance Note: The torque capacity of keyless clamped hubs is governed by many factors, including shaft hub bore diameter, clamp size, and other installation variables. Keyless coupling hubs with bore sizes less than approximately one-half the maximum bore listed may not transmit the torque rating of the coupling. Consult factory if your application is of high torque/small shaft variety.

Set Screw and QD Style Hub



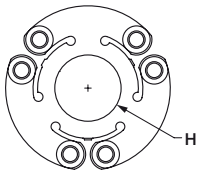


A Hub B Hub

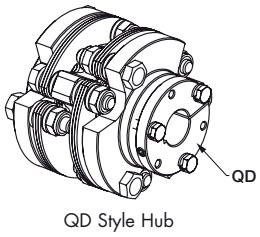
Dimensional Information

	A	B	C	Max Bore Ea A Hub	Max Bore Eb B Hub	Ga A Hub	Gb B Hub	H	L	X	Y	LB	T	QD
	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Type
6P18	1.85 (47.0)	0.625 (15.9)	0.803 (20.4)	0.625 (16)	–	1.125 (28.6)	–	0.790 (20.1)	2.05 (52.1)	–	0.48 (12.2)	–	–	–
6P22	2.25 (57.2)	0.938 (23.8)	0.956 (24.3)	0.625 (16)	1.000 (26)	1.219 (31)	1.88 (47.6)	0.907 (23.8)	2.83 (71.9)	0.51 (13)	0.64 (16.3)	–	–	–
6P26	2.59 (65.9)	1.06 (27)	1.03 (26.3)	0.750 (19)	1.250 (32)	1.502 (38.2)	2.16 (54.8)	1.00 (25.4)	3.16 (80.2)	0.39 (9.9)	0.47 (12)	–	–	–
6P30	3.00 (76.2)	1.25 (31.8)	1.42 (36.1)	1.000 (25)	1.375 (35)	1.71 (43)	2.50 (64)	1.21 (31)	3.92 (100)	0.39 (9.9)	0.68 (17.3)	–	–	–
6P37 6P37QD	3.75 (95.3)	1.44 (36.5)	1.67 (42.4)	1.250 (32)	1.813 (46)	2.19 (56)	3.13 (79)	1.51 (38)	4.55 (115)	0.68 (17.3)	0.95 (24.1)	2.93 (75)	0.63 (16)	JA
6P45 6P45QD	4.50 (114)	1.69 (42.9)	1.85 (47.0)	1.625 (42)	2.250 (60)	2.69 (68)	3.75 (95)	1.81 (46)	5.23 (133)	0.91 (23.1)	1.35 (34.3)	3.61 (92)	0.88 (22.4)	SH
6P52 6P52QD	5.25 (133)	1.94 (49.2)	2.11 (53.5)	1.875 (45)	2.625 (66)	3.31 (84)	4.38 (111)	2.10 (54)	5.98 (152)	0.73 (18.5)	1.10 (27.9)	4.87 (124)	1.38 (35.1)	SD
6P60 6P60QD	6.00 (152)	2.44 (61.9)	2.41 (61.2)	2.250 (60)	3.000 (76)	3.67 (93)	5.00 (127)	2.42 (61)	7.29 (185)	0.69 (17.5)	1.42 (36.1)	5.17 (131)	1.38 (35.1)	SD
6P67 6P67QD	6.75 (171)	2.75 (69.9)	2.70 (68.7)	2.625 (65)	3.375 (85)	4.29 (108)	5.63 (143)	2.72 (69)	8.20 (208)	0.41 (10.4)	1.11 (28.2)	5.46 (139)	1.38 (35.1)	SK
6P77 6P77QD	7.75 (197)	3.13 (79.4)	3.15 (80.1)	2.875 (75)	3.875 (100)	4.61 (117)	6.46 (164)	3.13 (79)	9.40 (239)	0.89 (22.6)	1.40 (35.6)	6.15 (156)	1.38 (35.1)	SF
6P90	9.00 (229)	3.75 (95.3)	3.58 (91.0)	3.000 (75)	4.500 (120)	5.38 (137)	7.50 (190)	3.62 (92)	11.08 (281)	1.39 (35.3)	1.47 (37.3)	–	–	–
6P105	10.50 (267)	4.25 (108)	4.42 (112)	3.750 (95)	5.125 (130)	6.11 (155)	8.75 (222)	4.23 (107)	12.92 (328)	1.92 (48.8)	2.64 (67.1)	–	–	–
6P120	12.00 (305)	4.75 (121)	4.82 (123)	4.250 (110)	6.000 (152)	7.34 (186)	10.00 (254)	4.83 (123)	14.32 (364)	1.48 (37.6)	2.14 (54.4)	–	–	–

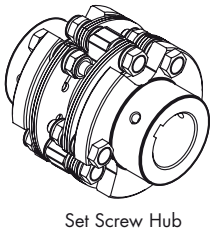
- "X" dimension is the minimum bolt travel required beyond the hub to disassemble the disc pack and intermediate member from the hubs.



Flex Disc



QD Style Hub



Set Screw Hub

QD Style Hub

Set Screw Hub

CD® COUPLINGS *DOUBLE FLEX* ALUMINUM

The Double Flex Composite Disc Coupling is ideal for precision applications that require more misalignment capacity than our Single Flex design. The coupling's large misalignment capacity, high torsional stiffness, and overall high performance specifications make this coupling a good choice for a wide variety of applications. Aluminum hubs offer all this with very little inertia.

- Zero Backlash
- Torsionally Stiff
- Excellent for Reversing Loads
- Smooth Operation at High Speeds
- Compact
- Very low reaction loads on shaft bearings due to misalignment

Clamp Style Hub

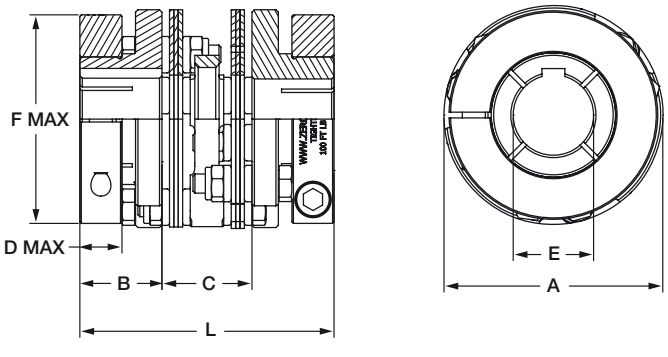
Available with or without keyway on clamp style hubs.

Performance Information

	Continuous Rated Torque	Maximum Rated Torque	Torsional Stiffness	Maximum Speed Clamp Style Hub	Misalignments			Clamped Hub			
					Angular	Parallel	Axial	Unit Weight at Max Bore	Unit Weight at 1/2 Max Bore	Unit Inertia at Max Bore	Unit Inertia at 1/2 Max Bore
	in-lbs (Nm)	in-lbs (Nm)	in-lbs/Deg. (Nm/Rad)	(RPM)	Degrees	Inch (mm)	Inch (mm)	Lb. (kg.)	Lb. (kg.)	lb-in^2 (kg-cm^2)	lb-in^2 (kg-cm^2)
6P18-AC	180 (20)	360 (40)	850 (5,500)	15,000	3	0.022 (0.56)	0.060 (1.5)	0.43 (0.20)	0.43 (0.19)	0.20 (0.57)	0.18 (0.51)
6P22-AC	270 (30)	540 (60)	1,310 (8,482)	11,000	3	0.026 (0.66)	0.072 (1.8)	0.89 (0.40)	0.73 (0.33)	0.66 (1.94)	0.48 (1.39)
6P26-AC	475 (53)	950 (106)	1,500 (9,712)	9,500	3	0.030 (0.76)	0.086 (2.2)	1.06 (0.48)	0.95 (0.43)	0.93 (2.72)	0.70 (2.05)
6P30-AC	800 (90)	1,600 (181)	3,231 (20,923)	8,000	3	0.039 (1.0)	0.100 (2.5)	1.96 (0.89)	1.53 (0.69)	2.41 (7.05)	1.67 (4.88)
6P37-AC	1,600 (181)	3,200 (362)	5,051 (32,700)	6,700	3	0.049 (1.2)	0.140 (3.6)	3.53 (1.60)	2.69 (1.22)	7.07 (20.67)	4.72 (13.81)
6P45-AC	2,500 (282)	5,000 (564)	9,317 (60,324)	5,600	3	0.052 (1.3)	0.180 (4.6)	6.00 (2.72)	4.73 (2.15)	14.5 (42.3)	11.7 (34.3)
6P52-AC	3,560 (402)	7,120 (8040	12,682 (82,109)	4,800	3	0.062 (1.6)	0.220 (5.6)	8.28 (3.75)	7.22 (3.27)	28.1 (82.3)	24.1 (70.5)
6P60-AC	6,350 (718)	12,700 (1,436)	20,196 (130,763)	4,400	3	0.069 (1.8)	0.260 (6.6)	12.8 (5.8)	10.7 (4.9)	58.2 (170.3)	46.2 (135.3)

- Consult factory for speeds higher than those listed and balancing requirements, if necessary.
- Consult factory for higher torque and higher torsional stiffness couplings.

Clamp Style Hub



Dimensional Information

	A	B	C	D	Max Bore E w/kwy	Max Bore E w/o kwy	F	L
	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)
6P18-AC	1.85 (47.0)	0.81 (20.6)	0.80 (20.3)	0.472 (12)	0.63 (16)	0.813 (21)	1.77 (45)	2.42 (61.5)
6P22-AC	2.25 (57.2)	1.00 (25.4)	0.96 (24.4)	0.551 (14)	0.75 (20)	0.938 (25)	2.21 (56)	2.96 (75.2)
6P26-AC	2.60 (66.0)	1.06 (26.9)	1.04 (26.4)	0.551 (14)	1.00 (24)	1.188 (30)	2.36 (60)	3.16 (80.3)
6P30-AC	3.00 (76.2)	1.25 (31.8)	1.42 (36.1)	0.709 (18)	1.12 (30)	1.37 (35)	2.92 (74)	3.92 (99.6)
6P37-AC	3.75 (95.3)	1.44 (36.6)	1.67 (42.4)	0.748 (19)	1.50 (38)	1.87 (48)	3.71 (94)	4.55 (115.6)
6P45-AC	4.50 (114.3)	1.69 (42.9)	1.85 (47.0)	0.866 (22)	1.75 (45)	2.25 (55)	4.29 (109)	5.23 (132.8)
6P52-AC	5.25 (133.4)	1.94 (49.3)	2.11 (53.6)	0.984 (25)	2.25 (60)	2.62 (65)	4.92 (125)	5.98 (151.9)
6P60-AC	6.00 (152.4)	2.44 (62.0)	2.41 (61.2)	1.339 (34)	2.62 (70)	3.00 (75)	5.71 (145)	7.29 (185.2)

Performance Note: The torque capacity of keyless clamped hubs is governed by many factors, including shaft hub bore diameter, clamp size, and other installation variables. Keyless coupling hubs with bore sizes less than approximately one-half the maximum bore listed may not transmit the torque rating of the coupling. Consult factory if your application is of high torque/small shaft variety.

CD® COUPLINGS *FLOATING SHAFT*

The Composite Disc Floating Shaft Coupling is zero backlash and torsionally stiff, yet provides superior misalignment capacity. Additionally, the patented Composite Disc provides excellent support for the floating shaft component with very little radial loads on the connected equipment and bearings. Precision hardware and precise machining ensures smooth and accurate operation.

- Zero Backlash
- Torsionally Stiff
- Excellent for Reversing Loads
- Very Low Reaction Loads
- Available in both set screw and clamp style hubs

Available with or without keyway on clamp style hubs.

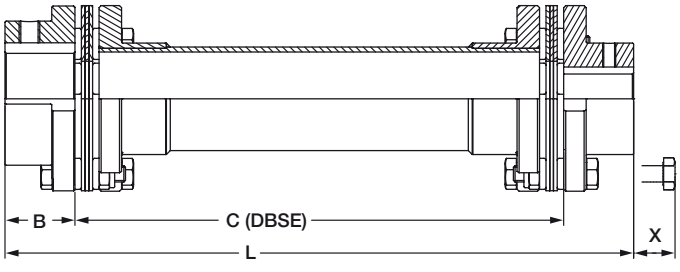
Performance Information

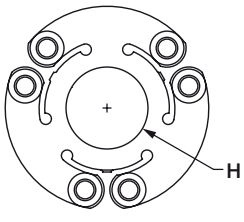
				Torsional Stiffness				Maximum Misalignments			A Hub				B Hub		Clamped Hub	
	Continuous Rated Torque	Peak Rated Torque	Bse (Note 1) at 12" DBSE (at 300mm DBSE)	Factor Z	Factor Y	Factor Z1	Factor Y1	Angular (Note 2)	Parallel	Axial	Base Unit Wt. at 12" DBSE (Note 3) at 300mm DBSE)	Base Unit Inertia at 12" DBSE (Note 3) at 300mm DBSE)	Weight adder per inch of DBSE (per meter of DBSE)	Inertia adder inch of DBSE (per meter of DBSE)	Additional Weight for (each)	Additional Inertia for (each)	Additional Weight for (each) maximum	Additional Inertia for (each) maximum
	in.-lbs. (Nm)	in.-lbs. (Nm)	in. lbs./ deg. (Nm/ Radian)	in.-lbs./deg.	in.-lbs./deg.	(Nm/ Radian)	(Nm/ Radian)	Degrees	Inch/inch of DBSE (mm/Meter of DBSE)	Inch (mm)	Lb. (kg.)	Lb-in^2 (Kg Cm^2/ meter)	Lb./inch (kg./ meter)	Lb.-In^2 (Kg-Cm^2)	Lb. (kg.)	Lb.-In^2 (Kg-Cm^2)	Lb. (kg.)	Lb.-In^2 (Kg-Cm^2)
6F22 6F22C	270 (30)	540 (60)	516 (3,379)	0.05	0.84	(0.338)	(138)	2.5	0.022 (22)	0.060 (1.5)	2.00 (0.9)	0.86 (2.5)	0.054 (0.97)	0.012 (1.37)	0.04 (0.0)	0.09 (0.2)	0.32 (0.14)	0.15 (0.4)
6F26 6F26C	475 (53)	950 (106)	857 (5,589)	0.09	2.09	(0.559)	(344)	2.5	0.022 (22)	0.080 (2.0)	3.29 (1.5)	1.90 (5.6)	0.086 (1.54)	0.029 (3.40)	0.00 (0.0)	0.14 (0.4)	0.40 (0.18)	0.33 (1.0)
6F30 6F30C	800 (90)	1,600 (180)	1,246 (8,157)	0.13	2.09	(0.816)	(344)	2.5	0.022 (22)	0.100 (2.5)	4.19 (1.9)	3.44 (10.1)	0.086 (1.54)	0.029 (3.40)	0.25 (0.1)	0.48 (1.4)	0.65 (0.3)	0.77 (2.3)
6F37 6F37C	1,600 (181)	3,200 (362)	3,754 (24,439)	0.38	13.05	(2.444)	(2,146)	3	0.026 (26)	0.14 (3.6)	8.30 (3.8)	11.8 (34.5)	0.208 (3.73)	0.184 (21.2)	0.30 (0.1)	1.2 (3.4)	1.01 (0.5)	1.90 (5.6)
6F45 6F45C	2,500 (282)	5,000 (564)	7,215 (46,963)	0.72	25.57	(4.696)	(4,205)	3	0.026 (26)	0.18 (4.6)	13.2 (6.0)	28.2 (82.4)	0.254 (4.54)	0.360 (41.6)	0.42 (0.2)	2.7 (7.9)	1.01 (0.5)	4.6 (13.4)
6F52 6F52C	3,560 (402)	7,120 (804)	9,921 (64,571)	0.99	35.72	(6.457)	(5,874)	3	0.026 (26)	0.22 (5.6)	20.9 (9.5)	61.1 (179)	0.292 (5.22)	0.504 (58.2)	0.45 (0.2)	5.4 (15.8)	3.7 (1.7)	13.3 (38.8)
6F60 6F60C	6,350 (718)	12,700 (1,436)	15,749 (102,533)	1.58	53.3	(10.253)	(8,765)	3	0.026 (26)	0.26 (6.6)	28.2 (12.8)	109 (320)	0.333 (5.97)	0.751 (86.8)	1.5 (0.07)	14.6 (42.8)	5.0 (2.3)	15.4 (45.0)
6F67 6F67C	10,300 (1,164)	20,600 (2,328)	24,219 (157,561)	2.42	93.98	(15.756)	(15,454)	3	0.026 (26)	0.30 (7.6)	39.7 (18.0)	201 (587)	0.403 (7.21)	1.325 (153.0)	2.3 (1.0)	25.8 (75.5)	5.6 (2.5)	18.0 (52.6)

Note:1) For torsional stiffness (K, in.-lb./deg.) of units longer than 12", use the following formula,
where L=(DBSE-12) : K = ([ZxY) / ([LxZ) +Y)) x 10^4.
For torsional stiffness (K, Nm/Radian) of units longer than 300mm, use the following formula,
where L=(DBSE-300) : K = ([Z1 x Y1) / ([L x Z1) + Y1)) x 10^4.
Note:2) See page 13 regarding selection of coupling and misalignment capability.
Note:3) For weight and inertia of units longer than 12", subtract 12" from the DBSE (dimension C) and multiply by weight/inertia adders listed above.

CD® COUPLINGS *FLOATING SHAFT*

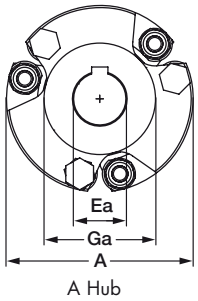
See the following page for maximum C Length and RPM data



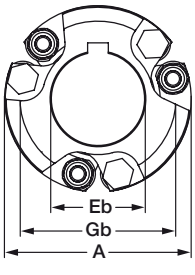


Flex Disc

Set Screw Style Hub

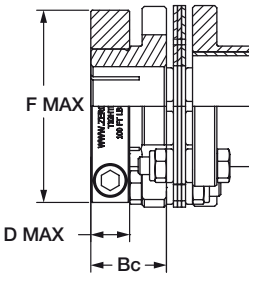


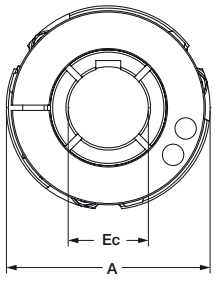
A Hub



B Hub

Clamp Style Hub





Dimensional Information

	A	B A & B Hub	Bc C Hub	D Max. C Hub	F Max. C Hub	Max Bore Set Screw Hub Ea A Hub	Max Bore Set Screw Hub Eb B Hub	Max Bore Clamp Hubs Ec C Hub w/kwy	Max Bore Clamp Hubs Ec C Hub w/o kwy	Ga A Hub	Gb B Hub	H	X	C min. (DBSE)
	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)
6F22 6F22C	2.25 (57.2)	0.94 (23.8)	1.00 (25.4)	0.551 (14)	2.21 (56)	0.625 (16)	1.000 (26)	0.75 (20)	0.938 (25)	1.22 (31.0)	1.88 (47.6)	0.91 (23.1)	0.51 (13.0)	3.00 (76.2)
6F26 6F26C	2.59 (65.8)	1.06 (27.0)	1.06 (27.0)	0.551 (14)	2.36 (60)	0.750 (19)	1.250 (32)	1.00 (24)	1.188 (30)	1.50 (38.1)	2.16 (54.8)	1.00 (25.4)	0.39 (9.9)	3.00 (76.2)
6F30 6F30C	3.00 (76.2)	1.25 (31.8)	1.25 (31.8)	0.709 (18)	2.92 (74)	1.000 (25)	1.375 (35)	1.125 (30)	1.375 (35)	1.71 (43.4)	2.50 (63.5)	1.21 (30.7)	0.39 (9.9)	3.68 (93.7)
6F37 6F37C	3.75 (95.3)	1.44 (36.5)	1.44 (36.5)	0.748 (19)	3.71 (94)	1.250 (32)	1.813 (46)	1.500 (38)	1.875 (48)	2.19 (55.6)	3.13 (79.4)	1.51 (38.4)	0.68 (17.3)	4.5 (114.3)
6F45 6F45C	4.50 (114.3)	1.69 (42.9)	1.69 (42.9)	0.866 (22)	4.29 (109)	1.625 (42)	2.250 (60)	1.75 (45)	2.25 (55)	2.69 (68.3)	3.75 (95.3)	1.81 (46.0)	0.91 (23.1)	5.50 (139.7)
6F52 6F52C	5.25 (133.4)	1.94 (49.2)	1.94 (49.2)	0.984 (25)	4.92 (125)	1.875 (45)	2.625 (66)	2.25 (60)	2.625 (65)	3.31 (84.1)	4.38 (111.1)	2.10 (53.3)	0.73 (18.5)	6.5 (165.1)
6F60 6F60C	6.00 (152.4)	2.44 (61.9)	2.44 (61.9)	1.339 (34)	5.71 (145)	2.250 (60)	3.000 (76)	2.62 (70)	3.000 (75)	3.67 (93.2)	5.00 (127.0)	2.42 (61.5)	0.69 (17.5)	7.00 (178)
6F67 6F67C	6.75 (171.5)	2.75 (69.9)	2.75 (69.9)	1.339 (34)	6.50 (165)	2.625 (65)	3.375 (85)	2.875 (80)	3.50 (90)	4.29 (109.0)	5.63 (142.9)	2.72 (69.1)	0.41 (10.4)	8.00 (203)

- Dimension L is equal to (2x B) + C (C is the DBSE or span)
- Dimension C is always manufactured to application requirements
- "X" dimension is minimum bolt travel required beyond the hub to disassemble disc packs from the hubs.

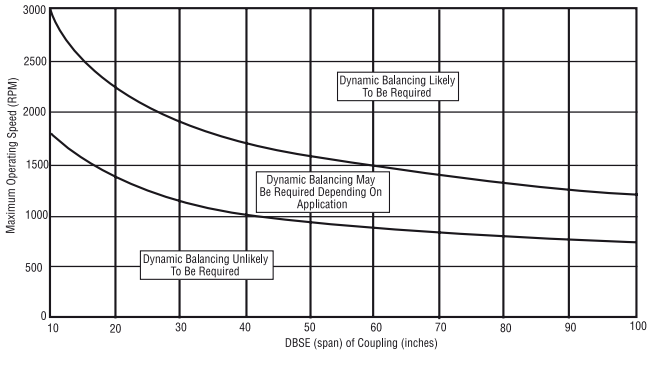
Table below shows lengths and speeds at which standard floating shaft couplings can operate while avoiding natural frequencies. Couplings at or near table values may require dynamic balancing. See below for balancing information. Should your application fall outside these parameters, consult factory. Special construction of the disc pack or floating shaft can increase speeds and/or maximum lengths. Refer to coupling misalignment information below.

Maximum Span C

	2,250 RPM	2,000 RPM	1,750 RPM	1,500 RPM	1,250 RPM	1,000 RPM	900 RPM	750 RPM	650 RPM	500 RPM
	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)	Inch (mm)
6F22 6F22C	46.9 (1,193)	49.8 (1,265)	53.2 (1,352)	57.5 (1,461)	63.0 (1,600)	70.4 (1,789)	74.2 (1,886)	81.3 (2,066)	87.4 (2,219)	99.6 (2,530)
6F26 6F26C	52.5 (1,332)	55.6 (1,413)	59.5 (1,511)	64.2 (1,632)	70.4 (1,787)	78.7 (1,998)	82.9 (2,107)	90.9 (2,308)	97.6 (2,479)	111.3 (2,826)
6F30 6F30C	52.5 (1,332)	55.6 (1,413)	59.5 (1,511)	64.2 (1,632)	70.4 (1,787)	78.7 (1,998)	82.9 (2,107)	90.9 (2,308)	97.6 (2,479)	111.3 (2,826)
6F37 6F37C	51.0 (1,295)	67.3 (1,709)	75.4 (1,915)	81.4 (2,068)	89.2 (2,266)	99.7 (2,533)	105.1 (2,670)	115.2 (2,925)	123.7 (3,142)	141.0 (3,582)
6F45 6F45C	59.5 (1,511)	79.2 (2,012)	84.9 (2,157)	91.7 (2,330)	100.5 (2,553)	112.4 (2,854)	118.4 (3,008)	129.7 (3,295)	139.4 (3,540)	158.9 (4,036)
6F52 6F52C	25.8 (655)	38.7 (983)	57.6 (1,463)	86.7 (2,202)	105.5 (2,681)	118.0 (2,997)	124.4 (3,159)	136.3 (3,461)	146.4 (3,718)	166.9 (4,239)
6F60 6F60C	33.2 (843)	49.0 (1,245)	71.8 (1,824)	103.0 (2,616)	112.8 (2,866)	126.1 (3,204)	133.0 (3,377)	145.7 (3,700)	156.5 (3,974)	178.4 (4,531)
6F67 6F67C	32.5 (826)	49.3 (1,252)	73.9 (1,877)	111.8 (2,840)	124.0 (3,150)	138.7 (3,522)	146.2 (3,713)	160.1 (4,067)	172.0 (4,369)	196.1 (4,981)

Dynamic Balancing Guidelines for CD Floating Shaft Couplings

The close tolerances used to manufacture CD Couplings in conjunction with the composite disc pack make CD Floating Shaft Couplings especially well suited to high speed and long span applications. Occasionally, the application may require dynamic balancing of the floating shaft coupling. See graph for general application guidelines.



Coupling Misalignment

In general, the misalignment capacity of CD Floating Shaft Couplings is related to the speed at which they operate and the mass of the floating shaft, which is governed by its diameter and length. The table to the right shows recommended maximum allowable angular misalignment:

By reducing the allowable misalignment (and therefore stresses in the discs) at higher operating speeds and longer DBSEs, the disc pack can better support and stabilize the floating shaft, which will result in longer coupling life, smoother operation, and less vibration to the connected equipment. Call us for application assistance.

DBSE (Distance "C")

	Up to 30"	30" - 60"	OVER 60"
To 500 RPM	3°	2.5°	2°
500–1,000 RPM	2.5°	2°	1.5°
1,000–1,500 RPM	2°	1.5°	1°
Above 1,500 RPM	1°	0.75°	0.50°

CD® COUPLINGS *SPACER AND FLOATING SHAFT SPECIALS*

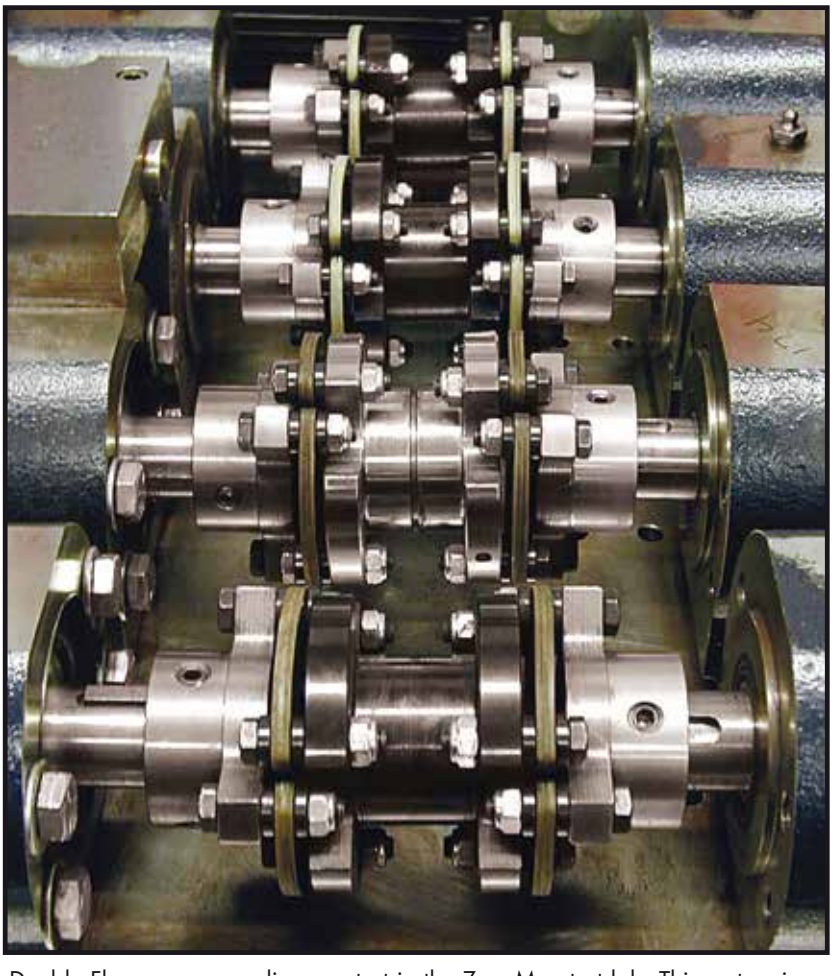
For long spans between motion components, special CD spacer or floating shaft couplings are the answer.

Any of the hub options (A, B and Clamp style) shown in this catalog are available.

Special spacer materials are available including aluminum, steel, and stainless steel.

Special finishes to shaft and hub components are available including nickel plating, and others.

Call Zero-Max for recommendations.



Double Flex spacer couplings on test in the Zero-Max test lab. This system is designed to run continuously at high misalignment, subjecting the composite unitized disc packs to billions of flexural fatigue cycles.

Clamp style hubs on the Composite Disc Floating Shaft Coupling provide an effective and secure shaft engagement.

Nickel plated CD Floating Shaft Coupling provide effective corrosion protection.

Custom designs.

No application is too large, too small, or too difficult for a CD coupling. Zero-Max has the ability to provide imaginative solutions for virtually every coupling need.

Design Engineering Assistance.

From the first contact you have with our factory trained and supported Representative, to the completion of the approval drawing, Zero-Max will provide quality service throughout the process. Zero-Max Engineering is continually involved in custom projects with the latest technology available to solve your coupling needs. Our recommendations are based on decades of coupling experience.

Need higher misalignment and greater torque capacity in your coupling? Need more flexibility and torsional stiffness too? Need to fit a high performance coupling in a really small space? Need a really large bore diameter coupling or a very long spacer coupling? It is likely that a standard CD Coupling will satisfy your requirements. If it doesn't, we'll quickly design a solution using our finite element analysis (FEA). With experience at thousands of different applications, our extensive FEA database brings instant answers to your questions.

Key Is The Patented Disc Design.
The key to the high performance capabilities of the CD coupling lies in the Composite Disc pack. Everything about this unique part contributes to its high performance characteristics. The shape, the cutting process, the material used, the order and the orientation of the layers, and even the coating used have an important significance.
Zero-Max has been perfecting this design since the mid 80's and has accumulated a vast database of solutions.

Finite Element Analysis Tailors Disc to Application.

Using finite element analysis (FEA), the disc design can be easily modified along with changes in the composite material. Custom disc designs (manufactured on state-of-the-art laser cutting machines) can add to or lessen coupling flexibility or increase strength and stiffness as required for the particular application. There are over

40 standard models and sizes of CD couplings for most applications. For applications outside this range, CD Couplings can be designed and produced cost effectively within your delivery requirements.

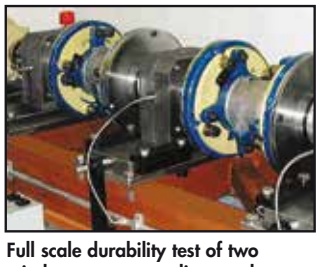
Design, Analysis, Testing Programs, and Production Capabilities are all geared toward supplying the correct coupling at the lowest cost and in the shortest lead time.

Coupling Axial Stiffness Test

The Zero-Max test laboratory is capable of all types of static and dynamic testing to insure that the design specifications are met.

Production of CD Couplings is executed with modern CNC machinery, which provides components with the accuracy required for demanding applications. Quality Control of all manufacturing processes, guarantees that CD Couplings will meet strict performance requirements.

Zero-Max is ISO 9001:2008 certified.



Full scale durability test of two wind generator couplings under extreme misalignment conditions.

CD® COUPLINGS *SPECIALS*

High Power in a small space
This allowed our customer to use a smaller machine base!

High Speed Couplings
This coupling uses low inertia designed hubs for exceptionally high speed applications.

Large Scale Floating Shaft Couplings
High Power Wind Turbines require long life and superior flexibility.

High Misalignment and High Torque
Composite materials of disc packs offer longer life and higher performance than Stainless disc packs.

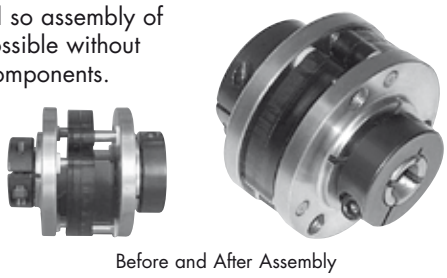
Custom Stiffness
Custom Disc pack and hubs to meet critical application.

Shrink Disc Clamping Hubs
Special hubs for high torque keyless shaft applications.

QD Bushing Couplings
Single flex coupling has machined hub to accept standard QD bushing.

Phase Adjustable Couplings
Special double flex coupling has built-in phase adjuster for use in printing presses.

Blind Fit Couplings
Coupling is designed so assembly of two fixed shafts is possible without disassembly of the components.

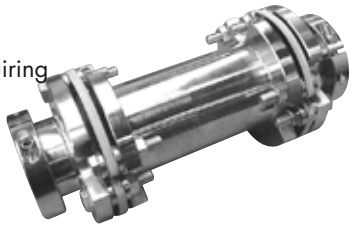


Before and After Assembly

High Misalignment and High Torque
Composite materials of disc packs offer longer life than Stainless disc packs.

CD® COUPLINGS *SPECIALS*

Nickel Plated Couplings
For applications requiring frequent washdowns.



Torque Transducer Coupling
Special spacer coupling has built-in torque transducer for use on a test fixture.

Aluminum Floating Shaft Couplings
For high speed operation.

Large Scale Floating shaft
For Large scale printing application.
Very high torsional stiffness.

High Precision in a small package
Double flex, clamp hubs only 1.6" wide!

Modified Discs For Increased Performance.

Zero-Max is committed to excellence and complete customer satisfaction. Every custom CD coupling must first exceed our performance expectations before production and delivery to you, our customer.

Longer Arm Design Yields Greater Coupling Flexibility

Shorter Arm Design Yields Greater Coupling Rigidity

Custom 12 bolt design
Ultra high torsional stiffness with flexibility.

Custom Disc Packs
To meet our customer designs and mount directly to custom driveline components

SELECTING THE RIGHT CD® COUPLING

Information Required

- Service factor.
- Continuous and peak torque requirements, and/or motor HP.
- Coupling RPM.
- Distance between shaft ends. (DBSE).
- Misalignment requirements.
- Physical space limitations.
- Hub bores, with or without keyways.
- Other environmental considerations.

Selection Procedure

1. Select a coupling type (Single Flex, Double Flex, Spacer or Floating Shaft) based on misalignment and/or DBSE (Distance Between Shaft Ends).
2. Determine the required service factor; please refer to the chart on the next page.
3. If continuous torque is known, then multiply it by the required service factor to get the design torque:
   Design Torque (in-lbs) = Continuous Torque (in-lbs) x Service Factor
   If continuous torque is not known, but Horsepower and RPM are, calculate the design torque by using this formula:

$$\text{Design Torque (in-lbs)} = \frac{\text{HP} \times 63{,}000 \times \text{Service Factor}}{\text{Coupling RPM}}$$

4. Select a coupling size that has a continuous torque rating greater than the Design Torque calculated in step 3. Make sure that the peak torque of the application does not exceed the maximum torque rating of the coupling.
5. Check Coupling RPM to be sure it is within the rated maximum speed. Consult with factory if your speed exceeds the ratings – We have made many special couplings that greatly exceed these ratings.
6. Make sure that the misalignment capability is sufficient. As with all couplings, there is a trade-off between the parallel, axial and angular misalignment capabilities. Be certain that the **combined percentages** of each do not exceed 100%. *If you have a question on combined misalignments, consult the factory.* It is always best to select a coupling with misalignment capabilities exceeding the initial operating conditions to allow for changing conditions over the operating life of the machine.
7. Check to be sure that the coupling fits the required dimensions such as available space envelope and bore sizes.
8. If the coupling size and type meet the torque, misalignment, space envelope criteria, the selection is complete.

Note: If the standard couplings listed in the catalog do not meet your requirements, please consult the factory. We will work with you to meet your needs.

Single

Double

Floating Shaft

Call Factory for Customs

HOW TO ORDER CD® COUPLINGS

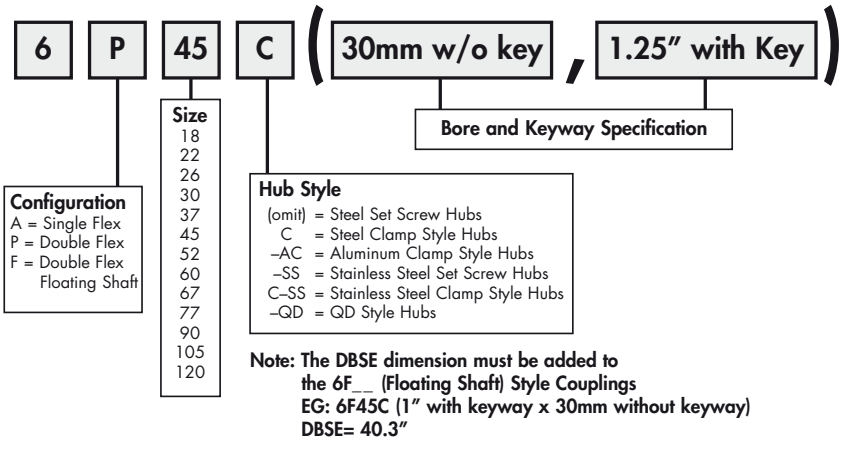
Determine the complete model code and the bore sizes, see example.

- For the clamp style, indicate if a keyway is needed.

Note: If no callout is made the hub will have a keyway.

- Contact factory if any options such as dynamic balancing, special DBSE (Distance Between Shaft Ends), special materials such as stainless steel or nickel plating, special bore tolerances, non-standard key sizes, etc.
- Please reference the charts below regarding standard key sizes.

Example **6P45C (30mm w/o key, 1.25" with key)**



Note: The DBSE dimension must be added to the 6F__ (Floating Shaft) Style Couplings
EG: 6F45C (1" with keyway x 30mm without keyway)
DBSE= 40.3"

Based on nominal shaft diameter (AGMA Standard 511.02) Clearance Fit Standard. Metric hub bores will be supplied with H7 clearance fit as standard. S7 interference fit available.

Standard Keyways
Inch Bore Hubs

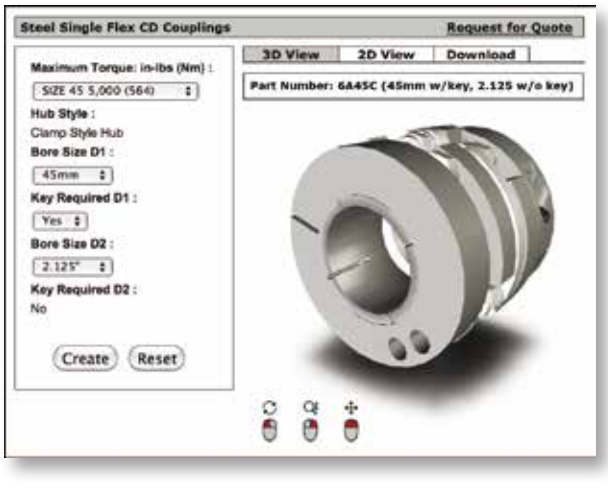
Bore Size		Keyway	Bore Size		Keyway
Over	To		Over	To	
0.437	0.562	0.125 x 0.062	2.250	2.750	0.625 x 0.312
0.562	0.875	0.187 x 0.094	2.750	3.250	0.750 x 0.375
0.875	1.250	0.250 x 0.125	3.250	3.750	0.875 x 0.437
1.250	1.375	0.312 x 0.156	3.750	4.500	1.000 x 0.500
1.375	1.750	0.375 x 0.187	4.500	5.500	1.250 x 0.625
1.750	2.250	0.500 x 0.250	5.500	6.500	1.500 x 0.750

Note: Inch bore hubs will be supplied with inch size setscrews.

Standard Keyways
Metric Bore Hubs

Bore Size		Keyway	Bore Size		Keyway
Over	To		Over	To	
10	12	4 x 1.8	58	65	18 x 4.4
12	17	5 x 2.3	65	75	20 x 4.9
17	22	6 x 2.8	75	85	22 x 5.4
22	30	8 x 3.3	85	95	25 x 5.4
30	38	10 x 3.3	95	110	28 x 6.4
38	44	12 x 3.3	110	130	32 x 7.4
44	50	14 x 3.8	130	150	36 x 8.4
50	58	16 x 4.3	150	170	40 x 9.4

Note: Metric bore hubs will be supplied with metric size setscrews



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www.zero-max.com

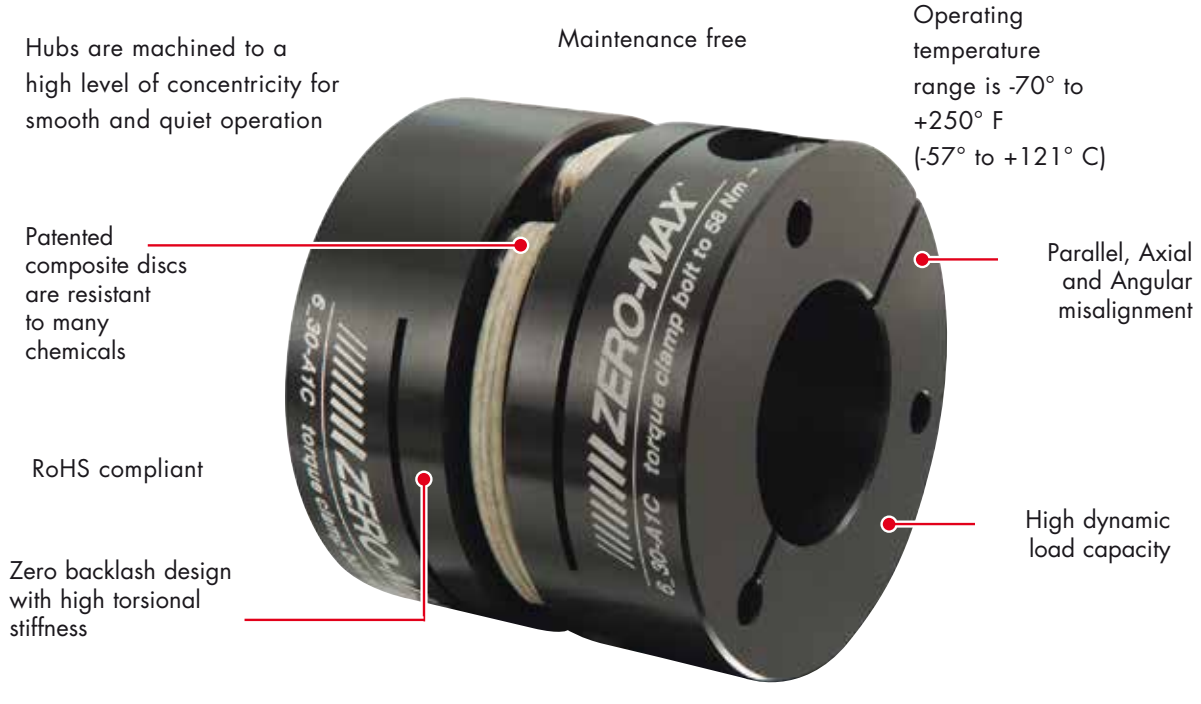
ZERO-MAX®

CD® Couplings

SERIES A1C

EXCEPTIONAL QUALITIES OF ZERO-MAX CD COUPLINGS SERIE A1C

- ***Zero-backlash***
  The CD Couplings Series A1C Couplings are machined and assembled with ultra precision for smooth and quiet operation.
- ***High torsional stiffness***
  CD Couplings have become the "standard" for applications that require a demanding level of precision and registration including high-end Printing Machinery, CNC Machine Tools, Packaging Machines and many, many more.
- ***Designed for highly dynamic operation***
  The high quality lightweight aluminum hubs with the composite element used together are perfect for highly dynamic applications.
- ***Highly resilient to peak loads***
  The composite material and the engineered shape of the element makes this coupling highly resistant to stresses induced by the couplings torque load.
- ***Long life operation in highly dynamic applications***
  We are often told that our couplings significantly outlast the competition in every application – even the most demanding ones!
- ***Custom solutions***
  The composite disc design is such that it can be easily modified to perform in several different ways depending on the application needs. With Zero-Max's mastery of the characteristic of the composite material we can engineer an element to meet the specific needs of many highly demanding applications.
- ***Potentially high misalignment applications***
  In the Double Flex configuration the CD Coupling provides high precision and high misalignment capacity. This combination is nearly impossible using other brands of couplings.



REASONS TO USE THE CD COUPLING

Valuable qualities of the CD Coupling design!

- ***High misalignment capacity***
  As the machine ages and shafts move out of alignment the CD coupling will operate longer than other coupling designs.
- ***Torsional stiffness***
  The CD coupling will keep the machine in registration.
- ***Environmental toughness***
  The composite will not be affected be many chemicals.
- ***Overdesign for the tough applications***
  The robust design of the flex element will perform in difficult applications for years and years.
- ***Time tested design***
  We know this design works!
- ***Flex element will not fatigue in high cyclic operation***
  Couplings torque rating will result in only 1/3 the maximum stress of the composite material.
- ***Ultra low reaction loads with result in longer bearing life in your driveline***
  The driveline bearings will operate cooler and longer.
- ***The coupling will dampening axial vibration***
  This quality has lowered machinery noise and improved the quality of rotary die cuts in converting machinery.

Examples of A1C Couplings applications

- Automated Assembly
- Packaging Machinery
- Printing Machinery
- Test equipment
- High Speed – High load Actuators
- Production Machinery
- Converting machinery
- Tube bending machinery
- Beverage can decorating machinery
- High speed electronic assembly machinery
- Container manufacturing machinery
- Label printing machinery
- High speed auger dispenser machinery
- Form fill seal package machinery
- Textile printing machinery
- Machine tools
- Case packing machinery

CD® COUPLINGS *SINGLE FLEX* ALUMINUM

CD Coupling Series A1C has very low weight and inertia, making it an excellent choice for servo motor applications. The unique design delivers two features that are not often found in a precision coupling. High torsional stiffness and high durability!

The compact size, low inertia, and clamping system enable this coupling to fit into many applications.

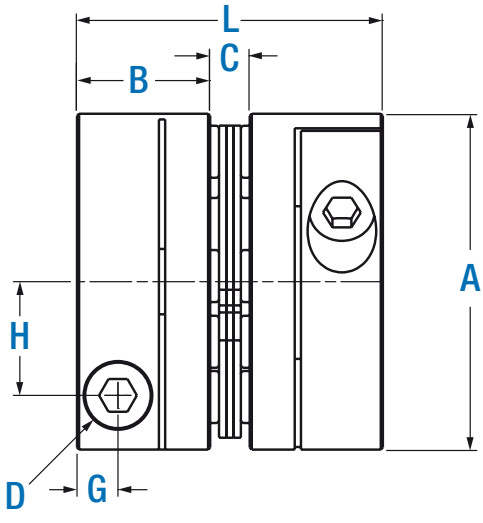
- Zero Backlash
- Torsionally Stiff
- Excellent for Reversing Loads
- Smooth Operation at High Speeds
- Compact

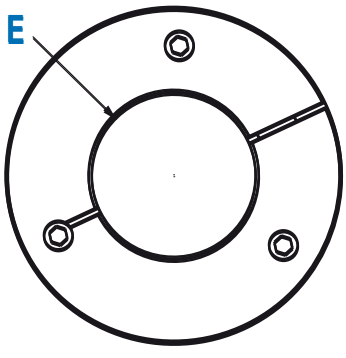
Performance Information

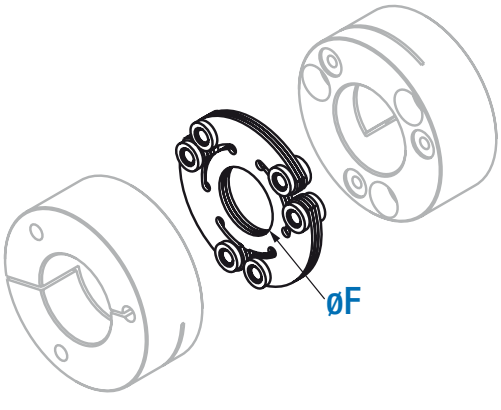
Model	Continuous Torque	Peak Torque	Torsional Stiffness	Maximum Speed	Maximum Misalignments			Weight		Inertia	
					Angular	Parallel	Axial	Max Bore	Min Bore	Max Bore	Min Bore
	Nm	Nm	Nm/Rad	RPM	Degrees	mm	mm	kg	kg	10^{-3}kg-m^2	10^{-3}kg-m^2
6A18-A1C	20	40	11,650	15,000	2	0.1	0.8	0.2	0.26	0.088	0.095
6A22-A1C	30	60	17,352	13,500	2	0.15	0.9	0.33	0.41	0.19	0.21
6A26-A1C	53	106	20,100	11,500	2	0.2	1.1	0.46	0.6	0.35	0.37
6A30-A1C	90	180	42,976	9,500	2	0.25	1.3	0.76	0.94	0.78	0.82
6A37-A1C	181	362	67,167	8,000	2	0.33	1.8	1.59	2.04	2.53	2.71
6A45-A1C	282	564	123,909	6,700	2	0.38	2.3	3	3.9	7.16	7.71

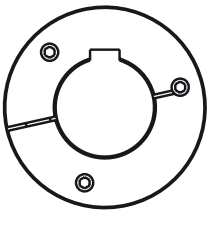
- Consult factory for speeds higher than those listed and balancing requirements, if necessary.
- Consult factory for higher torque and higher torsional stiffness couplings.
- Available with or without keyway on clamp style hubs.

CD® COUPLINGS *SINGLE FLEX* ALUMINUM









Note: Typical keyway placement

Dimensional Information

Model	A	B	C	D		E (bore)		F	G	H	L
				Bolt	Torque	Min	Max				
	mm	mm	mm	M	Nm	mm	mm	mm	mm	mm	mm
6A18-A1C	53	22.5	5.49	M6	13	9	27	20.1	7.25	18	50.5
6A22-A1C	62	26	5.74	M6	13	16	31	24.9	7.24	22	57.7
6A26-A1C	69.5	29.5	6.25	M8	32	14	36	25.4	9.14	24	65.2
6A30-A1C	82	32.5	9.65	M10	58	16	40	30.71	10	27.8	74.7
6A37-A1C	101	46	11.23	M12	100	18	52	38.4	12.7	36	103.2
6A45-A1C	123	60	12.75	M16	245	24	65	46	16.95	43.5	132.8

CD® COUPLINGS *DOUBLE FLEX* ALUMINUM

CD Coupling Series A1C has very low weight and inertia, making it an excellent choice for servo motor applications. The unique design delivers two features that are not often found in a precision coupling. High torsional stiffness and high durability!

The compact size, low inertia, and clamping system enable this coupling to fit into many applications.

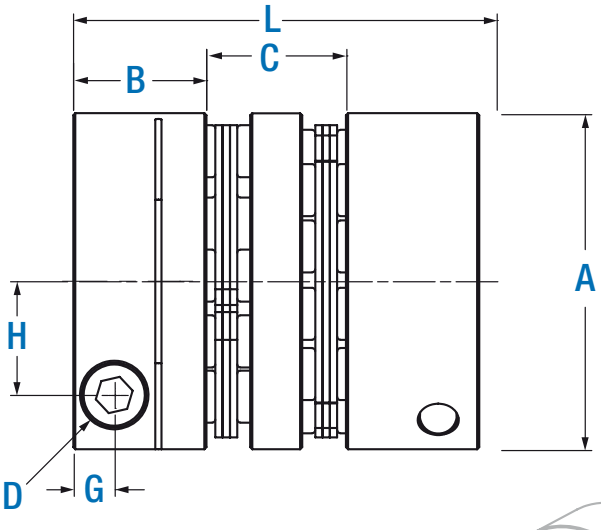
- Zero Backlash
- Torsionally Stiff
- Excellent for Reversing Loads
- Smooth Operation at High Speeds
- Compact

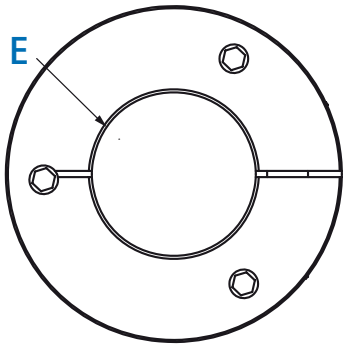
Performance Information

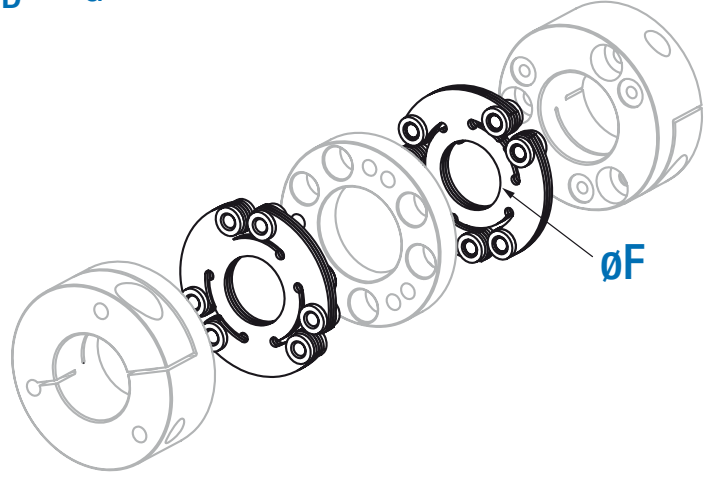
Model	Continuous Torque	Peak Torque	Torsional Stiffness	Maximum Speed	Maximum Misalignments			Weight		Inertia	
					Angular	Parallel	Axial	Max Bore	Min Bore	Max Bore	Min Bore
	Nm	Nm	Nm/Rad	RPM	Degrees	mm	mm	kg	kg	10^{-3}kg-m^2	10^{-3}kg-m^2
6P18-A1C	20	40	5,500	15,000	2	0.44	1.6	0.25	0.30	0.30	0.11
6P22-A1C	30	60	8,482	13,500	2	0.58	1.8	0.39	0.47	0.22	0.24
6P26-A1C	53	106	9,712	11,500	2	0.55	2.2	0.54	0.65	0.41	0.43
6P30-A1C	90	180	20,923	9,500	2	0.85	2.6	0.97	1.14	1.00	1.10
6P37-A1C	181	362	32,700	7,900	2	1.00	3.6	2.03	2.43	3.17	3.31
6P45-A1C	282	564	60,324	6,700	2	1.24	4.6	3.7	4.6	8.50	9.00

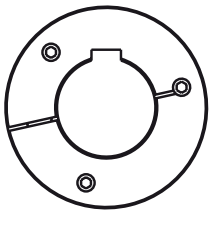
- Consult factory for speeds higher than those listed and balancing requirements, if necessary.
- Consult factory for higher torque and higher torsional stiffness couplings.
- Available with or without keyway on clamp style hubs.

CD® COUPLINGS *DOUBLE FLEX* ALUMINUM









Note: Typical keyway placement

Dimensional Information

Model	A	B	C	D		E (bore)		F	G	H	L
				Bolt	Torque	Min	Max				
	mm	mm	mm	M	Nm	mm	mm	mm	mm	mm	mm
6P18-A1C	53	22.5	18	M6	13	8	26	20.1	7	18	63
6P22-A1C	62	26	23	M6	13	12	31	24.9	7	22	75
6P26-A1C	69.5	29.5	22	M8	32	14	35	25.4	9.14	24	81
6P30-A1C	82	32.5	34	M10	58	16	40	30.7	10	27.8	99
6P37-A1C	101	46	42	M12	100	18	51	38.4	12.7	36	134
6P45-A1C	123	60	48	M16	245	24	65	46	16.2	43.5	168

CD® SELECTING A *CD®* COUPLING

Feed Screw Systems

1. Oscillation phenomena of servomotors

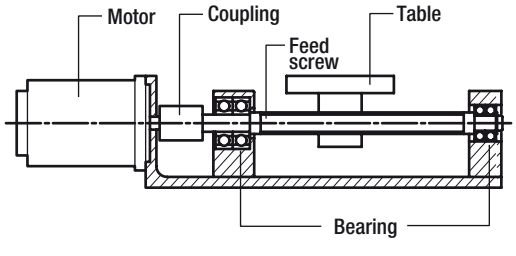
If the resonant frequency of the entire feed-screw system is under 400~500Hz, oscillation may occur depending on the gain adjustment of the servomotor. The problems can be avoided by raising the resonant frequency of the mechanical system or adjusting the tuning function (filter function) of the servomotor.

Contact us for unclear points concerning oscillation phenomena of servomotors.

How to evaluate the resonant frequency of feed-screw system

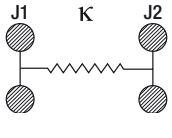
1. Select the coupling according to the normal operating torque and maximum torque of the servomotor/stepping motor.

2. In the following feed-screw system, evaluate the entire resonant frequency: Nf from the torsional spring constant: *K* of the coupling and feed screw, the moment of inertia: J1 of the driving side and the moment of inertia: J2 of the driven side.



$$Nf = \frac{1}{2\pi}\sqrt{K\left(\frac{1}{J1}+\frac{1}{J2}\right)}$$

Nf: Eigenfrequency of the entire feed-screw system [Hz]
K: Torsional spring constant of the coupling and feed screw [N · m/rad]
J1: Moment of inertia of the driving side
J2: Moment of inertia of the driven side



Selection Procedure

1. Calculate torque Ta applied to the coupling based on the motor output P and coupling operating rotation speed n.

$$Ta[N\cdot m] = 9550 \times \frac{P\ [kW]}{n\ [min^{-1}]}$$

2. Calculate corrected torque Td applied to the coupling after deciding the service factor K based on load conditions.
Td = Ta x K

In servomotor drive, multiply the service factor K=1.2~1.5 by the maximum torque of servomotor Ts.
Td = Ts × (1.2~1.5)

3. Select a coupling size with permissible torque Tn that becomes greater than the corrected torque Td.
Tn ≥ Td

4. Depending on the bore diameters, the coupling permissible torque may be limited. Refer to the "Specification" and "Standard bore diameter".

5. Confirm if the required shaft diameter does not exceed the maximum bore diameter of the selected size.

Custom Designs Available Upon Request

If our standard line of couplings will not exactly fit your system needs, contact us for a custom design.

- Custom bores
- Ultra high speeds
- Special finishes
- Special Lengths
- Designed for operation in special environments

HOW TO ORDER *CD®*

Part Numbering Structure

TYPE	SIZE	— A1C —	Bore	TYPE	—	Bore	TYPE
			See Chart			See Chart	

Code	Description
6A	Single Flex
6P	Double Flex

Code	Description
18	Size 18
22	Size 22
26	Size 26
30	Size 30
37	Size 37
45	Size 45

Code	Description
B	without Keyway
K	with Keyway

Code	Description
B	without Keyway
K	with Keyway

Note: The hub design of Series A1C CD Couplings will provide the necessary clamping force to hold the shaft in a dynamic application without the use of keyways.

Example:
6A30-A1C-20B-28B
- Single Flex
- Size 30
- 20mm bore without keyway x 28mm bore without keyway

Bore Size

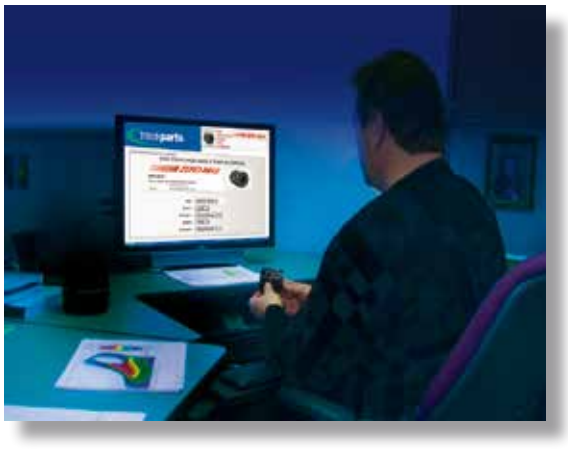
Model	Bore (mm)	9	10	11	12	13	14	15	16	17	18	19	20	22	24	25	28	30	32	35	38	40	42	45	48	50	52	55	58	60	62	63	65
6A18-A1C 6P18-A1C		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●																	
6A22-A1C 6P22-A1C									●	●	●	●	●	●	●	●	●	●																
6A26-A1C 6P26-A1C							●	●	●	●	●	●	●	●	●	●	●	●	●	●													
6A30-A1C 6P30-A1C									●	●	●	●	●	●	●	●	●	●	●	●	●	●											
6A37-A1C 6P37-A1C											●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●							
6A45-A1C 6P45-A1C															●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

●: The coupling will transmit full peak torque on a shaft without a keyway. Please contact the factory for additional bores

3D CAD FILE DOWNLOADS

3D PartStream

TraceParts



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3D CAD Downloads.
www.zero-max.com

Qualities of Zero-Max CD Couplings Series A1C

- ***Zero-backlash***
  These couplings are machined and assembled with high precision for smooth and quiet operation.
- ***High torsional stiffness***
  These couplings are used in high end printing applications that require a high level of precision and registration
- ***Designed for highly dynamic operation***
  The high quality lightweight aluminum hubs with the composite element used together are perfect highly dynamic applications.
- ***Highly resilient to peak loads***
  The composite material and the engineer shape of the element makes the coupling highly resistant to stresses induced by the couplings torque load.
- ***Long life operation in highly dynamic applications***
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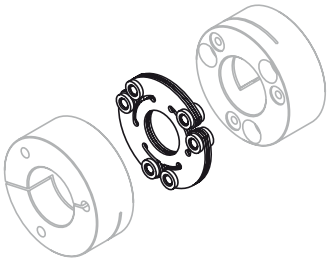


Custom designs.

No application is too large, too small, or too difficult for a CD coupling. Zero-Max has the ability to provide imaginative solutions for virtually every coupling need.

Design Engineering Assistance.

From the first contact you have with our factory trained and supported Representative, to the completion of the approval drawing, Zero-Max will provide quality service throughout the process. Zero-Max Engineering is continually involved in custom projects with the latest technology available to solve your coupling needs. Our recommendations are based on decades of coupling experience.

Need higher misalignment and greater torque capacity in your coupling? Need more flexibility and torsional stiffness too? Need to fit a high performance coupling in a really small space? Need a really large bore diameter coupling or a very long spacer coupling? It is likely that a standard CD Coupling will satisfy your requirements. If it doesn't, we'll quickly design a solution using our finite element analysis (FEA). With experience at thousands of different applications, our extensive FEA database brings instant answers to your questions.

Key Is The Patented Disc Design.
The key to the high performance capabilities of the CD coupling lies in the Composite Disc pack. Everything about this unique part contributes to its high performance characteristics. The shape, the cutting process, the material used, the order and the orientation of the layers, and even the coating used have an important significance.
Zero-Max has been perfecting this design since the mid 80's and has accumulated a vast database of solutions.

Finite Element Analysis Tailors Disc to Application.

Using finite element analysis (FEA), the disc design can be easily modified along with changes in the composite material. Custom disc designs (manufactured on state-of-the-art laser cutting machines) can add to or lessen coupling flexibility or increase strength and stiffness as required for the particular application. There are over 40 standard models and sizes of CD couplings for most applications. For applications outside this range, CD Couplings can be designed and produced cost effectively within your delivery requirements.

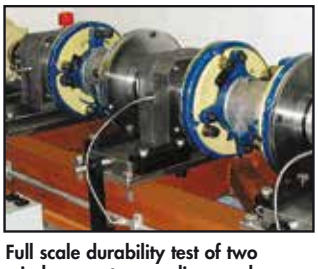
Design, Analysis, Testing Programs, and Production Capabilities are all geared toward supplying the correct coupling at the lowest cost and in the shortest lead time.

Coupling Axial Stiffness Test

The Zero-Max test laboratory is capable of all types of static and dynamic testing to insure that the design specifications are met.

Production of CD Couplings is executed with modern CNC machinery, which provides components with the accuracy required for demanding applications. Quality Control of all manufacturing processes, guarantees that CD Couplings will meet strict performance requirements.

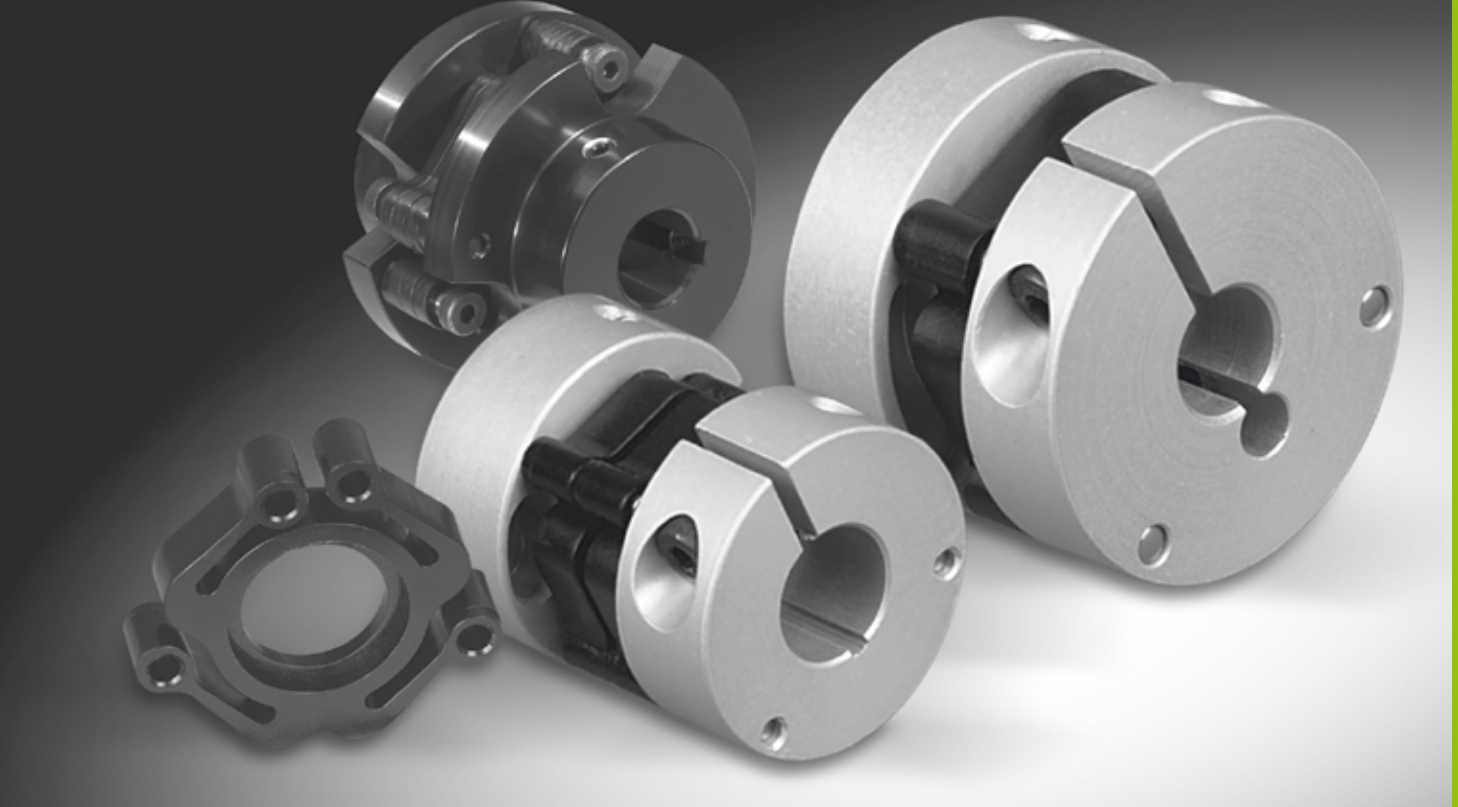
Zero-Max is ISO 9001:2008 certified.



Full scale durability test of two wind generator couplings under extreme misalignment conditions.

ZERO-MAX®

Control Flex® Couplings

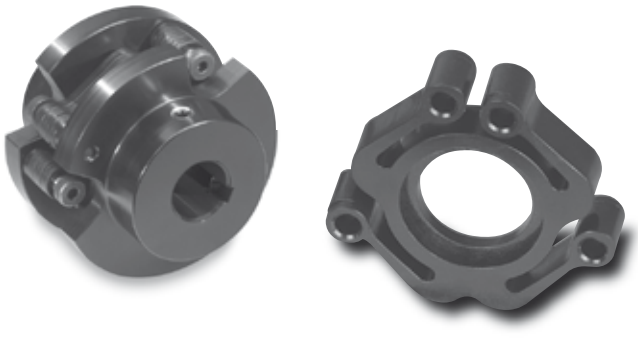


CONTROL-FLEX® COUPLINGS

Ideal for encoders, Control-Flex® Couplings are available with clamp-style zero backlash hubs or in a drop-out design for easy flexible disc changeout.

The Control-Flex® Coupling was developed to satisfy today's higher performance requirements. To meet this goal, Zero-Max engineered a unique Control-Flex® Disc which is based on a parallel linkage system.

Because of this unique design, the reaction forces due to transmission of torque and unavoidable shaft misalignments are considerably smaller when compared with common flexible couplings.



The Control-Flex® Disc allows parallel, angular and axial shaft misalignments, and maintaining constant transmission of torque and angular velocity.

Ideal for Encoder Applications!

Outstanding Features and Benefits

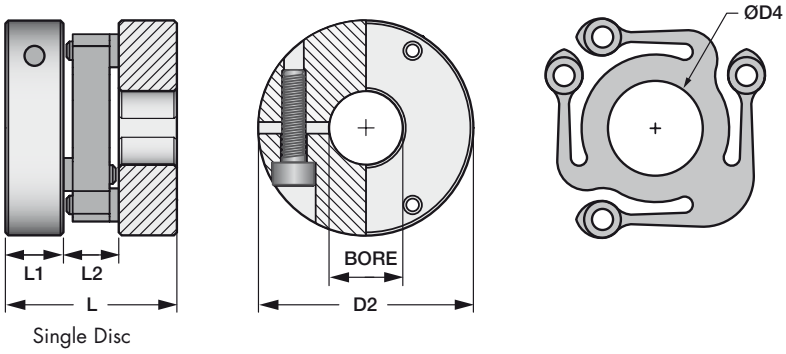
Feature	Benefit
High shaft misalignment capacity	Improved set up and installation time.
Very low reaction loads due to misalignment	Improved performance and life of encoder or instrumentation device.
Electrically insulating flex element	Added protection from stray currents.
Zero backlash	No dead band in feedback system.
Low weight design	Less change to system inertia.
Clamp style hubs	Prevents damage to the shafting. Positive Zero-Backlash connection between the hub and shaft.

Clamp-Style

The construction of a Control-Flex® Coupling consists of two hubs (to be attached to the shafts) and a center flex member. This flexible element is affixed to the hubs through pins. Clamp-style hubs provide a positive shaft connection. Special modifications are available upon request.

The clamp-style Control-Flex® Couplings are available with a single flex disc for standard torque capacity, or with two flex discs for increased torque capacity and torsional stiffness. The clamp-style hub models come standard without keyways. Keyways are available upon request.

- Ideal for encoder Applications
- Easy Installation
- Space Saving
- Electrically Insulating
- Ultra low reaction loads
- Zero Backlash
- Maintenance Free



Single Disc

Single Flex Disc Clamp-Style

Part No.	Coupling Dimensions							Performance Data								Maximum Shaft Misalignments		
	CPL. Diam (Inch) D2	Coupling Length (Inch) L	Hub Length (Inch) L1	Max Bore (Inch)	Max Bore (mm)	Disc Inside Diam (Inch) D4	Disc Length (Inch) L2	Net Weight (Lb)	Inertia WK^2 ($Lb\text{-}In^2$)	Max. Peak Torque (In-Lb)	Max. Cont. Peak Torque (In-Lb)	Torsional Stiffness In Lbs. Per Degree	Torsional Stiffness In Lbs. Per Radian	Torsional Stiffness In Oz. Per Minute	Max Speed (RPM)	Par (Inch)	Ang (Deg)	Axial (Inch)
C008P	0.748	0.62	0.219	0.375	10	0.28	0.19	0.020	0.0014	6	4	2.3	130	0.61	12,000	0.013	1.5	0.010
C011P	0.984	1.00	0.374	0.500	12	0.31	0.25	0.057	0.0075	13	9	5.0	285	1.33	11,000	0.019	1.5	0.014
C016P	1.457	1.17	0.394	0.750	19	0.56	0.38	0.135	0.038	45	31	16.3	930	4.35	8,000	0.028	1.5	0.021
C023P	2.205	1.74	0.591	1.188	30	0.84	0.56	0.450	0.291	152	106	55.0	3,150	14.29	6,000	0.041	1.5	0.031
C031P	2.953	2.17	0.709	1.500	40	1.13	0.75	1.060	1.220	361	250	75.0	4,300	20.00	5,000	0.055	1.5	0.042

1) Maximum speed rating applicable at 50% or less continuous torque rating.
2) As speeds approach the maximum speed rating, some applications may require dynamically balanced couplings.

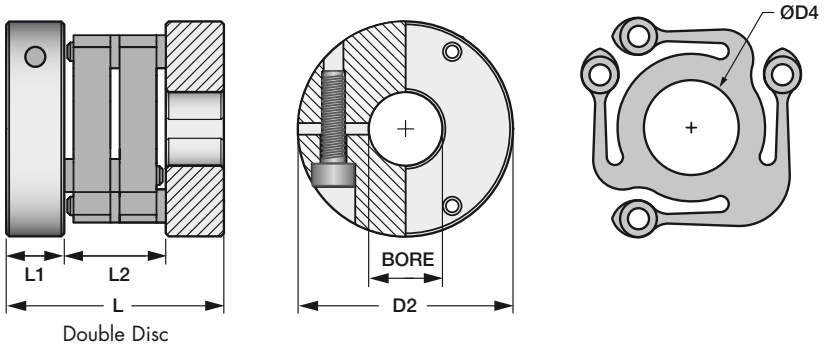
DOUBLE DISC *CONTROL-FLEX® COUPLINGS*

Clamp-Style

The construction of a Control-Flex® Coupling consists of two hubs (to be attached to the shafts) and a center flex member. This flexible element is affixed to the hubs through pins. Clamp-style hubs provide a positive shaft connection. Special modifications are available upon request.

The clamp-style Control-Flex® Couplings are available with a single flex disc for standard torque capacity, or with two flex discs for increased torque capacity and torsional stiffness. The clamp-style hub models come standard without keyways. Keyways are available upon request.

- Ideal for encoder Applications
- Easy Installation
- Space Saving
- Electrically Insulating
- Ultra low reaction loads
- Zero Backlash
- Maintenance Free



Double Flex Disc Clamp-Style

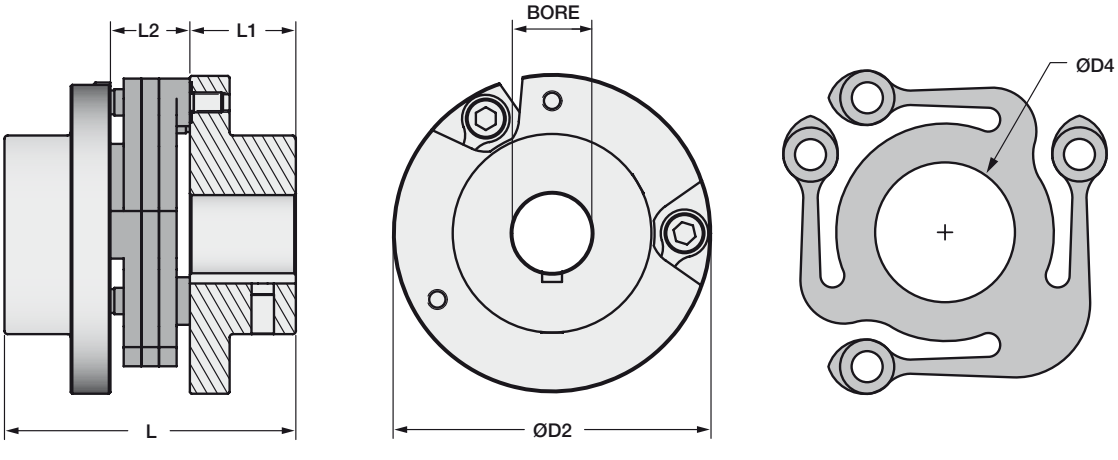
Part No.	Coupling Dimensions							Performance Data								Maximum Shaft Misalignments		
	CPL. Diam (Inch) D2	Coupling Length (Inch) L	Hub Length (Inch) L1	Max Bore (Inch)	Max Bore (mm)	Disc Inside Diam (Inch) D4	Disc Length (Inch) L2	Net Weight (Lb)	Inertia WK² (Lb-In²)	Max. Peak Torque (In-Lb)	Max. Cont. Peak Torque (In-Lb)	Torsional Stiffness: In Lbs. Per Degree	Torsional Stiffness: In Lbs. Per Radian	Torsional Stiffness: In Oz. Per Minute	Max Speed (RPM)	Par (Inch)	Ang (Deg)	Axial (Inch)
C208P	0.748	0.78	0.219	0.375	10	0.28	0.34	0.021	0.0014	10	7	4.6	260	1.22	10,000	0.009	1	0.007
C211P	0.984	1.20	0.374	0.500	12	0.31	0.46	0.060	0.0077	24	17	9.9	570	2.63	9,000	0.012	1	0.009
C216P	1.457	1.48	0.394	0.750	19	0.56	0.69	0.145	0.039	81	57	31.3	1,790	8.33	7,000	0.019	1	0.014
C223P	2.205	2.20	0.591	1.188	30	0.84	1.02	0.483	0.298	274	192	110.0	6,300	29.41	5,000	0.027	1	0.020
C231P	2.953	2.79	0.709	1.500	40	1.13	1.38	1.140	1.250	650	435	150.0	8,600	40.00	4,000	0.037	1	0.028

1) Maximum speed rating applicable at 50% or less continuous torque rating.
2) As speeds approach the maximum speed rating, some applications may require dynamically balanced couplings.

Bolted-Style

The construction of a Control-Flex® Coupling consists of two hubs (to be attached to the shafts) and a center flex member. This flexible element is affixed to the hubs through shoulder bolts. The Bolted-Style hubs incorporate keyway and setscrew shaft attachment. Flex discs are bolted for drop-out capability. Special modifications are available upon request.

- Easy Installation
- Space Saving
- Electrically Insulating
- Large Misalignment Capacity
- Zero Backlash
- Maintenance Free



The above drawing is valid for C030P, C060P and C075P. C045P will still use the triangular style hubs. Consult factory if necessary.

Control-Flex Coupling Bolted-Style

Part No.	Coupling Dimensions							Performance Data							Maximum Shaft Misalignments		
	CPL. Diam (Inch) D2	Coupling Length (Inch) L	Hub Length (Inch) L1	Max Bore (Inch)	Max Bore (mm)	Disc Inside Diam (Inch) D4	Disc Length (Inch) L2	Net Weight (Lb)	Inertia WK² (Lb-In²)	Max. Peak Torque (In-Lb)	Max. Cont. Peak Torque (In-Lb)	Torsional Stiffness In Lbs. Per Degree	Torsional Stiffness In Lbs. Per Radian	Max Speed (RPM)	Par (Inch)	Ang (Deg)	Axial (Inch)
C030P	3.00	2.750	1.00	1.000	25	1.125	0.750	0.78	0.345	361	250	75.0	4,300	6,300	0.055	1.5	0.042
C045P	4.50	4.125	1.50	1.500	40	1.687	1.125	2.63	2.62	1,218	850	261.0	14,950	4,200	0.083	1.5	0.063
C060P	6.00	5.500	2.00	2.000	55	2.250	1.500	6.24	11.03	2,887	2,000	515.0	29,500	3,100	0.111	1.5	0.083
C075P	7.50	6.875	2.50	2.500	65	2.812	1.875	12.18	33.66	5,638	3,900	1,529.0	87,600	2,500	0.139	1.5	0.104

1) Maximum speed rating applicable at 50% or less continuous torque rating.
2) As speeds approach the maximum speed rating, some applications may require dynamically balanced couplings.

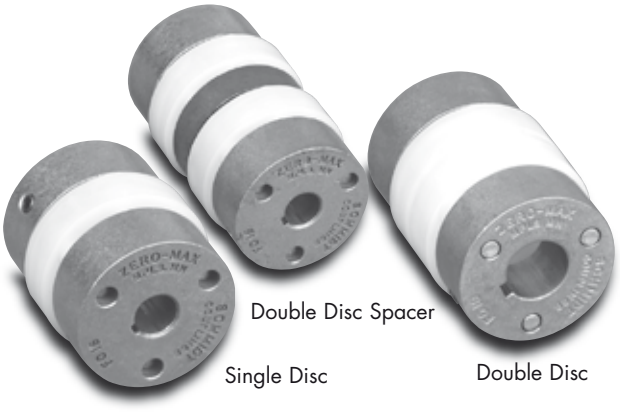
SCHMIDT *FLEXIBLE* COUPLINGS

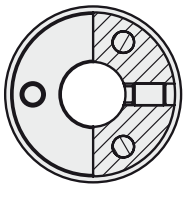
Schmidt Flexible Couplings provide precision for slightly misaligned shafts and are designed to adapt to various drive conditions. This coupling uses precision sintered parts for the hubs which are connected to the shafts. The molded flexible center disc is preloaded on the precision shafts of the end disc which give the coupling a zero backlash condition. Different configurations of the coupling and the choice of three durometers (soft, standard, stiff) of the center disc result in the ability of this coupling to be adapted to various drive conditions.

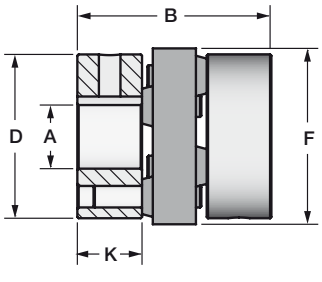
The Flexible Coupling may be built into a floating shaft design by including one coupling at each end of an intermediate shaft.

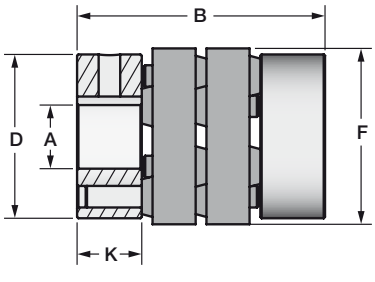
- Easy Installation
- Electrically Insulating
- Zero Backlash

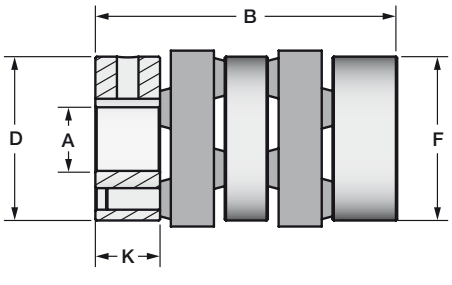
Among the many applications where the Flexible Couplings are used include collators, printing machines, packaging machines and pumps.











Schmidt Flexible Couplings

Part No.		Coupling Dimensions						Performance Data							
		Hub Diam (Inch) D	Coupling Length (Inch) B	Hub Length (Inch) K	Max Bore A (Inch)	Max Bore A (mm)	Flex. Disc Diam (Inch) F	HP/ 100RPM	Max. Torque (In-Lb)	Torsional Stiffness (In-Lbs. Per Degree)	Maximum Misalignments Par (Inch)	Maximum Misalignments Ang (Deg)	Maximum Misalignments Axial (Inch)	Inertia WK² (Lb-In²)	Net Weight (Lb)
Single Disc	F008A	0.750	0.812	0.281	0.375	10	0.750	0.009	6	4.5	0.005	1	0.008	0.004	0.06
	F011A	1.125	1.375	0.500	0.500	12	1.250	0.025	16	14.0	0.008	1	0.011	0.04	0.25
	F019A	1.900	2.250	0.750	0.875	22	2.040	0.180	115	91.0	0.010	1	0.019	0.46	1.03
	F028A	2.812	2.812	1.000	1.00	25	2.812	0.500	315	264.6	0.010	1	0.025	2.50	2.50
Double Disc	F008B	0.750	0.837	0.281	0.375	10	0.750	0.018	12	9.0	0.005	1	0.008	0.005	0.07
	F011B	1.125	1.688	0.500	0.500	12	1.250	0.050	32	27.0	0.008	1	0.011	0.04	0.27
	F019B	1.900	2.875	0.750	0.875	22	2.040	0.360	230	214.1	0.010	1	0.019	0.55	1.12
	F028B	2.812	3.375	1.000	1.00	25	2.812	1.000	630	531.5	0.010	1	0.025	2.27	2.80
Double Disc Spacer	F011C	1.125	2.125	0.500	0.500	12	1.250	0.025	16	7.0	0.016	2	0.020	0.05	0.34
	F019C	1.900	3.500	0.750	0.875	22	2.040	0.180	115	45.5	0.020	2	0.035	0.66	1.47

Performance Data is based on couplings using standard durometer flex disks.
Please contact the factory for performance data and availability of couplings using non-standard durometers.

HOW TO SELECT *CONTROL-FLEX® COUPLINGS*

Here's how:

The basic performance ratings listed in the table are maximum values. The graph below must be used to determine the coupling's suitability in each application.

To see if a coupling is suitable for an application, see the selection procedure on this page.

When calculating torque requirements, see the service factor table provided on this page.

For special designs or requirements, consult the factory.

Selection Procedure:

To select the proper Control-Flex® coupling size, identify the application's requirements for torque, misalignment, and service factor. Tentatively select a coupling based on these requirements. Find the selected coupling's maximum rated torque and misalignment.

Compute the misalignment ratio by dividing the required parallel misalignment by the maximum rated parallel misalignment. If either angular or axial misalignment are required, multiply the existing misalignment ratio by 1.2. If both angular and axial misalignment are required, multiply the misalignment ratio by 1.4.

Next, compute the torque ratio. Divide the required torque including service factor by the maximum rated peak torque of the selected coupling. The actual running torque should never exceed the maximum continuous rated torque. Occasional torque spikes in the system should never exceed the maximum peak torque rating.

Now that the torque and misalignment ratios are known, their effect on the coupling can be compared to the couplings operating envelope. (See Chart)

If the lines representing the two performance ratios meet to the left of the shaded area, the selected coupling is appropriate for the application.

If the lines meet in the shaded area, the selected coupling is not appropriate for the application, and a larger coupling size must be selected.

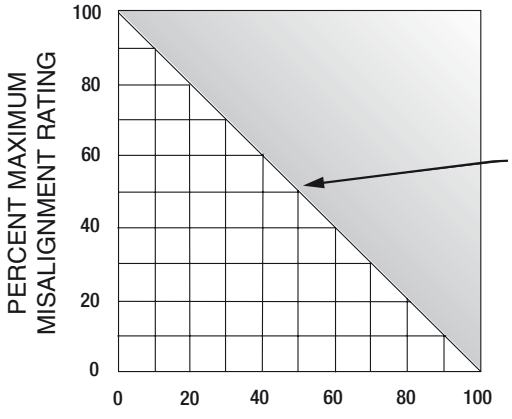
Selection Formula:

$$HP/100\ RPM = \frac{\text{Required HP} \times \text{Service Factor} \times 100}{RPM}$$

Recommended Service Factor

No Shock Load. 1.0
Light Shock Load. 1.5
Medium Shock Load . . 2.0
Heavy Shock Load . . . 2.5
Reversing Shock Load . 3.0

CONTROL FLEX® COUPLING
OPERATING ENVELOPE



Applications falling in the shaded area are outside the couplings capability. Select the next larger coupling and repeat selection procedure.

Standard Keyways - Inch Bore Hubs

Bore Size		Keyway	Bore Size		Keyway
Over	To		Over	To	
0.437	0.562	0.125x0.062	2.250	2.750	0.625x0.312
0.562	0.875	0.187x0.094	2.750	3.250	0.750x0.375
0.875	1.250	0.250x0.125	3.250	3.750	0.875x0.437
1.250	1.375	0.312x0.156	3.750	4.500	1.000x0.500
1.375	1.750	0.375x0.187	4.500	5.500	1.250x0.625
1.750	2.250	0.500x0.250	5.500	6.500	1.500x0.750

Standard Keyways - Metric Bore Hubs

Bore Size		Keyway	Bore Size		Keyway
Over	To		Over	To	
10	12	4x1.8	58	65	18x4.4
12	17	5x2.3	65	75	20x4.9
17	22	6x2.8	75	85	22x5.4
22	30	8x3.3	85	95	25x5.4
30	38	10x3.3	95	110	28x6.4
38	44	12x3.3	110	130	32x7.4
44	50	14x3.8	130	150	36x8.4
50	58	16x4.3	150	170	40x9.4

Note: Inch bore hubs will be supplied with inch size setscrews. Metric bore hubs will be supplied with metric size setscrews. Standard keyways are for square keys. Keyways for rectangular keys are available - consult factory.

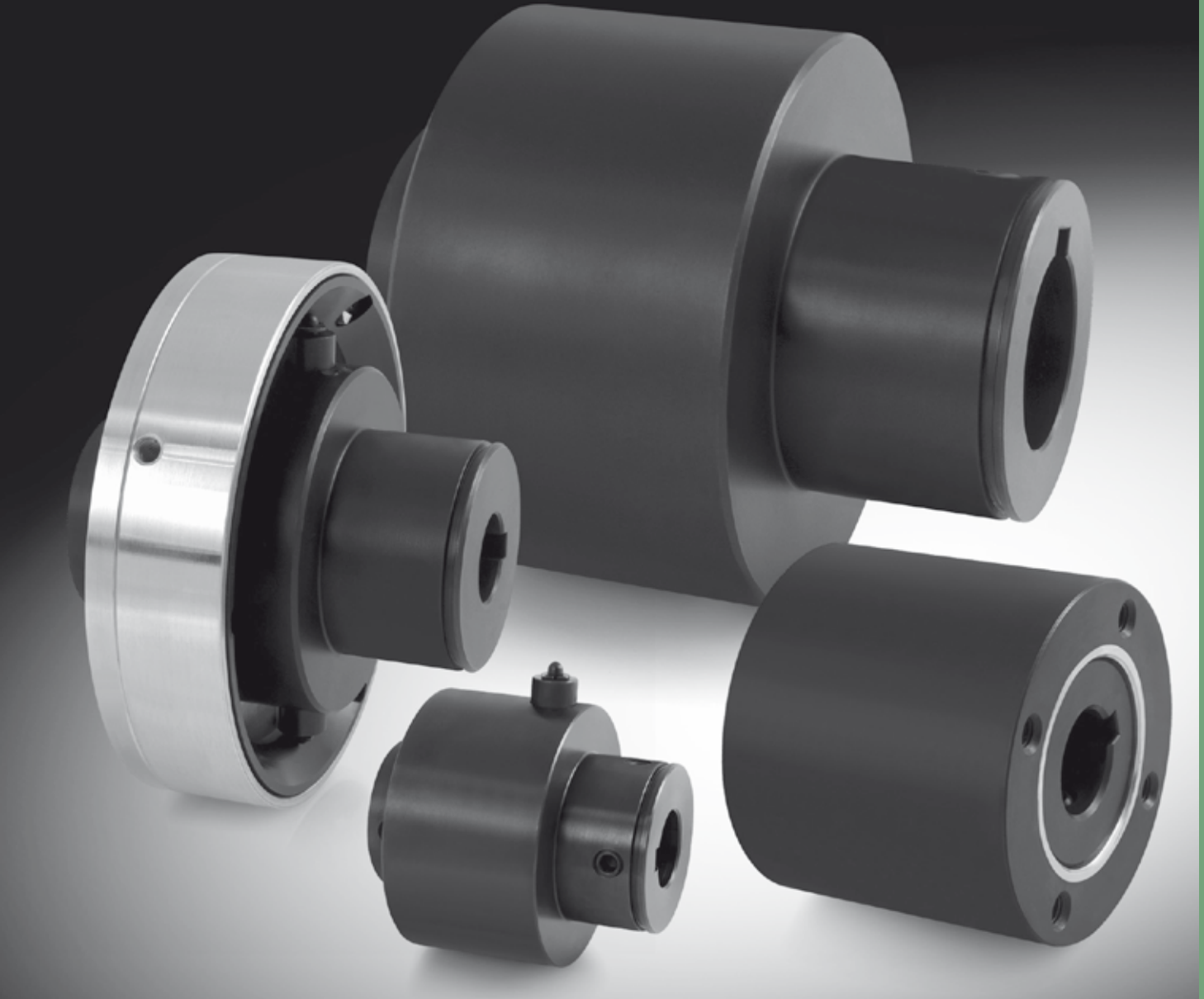
Zero-Max *Configurable* 3D CAD Downloads

New Zero-Max Configurable 3D CAD Downloads.
www.zero-max.com

ZERO-MAX®

Overload Safety Couplings

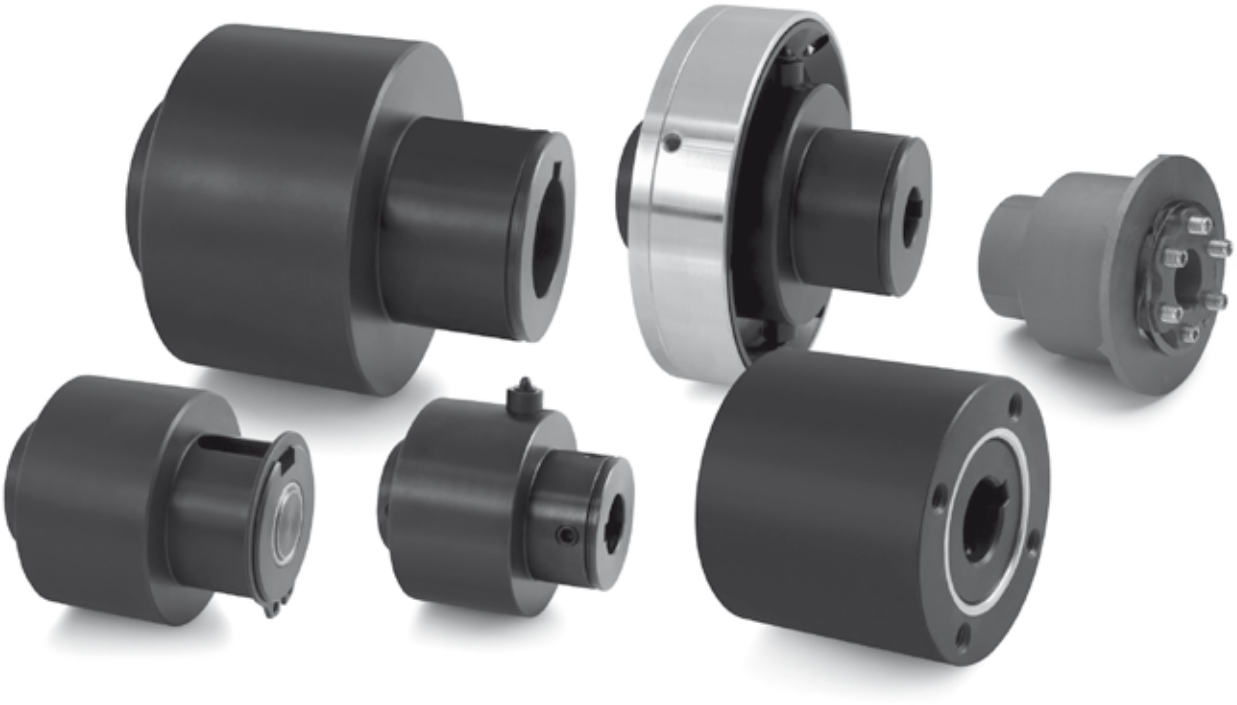
TORQ-TENDER® & H-TLC



TORQ-TENDER® OVERLOAD SAFETY COUPLINGS

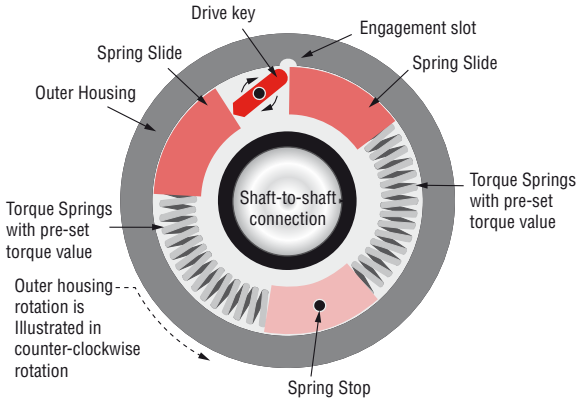
Torq-Tenders are Overload Safety Devices which provide reliable overload protection. When a jam-up or excessive loading occurs the Torq-Tender will reliably and quickly release to prevent system damage.

- Torq-Tenders are tamper-proof. Once installed, the torque value cannot be changed. This is an important feature that ensures the integrity of the machine design. Costly and potentially risky calibration procedures are **not** necessary. The torque value is controlled by the part number that is ordered. That value determines what spring is used during the assembly at the factory.
- The torque value can be changed in the field, however; the Torq-Tender must be disassembled and the springs replaced to achieve the new torque value.
- Standard Torq-Tenders are bidirectional. The torque value is the same regardless of rotation. If specified, the Torq-Tender can be configured at the factory to release at different torque ratings for different rotational directions.
- In the coupling configuration, the Torq-Tender fulfills two functions: The Torq-Tender in the shaft to shaft configuration will handle angular shaft misalignment up to 1.5 degrees and a maximum parallel misalignment range of 0.005″ to 0.015″.
- The enclosed design of the Torq-Tender enables it to operate in a wide variety of industrial environments. Special designs and materials can be made to withstand even more adverse conditions.
- Torq-Tenders are made from durable heat treated steel for a long operational life.



The torque value is determined by the force of the springs that are installed in the unit. The spring force acts upon the slides that are part of the inner shaft. These slides transmit force that will hold the drive key into an engagement slot in the outer housing. When the torque load exceeds the rating, (determined by precision tempered torque springs) the Torq-Tender's drive key will pivot out of the engagement slot to disengage the Torq-Tender. After disengagement the torque limiter does not have significant resistance to rotation. Upon completion of one shaft rotation the torque limiter will automatically try to reengage. Once the overload is removed and speed reduced, the drive key will snap into the engagement slot and the Torq-Tender will be reset for the next overload event.

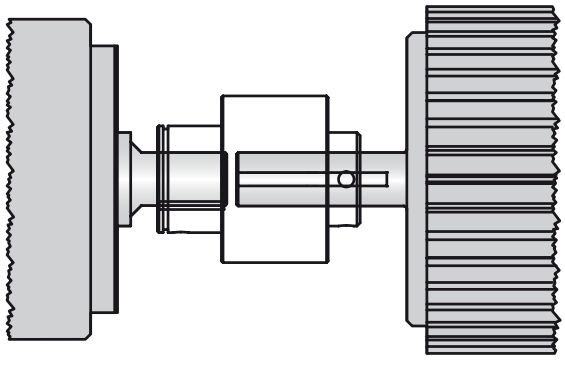
AFTER OVERLOAD OCCURS



MOUNTING *OPTIONS*

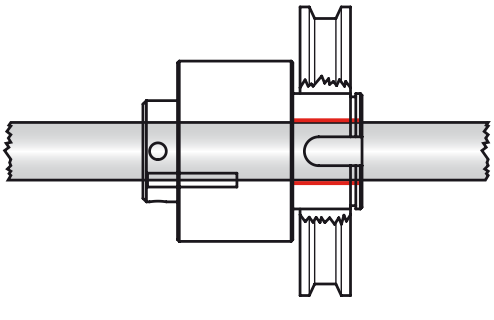
Shaft-To-Shaft Mount – Type C

The shaft to shaft mount option allows the Torq-Tender to function as a shaft coupling and a torque limiter.



Through Shaft Mount – Type B

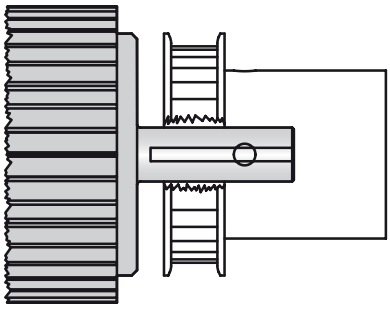
The Through Shaft Mount is intended to have a shaft pass though the full length of the Torq-Tender. A component such as a sprocket or sheave is mounted externally on the Torq-Tender. When an overload occurs, the driven component will stop rotating while the driving component (shaft, pulley, sprocket etc.) will continue to rotate. A sleeve bearing (bronze bushing) is an integral part of the design that supports the side load created by the mounted component and allowing the housing to rotate on the shaft during an overload.
Note: An external keyway in the hub and retaining ring is standard on this design.



3D CAD Downloads
www.zero-max.com

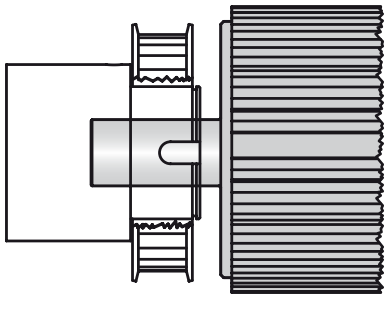
End of Shaft Mount – Type JF

The End of Shaft Mount-Type JF torque limiter is used where you have limited or reduced shaft length available. The Type JF model allows you to face mount a plate style sprocket or pulley to the torque limiter using bolts. Either the shaft or the mounted component can be used to drive the load. Since the mounted component is located very close to the bearing supports the overhung load is reduced.



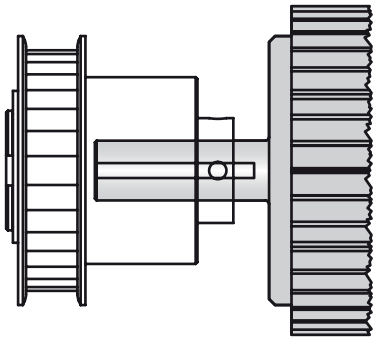
End of Shaft Mount – Type J

The End of Shaft Mount Type J offers the same benefits as the JF model. The type J model is designed to mount type B or C style hubs for sprockets and pulleys. This model is available in 2 sizes: TT2J and TT3J.



End of Shaft Mount – Type S

The End of Shaft Mount Type S is used in applications where the drive shaft is not long enough to reach the radial load. The type S model is designed to mount a type B or C style hub for sprockets and pulleys. This model is available in 4 sizes: TT1X-S, TT2-S, TT2X-S, and TT3-S.

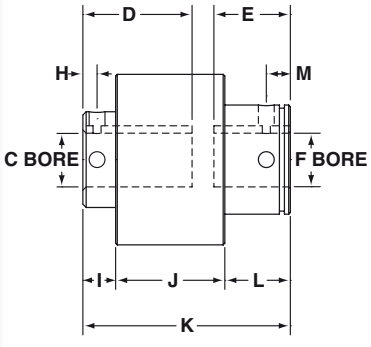


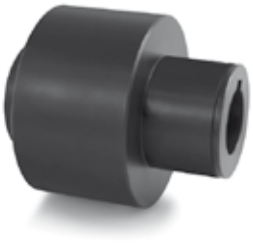
TORQ-TENDER® OVERLOAD SAFETY COUPLINGS

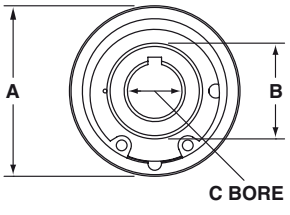
Torq-Tender
Shaft to Shaft – Type C

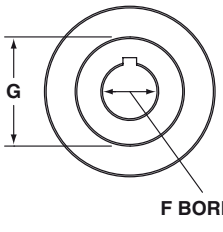
Torq-Tender Models		TT1X	TT2	TT2X	TT3	TT3TAN	TT3X	TT4X
A	INCH	1.562	2.165	2.500	3.000	3.000	3.625	4.625
	(MM)	(39.7)	(55)	(63.5)	(76.2)	(76.2)	(92.1)	(117.5)
B	INCH	0.875	1.250	1.500	1.750	1.750	2.250	3.000
	(MM)	(22.2)	(31.7)	(38.1)	(44.4)	(44.4)	(57.1)	(76.2)
D	INCH	1.140	1.540	1.805	2.100	3.312	3.080	3.715
	(MM)	(29)	(39.1)	(45.8)	(53.3)	(84.1)	(78.2)	(94.4)
E	INCH	0.630	0.820	1.110	1.330	1.312	1.420	1.640
	(MM)	(16)	(20.8)	(28.2)	(33.8)	(33.3)	(36.1)	(41.6)
G	INCH	1.000	1.375	1.625	1.750	1.750	2.500	3.000
	(MM)	(25.4)	(34.9)	(41.3)	(44.4)	(44.4)	(63.5)	(76.2)
H	INCH	0.135	0.250	0.312	0.312	0.312	0.420	0.400
	(MM)	(3.4)	(6.4)	(8)	(8)	(8)	(10.7)	(10.2)
I	INCH	0.205	0.365	0.455	0.470	0.500	0.555	0.570
	(MM)	(5.2)	(9.3)	(11.6)	(11.9)	(12.7)	(14.1)	(14.5)
J	INCH	1.000	1.300	1.500	1.812	3.035	2.750	3.500
	(MM)	(25.4)	(33)	(38.1)	(46)	(77.1)	(69.8)	(89)
K	INCH	1.800	2.420	2.950	3.470	4.710	4.550	5.400
	(MM)	(45.7)	(61.5)	(75)	(88.1)	(119.6)	(115.6)	(137.2)
L	INCH	0.600	0.750	1.000	1.187	1.187	1.250	1.330
	(MM)	(15.2)	(19)	(25.4)	(30.1)	(30.1)	(31.7)	(33.8)
M	INCH	0.218	0.312 (8)	0.312	0.375	0.375	0.420	0.500
	(MM)	(5.5)		(8)	(9.5)	(9.5)	(10.7)	(12.7)

See chart on page 8 for bore sizes.





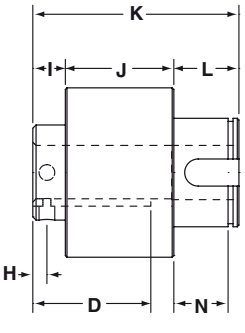


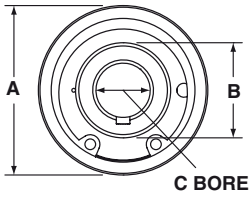


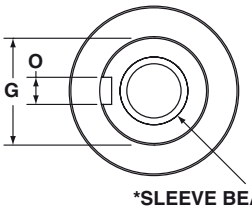
Torq-Tender
Through Shaft – Type B

Torq-Tender Models		TT1X	TT2	TT2X	TT3	TT3TAN	TT3X	TT4X
A	INCH	1.562	2.165	2.500	3.000	3.000	3.625	4.625
	(MM)	(39.7)	(55)	(63.5)	(76.2)	(76.2)	(92.1)	(117.5)
B	INCH	0.875	1.250	1.500	1.750	1.750	2.250	3.000
	(MM)	(22.2)	(31.7)	(38.1)	(44.4)	(44.4)	(57.1)	(76.2)
D	INCH	1.140	1.540	1.805	2.100	3.312	3.080	3.715
	(MM)	(29)	(39.1)	(45.8)	(53.3)	(84.1)	(78.2)	(94.4)
G	INCH	1.000	1.375	1.625	1.750	1.750	2.500	3.000
	(MM)	(25.4)	(34.9)	(41.3)	(44.4)	(44.4)	(63.5)	(76.2)
H	INCH	0.135	0.250	0.312 (8)	0.312 (8)	0.312	0.420	0.400
	(MM)	(3.4)	(6.4)			(8)	(10.7)	(10.2)
I	INCH	0.205	0.365	0.455	0.470	0.500	0.555	0.570
	(MM)	(5.2)	(9.3)	(11.6)	(11.9)	(12.7)	(14.1)	(14.5)
J	INCH	1.000	1.300	1.500	1.812	3.035	2.750	3.500
	(MM)	(25.4)	(33)	(38.1)	(46)	(77.1)	(69.8)	(89)
K	INCH	1.800	2.420	2.950	3.470	4.710	4.550	5.400
	(MM)	(45.7)	(61.5)	(75)	(88.1)	(119.6)	(115.6)	(137.2)
L	INCH	0.600	0.750	1.000	1.187	1.187	1.250	1.330
	(MM)	(15.2)	(19)	(25.4)	(30.1)	(30.1)	(31.7)	(33.8)
N	INCH	0.500	0.625	0.875	1.062	1.062	1.080	1.125
	(MM)	(12.7)	(15.9)	(22.2)	(27)	(27)	(27.4)	(28.6)
O	INCH	0.250	0.312	0.375	0.375	0.375	0.625	0.750
	(MM)	(6.3)	(8)	(9.5)	(9.5)	(9.5)	(15.9)	(19)

D= Maximum key length







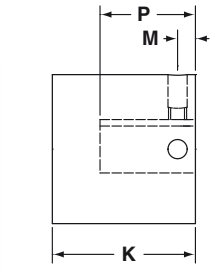
*The ID of the sleeve bearing will be sized to match the C Bore. When ordering this option, only specify one bore.

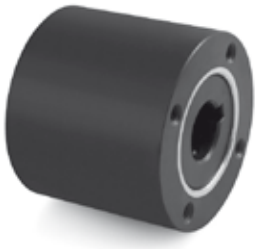
TORQ-TENDER® OVERLOAD SAFETY COUPLINGS

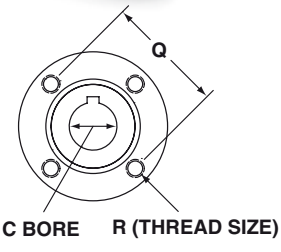
Torq-Tender
End of Shaft – Type JF

Torq-Tender Models		TT1XJF	TT2JF	TT2XJF	TT3JF	TT3XJF	TT4XJF
A	INCH	1.562	2.165	2.500	3.000	3.625	4.625
	(MM)	(39.7)	(55)	(63.5)	(76.2)	(92.1)	(117.5)
K	INCH	1.500	1.885	2.250	2.560	3.550	4.375
	(MM)	(38.1)	(47.9)	(57.1)	(65)	(90.2)	(111.1)
M	INCH	0.187	0.282	0.325	0.370	0.400	0.375
	(MM)	(4.7)	(7.2)	(8.2)	(9.4)	(10.2)	(9.5)
P	INCH	0.875	1.200	1.500	1.625	2.125	2.625
	(MM)	(22.2)	(30.5)	(38.1)	(41.3)	(54)	(66.7)
Q	INCH	1.250	1.750	2.000	2.375	3.000	4.000
	(MM)	(31.7)	(44.4)	(50.8)	(60.3)	(76.2)	(101.6)
R	INCH	10-32 X 0.25DP	10-32 X 0.37DP	1/4-20 X 0.50DP	5/16-18 X 0.56DP	5/16-18 X 0.56DP	3/8-16 X 0.75DP

See chart on page 8 for bore sizes.

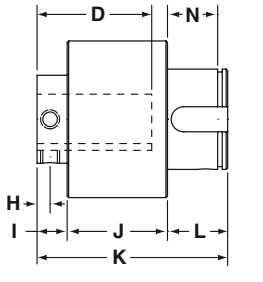


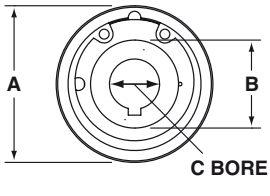


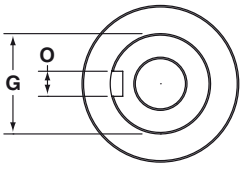


Torq-Tender
End of Shaft – Type S

Torq-Tender Models		TT1X	TT2	TT2X	TT3
A	INCH	1.562	2.165	2.500	3.000
	(MM)	(39.7)	(55)	(63.5)	(76.2)
B	INCH	0.875	1.250	1.500	1.750
	(MM)	(22.2)	(31.7)	(38.1)	(44.4)
D	INCH	1.140	1.540	1.805	2.100
	(MM)	(29)	(39.1)	(45.8)	(53.3)
G	INCH	1.000	1.375	1.625	1.750
	(MM)	(25.4)	(34.9)	(41.3)	(44.4)
H	INCH	0.135	0.250	0.312	0.312
	(MM)	(3.4)	(6.4)	(8)	(8)
I	INCH	0.205	0.365	0.455	0.470
	(MM)	(5.2)	(9.3)	(11.6)	(11.9)
J	INCH	1.000	1.300	1.500	1.812
	(MM)	(25.4)	(33)	(38.1)	(46)
K	INCH	1.800	2.420	2.950	3.470
	(MM)	(45.7)	(61.5)	(75)	(88.1)
L	INCH	0.600	0.750	1.000	1.187
	(MM)	(15.2)	(19)	(25.4)	(30.1)
N	INCH	0.500	0.625	0.875	1.062
	(MM)	(12.7)	(15.9)	(22.2)	(27)
O	INCH	0.250	0.312	0.375	0.375
	(MN)	(6.3)	(8)	(9.5)	(9.5)

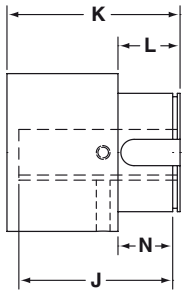


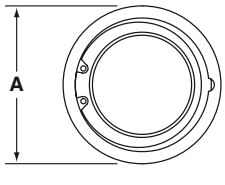


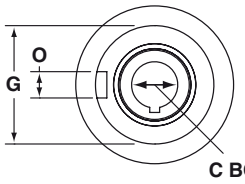


Torq-Tender
End of Shaft – Type J

Torq-Tender Models		TT2	TT3
A	INCH	2.165	3.00
	(MM)	(55)	(76.2)
G	INCH	1.625	2.250
	(MM)	(41.3)	(57.15)
J	INCH	1.950	3.060
	(MM)	(49.5)	(77.7)
K	INCH	2.110	3.294
	(MM)	(53.6)	(83.7)
L	INCH	0.750	1.188
	(MM)	(19)	(30.2)
N	INCH	0.625	1.03
	(MM)	(15.9)	(26.2)
O	INCH	0.312	0.375
	(MM)	(7.9)	(9.5)



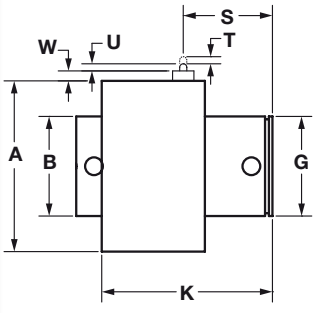




TORQ-TENDER® OVERLOAD SAFETY COUPLINGS

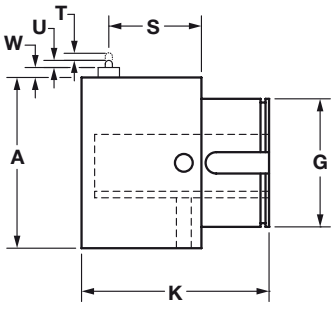
Torq-Tender
Type CP, BP, and SP (with Actuating Pin)

Torq-Tender Models		TT1X	TT2	TT2X	TT3	TT3TAN	TT3X	TT4X
A	INCH	1.562	2.165	2.500	3.000	3.000	3.625	4.625
	(MM)	(39.7)	(55)	(63.5)	(76.2)	(76.2)	(92.1)	(117.5)
B	INCH	0.875	1.250	1.500	1.750	1.750	2.250	3.000
	(MM)	(22.2)	(31.7)	(38.1)	(44.4)	(44.4)	(57.1)	(76.2)
G	INCH	1.000	1.375	1.625	1.750	1.750	2.500	3.000
	(MM)	(25.4)	(34.9)	(41.3)	(44.4)	(44.4)	(63.5)	(76.2)
K	INCH	1.800	2.420	2.950	3.470	4.710	4.550	5.40
	(MM)	(45.7)	(61.5)	(75)	(88.1)	(119.6)	(115.6)	(137.2)
S	INCH	0.837	1.062	1.395	1.573	1.573	1.791	2.005
	(MM)	(21.5)	(27)	(35.4)	(40)	(40)	(45.5)	(50.9)
T	INCH	0.125	0.125	0.125	0.125	0.125	0.125	0.125
	(MM)	(3.17)	(3.17)	(3.17)	(3.17)	(3.17)	(3.17)	(3.17)
U	INCH	0.180	0.125	0.125	0.125	0.125	0.125	0.125
	(MM)	(4.57)	(3.17)	(3.17)	(3.17)	(3.17)	(3.17)	(3.17)
W	INCH	0.250	0.195	0.240	0.175	0.175	0.175	0.090
	(MM)	(6.35)	(4.95)	(6.09)	(4.44)	(4.44)	(4.44)	(2.28)



Torq-Tender
End of Shaft Type JP (with Actuating Pin)

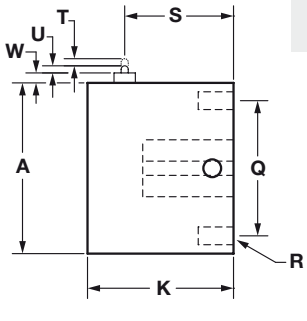
Torq-Tender Models		TT2	TT3
A	INCH	2.165	3.000
	(MM)	(55)	(76.2)
G	INCH	1.625	2.250
	(MM)	(41.3)	(57.1)
K	INCH	2.110	3.294
	(MM)	(53.6)	(83.7)
N	INCH	0.625	1.040
	(MM)	(15.9)	(26.4)
O	INCH	0.313	0.375
	(MM)	(8)	(9.5)
S	INCH	1.010	1.627
	(MM)	(25.7)	(41.3)
T	INCH	0.125	0.125
	(MM)	(3.17)	(3.17)
U	INCH	0.125	0.125
	(MM)	(3.17)	(3.17)
W	INCH	0.195	0.175
	(MM)	(4.95)	(4.44)



NOTE: The Actuating Pin Assembly is a simple pin which is forced out radially from the main body when overload occurs. When using this option, it is important to note that the housing (F bore) or external mounting hub end of the unit is the power source or input end. This part of the unit must continue to rotate for the extended pin to contact a customer supplied limit switch for shutdown or warning.

Torq-Tender
End of Shaft Type JFP (with Actuating Pin)

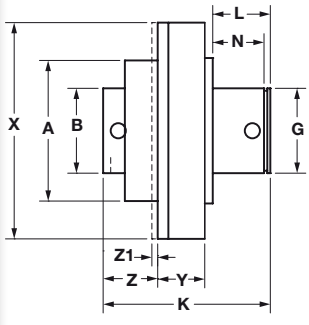
Torq-Tender Models		TT1X	TT2	TT2X	TT3	TT3X	TT4X
A	INCH	1.562	2.165	2.500	3.000	3.625	4.625
	(MM)	(39.7)	(55)	(63.5)	(76.2)	(92.1)	(117.5)
K	INCH	1.500	1.885	2.250	2.560	3.550	4.375
	(MM)	(38.1)	(47.9)	(57.1)	(65)	(90.2)	(111.1)
Q	INCH	1.250	1.750	2.000	2.375	3.000	4.000
	(MM)	(31.7)	(44.4)	(50.8)	(60.3)	(76.2)	(101.6)
R	INCH	10-32	10-32	1/4-20	5/16-18	5/16-18	3/8-16
	(MM)	X 0.25DP	X 0.37DP	X 0.50DP	X 0.50DP	X 0.56DP	X 0.75DP
S	INCH	1.055	1.400	1.608	1.912	2.730	3.310
	(MM)	(26.8)	(35.6)	(40.84)	(48.6)	(69.3)	(84.1)
T	INCH	0.125	0.125	0.125	0.125	0.125	0.125
	(MM)	(3.17)	(3.17)	(3.17)	(3.17)	(3.17)	(3.17)
U	INCH	0.180	0.125	0.125	0.125	0.125	0.125
	(MM)	(4.57)	(3.17)	(3.17)	(3.17)	(3.17)	(3.17)
W	INCH	0.250	0.195	0.240	0.175	0.175	0.090
	(MM)	(6.35)	(4.95)	(6.09)	(4.44)	(4.44)	(2.28)



TORQ-TENDER® OVERLOAD SAFETY COUPLINGS

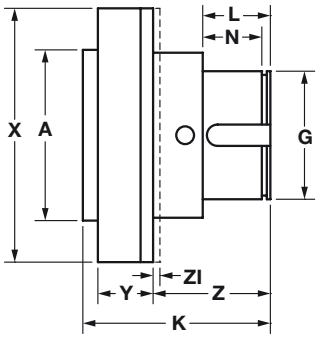
Torq-Tender
Type CD, BD, and SD (with Actuating Disc)

Torq-Tender Models		TT1X	TT2	TT2X	TT3	TT3TAN	TT3X	TT4X
A	INCH	1.562	2.165	2.500	3.000	3.000	3.625	4.625
	(MM)	(39.7)	(55)	(63.5)	(76.2)	(76.2)	(92.1)	(117.5)
B	INCH	0.875	1.250	1.500	1.750	1.750	2.250	3.000
	(MM)	(22.2)	(31.7)	(38.1)	(44.4)	(44.4)	(57.1)	(76.2)
G	INCH	1.000	1.375	1.625	1.750	1.750	2.500	3.000
	(MM)	(25.4)	(34.9)	(41.3)	(44.4)	(44.4)	(63.5)	(76.2)
K	INCH	1.800	2.420	2.950	3.470	4.710	4.550	5.400
	(MM)	(45.7)	(61.5)	(75)	(88.1)	(119.6)	(115.6)	(137.2)
L	INCH	0.600	0.750	1.000	1.187	1.187	1.250	1.330
	(MM)	(15.2)	(19)	(25.4)	(30.1)	(30.1)	(31.7)	(33.8)
N	INCH	0.500	0.625	0.875	1.062	1.062	1.080	1.125
	(MM)	(12.7)	(15.9)	(22.2)	(27)	(27)	(27.4)	(28.6)
X	INCH	2.950	3.485	3.935	4.460	4.460	4.950	6.16
	(MM)	(74.9)	(88.5)	(100)	(113.3)	(113.3)	(125.7)	(156.5)
Y	INCH	0.970	0.970	0.970	0.970	0.970	0.970	1.187
	(MM)	(24.6)	(24.6)	(24.6)	(24.6)	(24.6)	(24.6)	(30.1)
Z	INCH	0.080 (2)	0.570	0.740	1.125	2.345	1.985	2.500
	(MM)		(14.5)	(18.8)	(28.6)	(59.6)	(50.4)	(63.5)
Z1	INCH (MM)	0.120 (3)	0.120 (3)	0.120 (3)	0.120 (3)	0.120 (3)	0.120 (3)	0.120 (3)



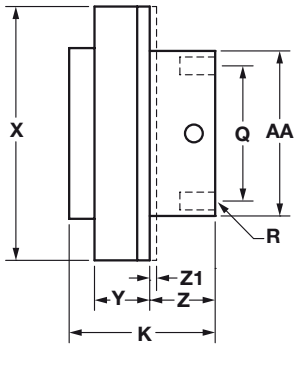
Torq-Tender
End of Shaft - Type JD (with Actuating Disc)

Torq-Tender Models		TT2	TT3
A	INCH	2.165	3.000
	(MM)	(55)	(76.2)
G	INCH	1.885	2.250
	(MM)	(47.9)	(57.1)
K	INCH	2.110	3.294
	(MM)	(53.6)	(83.7)
L	INCH	0.750	1.187
	(MM)	(19)	(30.1)
N	INCH	0.625	1.040
	(MM)	(15.9)	(26.4)
O	INCH	0.313	0.375
	(MM)	(8)	(9.5)
X	INCH	3.485	4.480
	(MM)	(88.5)	(113.8)
Y	INCH	0.970	0.970
	(MM)	(24.6)	(24.6)
Z	INCH	0.900	2.060
	(MM)	(22.9)	(52.3)
Z1	INCH	0.120	0.120
	(MM)	(3)	(3)



Torq-Tender
End of Shaft - Type JFD (with Actuating Disc)

Torq-Tender Models		TT1X	TT2	TT2X	TT3	TT3X	TT4X
AA	INCH	1.530	2.060	2.450	2.895	3.550	4.525
	(MM)	(38.9)	(52.3)	(62.2)	(73.5)	(90.2)	(114.9)
K	INCH	1.500	1.875	2.250	2.560	3.550	4.375
	(MM)	(38.1)	(47.6)	(57.1)	(65)	(90.2)	(111.1)
Q	INCH	1.250	1.750	2.000	2.375	3.000	4.000
	(MM)	(31.7)	(44.4)	(50.8)	(60.3)	(76.2)	(101.6)
R	INCH	10-32 X 0.25DP	10-32 X 0.37DP	1/4-20 X 0.50DP	5/16-18 X 0.50DP	5/16-18 X 0.56DP	3/8-16 X 0.75DP
X	INCH	2.950	3.485	3.935	4.480	4.950	6.16
	(MM)	(74.9)	(88.5)	(99.9)	(113.8)	(125.7)	(156.5)
Y	INCH	0.970	0.970	0.970	0.970	0.970	1.187
	(MM)	(24.6)	(24.6)	(24.6)	(24.6)	(24.6)	(30.1)
Z	INCH	0.187	0.530	0.790	1.150	1.918	2.420
	(MM)	(4.7)	(13.5)	(20.1)	(29.2)	(48.7)	(61.5)
Z1	INCH	0.120	0.120	0.120	0.120	0.120	0.120
	(MM)	(3)	(3)	(3)	(3)	(3)	(3)



TORQ-TENDER® HOW TO SELECT

Torque Chart

Model	TT1X		TT2		TT2X		TT3		TT3TAN		TT3X		TT4X	
	Inch Pounds	NM	Inch Pounds	NM	Inch Pounds	NM	Inch Pounds	NM	Inch Pounds	NM	Inch Pounds	NM	Inch Pounds	NM
Torque Values	3	0.3	4	0.5	18	2.0	18	2.0	240	27.1	300	33.9	750	84.7
	5	0.6	8	0.9	24	2.7	24	2.7	300	33.9	400	45.2	1000	113.0
	8	0.9	12	1.4	28	3.2	36	4.1	360	40.7	500	56.5	1250	141.2
	10	1.1	18	2.0	40	4.5	40	4.5	440	49.7	650	73.4	1500	169.5
	12	1.4	25	2.8	50	5.6	50	5.6	500	56.5	750	84.7	1750	197.7
	15	1.7	30	3.4	60	6.8	60	6.8	600	67.8	850	96.0	2000	226.0
	20	2.3	40	4.5	90	10.2	80	9.0	700	79.1	1000	113.0	2250	254.2
	25	2.8	50	5.6	100	11.3	100	11.3	840	94.9	1150	129.9	2500	282.5
	30	3.4	60	6.8	120	13.6	120	13.6	1000	113.0	1300	146.9	2750	310.7
	40	4.5	85	9.6	135	15.3	150	16.9			1500	169.5	3000	339.0
	50	5.6	100	11.3	150	16.9	180	20.3						
	60	6.8	125	14.1	180	20.3	220	24.9						
			140	15.8	200	22.6	250	28.2						
					250	28.2	300	33.9						
					300	33.9	350	39.5						
					350	39.5	420	47.5						
							500	56.5						

Determine Torque:

Torque is a twisting force that causes rotation and can be theoretically determined with the use of this simple formula:

$$\text{Torque (in. lbs.)} = \frac{63{,}025 \times \text{HP}}{\text{RPM}}$$

For example, if your application speed is 100 RPM and the HP rating is 1.5, then:

$$\text{T (in. lbs.)} = \frac{63{,}025 \times 1.5}{100}$$

Your calculated torque requirement= 945 in. lbs.

It is important to note that there are many factors involved in the selection of the torque value. The calculation above represents a theoretical way to determine a torque value.

Consideration should also be given to potentially high start up torques in the drive system. Most electric motors have start up torques that exceed normal run torque, which makes it necessary to select a torque as high as possible without exceeding the protection limit.

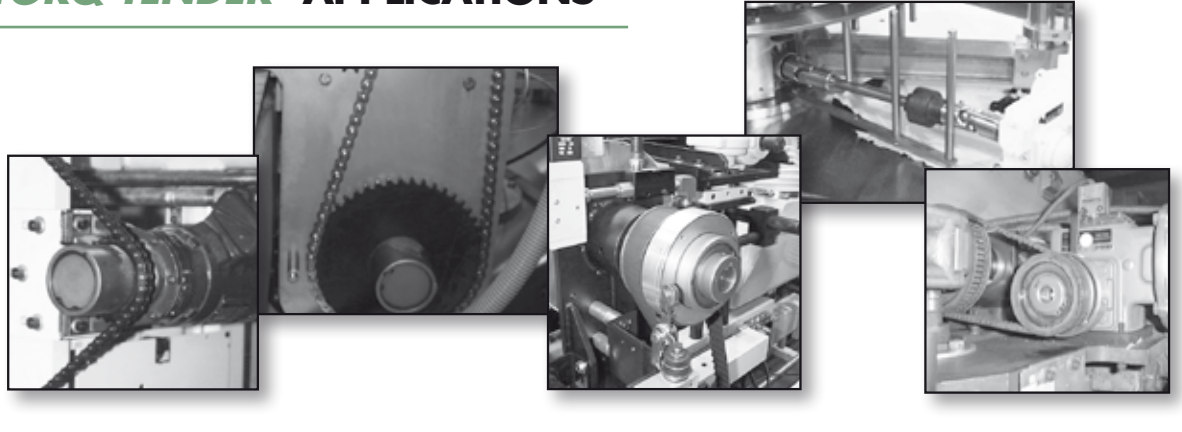
(CAUTION: Because of inertia and/or energy in power transfer equipment, torque limiters will not protect against personal injury)

Bore Capacity Chart

Model	Minimum Bore	Shaft C Maximum Bore	Shaft F Maximum Bore	Torque Range		Shipping Weight
	INCH (MM)	INCH (MM)	INCH (MM)	Inch Pounds	Newton Meters	Pounds (Kg)
TT1X	0.250 (8)	0.500 (12)	0.625 (15)	3 to 60 *	0.3 to 6.8 *	1/2 (0.23)
TT2	0.375 (10)	0.625 (15)	0.875 (20)	4 to 140 *	0.5 to 15.8 *	1 1/4 (0.57)
TT2X	0.500 (12)	0.750 (19)	1.00 (25)	18 to 350 *	2.0 to 39.5 *	2 1/4 (1.0)
TT3	0.625 (14)	1.00 (25)	1.125 (28)	18 to 500 *	2.0 to 56.5 *	3 1/4 (1.47)
TT3TAN	0.625 (14)	1.00 (25)	1.125 (28)	240 to 1000 *	27.1 to 113.0 *	5 (2.27)
TT3X	0.875 (22)	1.375 (35)	1.500 (40)	300 to 1500 *	33.9 to 169.5 *	8 (3.63)
TT4X	1.000 (25)	1.750 (45)	1.875 (48)	750 to 3000 *	84.7 to 339.0 *	15 (6.8)

* See Torque Chart

TORQ-TENDER® APPLICATIONS



TORQ-TENDER® HOW TO ORDER

Part Numbering Structure

SIZE – **CONFIGURATION** | **F BORE DIAMETER** | **C BORE DIAMETER** | **TORQUE VALUE**

Code

TT1X
TT2
TT2X
TT3
TT3TAN
TT3X
TT4X

Code Type of Mount

C	Shaft to Shaft Coupling
CP	Shaft to Shaft Coupling with Actuating Pin
CD	Shaft to Shaft Coupling with Actuating Disc
B	Through Shaft
BP	Through Shaft with Actuating Pin
BD	Through Shaft with Actuating Disc
J	End of Shaft Type J
JP	End of Shaft Type J with Actuating Pin
JD	End of Shaft Type J with Actuating Disc
JF	End of Shaft Type JF
JFP	End of Shaft Type JF with Actuating Pin
JFD	End of Shaft Type JF with Actuating Disc
S	End of Shaft Mount Outboard load
SP	End of Shaft Mount Outboard load with Actuating Pin
SD	End of Shaft Mount Outboard load with Actuating Disc

Specify for C, CP, and CD otherwise omit

See Bore Capacity Chart

All bores over 0.438" or 10mm will come with the standard keyway

Note: It is important to correctly identify the different bores for the Configurations CP and CD. These options require an external device to interface with the Torque Tender such as a proximity switch. How the bores are specified will affect the location of the Actuation Pin and Actuation Disc. Please contact the factory if further clarification is needed.

Specify for all configurations

in - lbs.

See Chart.

Select the inch pound value from the list of values available for the specific size

Example:
Size TT3
Shaft to Shaft Configuration
Actuating Disc option
F bore is 25mm
C bore is 3/4"
Torque value is 150 in-lbs.

Model code is:
TT3-CD – 25mm – 3/4" – 150

Standard Keyways Inch Bore Hubs

Bore Size Over	Bore Size To	Keyway
0.438	0.562	0.125 x 0.062
0.562	0.875	0.187 x 0.094
0.875	1.250	0.250 x 0.125
1.250	1.375	0.312 x 0.156
1.375	1.750	0.375 x 0.187

Inch bores are supplied with inch size setscrews.

Standard Keyways Metric Bore Hubs

Bore Size Over	Bore Size To	Keyway	Bore Size Over	Bore Size To	Keyway
10	12	4 x 1.8	58	65	18 x 4.4
12	17	5 x 2.3	65	75	20 x 4.9
17	22	6 x 2.8	75	85	22 x 5.4
22	30	8 x 3.3	85	95	25 x 5.4
30	38	10 x 3.3	95	110	28 x 6.4
38	44	12 x 3.3	110	130	32 x 7.4
44	50	14 x 3.8	130	150	36 x 8.4

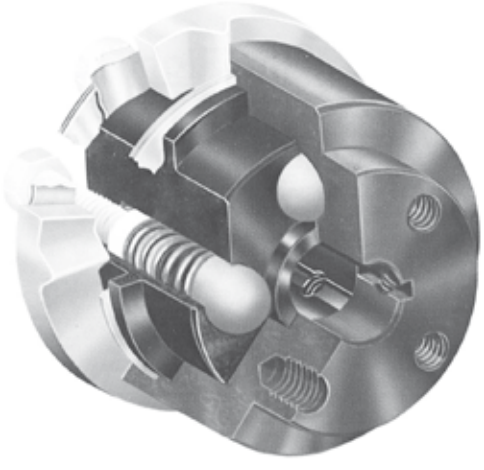
Metric bores are supplied with metric size setscrews.

CUSTOM DESIGNS

TORQ-TENDER® H-TLC TORQUE LIMITERS

The Intelligent Alternative to Friction-Type Torque Limiters.

The unique features in the Zero-Max H-TLC give the designer wider parameters in solving motion control problems.



H-TLC Is Durable. The H-TLC torque limiter is designed for hostile environments. In many applications, a torque limiter may wait for months or years before it is required to disengage. During this time, the torque limiter may be subjected to moisture, corrosion, acids, salts or any number of other contaminants which inhibit the proper operation of the torque limiter and prevent disengagement.

The H-TLC will never rust because its major components are designed from special polymer materials that are resistant to water, salts, mild acids and most other contaminants. Even in temperatures from -40°F to +180°F (-40°C to +82°C), the H-TLC still withstands many corrosive elements and abuse.

H-TLC Is Dependable. It works on a spring loaded convex pin and detent design which reacts to overloads... but not to lubricants. Unlike friction-type designs, you can submerge an H-TLC in oil and still depend on precise disengagement at your design limits.

H-TLC Is Repeatable. Unlike friction-type torque limiters the H-TLC does not generate an amount of heat which can alter the transmittable torque. When a friction-type torque limiter disengages, it generates heat which often alters its disengagement characteristics.

The H-TLC's resilient *Nylatron GS® and **Delrin® materials will not build up, or retain, the kind of heat unique to friction designs.

The Torque Setting Is Adjustable. If operating conditions require periodic changes in torque settings, the H-TLC gives you that ability. Simply adjust the unit's external compression bolts until the desired new torque setting is reached.

The H-TLC Will Trigger Automatic Alarm and Shut-Down Systems.
One of the H-TLC's most important special features is its ingeniously simple and inexpensive actuating disc assembly. The optional actuating disc is used to provide a mechanical displacement that can be sensed and feed back into the machines PLC to initiate the proper response.

Multi or Single Position Re-Engagement.
The H-TLC-500 has 4 re-engagement positions and the H-TLC-1000 has 6. If your application must maintain phase, you can order H-TLC with only one re-engagement point. The single position H-TLC torque limiters torque rating will vary from the catalog ratings (consult factory for torque range).

Model	Torque Range		Housing Bore		Shaft Bore		Shipping Weight
	Inch Pounds	Newton Meters	Minimum Bore INCH (MM)	Maximum Bore INCH (MM)	Minimum Bore INCH (MM)	Maximum Bore INCH (MM)	Pounds (Kg)
H-TLC-500	4 to 150 *	0.5 to 16.9 *	0.250 (8)	0.750 (18)	0.250 (8)	0.563 (15)	1/2 (0.23)
H-TLC-1000	40 to 500 *	4.5 to 56.5 *	0.500 (13)	1.250 (30)	0.500 (13)	1.125 (28)	1 (0.45)

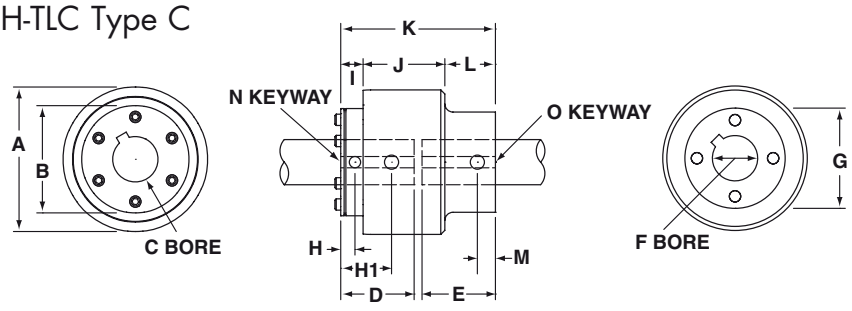
* See Torque Chart

TORQ-TENDER® H-TLC TORQUE LIMITERS

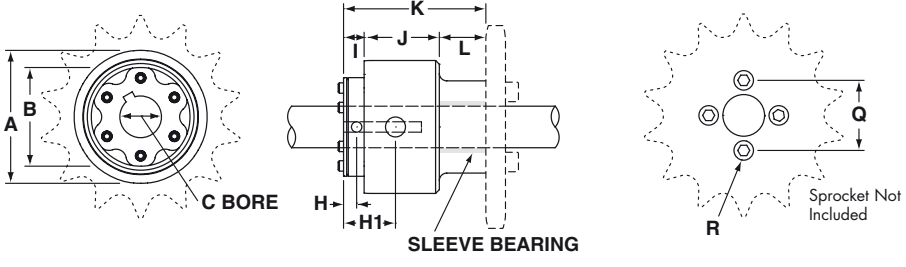
H-TLC Dimensions

Models		500	1000
A	INCH	2.00	3.20
	(MM)	(50.8)	(81.3)
B	INCH	1.49	2.37
	(MM)	(37.8)	(60.2)
D	INCH	1.625	2.230
	(MM)	(41.3)	(56.6)
E	INCH	0.855	1.210
	(MM)	(21.7)	(30.7)
G	INCH	1.49	2.22
	(MM)	(37.8)	(56.4)
H	INCH	0.250	0.315
	(MM)	(6.3)	(8)
H1	INCH	1.250	1.625
	(MM)	(31.7)	(41.3)
I	INCH	0.563	0.520
	(MM)	(14.3)	(13.2)
J	INCH	1.187	1.81
	(MM)	(30.1)	(58.4)
K	INCH	2.50	3.45
	(MM)	(63.5)	(87.6)
L	INCH	0.750	1.12
	(MM)	(19)	(15.9)
M	INCH	0.375	0.400
	(MM)	(9.5)	(10.2)
Q	INCH	1.125	1.687
	(MM)	(28.6)	(42.8)
R	INCH	1/4-20 x 1/2 DP	5/16-18 x 3/4 DP
X	INCH	2.50	4.040
	(MM)	(63.5)	(102.6)
Z	INCH	2.275	3.270
	(MM)	(57.8)	(83.1)
Z1	INCH	2.125	3.110
	(MM)	(54)	(79)

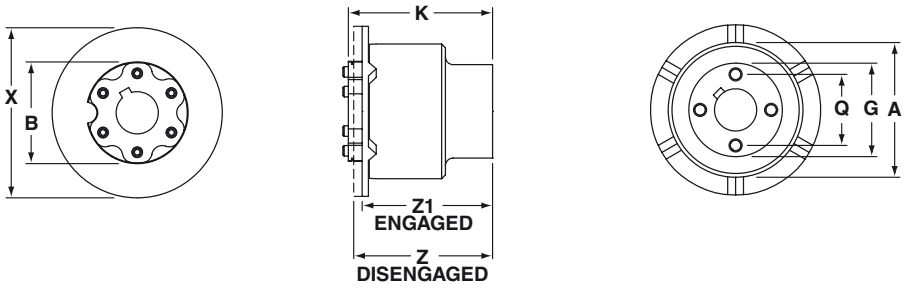
H-TLC Type C



H-TLC Type B



H-TLC Type CD and BD (with Actuating Disc)



Part Numbering Structure

SIZE – CONFIGURATION | F BORE DIAMETER | C BORE DIAMETER | TORQUE VALUE

SIZE

Code
H-TLC-500
H-TLC-1000

CONFIGURATION

Code	Type of Mount
C	Shaft to Shaft Mount
CD	Shaft to Shaft Mount with Actuating Disc
B	Through Shaft Mount
BD	Through Shaft Mount with Actuating Disc

F BORE DIAMETER

Specify for C and CD otherwise omit

See Bore Capacity Chart

All bores over 0.438" or 10mm will come with the standard keyway

Note: It is important to correctly identify the different bores for the Configuration CD. These options require an external device to interface with the H-TLC such as a proximity switch. How the bores are specified will affect the location of the Actuation Disc. Please contact the factory if further clarification is needed.

C BORE DIAMETER

Specify for all configurations

TORQUE VALUE

Code

Series	Code	Torque Range
500 Series	Blue	4 to 60 In-lbs. 0.5 to 6.8 Nm
	Red	40 to 125 In-lbs. 4.5 to 14.1 Nm
	Gold	100 to 150 In-lbs. 11.3 to 16.9 Nm
1000 Series	Blue	40 to 150 In-lbs. 4.5 to 16.9 Nm
	Red	140 to 350 In-lbs. 15.8 to 39.5 Nm
	Gold	300 to 500 In-lbs. 33.9 to 56.5 Nm

Example:
- Size H-TLC
- Shaft to Shaft Configuration
- Actuating Disc option
- F bore is 25mm
- C bore is 3/4"
- Torque value is 300 to 500 in-lbs.

Model code is:
H-TLC-1000-CD 25mm 3/4" Gold

ZERO-MAX®

Roh'lix® Linar Actuators

ROH'LIX® LINEAR ACTUATORS

The Roh'lix Linear Actuator is a device that converts rotary motion into linear motion. The Roh'lix uses rolling element ball bearings that trace a helix pattern along the shaft, which produces a Rolling Helix, or Roh'lix for short. Available sizes have thrust capacities ranging from 15 to 200 lbs (67 to 889 Newtons), shaft diameters ranging from 3/8 to 2 inches (8 to 50 mm), and leads ranging from 0.025 to 6.00 inches (0.625 to 150 mm).

The Roh'lix Linear Actuator consists of six preloaded bearings that contact the shaft at an angle. When the shaft is rotated, the bearings trace out an imaginary screw thread, causing the Roh'lix to travel linearly along the shaft.

The thrust of the Roh'lix is established by spring force between the two block halves. The thrust force is adjusted by the thrust adjustment screws on the top of the block, allowing the thrust setting to be fine-tuned to individual applications. When the thrust setting is exceeded, the Roh'lix slips on the shaft until the source of the overload is corrected. The ability to slip allows the Roh'lix to provide overload protection for the equipment on which it is used.

The amount of linear distance the Roh'lix travels per shaft revolution is called lead. The lead is determined by the angle of the bearings in the Roh'lix block. The Roh'lix can be manufactured with virtually any fixed lead up to 3 times the shaft diameter. The lead, in combination with the driveshaft speed, determines the linear travel rate.
By changing either the lead or the driveshaft speed, you can change the rate of linear travel.

ROH'LIX® LINEAR ACTUATORS OPERATING CHARACTERISTICS

Roh'lix Life Expectancy
Roh'lix lifetime can range anywhere from 2 million to over 100 million inches of linear travel, depending on the application variables. The following factors should be considered to maximize the lifetime of Roh'lix:

Thrust: Roh'lix lifetime is increased when the application thrust load is a smaller percentage of the unit's thrust rating. Selecting an oversized Roh'lix is advisable to achieve the greatest lifetime of the unit.
Lead/Shaft Speed: Higher lead units will produce longer lifetime because fewer bearing revolutions will be required to move the same linear distance as a low lead unit. Also, reductions in the driveshaft RPM will increase lifetime. For a given linear speed, a higher lead will allow a lower shaft speed, and the two factors in combination will work to yield a greater lifetime.
Overloading: Occasional slippage for short periods of time is acceptable. However, frequent or extended periods of slippage will result in reduced lifetime of the bearings.
Other: Minimize sideloads and twisting loads to gain maximum life from the Roh'lix.

Loading
The Roh'lix is intended for axial loading. Sideloads and twisting loads **(Figure 1)** should be avoided whenever possible, as they cause uneven bearing loading and shorten lifetime. Whenever possible, the load weight on the Roh'lix should be supported by a separate linear bearing assembly. Where sideloads cannot be avoided, the amount of the sideload should be subtracted from the thrust capacity of the unit. The amount of the sideload should never exceed 50% of the actuator's thrust capacity. If necessary, select an oversized Roh'lix to handle these application conditions.

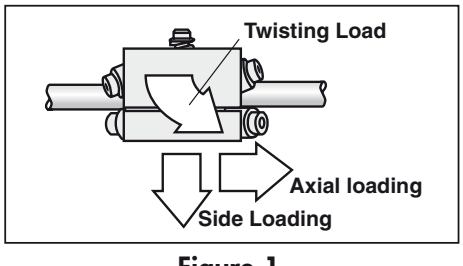


Figure 1

Installation
The Roh'lix has a split-block for ease of installation. The two block halves can be assembled around the shaft, eliminating the need for removal of pillow-block bearings, coupling, etc. The split-block design is also a benefit for removal of the Roh'lix for service, such as bearing replacement.

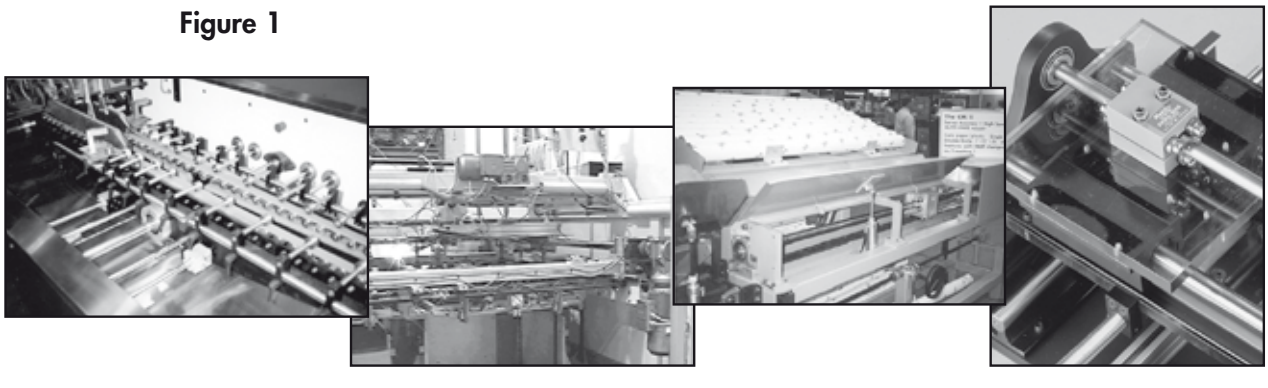
Thrust Adjustment
Thrust of the Roh'lix is set by one of three methods:

1) Adjust the thrust adjustment screws in increasing amounts until thrust setting is enough to carry load without slipping. This allows slippage before an overload builds up an unnecessary thrust load causing reduced bearing life.
2) Use a spring scale to set the amount of thrust **(Figure 1)**. This technique works where the thrust requirement is known.
3) Use the thrust per turn rating **(Figure 2)** to determine the appropriate number of turns of the thrust adjustment screws. This technique also works where the thrust requirement is known.

To set a given thrust on the Roh'lix, start with the thrust adjustment screws loose then tighten by hand until the screw head lightly touches the top of the spring. Tighten both adjusting screws one full turn.This will set the thrust as shown in the thrust column of **Figure 2**. Finish the thrust adjustment by rotating the additional turns as necessary.

Model #	Screw Length	Screw Size	Thrust per Turn
1	1.25	6-32	3 lbs.
2	1.50	10-32	17 lbs.
3	2.00	1/4-20	25 lbs.
4	2.25	1/4-20	25 lbs.
5	2.50	3/8-16	35 lbs.

Figure 2



HOW TO SELECT A *ROH'LIX® LINEAR ACTUATOR*

1. Determine Thrust Requirement.
Horizontal Applications: **F=μW**
Vertical Applications: **F=W+ μW**
F= thrust requirement (Lbs.)
μ= Coefficient of friction
W= weight of load being moved (Lbs.)

2. Determine Lead/ Driveshaft Speed/ Linear Speed.

$$\text{Driveshaft RPM} = \frac{60 \times \text{Linear Speed}}{\text{Roh'lix Lead}}$$

Driveshaft RPM= speed of shaft driving the Roh'lix (RPM)
Linear Speed= travel rate of the Roh'lix (inches per sec.)
Roh'lix Lead= lead of the Roh'lix (inches per shaft revolution)

3. Select Roh'lix Model.
Choose a Roh'lix Model from **Figure 2a or 2b** that has a thrust equal to or exceeding the thrust requirement determined in **Step 1** and lead that fits the driveshaft RPM and linear speed needs from **Step 2.**

4. Verify Shaft Diameter.
Driveshaft speed should be within the maximum recommended driveshaft speed shown in **Figure 3**.

Inch Models

Size	Model Number	Shaft dia. (In)	Lead (In)	Thrust Rating (Lb)
1	1104	3/8	0.03	15
	1111	3/8	0.10	15
	2102	3/8	0.10	30
	2114	3/8	0.20	30
	2103	3/8	0.50	30
2	2101	1/2	0.10	30
	2115	1/2	0.20	30
	2104	1/2	0.50	30
	2112	1/2	1.00	30
	3123	1/2	0.20	60
	3109	1/2	0.50	60
	3128	1/2	1.00	60
3	3110	5/8	0.10	60
	3145	5/8	0.50	60
	3103	3/4	0.10	60
	3107	3/4	0.75	60
	3133	3/4	1.00	60
	4118	1	0.20	100
4	4110	1	0.50	100
	4111	1	1.00	100
	4125	1	2.00	100
	5106	1-1/2	1.00	200
5	5109	2	0.38	200
	5112	2	3.00	200

Figure 2a

Metric Models

Size	Model Number	Shaft dia.	Lead (mm)	Thrust Rating (newton)
1	1901	8	1.3	67
	1902	8	2.5	67
	2901	8	2.5	133
	2902	8	15.0	133
2	2903	12	5.0	133
	2904	12	15.0	133
	2905	12	25.0	133
	3901	12	2.5	266
	3902	12	10.0	266
3	3913	16	2.5	266
	3914	16	15.0	266
	3915	16	25.0	266
	4901	25	2.5	444
4	4902	25	5.0	444
	4903	25	25.0	444
	5901	40	10.0	889
5	5902	50	5.0	889
	5903	50	50.0	889

Leads are available from a minimum of 0.025 inch (.625mm) to maximum of 3 times the shaft diameter. Drive shaft diameters may be as small as 3/8 inch to as large as 2 inches. (8 to 50 mm)

Figure 2b

New Zero-Max Configurable 3D CAD Downloads.
www.zero-max.com

HOW TO SELECT A *ROH'LIX® LINEAR ACTUATOR*

Maximum Recommended Drive Shaft Speed

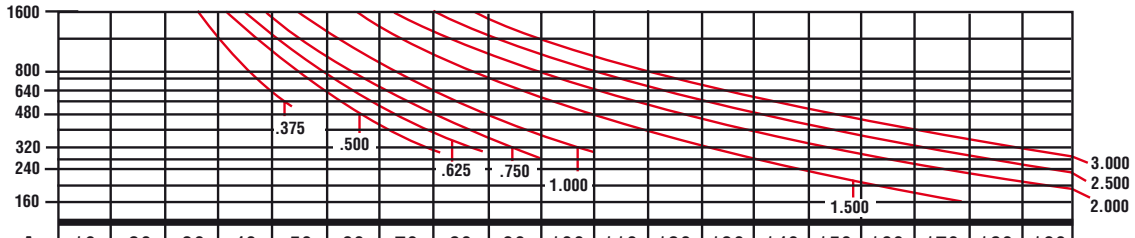
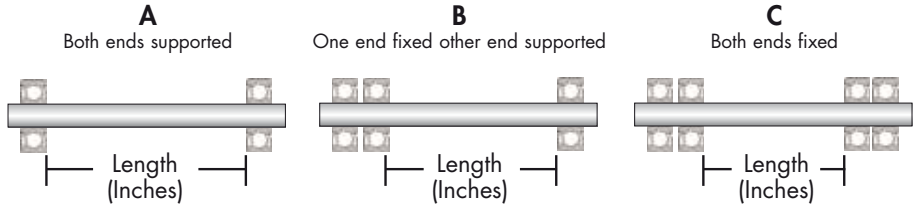


Figure 3

A	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190
B	12	25	35	50	60	70	85	100	110	120	130	145	160	170	180	195	205	220	230
C	15	30	40	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285

Length (Inches)

Bearing Mounting Method

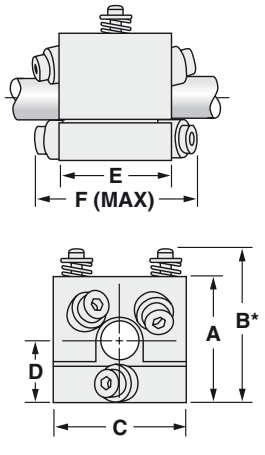


Dimensions

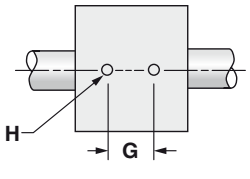
Size	units	A	B	C	D	E	F	G	H-Tapped Mounting Holes
1	inch	1.14	1.66	1.12	0.57	1.62	2.25	0.75	#6-32 UNC x 1/4 DP
	mm	29	42.2	28.6	14.5	41.3	57.2	19	M3 x 0.5 x 6.35 DP
2	inch	1.52	1.91	1.5	0.76	2	2.81	1	#10-32 UNF x 3/8 DP
	mm	38.6	48.5	38.1	19.3	50.8	71.4	25.4	M5 x 0.08 x 9.53 DP
3	inch	2.02	2.69	2	1.01	2.5	3.42	1.25	1/4-20 UNC x 1/2 DP
	mm	51.3	68.3	50.8	25.6	63.5	86.9	31.1	M6 x 1.0 x 12.7 DP
4	inch	3	3.5	3	1.5	2.5	3.56	2.5	1/4-20 UNC x 1/2 DP
	mm	76.2	88.9	76.2	38.1	63.5	90.4	63.5	M6 x 1.0 x 12.7 DP
5	inch	4.5	4.68	4.5	2.25	2.75	4.68	4	1/4-20 UNC x 1/2 DP
	mm	114.3	118.9	114.3	57.2	69.9	118.9	101.6	M6 x 1.0 x 12.7 DP

*Dimension at zero thrust setting.

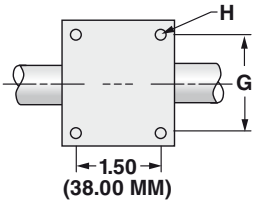
Roh'lix Sizes 1-5



Roh'lix Sizes 1-3



Roh'lix Sizes 4-5



ZERO-MAX®

Adjustable Speed Drives

HOW THE *ZERO-MAX® DRIVE* WORKS

A Zero-Max Drive is a mechanical adjustable speed drive. Five sizes provide constant torque of 12 to 200 inch pounds throughout the speed range. The speed range is infinitely variable from 0 to 1/4 of the input speed under full rated load. This is generally stated as 0-400 RPM assuming an input of 1800 RPM.

For lower speed/higher torque applications, some Zero-Max Drives are available with right angle gearheads. Some Zero-Max Drives may be purchased with standard electric motors or they may be connected to any rotating power source up to 2000 RPM. Speed adjustments are easily made by moving a lever control through an arc or turning the handwheel of a screw type control. In either case, precise speed control settings are possible.

Over 1 million Zero-Max Drives have been put to work in a wide variety of applications. They are available from distributors in all major markets throughout the world.

Features	Benefits
Compact	Easy to handle/compact
Simple to install	No special wiring/training
Simple operation	Repeatable & easy to operate with lever or screw control
Use anywhere on machine	Accepts input to 2,000 RPM. Ideal as a secondary drive
Constant torque	Delivers constant torque throughout the speed range
4:1 speed reduction	Often usable without additional speed reduction
Change speed anytime	Speed set-ups are made quickly and easily
Change speed frequently	Permits slow or fast, small or large speed changes
Change speed continuously	Ideal for dancer applications/constant speed changes
Leave at one setting	No daily speed cycling
Accurate speed holding	No “wear-in” period/constant speed operation
Accepts any input	World’s most versatile, economical secondary drive
Goes to zero output	Ideal for use as a clutch
Shaft/control/motor options	Versatile
Infinitely adjustable	0-400 RPM speed range with 1800 RPM input

MATCH THE *ZERO-MAX® DRIVE* TO THESE COMPONENTS

To achieve the exact performance characteristics you desire, Zero-Max provides the following matching components:

For Model E and JK Drives, a right angle gearhead and selection of motors are available.

For models Y, QX and ZX Drives, C-Flange adapters are available for connecting customer supplied motors to the drive you have selected.

Lever control is standard on all drives. Optional controls include: screw control, extended screw control, extended lever control, extended control shaft, microdial control, plus flatted and drilled control levers.

Direction of output rotation must be specified and is independent of input direction. Model numbers ending in "1" are CCW output, "2" are CW output and "3" are reversible.

Unidirectional Drives

E Models
1, 2, 41 or 42
Torque Rating 12in.lbs.
Speed Range 0-400.
Normal Input 1/4-1/3 H.P.

JK Models
1, 2, 41 or 42
Torque Rating 25in.lbs.
Speed Range 0-400.
Normal Input 1/4-1/3 H.P.

Y Models
1, 2, 41, or 42
Torque Rating 60in.lbs.
Speed Range 0-400.
Normal Input 1/2 H.P.

QX Models
1, 2, 41 or 42
Torque Rating 100in.lbs.
Speed Range 0-400.
Normal Input 3/4 H.P.

ZX Models
1, 2, 41 or 42
Torque Rating 200in.lbs.
Speed Range 0-400.
Normal Input 1-1/2H.P.

Reversible Drives

E Model 3
Torque Rating 12in.lbs.
Speed Range 400-0-400.
Normal Input 1/4-1/3 H.P.

JK Model 3
Torque Rating 25in.lbs.
Speed Range 400-0-400.
Normal Input 1/4-1/3 H.P.

Y Model 3
Torque Rating 60in.lbs.
Speed Range 0-400.
Normal Input 1/2 H.P.

Gearhead

Right angle gearheads available for E and JK Models.
Right Angle - 4 Models
W1 4:1 W2 10:1
W3 20:1 W4 40:1

Motors

Many popular voltage, Hz, phase and enclosures are available for use with drive.
E Models 1, 2, 3/ JK Models 1, 2 and 3

C-Face Adapters

MODEL CFY
Includes coupling for 56 frame motor.

MODEL CFQ
Includes coupling for 56 frame motor.

MODEL CFZ
Includes coupling for 56 frame motor.

All C-Face Adapters will accept 56, 143T and 145T frame motors.

New Zero-Max Configurable 3D CAD Downloads.
www.zero-max.com

CONTROLS FOR *ZERO-MAX® DRIVE* DRIVES

Standard Lever

Screw Control

Extended Screw Control

Microdial Control*

Extended Control Lever

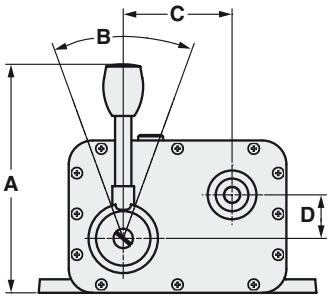
Extended Control Stub

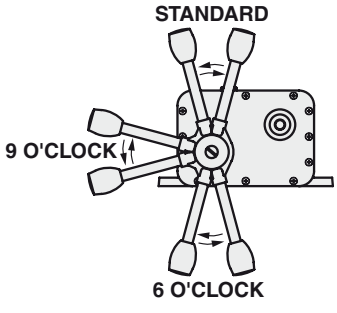
Flatted and Drilled Control Lever

*LH (left hand) configuration shown

Standard Lever Type Control

The lever control can be removed from its customary 12 o'clock position and moved to a 6 or 9 o'clock position on E and JK Models and to any position on Y, QX and ZX Models that will not interfere with the output or input shaft. Flatted and drilled, as well as extended levers, are available for easy attachment to any kind of remote control, or for use on tension control applications.

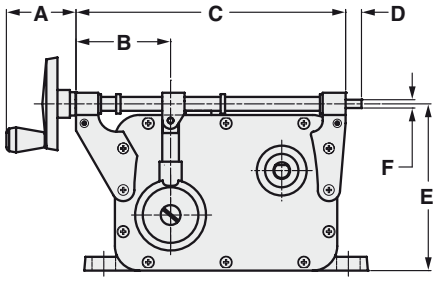




Drive Model	Lever Control Dimensions A	B	C	D	Lever Torque (Running, no load)	(Not running, full load)
E	5.25	52°	2.50	1.00	7 in. lbs.	20 in. lbs.
JK	5.25	52°	2.50	1.00	7 in. lbs.	35 in. lbs.
Y	6.75	52°	3.25	1.68	15 in. lbs.	66 in. lbs.
QX	8.25	54°	3.55	1.90	36 in. lbs.	90 in. lbs.
ZX	10.00	63°	3.06	2.40	50 in. lbs.	160 in. lbs.

Optional Screw Type Control

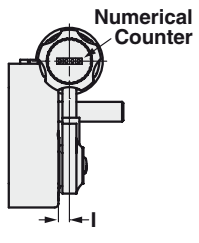
All Zero-Max Drives are available with screw control. Screw controls give very precise control of speed and many kinds of remote control attachments are easily made. They are positive and easy to calibrate. Kits are available for adding screw control to drives in the field. The hand-wheel can be mounted on either end of the screw.

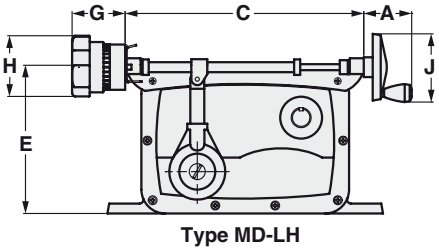


Drive Model	SCREW CONTROL DIMENSIONS A	B	C	D	E	F	Number of Screw Turns	Screw Torque (inch-Lbs.)
E__SC	1.50	2.12	6.06	0.37	3.75	0.18	38	2 in. lbs.
JK__SC	1.50	2.12	6.06	0.37	3.75	0.18	38	2 in. lbs.
Y__SC	1.50	2.25	7.42	0.44	4.58	0.18	50	3 in. lbs.
QX__SC	2.12	2.87	8.81	0.37	5.87	0.25	68	4 in. lbs.
ZX__SC	2.12	6.12	12.31	0.50	7.44	0.31	91	4 in. lbs.

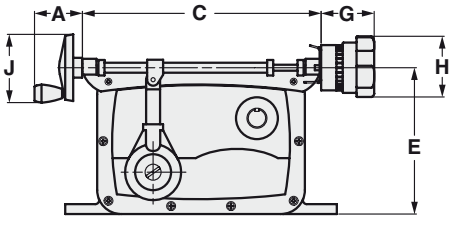
CONTROLS & DRIVE OPERATIONG CHARACTERISTICS

Optional Microdial Type Control
Drive models E, JK, and Y are available with Microdial control. The Microdial is an enhanced Screw control that will provide the user with a numerical value that will correspond to a given speed setting. For added flexibility, these units can be ordered with the Microdial counter on either end of the control. The Microdial is ideal for applications that require the speed setting to be adjusted often and need a high level of repeatability. Kits are available for adding the Microdial control to drives in the field.





Type MD-LH



Type MD-RH

MICRODIAL DIMENSIONS								
Drive Model	A	C	E	G	H	I	J	Numerical Counter Range
E__MD-__	1.50	6.12	3.75	1.66	1.97	0.25	2.14	0-76
JK__MD-__	1.50	6.12	3.75	1.66	1.97	0.25	2.14	0-76
Y__MD-__	1.50	7.42	4.58	1.66	1.97	0.34	2.14	0-100

Input Speed should not exceed 2,000 RPM. There is no minimum, but as input speeds approach zero, slight variations in the angular velocity of the output may become noticeable. It is much better to use higher input speeds and take as much reduction as possible from the output shaft to maximize precise speed control. Direction of the input does not affect direction of output but does affect the speed range and performance of the Zero-Max Drive. The recommended input rotation direction in relation to output is given below. If output speeds are substantially in excess of rated speeds or if the drive is noisy or vibrating at top speed, the non-preferred direction input is probably being used. Try reversing the motor so the input is in the other direction.

Output Speed is infinitely adjustable from 0 to 1/4th of the input speed. Speeds can be maintained or repeated with accuracy of 1% or less of maximum speed in the upper 90% of the range providing output load and input speed are constant.

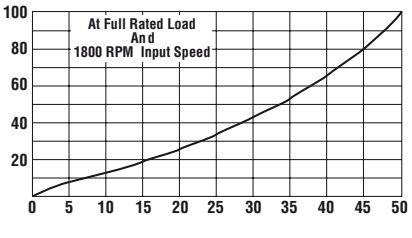
Zero-Max Drives
Models vary in their ability to give absolute zero under light loads. All models go to zero output speed under full rated load.Output Torque ratings listed for various models are constant throughout the speed range and assume an input speed of 1800 RPM. The drives are designed for continuous duty running at one speed, a variety of speeds or continuous speed cycling. Additional output torque may be gained by lowering input speed. In general, the torque rating of all models may be increased 25% if the input speed is 900 RPM or lower.

Temperature
A rise of 40° C above ambient may be expected in the drive assuming input speed of 1800 RPM. This temperature will generate surface heat too hot for continued skin contact. This does not indicate a malfunction nor does it affect the performance of the drive. The drives are built to withstand high operating temperatures but they should never exceed 90° C.

Model	Overhung Load Pounds*		Thrust Load Pounds
	Output	Input	
E & JK	20	12	25
Y	40	30	75
QX	50	40	100
ZX	400	100	400
W	400	–	500

*Note: At mid-point of Input and Output Shafts

Control Linearity
Movement of the Zero-Max speed control lever or rotation of the screw control produces a change in output speed that is non-linear. A typical speed-control curve of a Zero-Max Drive under full rated load is shown in the chart below.



HOW TO SELECT A *ZERO-MAX® DRIVE* DRIVE

1. **Start By Determining The Torque Required To Start And Run Your Machine.** This may be the most important step in selecting the best drive model for your application. All Zero-Max Drives are rated for constant torque and variable horsepower throughout the speed range. Be sure to consider the type of machine and apply the proper service factor.

2. **Determine Speed Range Required For Your Machine Processes.** The Zero-Max Drive speed range of 0-400 RPM is given assuming an input speed of 1800 RPM and full load on the output shaft. The selection of input speed and direction of input will have an effect on the final output speed. Lower input speeds reduce the speed range proportionately.

   Running the input in the non-preferred direction substantially increases the speed range but may result in shorter life. For best results, run the Zero-Max in the preferred direction and match the speed range to your machine requirement. Take as much reduction as possible, from the output shaft to the load, to provide adequate torque and to maximize accuracy of speed control.

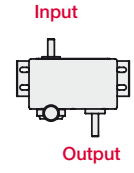
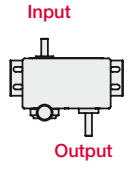
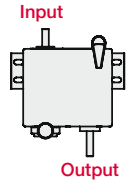
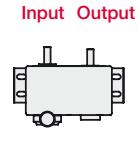
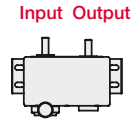
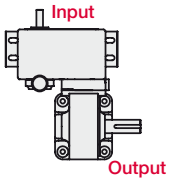
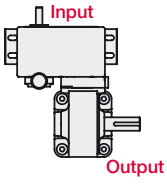
3. **Determine Output Shaft Rotation.** This is done by looking directly at the end of the output shaft. Model numbers ending in "1" are CCW output, "2" are CW output and "3" are reversible. Use of the Zero-Max right angle gearhead does not change the direction of rotation of the final output shaft.

4. **Select The Proper Method Of Providing Input Speed To The Zero-Max Drive.** If the Zero-Max Drive is being used as a secondary drive unit, input is best provided by a timing belt drive. Other common methods include shaft couplings, chain and sprocket drive, V-belt, and flat belt drives which are less desirable because of the potential for excessive overhung loading on the shaft.

   In any case, care should be taken to mount pulleys, sprockets etc. as close to the Zero-Max Drive case as possible to minimize overhung loads on the shafts. If a Zero-Max motor is to be used, select the standard motor from the chart on page 75.

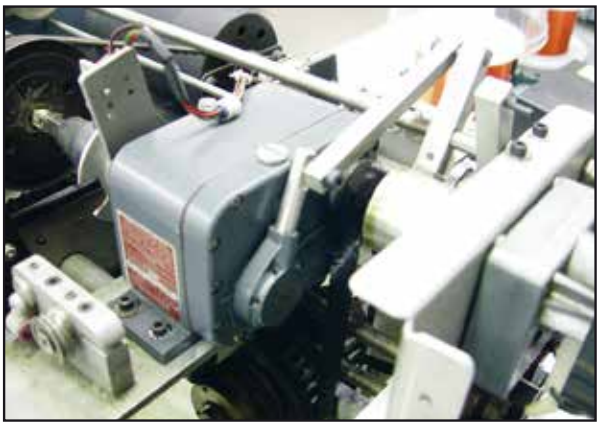
5. **Determine The Type Of Control Best Suited To Your Application.** Lever control is supplied as standard with all models of Zero-Max Drives. Other controls are available as discussed on page 66 and 67. The lever control is best suited for applications requiring rapid and frequent speed changes. The screw control is best suited for precise settings and speed repeating.

Series	Shaft Options Available	Output Torque		Recommended Input HP
E	1, 2, 3, 41, 42	12 In-Lbs	1.4 Nm	1/4 HP
JK	1, 2, 3, 41, 42	25 In-Lbs	2.8 Nm	1/3 HP
Y	1, 2, 3, 41 ,42	60 In-Lbs	6.8 Nm	1/2 HP
QX	1, 2, 41, 42	100 In-Lbs	11.3 Nm	3/4 HP
ZX	1, 2, 41, 42	200 In-Lbs	22.6 Nm	1 1/2 HP

Type	*Note: Shaft rotations are always referenced by viewing the end of that shaft*	Output Rotation	Preferred Input Rotation
E1, JK1, Y1, QX1, ZX1		CCW	CW
E2, JK2, Y2, QX2, ZX2		CW	CCW
E3, JK3, Y3		Both	CCW
E41, JK41, Y41, QX41, ZX41		CCW	CCW
E42, JK42, Y42, QX42, ZX42		CW	CW
E1-W_ , JK1-W_		CCW	CW
E2-W_ , JK2-W_		CW	CCW

Service Factors		
Type of Load	Type of Duty	
Uniform	8 to 10 hrs./day 1.0	24 hrs./day 1.5
Moderate Shock	1.5	2.0
Heavy Shock	2.0	3.0
Reversing Service	2.0	3.0

Types of Applications	Running Torque Multiplier
General machines with ball or roller bearings	1.2–1.3
General machines with sleeve bearings	1.3–1.6
Conveyors and machines with excessive sliding friction	1.6–2.5
Machines that have “high” load spots in their cycle like printing, punch presses and machines with cams /crank-operation.	2.5–6.0

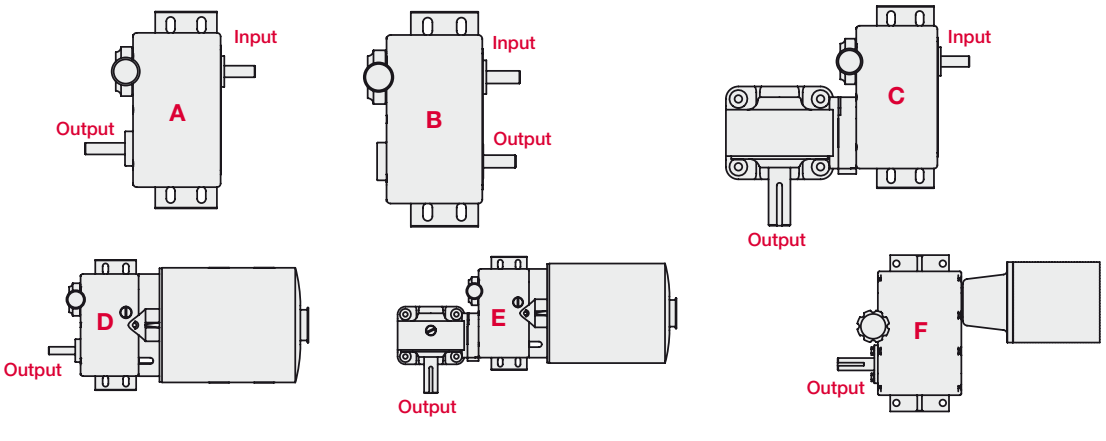


TORQUE AND SPEED RANGE SELECTION CHART

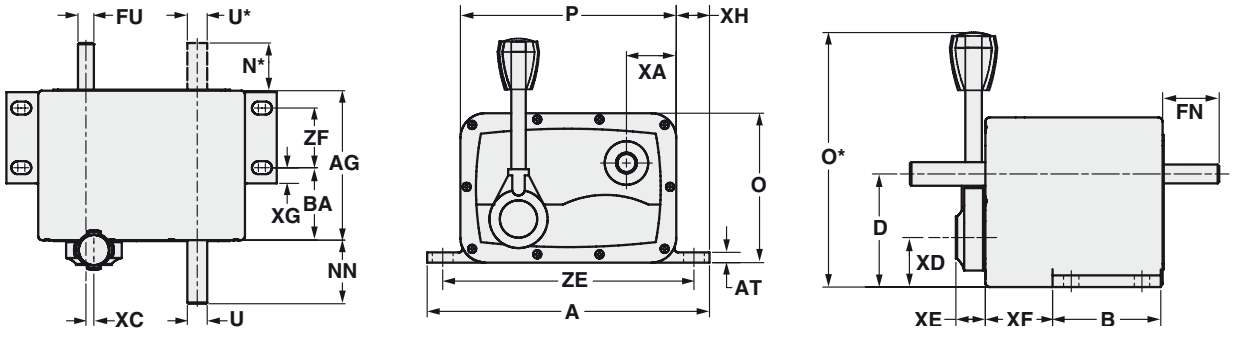
Standard Zero-Max Drives -- Order By Complete Model Number.

Torque Rating (In. Lbs.)	Speed Range w/ 1800 RPM input	Shaft Arrangement	Model Number - without Motor Output Shaft Rotation			Net Wt. Lbs.	Shaft Arrangement	Model Number - with Motor or C-Flange Adapter Output Shaft Rotation			Net Wt. Lbs.
			CCW	CW	Reverse			CCW	CW	Reverse	
	0-400	A	E1	E2	-	4	D	E1-M3	E2-M3	-	18
12	400-0-400	A	-	-	E3	5	D	-	-	E3-M3	19
	0-400	B	E41	E42	-	4	-	-	-	-	-
	0-400	A	JK1	JK2	-	6	D	JK1-M3	JK2-M3	-	20
25	400-0-400	A	-	-	JK3	6	D	-	-	JK3-M3	20
	0-400	B	JK41	JK42	-	6	-	-	-	-	-
35	0-100	C	E1-W1	E2-W1	-	9	E	E1-W1-M3	E2-W1-M3	-	23
	100-0-100	C	-	-	E3-W1	10	E	-	-	E3-W1-M3	24
	0-400	A	Y1	Y2	-	10	F	Y1-CFY	Y2-CFY	-	16
60	400-0-400	A	-	-	Y3	15	F	-	-	Y3-CFY	21
	0-400	B	Y41	Y42	-	10	-	-	-	-	-
75	0-100	C	JK1-W1	JK2-W1	-	11	E	JK1-W1-M3	JK2-W1-M3	-	25
	10-0-100	C	-	-	JK3-W1	11	E	-	-	JK3-W1-M3	25
90	0-40	C	E1-W2	E2-W2	-	9	E	E1-W2-M3	E2-W2-M3	-	23
	40-0-40	C	-	-	E3-W2	10	E	-	-	E3-W2-M3	24
100	0-400	A	QX1	QX2	-	21	F	QX1-CFQ	QX2-CFQ	-	26
	0-400	B	QX41	QX42	-	21	-	-	-	-	-
155	0-20	C	E1-W3	E2-W3	-	9	E	E1-W1-M3	E2-W3-M3	-	23
	20-0-20	C	-	-	E3-W3	10	E	-	-	E3-W3-M3	24
190	0-40	C	JK1-W2	JK2-W2	-	11	E	JK1-W2-M3	JK2-W2-M3	-	25
	40-0-40	C	-	-	JK3-W2	11	E	-	-	JK3-W2-M3	25
200	0-400	A	ZX1	ZX2	-	32	F	ZX1-CFZ	ZX2-CFZ	-	37
	0-400	B	ZX41	ZX42	-	32	-	-	-	-	-
240	0-10	C	E1-W4	E2-W4	-	9	E	E1-W4-M3	E2-W4-M3	-	23
	10-0-10	C	-	-	E3-W4	10	E	-	-	E3-W4-M3	24
300	0-20	C	JK1-W3	JK2-W3	-	11	E	JK1-W3-M3	JK2-W3-M3	-	25
	20-0-20	C	-	-	JK3-W3	11	E	-	-	JK-W3-M3	25
300	0-10	C	JK1-W4	JK2-W4	-	11	E	JK1-W4-M3	JK2-W4-M3	-	25
	10-0-10	C	-	-	JK3-W4	11	E	-	-	JK3-W4-M3	25

Standard Shaft Arrangements



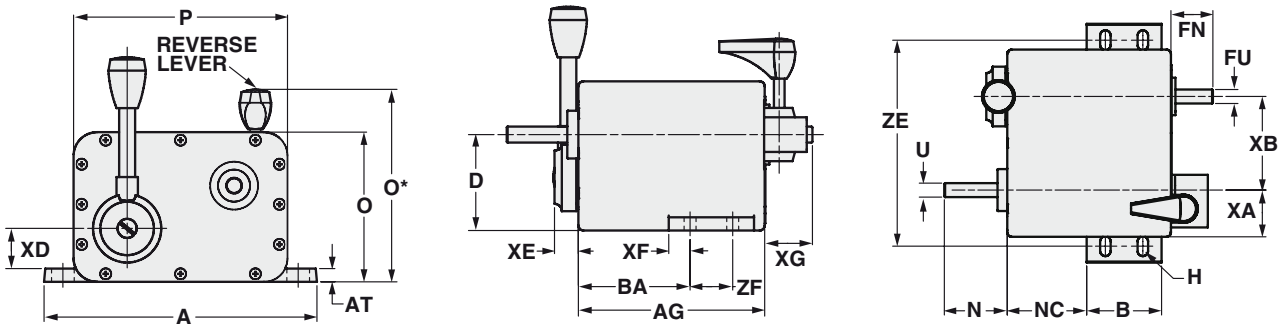
Standard Drives Models E, JK, Y, QX and ZX Dimensions



	E1&2	E 41&42	JK1&2	JK 41&42	Y1&2	Y 41&42	QX1&2	QX 41&42	ZX1&2	ZX 41&42
A	6.37	6.37	6.37	6.37	8.50	8.50	10.25	10.25	12.62	12.62
AG	2.84	2.84	3.98	3.98	4.70	4.70	6.81	6.81	6.75	6.75
AT	0.31	0.31	0.31	0.31	0.31	0.31	0.37	0.37	0.50	0.50
B	---	2.00	2.00	2.00	2.87	2.87	3.00	3.00	4.75	4.75
BA	1.22	1.22	2.34	2.34	2.28	2.28	2.41	2.41	1.50	1.50
D	2.25	2.25	2.25	2.25	3.00	3.00	3.50	3.50	4.50	4.50
FG	1.12	1.12	1.12	1.12	1.50	1.50	2.00	2.00	2.00	2.00
FN	1.00	1.00	1.00	1.00	1.50	1.50	2.00	2.00	2.00	2.00
FU	0.375	0.375	0.375	0.375	0.500	0.500	0.625	0.625	0.875	0.875
H	0.28 dia.	0.28 dia.	0.28 dia.	0.28 dia.	0.40 dia.	0.40 dia.	0.41 dia.	0.41 dia.	0.53 dia.	0.53 dia.
N	1.30	---	1.30	---	2.00	---	3.00	---	2.75	---
N*	---	1.00	---	1.00	---	2.00	---	2.87	---	3.31
NN	1.56	---	1.56	---	2.00	---	3.00	---	3.25	---
O	3.50	3.50	3.50	3.50	4.50	4.50	5.50	5.50	7.00	7.00
O*	5.25	5.25	5.25	5.25	6.75	6.75	8.25	8.25	10.00	10.00
P	5.00	5.00	5.00	5.00	6.50	6.50	8.00	8.00	10.00	10.00
U	0.375	---	0.375	---	0.625	---	0.750	---	1.00	---
U*	---	0.375	---	0.375	---	0.625	---	0.750	---	1.00
XA	1.25	1.25	1.25	1.25	1.53	1.53	2.00	2.00	2.50	2.50
XB	2.50	2.50	2.50	2.50	3.50	3.50	4.00	4.00	5.00	5.00
XC	---	---	---	---	0.25	0.25	0.45	0.45	1.94	1.94
XD	1.25	1.25	1.25	1.25	1.31	1.31	1.60	1.60	2.09	2.09
XE	0.56	0.56	0.56	0.56	0.75	0.75	0.91	0.91	1.00	1.00
XF	0.72	0.72	1.84	1.84	1.78	1.78	1.89	1.89	1.00	1.00
XG	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
XH	0.25	0.25	0.25	0.25	0.50	0.50	0.62	0.62	0.62	0.62
ZE	5.50	5.50	5.50	5.50	7.50	7.50	9.25	9.25	11.25	11.25
ZF	1.00	1.00	1.00	1.00	1.87	1.87	2.00	2.00	3.75	3.75

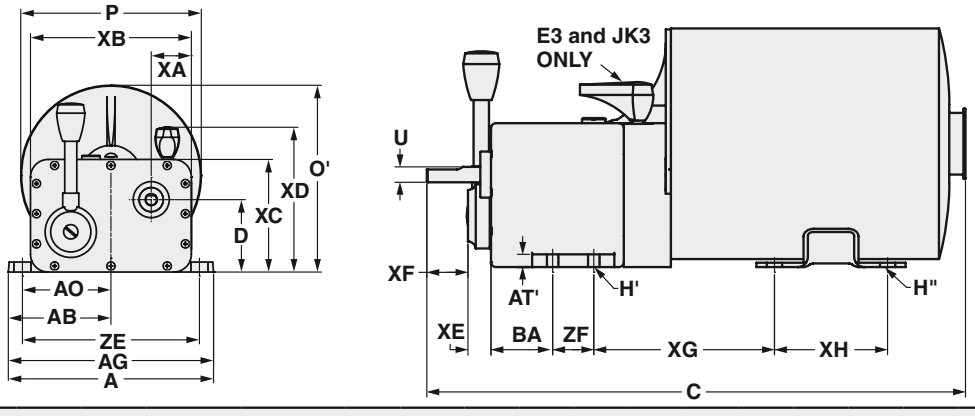
DRIVES DIMENSIONS

Reverse Drives Models E3, JK3 and Y3 Dimensions



	A	B	D	h slots	N	O	O*	P	U	AG	AT	BA	FN	FU	XA	XB	NC	XD	XE	XF	XG	ZE	ZF
E3	6.37	2.00	2.25	0.28 dia.	1.56	3.50	4.50	5.00	0.375	3.23	0.31	1.59	1.00	0.375	1.25	2.50	1.00	1.25	0.56	0.50	1.00	5.50	1.00
JK3	6.37	2.00	2.25	0.28 dia.	1.68	3.50	4.50	5.00	0.375	4.37	0.31	2.71	1.00	0.375	1.25	2.50	2.12	1.25	0.56	0.50	1.00	5.50	1.00
Y3	8.5	2.87	3	0.40 dia.	2	4.53	5.53	6.6	0.625	5.83	0.31	3.39	1.5	0.5	1.53	3.5	2.89	1.31	0.75	0.5	1.5	7.5	1.87

Motorized Drives Models E and JK Dimensions



	A	D	H (slots)	H1* (slots)	P	U	AE	AO	AT	BA	XA	XB	XC	XD	XE	XF	XH	ZE	ZF
E1 & E2	6.37	2.25	0.28 dia.	0.34 dia.	5.62	0.375	3.18	2.75	0.31	1.22	1.25	5.00	3.50	4.50	0.56	1.00	2.75	5.50	1.00
E3	6.37	2.25	0.28 dia.	0.34 dia.	5.62	0.375	3.18	2.75	0.31	1.59	1.25	5.00	3.50	4.50	0.56	1.00	2.75	5.50	1.00
JK1 & JK2	6.37	2.25	0.28 dia.	0.34 dia.	5.62	0.375	3.18	2.75	0.31	2.34	1.25	5.00	3.50	4.50	0.56	1.00	2.75	5.50	1.00
JK3	6.37	2.25	0.28 dia.	0.34 dia.	5.62	0.375	3.18	2.75	0.31	2.71	1.25	5.00	3.50	4.50	0.56	1.00	2.75	5.50	1.00

*Motor slots are centered 4.25 apart.

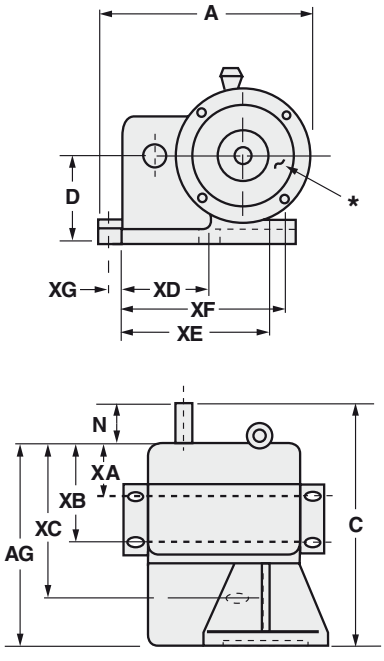
Z.M. Motor	Used With	ENCL	Horse Power	Voltage	Hz	Phase	C DIMENSION w/ E1 & E2	w/ E3	w/ JK1 & JK2	w/ JK3	XG	O'
M3	E or JK	DP	1/3	115	60	1	12.95	13.35	14.09	14.47	4.37	5.81
M9		DP	1/3	230	60	1	12.95	13.35	14.09	14.47	4.37	5.81
M42		DP	1/3	208-230/460	60	3	13.62	14.03	14.75	15.12	4.42	5.81
M5		TEFC	1/4	115	60	1	14.06	14.38	15.18	15.53	4.37	6.39
M45		TEFC	1/4	230/460	60	3	14.06	14.38	15.18	15.53	4.37	6.39

Other motors are available, please contact the factory with your requirements.

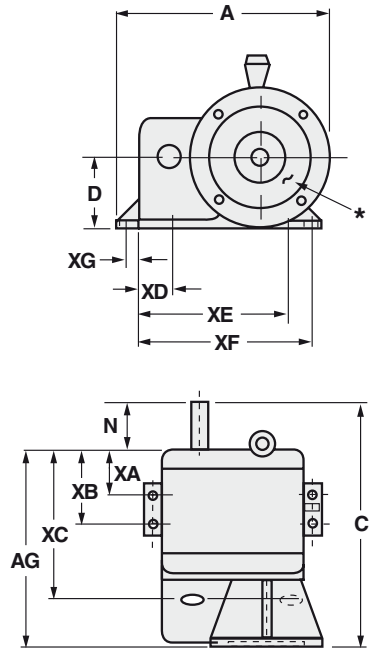
DRIVES DIMENSIONS

Drives with C-Flange Adapters Models Y, QX and ZX Dimensions

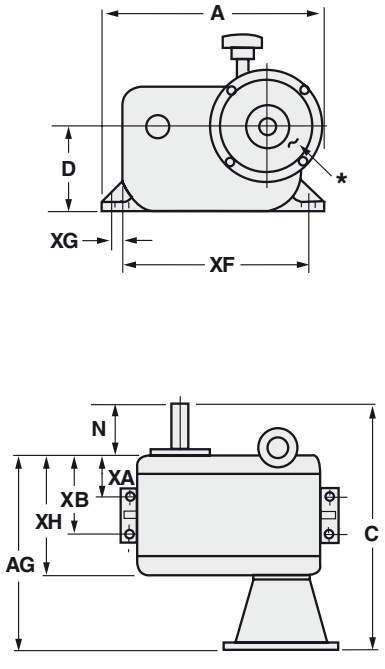
Model Y



Model QX



Model ZX



	A	C	D	N	AG	XA	XB	XC	XD	XE	XF	XG
Y	9.31	10.37	3.50	2.00	8.37	2.28	4.15	6.22	3.25	6.50	7.00	0.50
QX	10.37	13.97	3.50	3.00	11.10	2.39	4.41	8.37	1.63	7.12	8.63	0.63
ZX	12.12	14.12	4.50	3.25	10.88	1.50	5.25	-	-	-	10.62	0.62

*Accepts 56, 143T and 145T frame, C-face motor.

CFY

CFQ

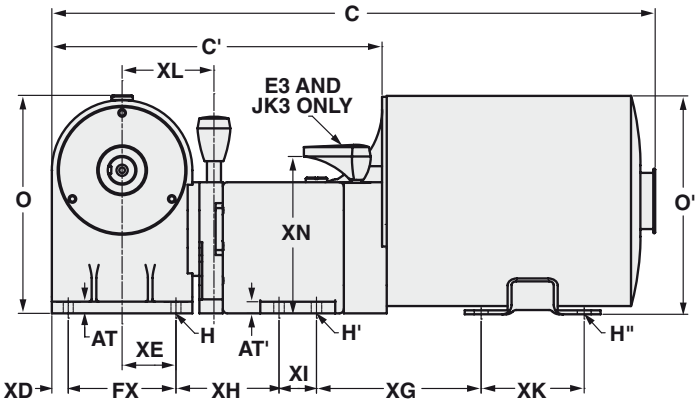
CFZ

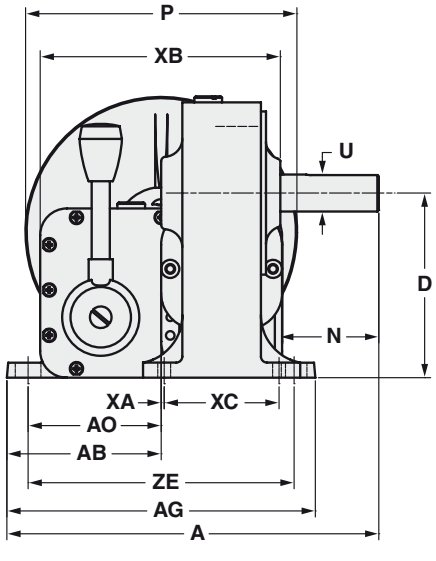
DRIVES DIMENSIONS

Standard Drives with Right Angle Gearhead Dimensions

	E1& E2	E3	JK1 & JK2	JK3
	Right Angle Gearheads (W)			
A	7.68	7.68	7.68	7.68
C'	8.53	8.90	9.65	10.02
D	3.81	3.81	3.81	3.81
H	0.25 dia.	0.25 dia.	0.25 dia.	0.25 dia.
H'	0.28 dia.	0.28 dia.	0.28 dia.	0.28 dia.
H''	0.34 dia.	0.34 dia.	0.34 dia.	0.34 dia.
N	2.00	2.00	2.00	2.00
O	5.84	5.84	5.84	5.84
P	5.62	5.62	5.62	5.62
U	0.750	0.750	0.750	0.750
AB	3.18	3.18	3.18	3.18
AG	6.37	6.37	6.37	6.37
AO	2.75	2.75	2.75	2.75
AT	0.35	0.35	0.35	0.35
AT'	0.31	0.31	0.31	0.31
XA	0.06	0.06	0.06	0.06
XB	5.00	5.00	5.00	5.00
XC	2.38	2.38	2.38	2.38
XD	0.43	0.43	0.43	0.43
XE	1.43	1.43	1.43	1.43
XF	2.87	2.87	2.87	2.87
XH	2.43	2.84	3.59	3.93
XI	1.00	1.00	1.00	1.00
XK	2.75	2.75	2.75	2.75
XL	2.43	2.43	2.43	2.43
XN	-	4.50	-	4.50
ZE	5.50	5.50	5.50	5.50

E and JK Drives with Right Angle Gearheads (W) Dimensions with Motor





SHAFT AND KEYWAY DETAILS		
Model	**Output**	**Input**
E & JK	Flat 1/16" deep x 1-1/8"	Flat 1/16" deep x 3/4"
Y	Keyway 3/16" x 1-5/8"	Flat 1/16" deep x 1"
QX	Keyway 3/16" x 2-1/2"	Keyway 3/16" x 1-1/2"
ZX	Keyway 1/4" x 2-1/8"	Keyway 3/16" x 1-1/4"
W	Keyway 3/16" x 1-1/4"	Hollow Shaft

MOTORS* Right Angle Gearheads (W)						
			C		XG	O'
Motor*	**w/E1 & E2**	**w/E3**	**w/JK1 & JK2**	**w/JK3**		
M3 & M9	15.95	16.33	17.06	17.45	4.37	5.81
M42	16.62	17.00	17.75	18.13	4.42	5.81
M5	16.75	17.25	18.00	18.38	4.37	6.39
M45	16.75	17.25	18.00	18.38	4.37	6.39

*See page 75 for motor data.

ORDERING *MODEL CODE*

Model	
Code	Output Torque
E	12 in-lbs
JK	25 in-lbs
Y	60 in-lbs
QX	100 in-lbs
ZX	200 in-lbs

Configuration		
Code	Output Rotation	Shaft Configuration
1	Counter Clockwise	Input / Output
2	Clockwise	
3*	Both CCW and CW	
41	Counter Clockwise	Input Output
42	Clockwise	

*Reversing drives are available in sizes E, JK, and Y only.

Control Options	
Code	Output Torque
Omit	Standard Control Lever
SC	Screw Control
MD-LH	Microdial (Left Hand Installation)
MD-RH	Microdial (Right Hand Installation)

Note: Microdial controls not available on QX and ZX models as standard.

Right Angle Gear Reducer (Available for E and JK drives only)	
Code	Gear Ratio
Omit	None
W1	4 : 1
W2	10 : 1
W3	20 : 1
W4	40 : 1

Example:

- Required output torque is 20 in-lbs.
- Output shaft rotation is clockwise.
- Input and output shaft arrangement to be on same side of housing.
- Screw control option is desired.
- Gear reduction is not required.
- Integrated motor is not required

Model Code is JK42SC

Integrated Electric Motor (Available for E and JK drives only)				
Code	HP	Voltage	Phase	Enclosure
Omit			None	
M3	1/3	115	1	Drip Proof
M9	1/3	230	1	Drip Proof
M42	1/3	208-230/460	3	Drip Proof
M5	1/4	115	1	Totally Enclosed Fan Cooled (TEFC)
M45	1/4	230-480	3	Totally Enclosed Fan Cooled (TEFC)

C-Face Adapters

Part Number	Description
CFY	Designed to mount a 56C frame motors to a Y drive
CFQ	Designed to mount a 56C frame motors to a QX drive
CFZ	Designed to mount a 56C frame motors to a ZX drive


MODEL CFY


MODEL CFQ


MODEL CFZ

Note: All kits include the shaft coupling.

ZERO-MAX®

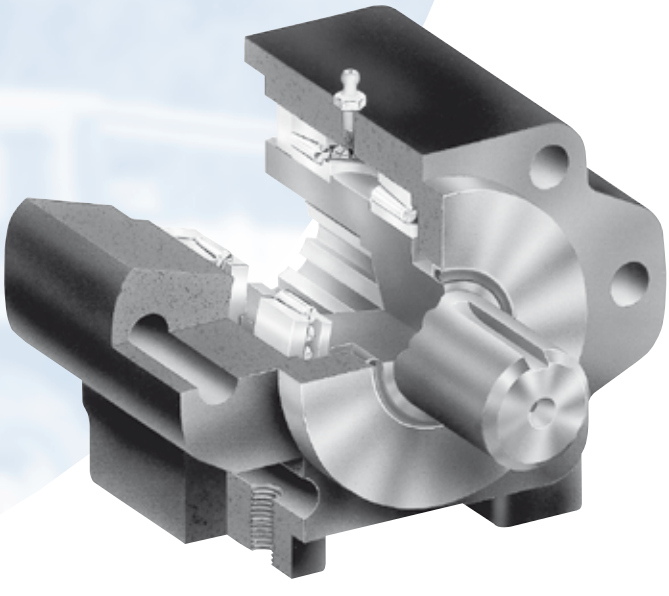
OHLA® Overhung Load Adaptors

Increase Motor Durability And Life

OHLA® OVERHUNG LOAD ADAPTORS

OHLA®

OVERHUNG LOAD ADAPTORS



ZERO-MAX Is A World-Leading Expert In Overhung Load Technology

The first complete line of SAE "A" through SAE "F" mount OHLA overhung load adaptors was designed by ZERO-MAX. We set the industry standard with the OHLA design. Today, we provide immediate shipment of standard models from stock.

From the smallest Model 200 SAE "A" mount to the largest Model 1500 SAE "F" mount, OHLA's feature rugged housings of cast iron, shafts of 130,000 PSI stress-proof steel, ball or tapered-roller bearings, many different shaft options and attractively painted housings. All models may be either face or foot-mounted.

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Count On OHLA's For These Important Benefits:

- Eliminates premature motor or pump failure due to overhung loads (axial and radial) on your motor or pump shaft.
- Prevents contamination of hydraulic fluid in harsh environments.
- Provides a solid, permanent mounting surface.
- Permits the removal of hydraulic motors for servicing without disturbing driven gears, pulleys or sprockets.
- Seals out dirt and grime.

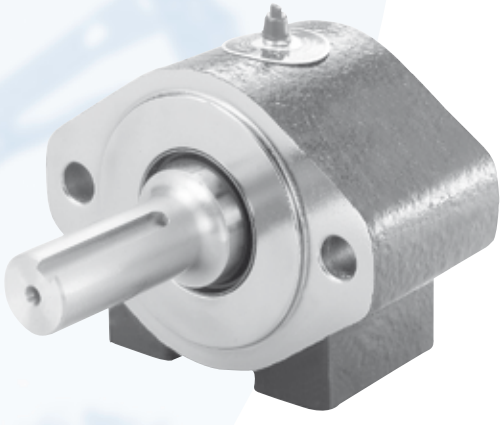
Call a ZERO-MAX technical sales representative now. There's a model and size OHLA to handle every design need–or we'll engineer a special one just for you.

OHLA® INDEX

OHLA® INDEX

OHLA® 200
OVERHUNG LOAD ADAPTORS

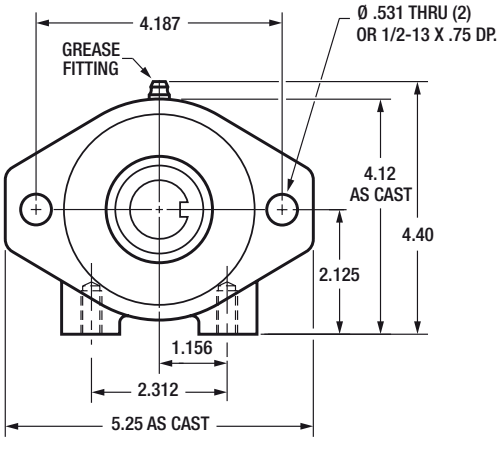
- For SAE "A" 2-bolt mount applications with motor or pump shafts up to 1" diameter.
- Features deep-grooved ball bearings.
- Accepts speeds up to 4400 RPM with proper lubrication. See Page 91.

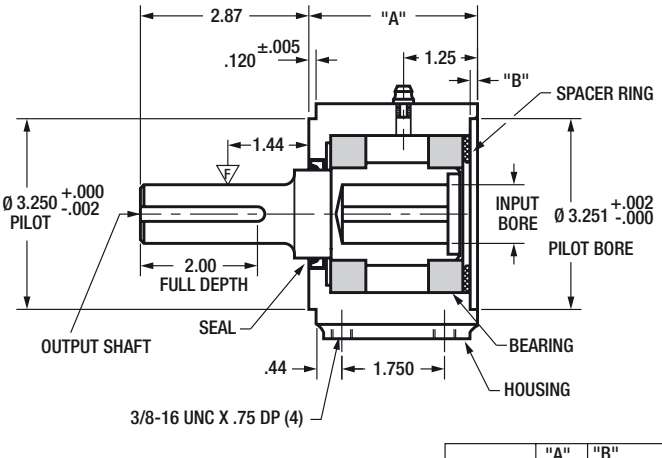


STANDARD MODELS

Model*	Output Shaft - Keyway	Input Bore - Keyway
210	1.00 - 1/4 x 1/8	1.00 - 1/4 x 1/8
210F	1.00 Bore - 1/4 x 1/8	1.00 - 1/4 x 1/8
215	1.50 - 3/8 x 3/16	1.00 - 1/4 x 1/8
210-10	1.00 - 1/4 x 1/8	0.625 - 5/32 x 5/64
210-12	1.00 - 1/4 x 1/8	0.750 - 3/16 x 3/32
215-12	1.50 - 3/8 x 3/16	0.750 - 3/16 x 3/32

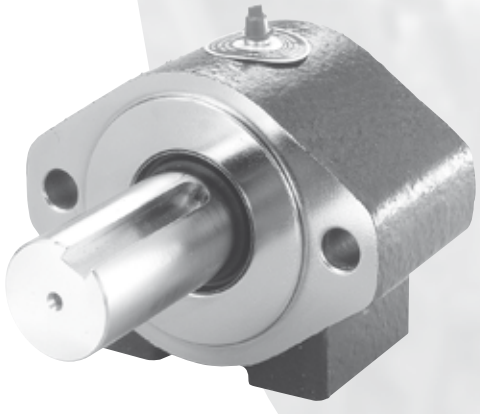
*0.125 Pilot depth is Standard. Add "DP" to Model Number for a Deep Pilot. (0.25) Example: 210-DP





	"A"	"B"
STANDARD HOUSING	2.875	.125 +.005 -.000
DEEP PILOT HOUSING	3.000	.250 +.005 -.000

OHLA® 300
OVERHUNG LOAD ADAPTORS

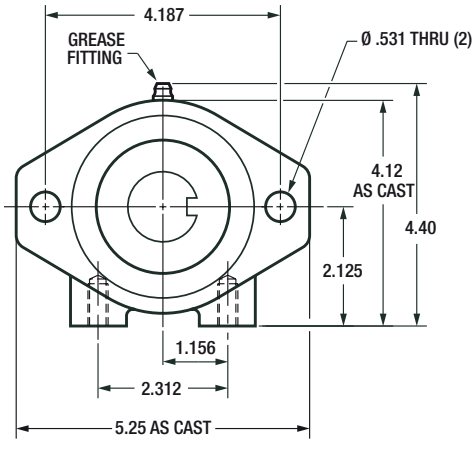


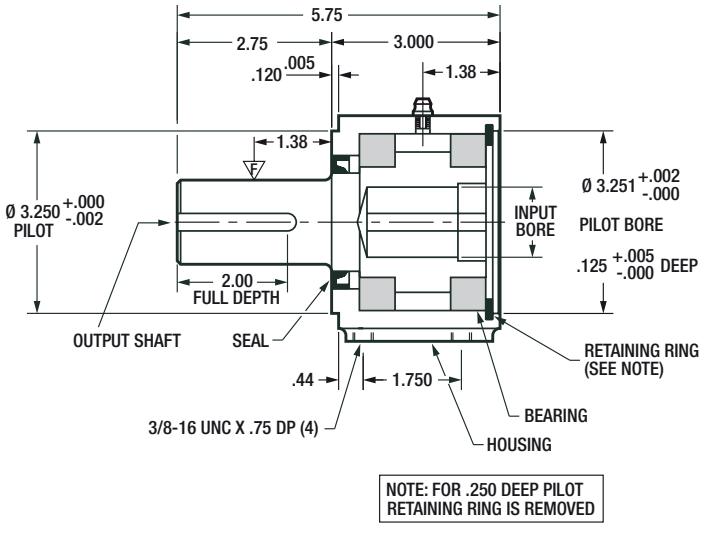
- For SAE "A" 2-bolt mount for medium to heavy-duty applications.
- Features deep-grooved ball bearings.
- Featuring the same overall size as the Model 200, the Model 300 has larger bearings for heavy-duty applications.
- Accepts speeds up to 3550 RPM with proper lubrication. See Page 91.

STANDARD MODELS

Model*	Output Shaft - Keyway	Input Bore - Keyway
312	1.25 - 5/16 x 5/32	1.25 - 5/16 x 5/32
315	1.50 - 3/8 x 3/16	1.25 - 5/16 x 5/32
300F	1.25 Bore - 5/16 x 5/32	1.25 - 5/16 x 5/32

*0.125 Pilot depth is Standard. Add "DP" to Model Number for a Deep Pilot. (0.25) Example: 312-DP

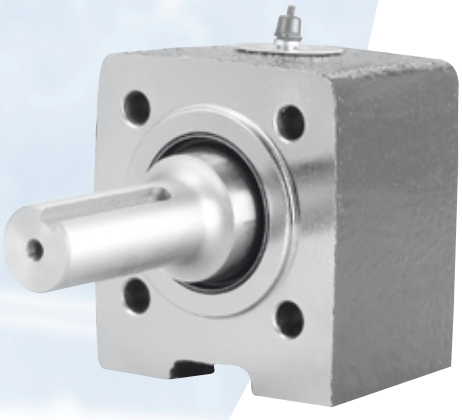




NOTE: FOR .250 DEEP PILOT RETAINING RING IS REMOVED

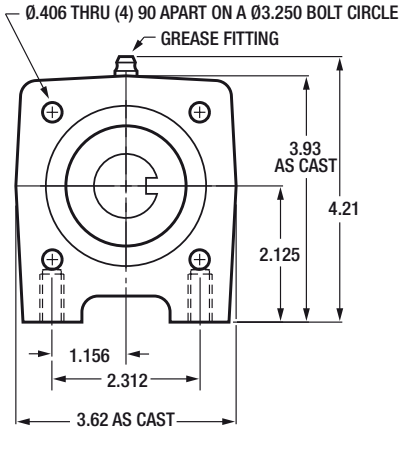
OHLA® 400
OVERHUNG LOAD ADAPTORS

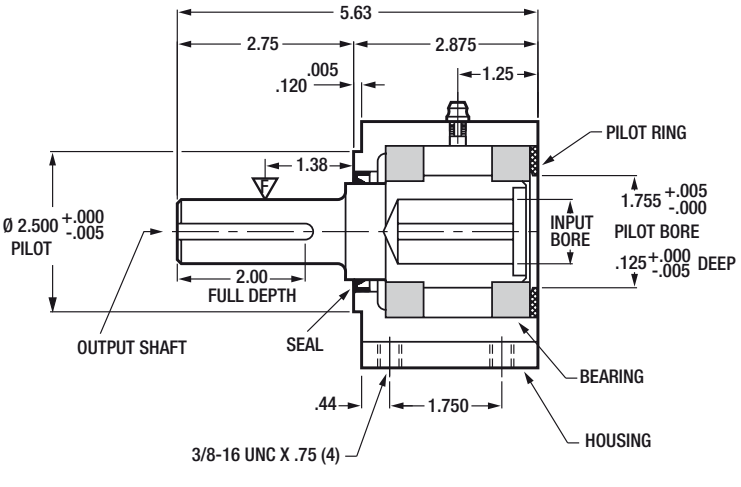
- For applications with motor or pump shafts up to 1" diameter.
- Features deep-grooved ball bearings.
- Accepts speeds up to 4400 RPM with proper lubrication. See Page 91.



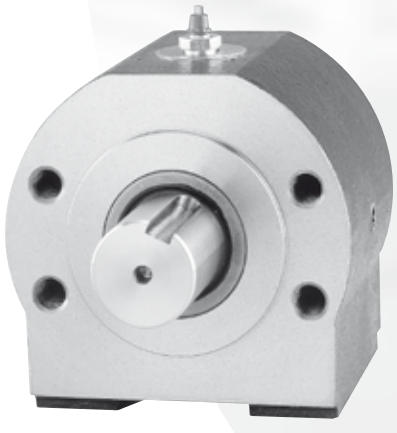
STANDARD MODELS

Model	Output Shaft - Keyway	Input Bore - Keyway
410	1.00 - 1/4 x 1/8	1.00 - 1/4 x 1/8
410F	1.00 Bore - 1/4 x 1/8	1.00 - 1/4 x 1/8
415	1.50 - 3/8 x 3/16	1.00 - 1/4 x 1/8





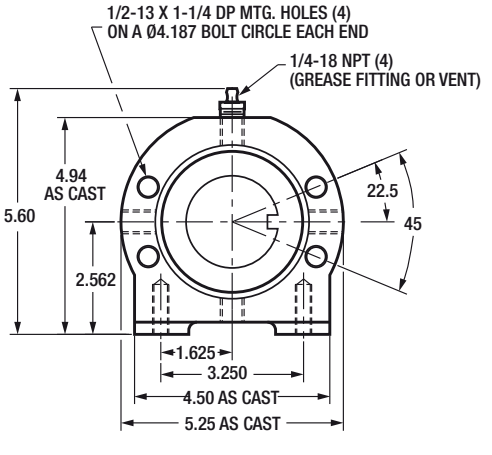
OHLA® 500
OVERHUNG LOAD ADAPTORS

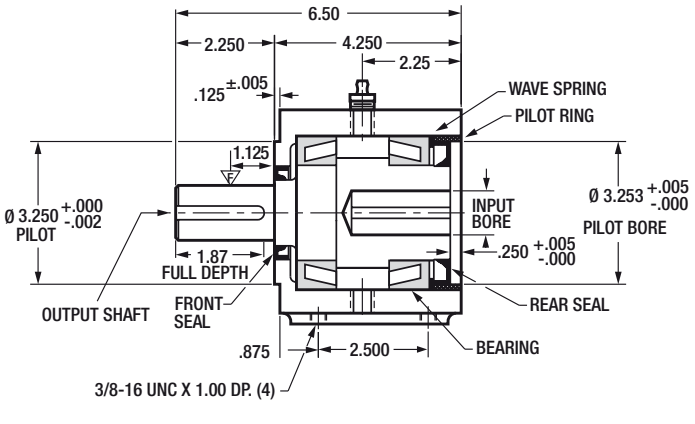


- For SAE "A" heavy-duty bearing block applications with 4-bolt mounting.
- Features heavy-duty tapered roller bearings.
- May be used on 2-bolt mount by tilting 22-1/2°.
- Accepts speeds up to 3300 RPM with proper lubrication. See Page 91.

STANDARD MODELS

Model	Output Shaft - Keyway	Input Bore - Keyway
512-20	1.250 - 5/16 x 5/32	1.250 - 5/16 x 5/32
512-6BS	1.250 - 5/16 x 5/32	1.000 6B Spline
512-14S	1.250 - 5/16 x 5/32	14 Tooth 12/24 Spline
515-20	1.500 - 3/8 x 3/16	1.250 - 5/16 x 5/32
515-6BS	1.500 - 3/8 x 3/16	1.000 6B Spline
515-14S	1.500 - 3/8 x 3/16	14 Tooth 12/24 Spline





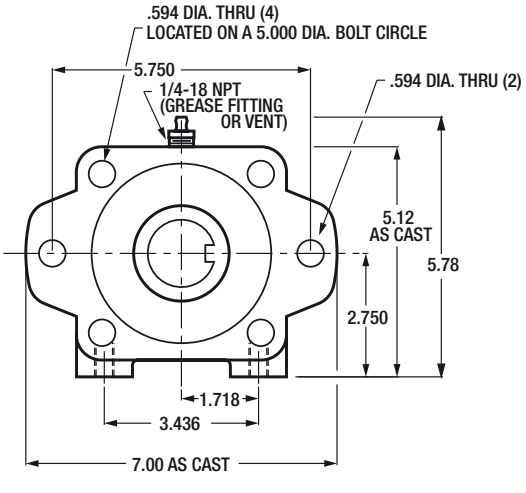
OHLA® 600
OVERHUNG LOAD ADAPTORS

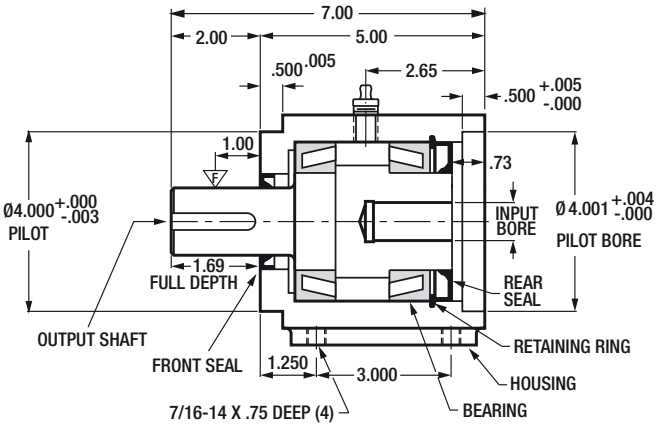
- For SAE "B" mount motor or pump applications.
- Features heavy-duty tapered roller bearings.
- Accepts speeds up to 3300 RPM with proper lubrication. See Page 91.

STANDARD MODELS

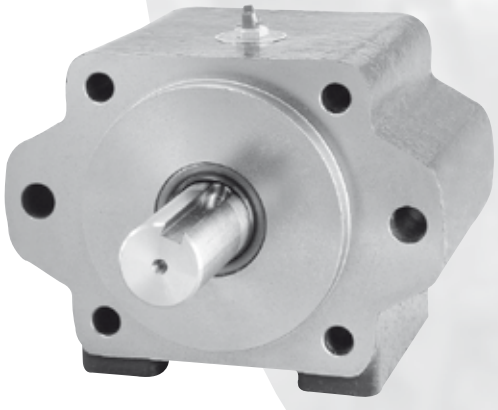
Model	Output Shaft - Keyway	Input Bore - Keyway
615-13S	1.500 - 3/8 x 3/16	13 Tooth 16/32 Spline
615-15S	1.500 - 3/8 x 3/16	15 Tooth 16/32 Spline
615-14	1.500 - 3/8 x 3/16	0.875 - 1/4 x 1/8*
615-16	1.500 - 3/8 x 3/16	1.000 - 1/4 x 1/8**
615-20	1.500 - 3/8 x 3/16	1.250 - 5/16 x 5/32
600F-16	1.00 Bore - 1/4 x 1/8	1.00 - 1/4 x 1/8

*3/16 Keyway Optional
**5/16 Keyway Optional





OHLA® 800
OVERHUNG LOAD ADAPTORS

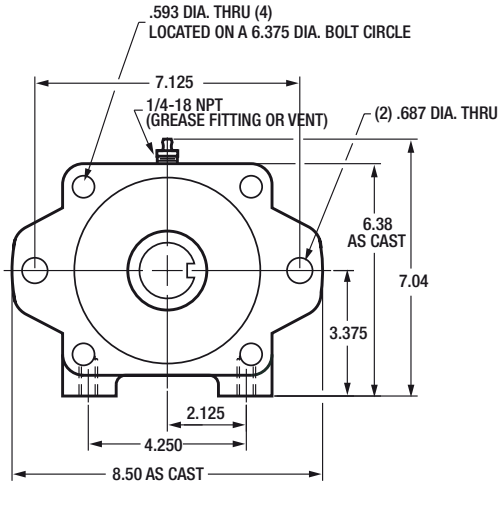


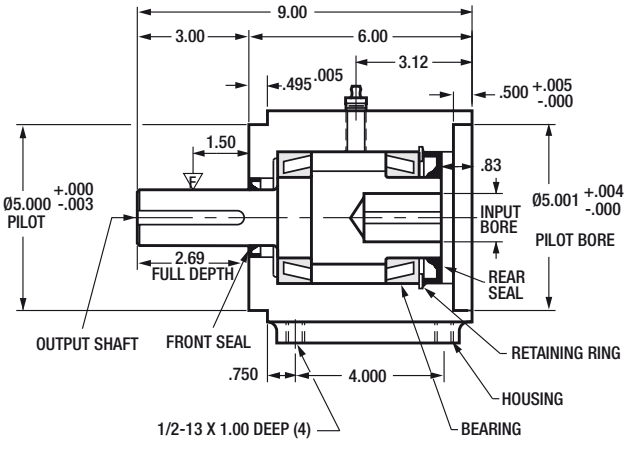
- For SAE "C" mount motor or pump applications.
- Features heavy-duty tapered roller bearings.
- Accepts speeds up to 3300 RPM with proper lubrication. See Page 91.

STANDARD MODELS

Model	Output Shaft - Keyway	Input Bore - Keyway
815-14S	1.500 - 3/8 x 3/16	14 Tooth 12/24 Spline
815-14	1.500 - 3/8 x 3/16	0.875 - 1/4 x 1/8*
815-16	1.500 - 3/8 x 3/16	1.000 - 1/4 x 1/8**
815-20	1.500 - 3/8 x 3/16	1.250 - 5/16 x 5/16
800F-16	1.00 Bore - 1/4 x 1/8	1.00 - 1/4 x 1/8

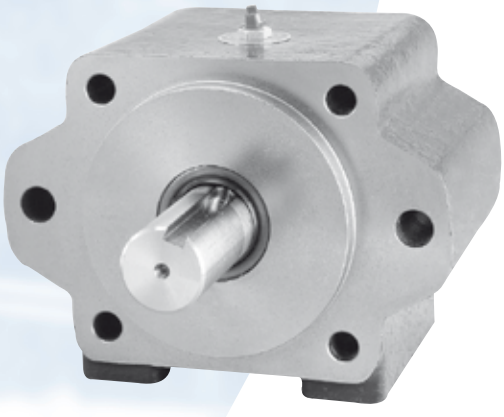
*3/16 Keyway Optional
**5/16 Keyway Optional





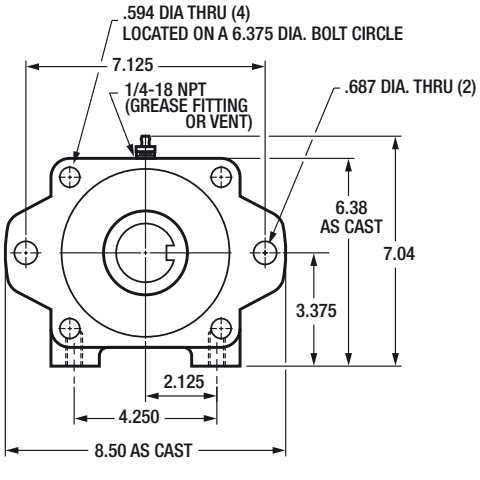
OHLA® 900
OVERHUNG LOAD ADAPTORS

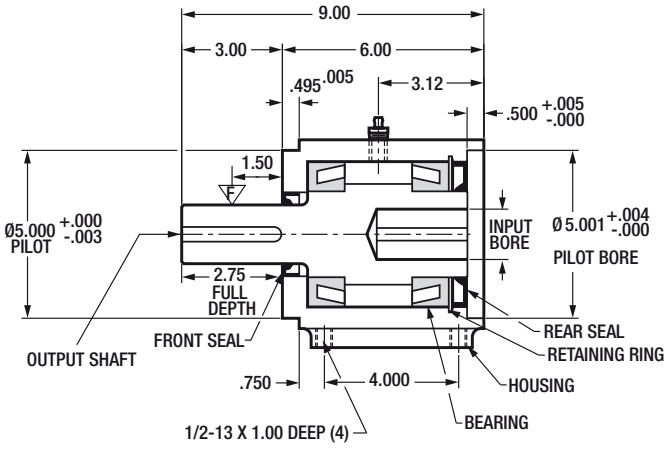
- For SAE "C-C" mount motor or pump applications.
- Features heavy-duty tapered roller bearings.
- Accepts speeds up to 2700 RPM with proper lubrication. See Page 91.



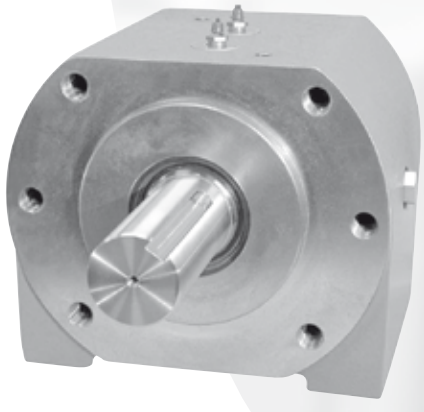
STANDARD MODELS

Model	Output Shaft - Keyway	Input Bore - Keyway
915-14S	1.500 - 3/8 x 3/16	14 Tooth 12/24 Spline
915-17S	1.500 - 3/8 x 3/16	17 Tooth 12/24 Spline
915-24	1.500 - 3/8 x 3/16	1.500 - 3/8 x 3/16
915-28	1.500 - 3/8 x 3/16	1.750 - 7/16 x 7/32
928-14S	1.750 - 7/16 x 7/32	14 Tooth 12/24 Spline
928-17S	1.750 - 7/16 x 7/32	17 Tooth 12/24 Spline
928-24	1.750 - 7/16 x 7/32	1.500 - 3/8 x 3/16
928-28	1.750 - 7/16 x 7/32	1.750 - 7/16 x 7/32





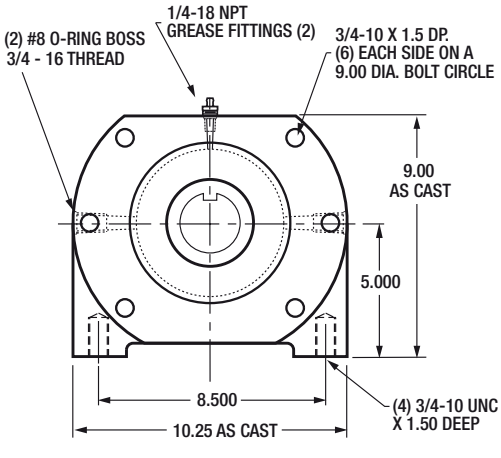
OHLA® 1100
OVERHUNG LOAD ADAPTORS

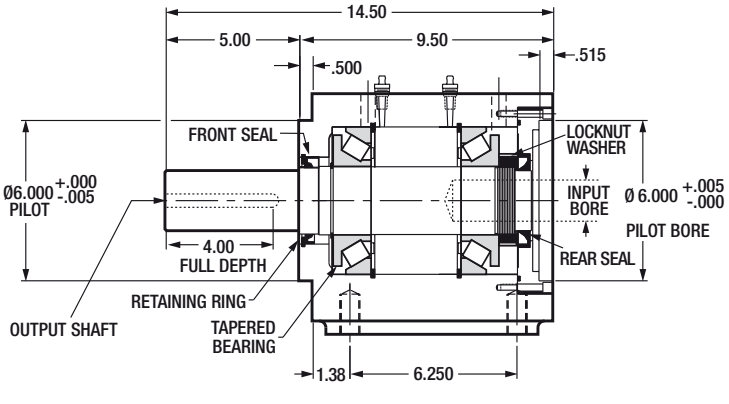


- For SAE "D" mount motor or pump applications.
- Features heavy-duty, tapered roller bearings.
- Accepts speeds up to 3500 RPM with proper lubrication. See Page 91.

STANDARD MODELS

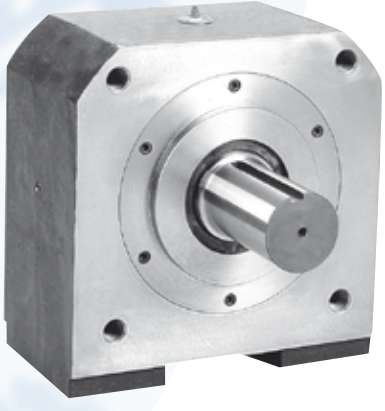
Model	Output Shaft - Keyway	Input Bore - Keyway
1136-28	2.250 - 1/2 x 1/4	1.750 - 7/16 x 7/32
1136-13S	2.250 - 1/2 x 1/4	13 Tooth 8/16 Spline





OHLA® 1250 & 1500

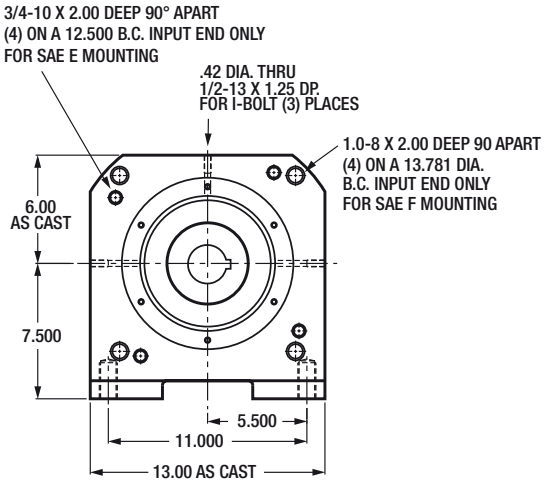
OVERHUNG LOAD ADAPTORS

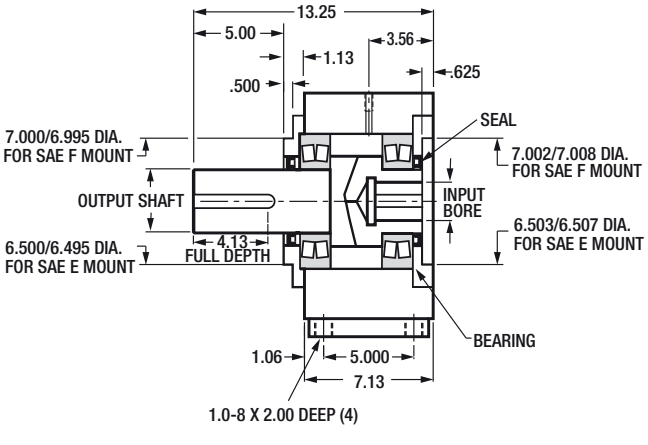


- For SAE "E" or "F" mount motor or pump applications with up to 2-1/2" diameter input bore. Spline input bores available.
- Available in up to 3-1/2 inch diameter output shaft. Special input and outputs available.
- Features heavy-duty, spherical roller bearings.
- Accepts speeds up to 2300 RPM with proper lubrication. See Page 91.

STANDARD MODELS

Model	Output Shaft - Keyway	Input Bore - Keyway
1250 SAE E	Customer Specified	Customer Specified
1500 SAE F	Customer Specified	Customer Specified





OHLA® SPECIALS
OVERHUNG LOAD ADAPTORS

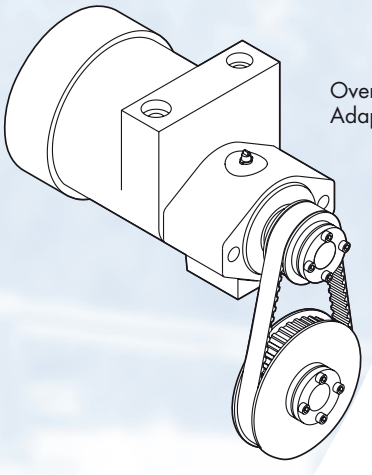
There's a model and size Overhung Load Adaptor for your need...or we'll design one for you.

- Special Input Bores
- Special Splines
- Output Diameter Changes
- Splined Output Shafts
- Threaded Output Shafts
- Tapered Output Shafts
- Extended Output Shafts
- O-ring Bosses
- Drilled And Tapped End Shafts
- Grease Fittings Or Vents
- Face Mounting Tapped Holes
- Magnetic Speed Sensor Modifications
- Special Shaft material And Heat Treating
- High Pressure Seals
- Housing Modifications
- Special SAE Input Versus Output Mounting

... and many more!

OHLA® SIZING AND SELECTING

OVERHUNG LOAD ADAPTORS



1. Determine proper SAE flange mount for your application (SAE A, B, C, C-C, D, E, F)

2. Calculate the overhung load using the following formula:

$$\text{OHL (Overhung Load)} = \frac{63000 \times HP \times F}{N \times R}$$

HP = Transmitted Horsepower
N = RPM of Shaft
R = Radius of sprocket, pulley, etc. in inches
F = Load Connection Factor

Load Connection Factor
1.00 - Single Chain Drives
1.25 - Spur or Helical Gear Drives or Double Chain Drives
1.50 - V-Belt Drives
2.00 - Timing Belt Drives
2.50 - Flat Belt Drives

3. Calculate bearing life of the selected model using the formulas from the following table:

Note:

The bearing life calculations shown are to be used for radial loading only. Consult factory if more complex loading (Radial, Axial, Tangential) is present.

Lubrication: (See page 91)

Specials

Your application may require a modified shaft or housing to fit an existing application or to simplify a new design. See "Options" (page 89).

Model	S	Calculated Life
200	S = 0.603 X +1.406	$L_{10} = \frac{16{,}667}{RPM}\left(\frac{3{,}762}{S \cdot OHL}\right)^3$
300	S = 0.606 X +1.485	$L_{10} = \frac{16{,}667}{RPM}\left(\frac{4{,}906}{S \cdot OHL}\right)^3$
400	S = 0.603 X +1.485	$L_{10} = \frac{16{,}667}{RPM}\left(\frac{3{,}762}{S \cdot OHL}\right)^3$
500	S = 0.704 X +1.930	$L_{10} = \frac{1{,}500{,}000}{RPM}\left(\frac{4{,}960}{S \cdot OHL}\right)^{3.33}$
600	S = 0.714 X +2.086	$L_{10} = \frac{1{,}500{,}000}{RPM}\left(\frac{4{,}960}{S \cdot OHL}\right)^{3.33}$
800	S = 0.448 X +1.704	$L_{10} = \frac{1{,}500{,}000}{RPM}\left(\frac{4{,}960}{S \cdot OHL}\right)^{3.33}$
900	S = 0.442 X +1.761	$L_{10} = \frac{1{,}500{,}000}{RPM}\left(\frac{7{,}610}{S \cdot OHL}\right)^{3.33}$
1100	S = 0.179 X +1.285	$L_{10} = \frac{1{,}500{,}000}{RPM}\left(\frac{12{,}000}{S \cdot OHL}\right)^{3.33}$
1250, 1500	S = 0.219 X +1.384	$L_{10} = \frac{1{,}500{,}000}{RPM}\left(\frac{71{,}500}{S \cdot OHL}\right)^{3.33}$

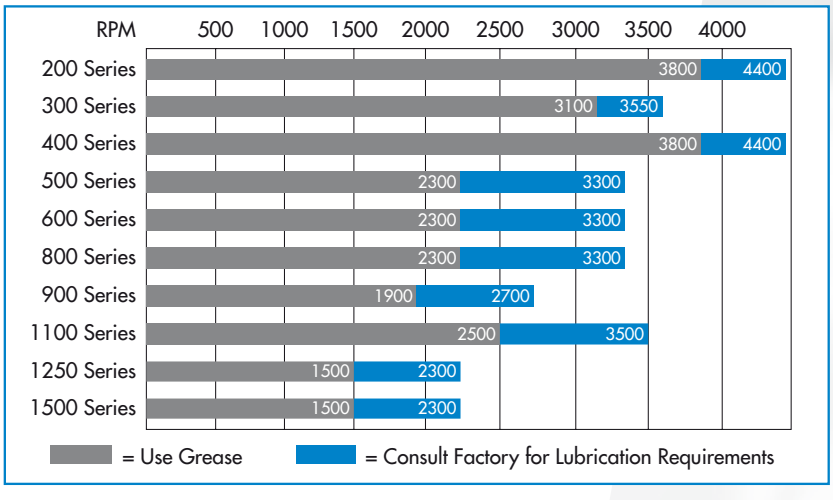
X – Distance from front end of the OHLA housing to the applied radial load.

VERTICAL APPLICATIONS

For applications where the shaft is vertical – consult factory for special bearing and lubrication requirements

LUBRICATION

HORIZONTAL APPLICATIONS



GREASE CAPACITY

	Minimum	Maximum
200 Series	0.5 oz.	1.0 oz.
300 Series	0.7 oz.	1.4 oz.
400 Series	0.4 oz.	1.0 oz.
500 Series	2.0 oz.	4.0 oz.
600 Series	2.2 oz.	4.4 oz.
800 Series	2.8 oz.	5.6 oz.
900 Series	4.3 oz.	8.6 oz.
1100 Series*	14.0 oz.	14.0 oz.
1250 Series	11.0 oz.	22.0 oz.
1500 Series	11.0 oz.	22.0 oz.

*Per Grease Fitting

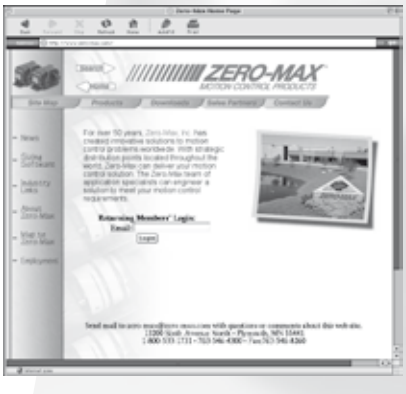
GREASE TYPE

Indoor Conditions	NLGI #1 or NLGI #2
Outdoor Conditions	NLGI #1 or NLGI #2 (Synthetic Grease Recommended)
Severe Conditions	Consult Factory

VERTICAL APPLICATIONS

For applications where the shaft is vertical – consult factory for special bearing and lubrication requirements

Visit the Zero-Max website for additional technical information at www.zero-max.com



ZERO-MAX®

Right Angle Crown® Gear Drives

HOW THE *RIGHT ANGLE CROWN® GEAR DRIVES* WORKS

Crown two and three-way right angle gear drives transmit power with quiet, dependable spiral bevel gears.

Crown right angle gear drives feature hardened spiral bevel gears and non-magnetic stainless steel shafts. They are compact and feature multiple mounting options. The fully enclosed design ensures that internal gears can't get out of alignment, jam up or become contaminated by debris.

The cast aluminum housing is designed for maximum strength and heat dissipation.The drives are available with shafts of 3/8, 1/2, 5/8 and 3/4 inch diameter in two and three-way units with both 1:1 and 2:1 ratios. Three-way units in 1:1 and 2:1 ratios are available with 1 inch shafts. A wide variety of shafts are available including squared, splined, extended, shortened and stepped.

Applications include printing and packaging machines, off-highway vehicles and special machinery of all types.

Features	Benefits
Double sealed bearings	Holds lubrication in, keeps dirt out
Precision hardened and ground ball bearings	Smooth, quiet, long operating life
Non-magnetic stainless steel shafts	Corrosion resistant. Minimal maintenance
Aluminum alloy housing	Light weight, high strength and heat dissipation
Many standard types and sizes, plus special shafts	Get the exact model that fits your application needs
Multiple mounting positions	Simplifies design considerations
Proven design	Proven in thousands of applications for over 40 years

HOW TO SELECT A *RIGHT ANGLE CROWN® GEAR DRIVE*

1. **Determine Your Preferred Input/Output Ratio.** Standard ratios are 1:1 and 2:1. It is also possible to use a step up ratio of 1:2 by using shaft #2 as the input shaft. (See drawings on pages 3–5).

2. **Designate Which Shafts Are To Be Input And Output Shafts.** This step is especially important to determine that no shaft will turn faster than 2000 RPM. If shaft #2 in the 2:1 ratio models is selected as the input shaft, it can turn at a maximum of 1000 RPM. In the 1:1 ratio models it makes no difference. However, the choice in either case will affect your mounting.

3. **Be Certain That The Designated Output Shaft Has A Torque Capacity Greater Than Your Applications Load.** Consult the tables on the pages 20-22, and be sure to apply the service factors from the chart below.

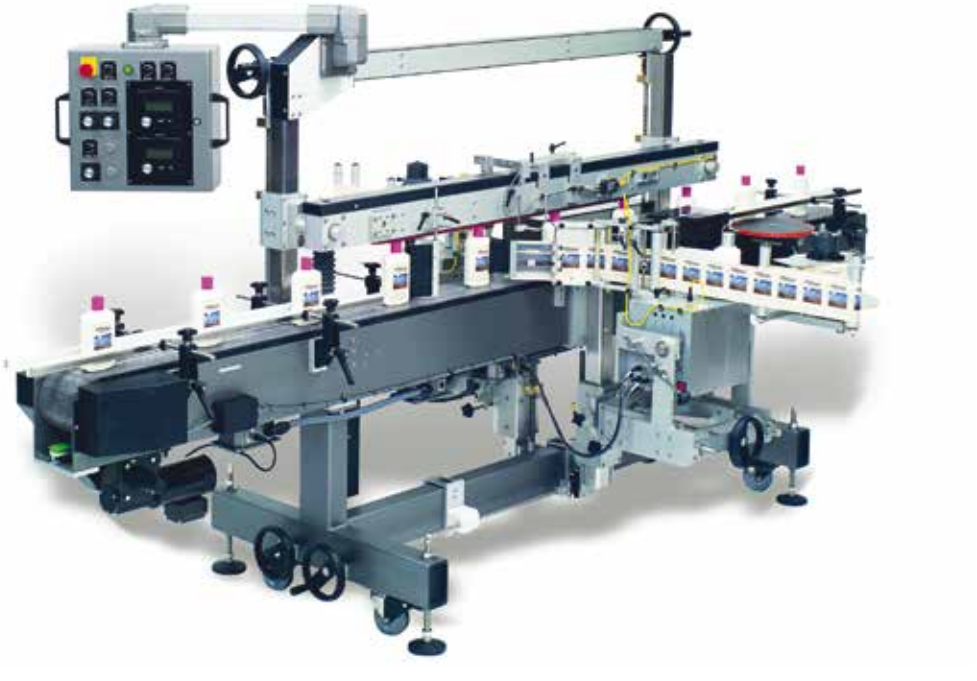
4. **Choose Drive Type.** Use either 2-way or 3-way configuration.

5. **Select The Correct Model Number.** On pages 3–5, select the correct model number; note that units with 3/8 inch shafts have flats and units with 1/2, 5/8, 3/4 and 1 inch shafts have standard keyways. Also note that 1 inch shaft models are available in 3-way type only.

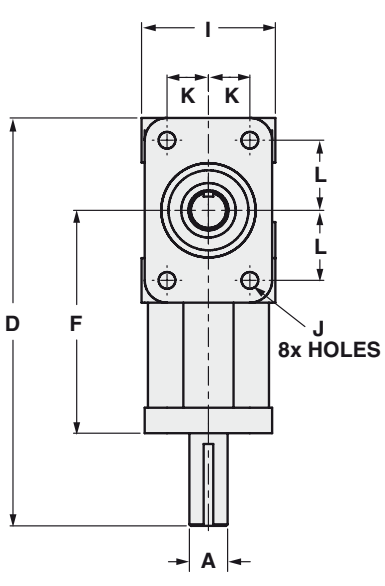
6. **If modifications of shafts and/or housings are required for your application**, send a drawing and a description of the application to the factory.

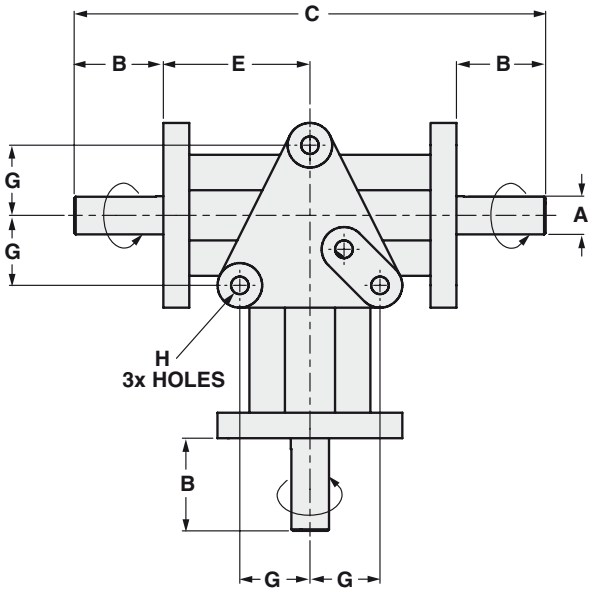
The Service Factors listed below will cover most usual applications. Applications dealing with single and multi-cylinder internal combustion engines, extreme repetitive shock loads and high energy loads are not covered.
For additional information, please contact the factory.

Determine Prime Mover	Determine Duration of Service	Driven Machine Load Classifications		
		Uni-form	Mod. Shock	Heavy Shock
Electric Motor, Steam Turbine or Hydraulic Motor	Occasional 1/2 hr. /day	0.50	0.80	1.25
	Intermittent 3 hrs/day	0.80	1.00	1.50
	Over 3 hrs. up to 10 hrs/day	1.00	1.25	1.75
	Over 10 hrs/day	1.25	1.50	2.00



THREE-WAY *CROWN GEAR DRIVES*





Three-Way Crown Gear Drives Only
To obtain opposite shaft rotation for shafts 2 & 3 as shown, install (invert) Crown Drive with grease plug down.

Dimensions

1:1 Ratio

Model	A	B	C	D	E	F	G	G1	H	I	J	K	L
C139801	0.375	0.63	4.06	3.66	1.41	2.19	0.66	0.66	0.221 dia.	1.50	0.166 dia.	0.50	0.66
C157806	0.500	1.00	5.75	4.94	1.88	2.88	0.88	0.88	0.281 dia.	1.75	0.265 dia.	0.56	0.81
C109806	0.625	1.50	7.00	6.19	2.00	3.25	1.13	1.13	0.281 dia.	2.13	0.265 dia.	0.69	1.13
C209806	0.750	1.75	9.25	7.94	2.88	4.38	1.38	1.38	0.344 dia.	2.63	0.328 dia.	0.81	1.38
C803806	1.000	2.75	12.00	11.00	3.25	6.00	1.75	2.75	0.406 dia.	4.00	3/8-16**	1.50	1.50

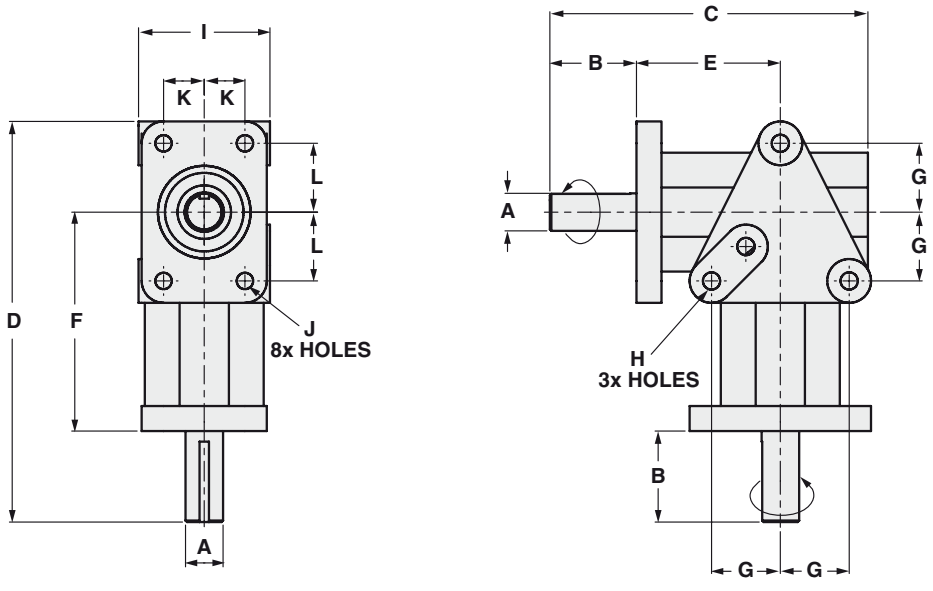
2:1 Ratio

Model	A	B	C	D	E	F	G	G1	H	I	J	K	L
C135801	0.375	0.63	4.06	3.66	1.41	2.19	0.66	0.66	0.221 dia.	1.50	0.166 dia.	0.50	0.66
C155806	0.500	1.00	5.75	4.94	1.88	2.88	0.88	0.88	0.281 dia.	1.75	0.265 dia.	0.56	0.81
C105806	0.625	1.50	7.00	6.19	2.00	3.25	1.13	1.13	0.281 dia.	2.13	0.265 dia.	0.69	1.13
C205806	0.750	1.75	9.25	7.94	2.88	4.38	1.38	1.38	0.344 dia.	2.63	0.328 dia.	0.81	1.38
C805806	1.000	2.75	12.00	11.00	3.25	6.00	1.75	2.75	0.406 dia.	4.00	3/8-16**	1.50	1.50

**Tapped hole, .81" deep.

Keyway Dimensions

Units with 3/8 inch dia. shafts ..... 1/32 **Flat** x 1/2 long
Units with 1/2 inch dia. shafts .....1/8 x 1/16 x 7/8
Units with 5/8 inch dia. shafts ..... 3/16 x 3/32 x 1-3/8
Units with 3/4 inch dia. shafts ..... 3/16 x 3/32 x 1-1/2
Units with 1 inch dia. shafts .....1/4 x 1/8 x 2



Dimensions

1:1 Ratio

Model	A	B	C	D	E	F	G	H	I	J	K	L
C138801	0.375	0.63	3.16	3.66	1.41	2.19	0.66	0.221 dia.	1.50	0.166 dia.	0.50	0.66
C156806	0.500	1.00	4.38	4.94	1.88	2.88	0.88	0.281 dia.	1.75	0.265 dia.	0.56	0.81
C108806	0.625	1.50	4.88	6.19	2.00	3.25	1.13	0.281 dia.	2.13	0.265 dia.	0.69	1.13
C208806	0.750	1.75	6.38	7.94	2.88	4.38	1.38	0.344 dia.	2.63	0.328 dia.	0.81	1.38

2:1 Ratio

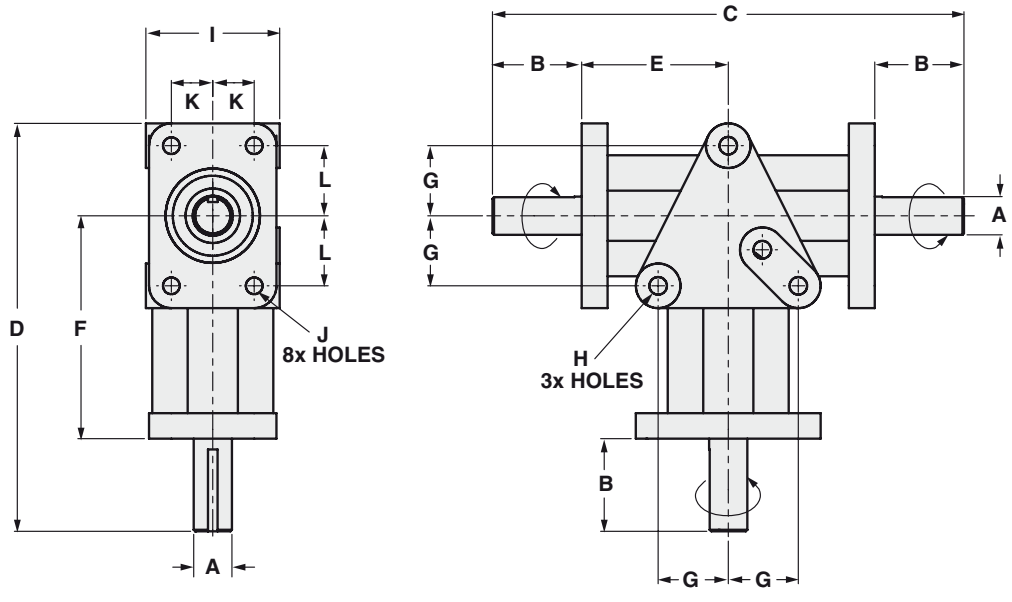
Model	A	B	C	D	E	F	G	H	I	J	K	L
C134801	0.375	0.63	3.16	3.66	1.41	2.19	0.66	0.221 dia.	1.50	0.166 dia.	0.50	0.66
C154806	0.500	1.00	4.38	4.94	1.88	2.88	0.88	0.281 dia.	1.75	0.265 dia.	0.56	0.81
C104806	0.625	1.50	4.88	6.19	2.00	3.25	1.13	0.281 dia.	2.13	0.265 dia.	0.69	1.13
C204806	0.750	1.75	6.38	7.94	2.88	4.38	1.38	0.344 dia.	2.63	0.328 dia.	0.81	1.38

Keyway Dimensions

Units with 3/8 inch dia. shafts .....1/32 **Flat** x 1/2 long
Units with 1/2 inch dia. shafts ....1/8 x 1/16 x 7/8
Units with 5/8 inch dia. shafts .....3/16 x 3/32 x 1-3/8
Units with 3/4 inch dia. shafts .....3/16 x 3/32 x 1-1/2
Units with 1 inch dia. shafts ....1/4 x 1/8 x 2

The right to make engineering refinements on all products is reserved. Dimensions and other details subject to change.
When dimensions are critical, detailed drawings should be obtained from the factory. Dimensions are in inches.

COUNTER-ROTATING *CROWN* GEAR DRIVES



Dimensions

1:1 Ratio

Model	A	B	C	D	E	F	G	H	I	J	K	L
C130801	0.375	0.63	4.06	3.66	1.41	2.19	0.66	0.221 dia.	1.50	0.166 dia.	0.50	0.66
C150806	0.500	1.00	5.75	4.94	1.88	2.88	0.88	0.281 dia.	1.75	0.265 dia.	0.56	0.81
C100806	0.625	1.50	7.00	6.19	2.00	3.25	1.13	0.281 dia.	2.13	0.265 dia.	0.69	1.13

2:1 Ratio

Model	A	B	C	D	E	F	G	H	I	J	K	L
C151806	0.500	1.00	5.75	4.94	1.88	2.88	0.88	0.281 dia.	1.75	0.265 dia.	0.56	0.81
C101806	0.625	1.50	7.00	6.19	2.00	3.25	1.13	0.281 dia.	2.13	0.265 dia.	0.69	1.13

NOTE: The suffix 806 designates units having Standard KEYWAYS.

CROWN RATED HORSEPOWER & TORQUE SPECIFICATIONS

3 Way

C139801
3 way : 1 to 1 : 3/8" shaft

Angular velocity RPM	Rated Power H.P.	Rated Torque In. Lbs.
100	0.04	25
200	0.08	25
300	0.12	25
400	0.16	25
500	0.20	25
1000	0.38	24
2000	0.67	21

Ultimate static torque 160 in. lbs. calculated on 1,000 cycle basis.

C130801 (Counter Rotating)
3 way : 1 to 1 : 3/8" shaft

Angular velocity RPM	Rated Power H.P.	Rated Torque* In. Lbs.
100	0.05	32
200	0.10	32
300	0.14	29
400	0.18	28
500	0.22	28
1000	0.42	26
2000	0.75	24

Ultimate static torque 170 in. lbs. calculated on 1,000 cycle basis.

* This is the maximum torque that can be shared by both shafts at once.

C157806
3 way : 1 to 1 : 1/2" shaft

Angular velocity RPM	Rated Power H.P.	Rated Torque In. Lbs.
100	0.07	46
200	0.14	46
300	0.22	46
400	0.29	46
500	0.36	45
1000	0.71	45
2000	1.27	40

Ultimate static torque 275 in. lbs. calculated on 1,000 cycle basis.

C150806 (Counter Rotating)
3 way : 1 to 1 : 1/2" shaft

Angular velocity RPM	Rated Power H.P.	Rated Torque* In. Lbs.
100	0.08	50
200	0.16	50
300	0.25	50
400	0.33	50
500	0.41	50
1000	0.75	47
2000	1.37	43

Ultimate static torque 330 in. lbs. calculated on 1,000 cycle basis.

* This is the maximum torque that can be shared by both shafts at once.

3 Way

C109806
3 way : 1 to 1 : 5/8" shaft

Angular velocity RPM	Rated Power H.P.	Rated Torque In. Lbs.
100	0.16	101
200	0.32	101
300	0.47	99
400	0.62	98
500	0.75	95
1000	1.37	87
2000	2.43	77

Ultimate static torque 610 in. lbs. calculated on 1,000 cycle basis.

C100806 (Counter Rotating)
3 way : 1 to 1 : 5/8" shaft

Angular velocity RPM	Rated Power H.P.	Rated Torque* In. Lbs.
100	0.17	107
200	0.30	95
300	0.45	94
400	0.60	94
500	0.75	94
1000	1.37	87
2000	2.50	79

Ultimate static torque 630 in. lbs. calculated on 1,000 cycle basis.

*This is the maximum torque that can be shared by both shafts at once.

C209806
3 way : 1 to 1 : 3/4" shaft

Angular velocity RPM	Rated Power H.P.	Rated Torque In. Lbs.
100	0.30	189
200	0.56	177
300	0.81	171
400	1.06	167
500	1.33	167
1000	2.33	147
2000	4.25	134

Ultimate static torque 1400 in. lbs. calculated on 1,000 cycle basis.

C803806
3 way : 1 to 1 : 1" shaft

Angular velocity RPM	Rated Power H.P.	Rated Torque In. Lbs.
100	1.00	630
200	1.87	591
300	2.75	578
400	3.33	525
500	4.12	520
1000	7.75	488
2000	13.00	410

Ultimate static torque 5100 in. lbs. calculated on 1,000 cycle basis.

3 Way

C135801
3 way : 2 to 1 : 3/8" shaft

Angular velocity		Rated Power	Rated Torque	
Shaft 1 RPM	Shaft 2 RPM	H.P.	Shaft 1 In. Lbs.	Shaft 2 In. Lbs.
100	50	0.02	11	22
200	100	0.04	11	22
300	150	0.06	11	22
400	200	0.07	11	22
500	250	0.09	10	21
1000	500	0.16	10	20
2000	1000	0.30	9	18

Ultimate static torque 60 in. lbs. calculated on 1,000 cycle basis.

C155806
3 way : 2 to 1 : 1/2" shaft

Angular velocity		Rated Power	Rated Torque	
Shaft 1 RPM	Shaft 2 RPM	H.P.	Shaft 1 In. Lbs.	Shaft 2 In. Lbs.
100	50	0.03	20	39
200	100	0.06	20	39
300	150	0.09	20	39
400	200	0.13	20	39
500	250	0.16	20	39
1000	500	0.30	19	37
2000	1000	0.54	17	34

Ultimate static torque 130 in. lbs. calculated on 1,000 cycle basis.

C151806 (Counter Rotating)
3 way : 2 to 1 : 1/2" shaft

Angular velocity		Rated Power	Rated Torque	
Shaft 1 RPM	Shafts 2 & 3 RPM	H.P.	Shaft 1 In. Lbs.	Shafts 2 and 3* In. Lbs.
100	50	0.02	16	32
200	100	0.05	16	32
300	150	0.08	16	32
400	200	0.11	16	32
500	250	0.14	16	32
1000	500	0.25	15	30
2000	1000	0.50	15	30

Ultimate static torque 116 in. lbs. calculated on 1,000 cycle basis.

* This is the maximum torque that can be shared by both shafts (2 and 3) at once.

CROWN RATED HORSEPOWER & TORQUE SPECIFICATIONS

3 Way

C105806

3 way : 2 to 1 : 5/8" shaft

Angular velocity		Rated Power	Rated Torque	
Shaft 1	Shaft 2		Shaft 1	Shaft 2
RPM	RPM	H.P.	In. Lbs.	In. Lbs.
100	50	0.06	34	68
200	100	0.11	34	68
300	150	0.16	34	68
400	200	0.22	34	68
500	250	0.27	34	68
1000	500	0.51	32	64
2000	1000	0.92	29	58

Ultimate static torque 210 in. lbs. calculated on 1,000 cycle basis.

C101806 (Counter Rotating)

3 way : 2 to 1 : 5/8" shaft

Angular velocity		Rated Power	Rated Torque	
Shaft 1	Shafts 2 & 3		Shaft 1	Shafts 2 and 3*
RPM	RPM	H.P.	In. Lbs.	In. Lbs.
100	50	0.05	31	62
200	100	0.08	30	60
300	150	0.12	28	56
400	200	0.18	28	56
500	250	0.21	26	52
1000	500	0.37	24	48
2000	1000	0.75	23	46

Ultimate static torque 192 in. lbs. calculated on 1,000 cycle basis.

* This is the maximum torque that can be shared by both shafts (2 and 3) at once.

C205806

3 way : 2 to 1 : 3/4" shaft

Angular velocity		Rated Power	Rated Torque	
Shaft 1	Shaft 2		Shaft 1	Shaft 2
RPM	RPM	H.P.	In. Lbs.	In. Lbs.
100	50	0.11	70	140
200	100	0.22	70	140
300	150	0.33	70	140
400	200	0.44	70	140
500	250	0.55	70	140
1000	500	0.99	62	124
2000	1000	1.75	55	110

Ultimate static torque 540 in. lbs. calculated on 1,000 cycle basis.

3 Way

C805806

3 way : 2 to 1 : 1" shaft

Angular velocity		Rated Power	Rated Torque	
Shaft 1	Shaft 2		Shaft 1	Shaft 2
RPM	RPM	H.P.	In. Lbs.	In. Lbs.
100	50	0.38	236	472
200	100	0.75	236	472
300	150	1.00	210	420
400	200	1.33	210	420
500	250	1.67	210	420
1000	500	3.24	204	408
2000	1000	5.75	181	362

Ultimate static torque 2170 in. lbs. calculated on 1,000 cycle basis.

2 Way

C138801

2 way : 1 to 1 : 3/8" shaft

Angular velocity	Rated Power	Rated Torque
RPM	H.P.	In. Lbs.
100	0.04	25
200	0.08	25
300	0.12	25
400	0.16	25
500	0.20	25
1000	0.38	24
2000	0.67	21

Ultimate static torque 160 in. lbs. calculated on 1,000 cycle basis.

C156806

2 way : 1 to 1 : 1/2" shaft

Angular velocity	Rated Power	Rated Torque
RPM	H.P.	In. Lbs.
100	0.07	46
200	0.14	46
300	0.22	46
400	0.29	46
500	0.36	45
1000	0.71	45
2000	1.27	40

Ultimate static torque 275 in. lbs. calculated on 1,000 cycle basis.

C108806

2 way : 1 to 1 : 5/8" shaft

Angular velocity	Rated Power	Rated Torque
RPM	H.P.	In. Lbs.
100	0.16	101
200	0.32	101
300	0.47	99
400	0.62	98
500	0.75	95
1000	1.37	87
2000	2.43	77

Ultimate static torque 610 in. lbs. calculated on 1,000 cycle basis.

2 Way

C208806

2 way : 1 to 1 : 3/4" shaft

Angularvelocity	Rated Power	Rated Torque
RPM	H.P.	In. Lbs.
100	0.30	189
200	0.56	177
300	0.81	171
400	1.06	167
500	1.33	167
1000	2.33	147
2000	4.25	134

Ultimate static torque 1400 in. lbs. calculated on 1,000 cycle basis.

C134801

2 way : 2 to 1 : 3/8" shaft

Angular velocity		Rated Power	Rated Torque	
Shaft 1	Shaft 2		Shaft 1	Shaft 2
RPM	RPM	H.P.	In. Lbs.	In. Lbs.
100	50	0.02	11	22
200	100	0.04	11	22
300	150	0.06	11	22
400	200	0.07	11	22
500	250	0.09	10	21
1000	500	0.16	10	20
2000	1000	0.30	9	18

Ultimate static torque 60 in. lbs. calculated on 1,000 cycle basis.

C154806

2 way : 2 to 1 : 1/2" shaft

Angular velocity		Rated Power	Rated Torque	
Shaft 1	Shaft 2		Shaft 1	Shaft 2
RPM	RPM	H.P.	In. Lbs.	In. Lbs.
100	50	0.03	20	39
200	100	0.06	20	39
300	150	0.09	20	39
400	200	0.13	20	39
500	250	0.16	20	39
1000	500	0.30	19	37
2000	1000	0.54	17	34

Ultimate static torque 130 in. lbs. calculated on 1,000 cycle basis.

CROWN RATED HORSEPOWER & TORQUE SPECIFICATIONS

2 Way

C104806
2 way : 2 to 1 : 5/8" shaft

Angular velocity		Rated	Rated Torque	
Shaft 1	Shaft 2	Power	Shaft 1	Shaft 2
RPM	RPM	H.P.	In. Lbs.	In. Lbs.
100	50	0.06	34	68
200	100	0.11	34	68
300	150	0.16	34	68
400	200	0.22	34	68
500	250	0.27	34	68
1000	500	0.51	32	64
2000	1000	0.92	29	58

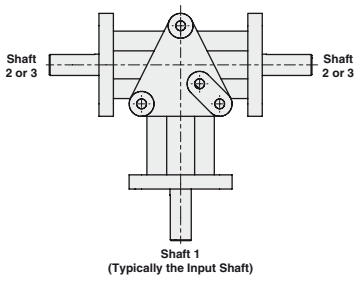
Ultimate static torque 210 in. lbs. calculated on 1,000 cycle basis.

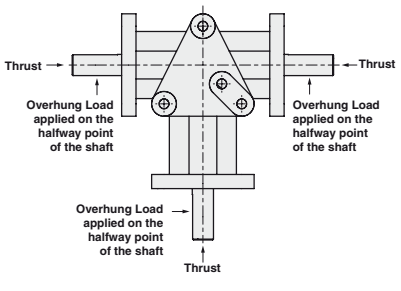
C204806
2 way : 2 to 1 : 3/4" shaft

Angular velocity		Rated	Rated Torque	
Shaft 1	Shaft 2	Power	Shaft 1	Shaft 2
RPM	RPM	H.P.	In. Lbs.	In. Lbs.
100	50	0.11	70	140
200	100	0.22	70	140
300	150	0.33	70	140
400	200	0.44	70	140
500	250	0.55	70	140
1000	500	0.99	62	124
2000	1000	1.75	55	110

Ultimate static torque 540 in. lbs. calculated on 1,000 cycle basis.

Item Number	Overhung Load Capacity (at mid-shaft)				Thrust Load Capacity		Net Weight each	
	Shaft 1		Shafts 2 and 3		all shafts			
	Pounds of force	Newtons	Pounds of force	Newtons	Pounds of force	Newtons	Pounds	Kilograms
C100806	50.00	222.41	33.00	146.79	80.00	355.86	3.25	1.47
C101806	50.00	222.41	34.00	151.24	80.00	355.86	3.25	1.47
C104806	50.00	222.41	50.00	222.41	100.00	444.82	2.75	1.25
C105806	50.00	222.41	50.00	222.41	100.00	444.82	1.75	0.79
C108806	50.00	222.41	50.00	222.41	100.00	444.82	2.75	1.25
C109806	50.00	222.41	50.00	222.41	100.00	444.82	3.00	1.36
C130801	25.00	111.21	16.00	71.17	40.00	177.93	0.87	0.39
C134801	25.00	111.21	25.00	111.21	50.00	222.41	0.75	0.34
C135801	25.00	111.21	25.00	111.21	50.00	222.41	0.85	0.39
C138801	25.00	111.21	25.00	111.21	50.00	222.41	0.75	0.34
C139801	25.00	111.21	25.00	111.21	50.00	222.41	0.85	0.39
C150806	35.00	155.69	24.00	106.76	56.00	249.10	2.13	0.97
C151806	35.00	155.69	24.00	106.76	56.00	249.10	2.13	0.97
C154806	35.00	155.69	35.00	155.69	70.00	311.38	1.75	0.79
C155806	35.00	155.69	35.00	155.69	70.00	311.38	2.00	0.91
C156806	35.00	155.69	35.00	155.69	70.00	311.38	1.75	0.79
C157806	35.00	155.69	35.00	155.69	70.00	311.38	2.00	0.91
C204806	100.00	444.82	100.00	444.82	200.00	889.64	6.50	2.95
C205806	100.00	444.82	100.00	444.82	200.00	889.64	7.00	3.18
C208806	100.00	444.82	100.00	444.82	200.00	889.64	6.50	2.95
C209806	100.00	444.82	100.00	444.82	200.00	889.64	7.00	3.18
C803806	160.00	711.72	160.00	711.72	320.00	1423.43	18.00	8.16
C805806	160.00	711.72	160.00	711.72	320.00	1423.43	18.00	8.16





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BUREAU VERITAS
Certification

Certification

Awarded to

ZERO-MAX A/S

Hårup Tværvej 1, 8600 Silkeborg, Denmark

Bureau Veritas Certification certifies that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the Management System standards detailed below.

STANDARD

ISO 9001:2008

SCOPE OF SUPPLY

Manufacture and trade of mechanical power-transmission and drive shafts.

Original approval date: 24-03-1994

Subject to the continued satisfactory operation of the organisation's Management System, this certificate is valid until: 15-06-2017

To check the validity of this certificate, please call: (+45) 77 311 000.
Further clarification regarding the scope of this certificate and the applicability of the system requirements may be obtained by consulting the organisation.
Certificate Number: DK004369-1 *Date:* 04-06-2014

Lonette Eckerman

Certification office: Oldenborggade 18, DK-7000 Fredericia

DANAK
SYSTEM Reg. 5006

GLOBAL SUPPORT

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