

RFTC Series

Rotating Field Tooth Clutches

Eight standard frame sizes available:

- 3.1 to 9.7" diameter ; 2 to 7.5" length
- Bore sizes from 0.5 to 4.5"
- Static torque from 40 to 5200 lb-ft
- 2500 to 8000 RPM
- Operates both dry and in oil
- Modified designs and customized assemblies available

Performance/Mechanical Specifications

RFTC Series — Model Size

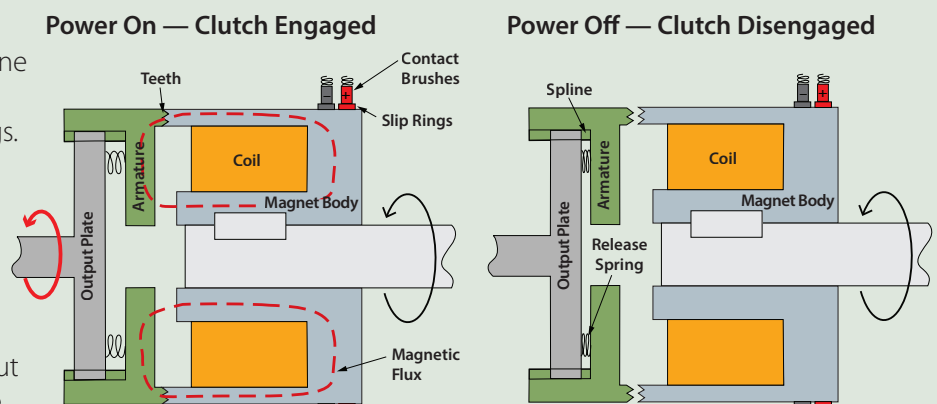
| | | 320 | 375 | 450 | 525 | 630 | 760 | 895 | 1065 |
|--------------------------|--------------------|------|-------|-------|-------|--------|--------|--------|---------|
| Torque Rating (Static)* | lb-ft | 40 | 80 | 160 | 320 | 650 | 1300 | 2600 | 5200 |
| | Nm | 54.2 | 108.5 | 216.9 | 433.9 | 881.3 | 1762.6 | 3525.1 | 7050.2 |
| Recommended Max Speed | RPM | 8000 | 7500 | 7000 | 6500 | 5500 | 4500 | 3500 | 2500 |
| Coil Data – 24VDC | | | | | | | | | |
| | 110VDC | | | | | | | | |
| Magnet Body Inertia | lb-ft ² | 0.01 | 0.02 | 0.05 | 0.11 | 0.28 | 0.65 | 1.50 | 4.00 |
| | kg-cm ² | 4.21 | 8.42 | 21.05 | 46.31 | 117.88 | 273.65 | 631.50 | 1684.00 |
| Armature/Adapter Inertia | lb-ft ² | 0.01 | 0.02 | 0.04 | 0.08 | 0.18 | 0.43 | 0.73 | 1.85 |
| | kg-cm ² | 4.21 | 8.42 | 16.84 | 33.71 | 75.78 | 181.20 | 307.62 | 779.59 |
| Approximate Weight | lb | 2.0 | 3.3 | 5.5 | 10.0 | 18.0 | 30.0 | 36.0 | 75.0 |
| | kg | 0.91 | 1.50 | 2.49 | 4.54 | 8.16 | 13.61 | 16.33 | 34.02 |

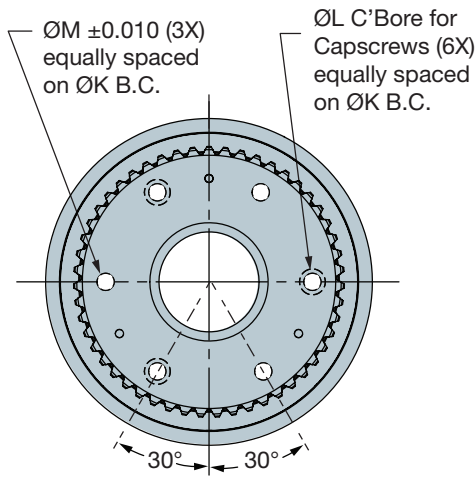
*Refer to Design Considerations – General Notes & Data for dynamic rating.

RFTC Operation:

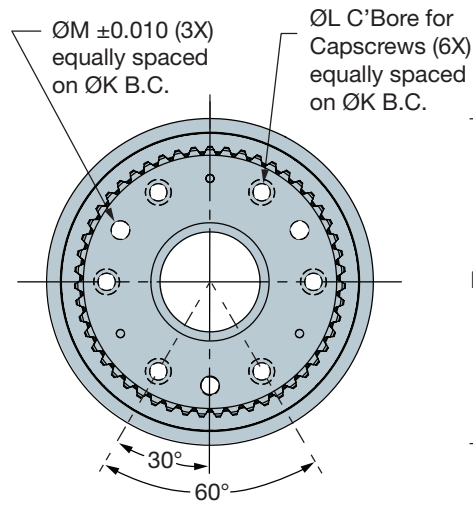
With the rotating field design, the magnet body rotates with the machine shaft. Power is supplied through electrical brush contacts and slip rings. When current is applied to the coil, a magnetic field is created attracting the armature to the magnet. As the teeth engage, torque is transmitted.

When the current is turned off, the armature slides on the splined output plate adapter to disengage from the magnet body. Springs pull on the armature to assist.

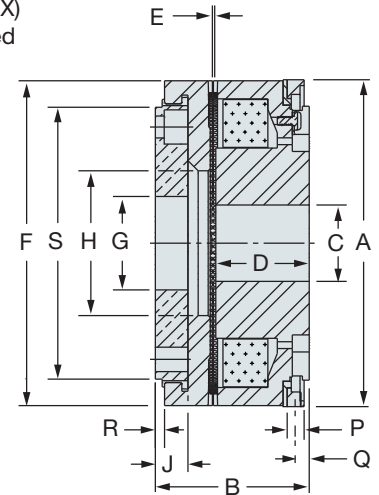




Models 320 thru 525



Models 630 thru 1065



RFTC Series — Model Size

| Dimensions — Inches (mm) | | 320 | 375 | 450 | 525 | 630 | 760 | 895 | 1065 | |
|--------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|--------------------|--------------------|-------------------|
| Slip Ring Diameter | A | 3.06 (77.72) | 3.46 (87.88) | 4.13 (104.90) | 4.81 (122.17) | 5.78 (146.81) | 7.00 (177.80) | 8.22 (208.79) | 9.70 (246.38) | |
| Overall Length (ref) | B | 1.41 (35.81) | 1.62 (41.15) | 1.92 (48.77) | 2.25 (57.15) | 2.70 (68.58) | 3.14 (79.76) | 3.94 (100.08) | 4.75 (120.65) | |
| Magnet Body Bore | Min | C | 0.500 (12.700) | 0.750 (19.050) | 1.000 (25.400) | 1.125 (28.575) | 1.375 (34.925) | 1.750 (44.450) | 2.500 (63.500) | |
| | Max | C | 1.250 (31.750) | 1.500 (38.100) | 1.750 (44.450) | 2.125 (53.975) | 2.500 (63.500) | 3.000 (76.200) | 4.500 (114.300) | |
| | Length (ref) | D | 0.83 (21.08) | 0.98 (24.89) | 1.16 (29.46) | 1.37 (34.80) | 1.63 (41.40) | 1.88 (47.75) | 2.38 (60.45) | 2.70 (68.58) |
| Disengaged Clearance | E | 0.010 (0.254) | 0.012 (0.305) | 0.014 (0.356) | 0.016 (0.406) | 0.018 (0.457) | 0.020 (0.508) | 0.024 (0.588) | 0.028 (0.711) | |
| Armature | Diameter | F | 2.87 (72.90) | 3.44 (87.38) | 4.11 (104.39) | 4.78 (121.41) | 5.75 (146.05) | 6.97 (177.04) | 8.19 (208.03) | 9.66 (245.36) |
| | Bore | G | 1.26 (32.00) | 1.52 (38.61) | 1.87 (47.50) | 2.13 (54.10) | 2.74 (69.60) | 3.41 (86.61) | 4.31 (109.47) | 5.18 (131.57) |
| | Bore (min.) | H | 1.000 (25.400) | 1.125 (28.575) | 1.250 (31.750) | 1.375 (34.925) | 1.625 (41.275) | 2.000 (50.800) | 2.500 (63.500) | 2.750 (69.85) |
| Bore (max.) | H | 1.690 (42.926) | 2.000 (50.800) | 2.340 (59.436) | 2.760 (70.104) | 3.320 (84.328) | 4.120 (104.648) | 5.000 (127.000) | 5.875 (149.225) | |
| Mounting Adapter | Thickness | J | 0.31 (7.87) | 0.34 (8.64) | 0.41 (10.41) | 0.48 (12.19) | 0.58 (14.73) | 0.70 (17.78) | 1.00 (25.40) | 1.30 (33.05) |
| | Bolt Circle | K | 2.12 (53.85) | 2.46 (62.48) | 2.87 (72.90) | 3.42 (86.87) | 4.00 (101.60) | 4.90 (124.46) | 6.00 (152.40) | 7.00 (177.80) |
| | Holes-Screw (Qty) | L | #10 (3) | #10 (3) | 1/4 (3) | 5/16 (3) | 5/16 (6) | 3/8 (6) | 7/16 (6) | 1/2 (6) |
| | Holes - Dowel | M | 0.235 (5.969) | 0.235 (5.969) | 0.297 (7.544) | 0.360 (9.144) | 0.360 (9.144) | 0.422 (10.719) | 0.485 (12.319) | 0.485 (12.319) |
| Slip Ring Width | P | 0.20 (5.08) | 0.20 (5.08) | 0.20 (5.08) | 0.20 (5.08) | 0.22 (5.59) | 0.22 (5.59) | 0.23 (5.84) | 0.23 (5.84) | |
| Slip Ring Location | Q | 0.25 (6.35) | 0.25 (6.35) | 0.25 (6.35) | 0.25 (6.35) | 0.31 (7.87) | 0.31 (7.87) | 0.31 (7.87) | 0.31 (7.87) | |
| Adapter Protrusion | R | 0.09 (2.29) | 0.10 (2.54) | 0.12 (3.05) | 0.14 (3.56) | 0.16 (4.06) | 0.19 (4.83) | 0.22 (5.590) | 0.26 (6.60) | |
| Adapter Diameter | S | 2.69 (68.37) | 3.10 (78.74) | 3.70 (93.98) | 4.30 (109.22) | 5.20 (132.08) | 6.10 (154.94) | 7.25 (184.15) | 8.25 (209.55) | |