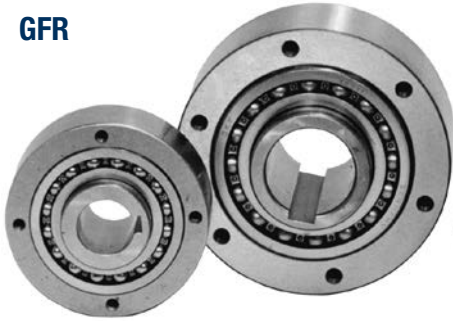


Modular “Building Block” Clutches

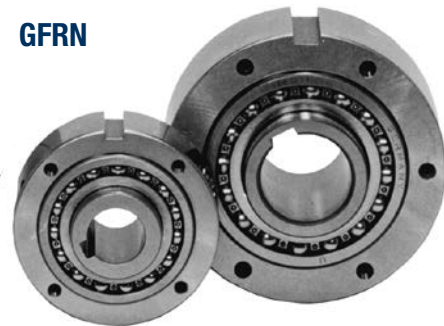
GFR®/GFRN

Overrunning, Indexing, Backstopping Ball Bearing Supported, Ramp & Roller Clutches

GFR



GFRN



The GFR and GFRN are part of the Stieber modular system. They are bearing supported, using two 160 Series bearings, and require oil lubrication. These units may be used in designs providing oil lubrication and sealing as shown on the following pages.

The bearings must not be axially stressed. Typically, models GFR and GFRN are used with the F series covers that are designed to transmit torque and retain oil lubrication.

Usually, these covers are used in pairs according to combinations shown on the following pages.

The outer race of the GFR model is designed to support and center any

component bored to H7 tolerance. Torque is transmitted by bolts through the cover plate in this case. Models GFR and GFRN are identical, except that model GFRN has a keyseat on the outside diameter to transmit torque.

Two paper seals are shipped with each unit to be placed between the outer race and cover plates.

This clutch is designed for oil lubrication. For grease lubrication, reduce the maximum overrunning speed to 50% of listed value.

For bolt tightening torque values, see page 134.

For Indexing Applications:

Maximum number indexes per minute is 350.

Specifications

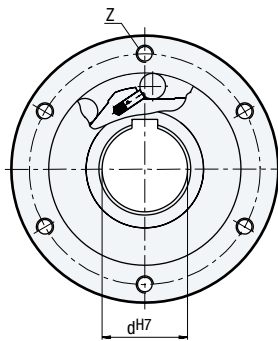
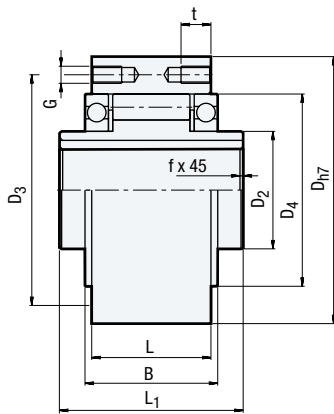
Size	Torque Capacity lb.ft. (Nm)	Overrunning Speed Max. RPM		Shipping Weight lb. (kg)
		Inner Race	Outer Race	
12	41 (55)	4,000	5,600	1.1 (0.5)
15	92 (125)	3,600	5,200	1.76 (0.8)
20	134 (181)	2,700	4,600	2.21 (1)
25	213 (288)	2,100	3,600	3.31 (1.5)
30	369 (500)	1,700	3,200	4.85 (2.2)
35	535 (725)	1,550	3,000	6.62 (3)
40	756 (1025)	1,150	2,600	10.14 (4.6)
45	830 (1125)	1,000	2,400	10.36 (4.7)
50	1,568 (2125)	800	2,150	15.88 (7.2)
55	1,937 (2625)	750	2,000	18.96 (8.6)
60	2,583 (3500)	650	1,900	23.15 (10.5)
70	4,244 (5750)	550	1,750	29.77 (13.5)
80	6,273 (8500)	500	1,600	40.13 (18.2)
90	10,701 (14500)	450	1,450	62.84 (28.5)
100	14,760 (20000)	350	1,250	93.71 (42.5)
130	23,063 (31250)	250	1,000	143.33 (65)
150	51,660 (70000)	200	800	304.29 (138)

Note: Keyway to DIN 6885.1

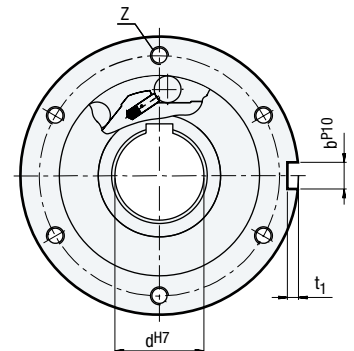
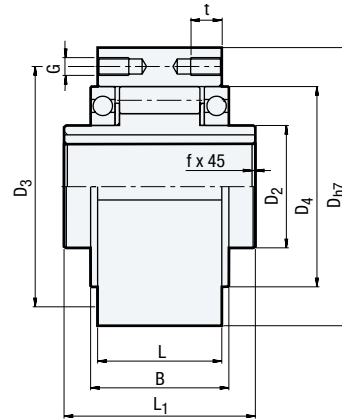
Modular “Building Block” Clutches

GFR/GFRN

GFR



GFRN



Dimensions inches (mm)

Size	d ^{H7}	D _{h7}	D ₂	D ₄	D ₃	t	L ₁	L	B	t ₁	b ^{P10}	f	G	Z
12	0.47 (12)	2.44 (62)	0.79 (20)	1.65 (42)	2.01 (51)	— (—)	1.65 (42)	0.79 (20)	1.06 (27)	0.10 (2.5)	0.16 (4)	1.10 (0.5)	(5.5)	2
15	0.59 (15)	2.68 (68)	0.98 (25)	1.85 (47)	2.20 (56)	0.31 (8)	2.05 (52)	1.10 (28)	1.26 (32)	0.12 (3)	0.20 (5)	0.03 (0.8)	M5	3
20	0.79 (20)	2.95 (75)	1.18 (30)	2.17 (55)	2.52 (64)	0.31 (8)	2.24 (57)	1.34 (34)	1.54 (39)	0.14 (3.5)	0.24 (6)	0.03 (0.8)	M5	3
25	0.98 (25)	3.54 (90)	1.57 (40)	2.68 (68)	3.07 (78)	0.39 (10)	2.36 (60)	1.38 (35)	1.57 (40)	0.16 (4)	0.31 (8)	0.04 (1)	M6	4
30	1.18 (30)	3.94 (100)	1.77 (45)	2.95 (75)	3.43 (87)	0.39 (10)	2.68 (68)	1.69 (43)	1.89 (48)	0.16 (4)	0.31 (8)	0.04 (1)	M6	4
35	1.38 (35)	4.33 (110)	1.97 (50)	3.15 (80)	3.78 (96)	0.47 (12)	2.91 (74)	1.77 (45)	2.01 (51)	0.20 (5)	0.39 (10)	0.04 (1)	M6	6
40	1.57 (40)	4.92 (125)	2.17 (55)	3.54 (90)	4.25 (108)	0.55 (14)	3.39 (86)	2.09 (53)	2.32 (59)	0.20 (5)	0.47 (12)	0.06 (1.5)	M8	6
45	1.77 (45)	5.12 (130)	2.36 (60)	3.74 (95)	4.41 (112)	0.55 (14)	3.39 (86)	2.09 (53)	2.32 (59)	0.22 (5.5)	0.55 (14)	0.06 (1.5)	M8	6
50	1.97 (50)	5.91 (150)	2.76 (70)	4.33 (110)	5.20 (132)	0.55 (14)	3.70 (94)	2.52 (64)	2.83 (72)	0.22 (5.5)	0.55 (14)	0.06 (1.5)	M8	8
55	2.17 (55)	6.30 (160)	2.95 (75)	4.53 (115)	5.43 (138)	0.63 (16)	4.09 (104)	2.60 (66)	2.83 (72)	0.24 (6)	0.63 (16)	0.08 (2)	M10	8
60	2.36 (60)	6.69 (170)	3.15 (80)	4.92 (125)	5.91 (150)	0.63 (16)	4.49 (114)	3.07 (78)	3.50 (89)	0.28 (7)	0.71 (18)	0.08 (2)	M10	10
70	2.76 (70)	7.48 (190)	3.54 (90)	5.51 (140)	6.50 (165)	0.63 (16)	5.28 (134)	3.74 (95)	4.25 (108)	0.30 (7.5)	0.79 (20)	0.10 (2.5)	M10	10
80	3.15 (80)	8.27 (210)	4.13 (105)	6.30 (160)	7.28 (185)	0.63 (16)	5.67 (144)	3.94 (100)	4.25 (108)	0.35 (9)	0.87 (22)	0.10 (2.5)	M10	10
90	3.54 (90)	9.06 (230)	4.72 (120)	7.09 (180)	8.11 (206)	0.79 (20)	6.22 (158)	4.53 (115)	4.92 (125)	0.35 (9)	0.98 (25)	0.12 (3)	M12	10
100	3.94 (100)	10.63 (270)	5.51 (140)	8.27 (210)	9.45 (240)	0.94 (24)	7.17 (182)	4.72 (120)	5.16 (131)	0.39 (10)	1.10 (28)	0.12 (3)	M16	10
130	4.72 (120)	12.20 (310)	6.30 (160)	9.45 (240)	10.94 (278)	0.94 (24)	8.35 (212)	5.98 (152)	6.61 (168)	0.43 (11)	32 (1.26)	0.12 (3)	M16	12
150	5.91 (150)	15.75 (400)	7.87 (200)	12.20 (310)	14.17 (360)	1.26 (32)	9.69 (246)	7.09 (180)	7.64 (194)	0.47 (12)	1.42 (36)	0.16 (4)	M20	12

Note: GFR 12 has through holes in outer race.

Bore sizes and keyseats inches (mm)

Size	d ^{H7} Bore Size	Keyseat*
12	0.47 (12)	(4 X 1.8)
15	0.59 (15)	(5 X 2.3)
20	0.79 (20)	(6 X 2.8)
25	0.98 (25)	(8 X 3.3)
30	1.18 (30)	(8 X 3.3)
35	1.38 (35)	(10 X 3.3)
40	1.57 (40)	(12 X 3.3)
45	1.77 (45)	(14 X 3.8)
50	1.97 (50)	(14 X 3.8)
55	2.17 (55)	(16 X 4.3)
60	2.36 (60)	(18 X 4.4)
70	2.76 (70)	(20 X 4.9)
80	3.15 (80)	(22 X 5.4)
90	3.54 (90)	(25 X 5.4)
100	3.94 (100)	(28 X 6.4)
130	5.12 (130)	(32 X 7.4)
150	5.91 (150)	(36 X 8.4)

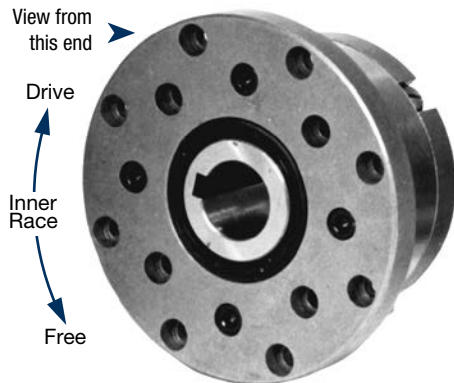
* For keyseat sizes see DIN 6885.1 table on page 129.

Modular “Building Block” Clutches

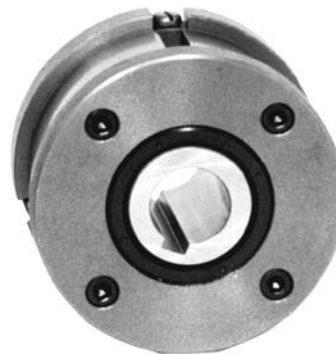
GFR..F1F2, GFR..F2F7, GFRN..F5F6

Overrunning, Indexing Ball Bearing Supported, Ramp & Roller Clutches

GFR..F1F2



GFRN..F5F6



Right Hand rotation shown.
(Left Hand opposite.)

Specify direction of rotation when ordering.

Models GFR..F1F2/F2F7 and GFRN..F5F6 are ramp & roller type clutches, self-contained, sealed and bearing supported, using two 160 Series bearings.

They use the GFR and GFRN base modules described on previous pages.

Units must be oil lubricated before use if they are shipped unassembled.

Primarily used as an overrunning or indexing clutches. The cover combination is selected according to the type of drive, attachments required.

F2 and F6 covers are used to enclose the unit. They are equipped with 3 screws for oil filling, drain and level.

This design uses standard lip seals.

Covers may be easily assembled by the user, allowing for easily changing the rotation.

Alternatively, units can be shipped assembled and lubricated.

For Indexing Applications:

Maximum number indexes per minute is 350.

This clutch is designed for oil lubrication. For grease lubrication, reduce the maximum overrunning speed to 50% of listed value.

Specifications

Size	Torque Capacity lb.ft. (Nm)	Overrunning Speed Max. RPM		Shipping Weight lb. (kg)
		Inner Race	Outer Race	
12	41 (55)	3,100	4,700	2.65 (1.2)
15	92 (125)	2,800	4,400	3.53 (1.6)
20	134 (181)	2,400	4,100	4.19 (1.9)
25	213 (288)	1,600	3,800	6.39 (2.9)
30	369 (500)	1,300	2,800	8.60 (3.9)
35	535 (725)	1,200	2,600	10.80 (4.9)
40	756 (1025)	850	2,300	16.54 (7.5)
45	830 (1125)	740	2,200	17.20 (7.8)
50	1,568 (2125)	580	1,950	23.81 (10.8)
55	1,937 (2625)	550	1,800	30.87 (14)
60	2,583 (3500)	530	1,700	37.04 (16.8)
70	4,244 (5750)	500	1,600	45.86 (20.8)
80	6,273 (8500)	480	1,500	59.54 (27)
90	10,701 (14500)	450	1,300	88.20 (40)
100	14,760 (20000)	350	1,100	147.74 (67)
130	23,063 (31250)	250	900	207.27 (94)
150	51,660 (70000)	200	700	412.34 (187)

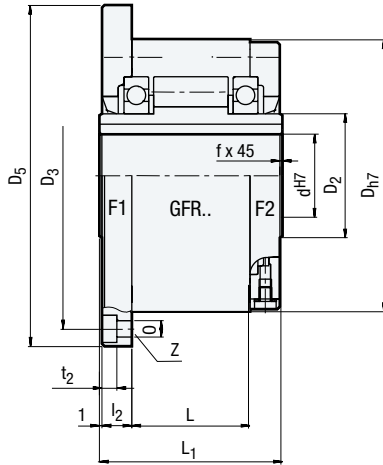
Note: When ordering, please specify direction of rotation.

Modular "Building Block" Clutches

GFR..F1F2, GFR..F2F7, GFRN..F5F6

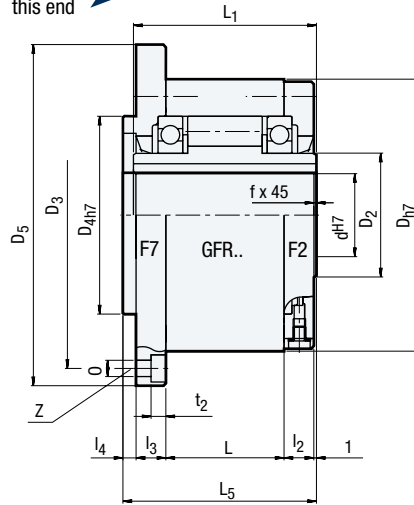
GFR..F1F2

View from this end



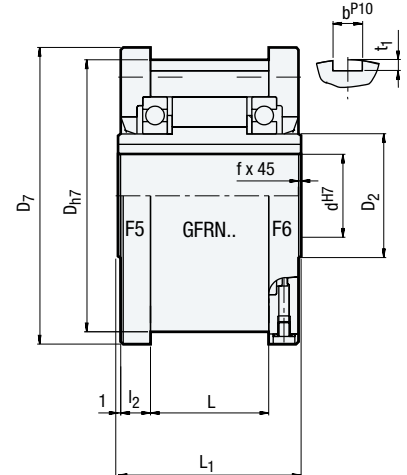
GFR..F2F7

View from this end



GFRN..F5F6

View from this end



Dimensions inches (mm)

Size	d ^{H7}	D _{h7}	D ₅	D ₇	D ₃	D _{4h7}	0	t ₂	L ₁	L ₅	L	l ₂	l ₃	l ₄	t ₁	b ^{P10}	f	z
12	0.47 (12)	2.44 (62)	3.35 (85)	2.76 (70)	2.83 (72)	1.65 (42)	0.22 (5.5)	0.22 (5.7)	1.65 (42)	1.73 (44)	0.79 (20)	0.39 (10)	0.39 (10)	0.12 (3)	0.10 (2.5)	0.16 (4)	0.02 (0.5)	2
15	0.59 (15)	2.68 (68)	3.62 (92)	2.99 (76)	3.07 (78)	1.85 (47)	0.22 (5.5)	0.22 (5.7)	2.05 (52)	2.13 (54)	1.10 (28)	0.43 (11)	0.43 (11)	0.12 (3)	0.12 (3)	0.20 (5)	0.03 (0.8)	3
20	0.79 (20)	2.95 (75)	3.86 (98)	3.31 (84)	3.35 (85)	2.17 (55)	0.22 (5.5)	0.22 (5.7)	2.24 (57)	2.32 (59)	1.34 (34)	0.41 (10.5)	0.41 (10.5)	0.12 (3)	0.14 (3.5)	0.24 (6)	0.03 (0.8)	3
25	0.98 (25)	3.54 (90)	4.65 (118)	3.90 (99)	4.09 (104)	2.68 (68)	0.26 (6.6)	0.27 (6.8)	2.36 (60)	2.44 (62)	1.38 (35)	0.45 (11.5)	0.45 (11.5)	0.12 (3)	0.16 (4)	0.31 (8)	0.04 (1)	4
30	1.18 (30)	3.94 (100)	5.04 (128)	4.29 (109)	4.49 (114)	2.95 (75)	0.26 (6.6)	0.27 (6.8)	2.68 (68)	2.76 (70)	1.69 (43)	0.45 (11.5)	0.45 (11.5)	0.12 (3)	0.16 (4)	0.31 (8)	0.04 (1)	4
35	1.38 (35)	4.33 (110)	5.51 (140)	4.69 (119)	4.88 (124)	3.15 (80)	0.26 (6.6)	0.27 (6.8)	2.91 (74)	2.99 (76)	1.77 (45)	0.53 (13.5)	0.51 (13)	0.14 (3.5)	0.20 (5)	0.39 (10)	0.04 (1)	6
40	1.57 (40)	4.92 (125)	6.30 (160)	5.31 (135)	5.59 (142)	3.54 (90)	0.35 (9)	0.35 (9)	3.39 (86)	3.46 (88)	2.09 (53)	0.61 (15.5)	0.59 (15)	0.14 (3.5)	0.20 (5)	0.47 (12)	0.06 (1.5)	6
45	1.77 (45)	5.12 (130)	6.50 (165)	5.51 (140)	5.75 (146)	3.74 (95)	0.35 (9)	0.35 (9)	3.39 (86)	3.46 (88)	2.09 (53)	0.61 (15.5)	0.59 (15)	0.14 (3.5)	0.22 (5.5)	0.55 (14)	0.06 (1.5)	6
50	1.97 (50)	5.91 (150)	7.28 (185)	6.30 (160)	6.54 (166)	4.33 (110)	0.35 (9)	0.35 (9)	3.70 (94)	3.78 (96)	2.52 (64)	0.55 (14)	0.51 (13)	0.16 (4)	0.22 (5.5)	0.55 (14)	0.06 (1.5)	8
55	2.17 (55)	6.30 (160)	8.03 (204)	6.69 (170)	7.17 (182)	4.53 (115)	0.43 (11)	0.43 (11)	4.09 (104)	4.17 (106)	2.60 (66)	0.71 (18)	0.67 (17)	0.16 (4)	0.24 (6)	0.63 (16)	0.08 (2)	8
60	2.36 (60)	6.69 (170)	8.43 (214)	7.17 (182)	7.56 (192)	4.92 (125)	0.43 (11)	0.43 (11)	4.49 (114)	4.57 (116)	3.07 (78)	0.67 (17)	0.63 (16)	0.16 (4)	0.28 (7)	0.71 (18)	0.08 (2)	10
70	2.76 (70)	7.48 (190)	9.21 (234)	7.95 (202)	8.35 (212)	5.51 (140)	0.43 (11)	0.43 (11)	5.28 (134)	5.35 (136)	3.74 (95)	0.73 (18.5)	0.69 (17.5)	0.16 (4)	0.30 (7.5)	0.79 (20)	0.10 (2.5)	10
80	3.15 (80)	8.27 (210)	10.00 (254)	8.74 (222)	9.13 (232)	6.30 (160)	0.43 (11)	0.43 (11)	5.67 (144)	5.75 (146)	3.94 (100)	0.83 (21)	0.79 (20)	0.16 (4)	0.35 (9)	0.87 (22)	0.10 (2.5)	10
90	3.54 (90)	9.06 (230)	10.94 (278)	9.53 (242)	10.00 (254)	7.09 (180)	0.55 (14)	0.51 (13)	6.22 (158)	6.30 (160)	4.53 (115)	0.81 (20.5)	0.75 (19)	0.18 (4.5)	0.35 (9)	0.98 (25)	0.12 (3)	10
100	3.94 (100)	10.63 (270)	13.19 (335)	11.10 (282)	12.01 (305)	8.27 (210)	0.71 (18)	0.69 (17.5)	7.17 (182)	7.24 (184)	4.72 (120)	1.18 (30)	1.10 (28)	0.20 (5)	0.39 (10)	1.10 (28)	0.12 (3)	10
130	5.12 (130)	12.20 (310)	14.96 (380)	12.68 (322)	13.58 (345)	9.45 (240)	0.71 (18)	0.69 (17.5)	8.35 (212)	8.43 (214)	5.98 (152)	1.14 (29)	1.06 (27)	0.20 (5)	0.43 (11)	1.26 (32)	0.12 (3)	12
150	5.91 (150)	15.75 (400)	19.09 (485)	16.22 (412)	17.52 (445)	12.20 (310)	0.87 (22)	0.85 (21.5)	9.69 (246)	9.76 (248)	7.09 (180)	1.26 (32)	1.18 (30)	0.20 (5)	0.47 (12)	1.42 (36)	0.16 (4)	12

Note: For bore and keyseat information see page 99.

Dimension D₂ listed on page 101.

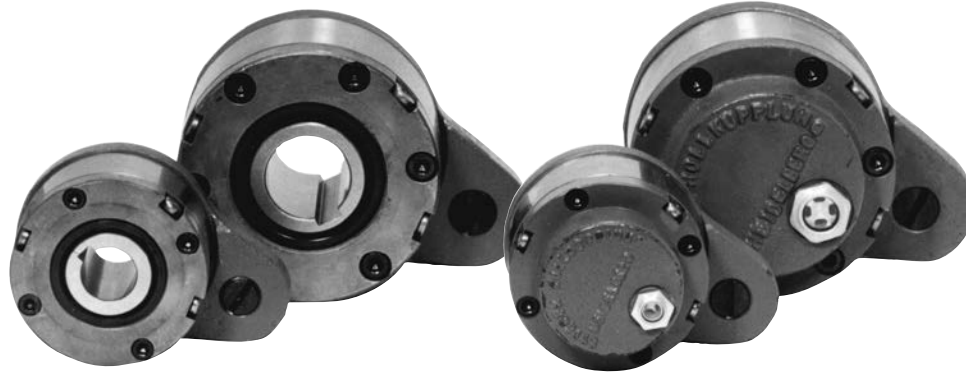
Modular “Building Block” Clutches

GFR..F2F3, GFR..F3F4

Backstopping Ball Bearing Supported, Ramp & Roller Clutches

GFR..F2F3

GFR..F3F4



Models GFR..F2F3/F3F4 are ramp & roller type clutches, self contained, sealed and bearing supported, using two 160 Series bearings.

They use the GFR base module. Units must be oil lubricated before use if they are shipped disassembled and, in any case, for the F3F4 combination.

These cover combinations are primarily used as backstops.

The F3 cover acts as a torque arm and has an integrated restraining bolt. The restraining bolt should go into a slot in a fixed part of the machine. The restraining bolt must have a radial clearance of 1% of the bolt’s diameter. The torque arm and bearings must not be rigidly mounted.

F2 and F4 covers are used to enclose the unit. They are equipped with 3 screws for oil filling, drain and level.

If using cover type F4, the shaft end plate and its screw must be sealed to avoid oil leakage through the keyway.

Covers are easily removed, allowing for on site selection of rotation direction.

If requested, units can be shipped assembled and lubricated for the F2F3 combination.

For Indexing Applications:

Maximum number indexes per minute is 350.

This clutch is designed for oil lubrication. For grease lubrication, reduce the maximum overrunning speed to 50% of listed value.

Specifications

Size	Torque Capacity lb.ft. (Nm)	Overrunning Speed	Shipping Weight lb. (kg)
		Max. RPM Inner Race	
12	41 (55)	3,100	3.09 (1.4)
15	92 (125)	2,800	3.97 (1.8)
20	134 (181)	2,400	5.07 (2.3)
25	213 (288)	1,600	7.50 (3.4)
30	369 (500)	1,300	9.92 (4.5)
35	535 (725)	1,200	12.35 (5.6)
40	756 (1025)	850	18.74 (8.5)
45	830 (1125)	740	19.62 (8.9)
50	1,568 (2125)	580	28.22 (12.8)
55	1,937 (2625)	550	35.72 (16.2)
60	2,583 (3500)	530	42.56 (19.3)
70	4,244 (5750)	500	51.82 (23.5)
80	6,273 (8500)	480	70.56 (32)
90	10,701 (14500)	450	104.08 (47.2)
100	14,760 (20000)	350	167.58 (76)
130	23,063 (31250)	250	242.55 (110)
150	51,660 (70000)	200	471.87 (214)

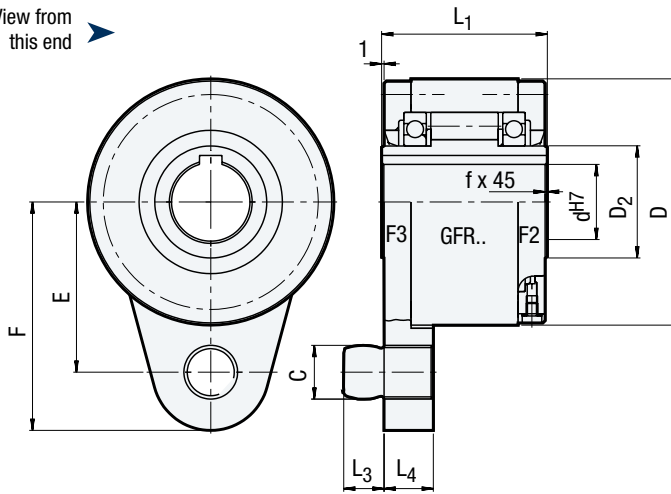
Note: When ordering, please specify direction of rotation.

Modular “Building Block” Clutches

GFR..F2F3, GFR..F3F4

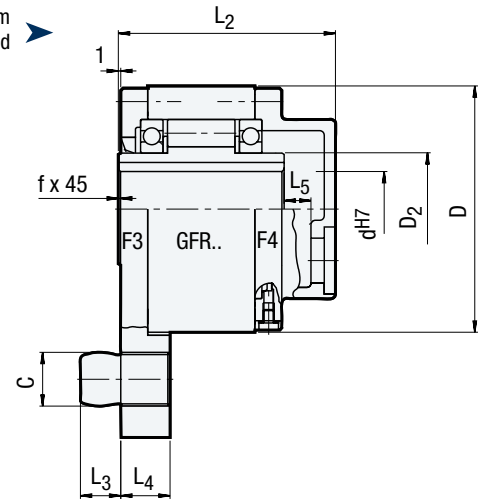
GFR..F2F3

View from
this end



GFR..F3F4

View from
this end



Dimensions inches (mm)

Size	d ^{H7}	D	D ₂	C	L ₁	L ₂	L ₃	L ₄	F	E	L ₅	f
12	0.47 (12)	2.44 (62)	0.79 (20)	0.39 (10)	1.65 (42)	2.52 (64)	0.39 (10)	0.51 (13)	2.32 (59)	1.73 (44)	0.24 (6)	0.02 (0.5)
15	0.59 (15)	2.68 (68)	0.98 (25)	0.39 (10)	2.05 (52)	3.07 (78)	0.39 (10)	0.51 (13)	2.44 (62)	1.85 (47)	0.39 (10)	0.03 (0.8)
20	0.79 (20)	2.95 (75)	1.18 (30)	0.47 (12)	2.24 (57)	3.23 (82)	0.43 (11)	0.59 (15)	2.83 (72)	2.13 (54)	0.39 (10)	0.03 (0.8)
25	0.98 (25)	3.54 (90)	1.57 (40)	0.63 (16)	2.36 (60)	3.35 (85)	0.55 (14)	0.71 (18)	3.31 (84)	2.44 (62)	0.39 (10)	0.04 (1)
30	1.18 (30)	3.94 (100)	1.77 (45)	0.63 (16)	2.68 (68)	3.74 (95)	0.55 (14)	0.71 (18)	3.62 (92)	2.68 (68)	0.39 (10)	0.04 (1)
35	1.38 (35)	4.33 (110)	1.97 (50)	0.79 (20)	2.91 (74)	4.02 (102)	0.71 (18)	0.98 (25)	4.02 (102)	2.99 (76)	0.47 (12)	0.04 (1)
40	1.57 (40)	4.92 (125)	2.17 (55)	0.79 (20)	3.39 (86)	4.53 (115)	0.71 (18)	0.98 (25)	4.41 (112)	3.35 (85)	0.47 (12)	0.06 (1.5)
45	1.77 (45)	5.12 (130)	2.36 (60)	0.98 (25)	3.39 (86)	4.53 (115)	0.87 (22)	0.98 (25)	4.72 (120)	3.54 (90)	0.47 (12)	0.06 (1.5)
50	1.97 (50)	5.91 (150)	2.76 (70)	0.98 (25)	3.70 (94)	4.84 (123)	0.87 (22)	0.98 (25)	5.31 (135)	4.02 (102)	0.47 (12)	0.06 (1.5)
55	2.17 (55)	6.30 (160)	2.95 (75)	1.26 (32)	4.09 (104)	5.43 (138)	0.98 (25)	1.18 (30)	5.59 (142)	4.25 (108)	0.59 (15)	0.08 (2)
60	2.36 (60)	6.69 (170)	3.15 (80)	1.26 (32)	4.49 (114)	5.79 (147)	0.98 (25)	1.18 (30)	5.71 (145)	4.41 (112)	0.59 (15)	0.08 (2)
70	2.76 (70)	7.48 (190)	3.54 (90)	1.50 (38)	5.28 (134)	6.61 (168)	1.18 (30)	1.38 (35)	6.89 (175)	5.31 (135)	0.63 (16)	0.10 (2.5)
80	3.15 (80)	8.27 (210)	4.13 (105)	1.50 (38)	5.67 (144)	7.01 (178)	1.18 (30)	1.38 (35)	7.28 (185)	5.71 (145)	0.63 (16)	0.10 (2.5)
90	3.54 (90)	9.06 (230)	4.72 (120)	1.97 (50)	6.22 (158)	7.56 (192)	1.57 (40)	1.77 (45)	8.07 (205)	6.10 (155)	0.63 (16)	0.12 (3)
100	3.94 (100)	10.63 (270)	5.51 (140)	1.97 (50)	7.17 (182)	8.54 (217)	1.57 (40)	1.77 (45)	9.06 (230)	7.09 (180)	0.63 (16)	0.12 (3)
130	5.12 (130)	12.20 (310)	6.30 (160)	2.68 (68)	8.35 (212)	9.84 (250)	2.17 (55)	2.36 (60)	10.55 (268)	8.07 (205)	0.71 (18)	0.12 (3)
150	5.91 (150)	15.75 (400)	7.87 (200)	2.68 (68)	9.69 (246)	11.26 (286)	2.17 (55)	2.36 (60)	12.80 (325)	10.04 (255)	0.79 (20)	0.16 (4)

Note: For bore and keyseat information see page 99.