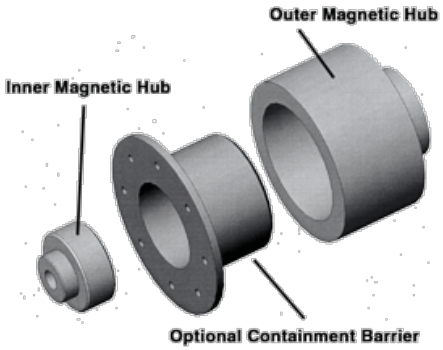
# Co-Axial Couplings

## How Co-Axial Couplings Work

The co-axial coupling consists of three parts. The outer hub consists of a series of rare earth magnets that are ground, potted and attached to the inside diameter of a steel hub. The inner hub consists of a series of rare earth magnets that are ground, potted and attached to the outside diameter of a steel rotor. The inner hub is then completely sealed in stainless steel to protect the magnets and rotor from damage or corrosive substances. Typically there is a radial air gap of up to .275" (7mm) between the inner and outer hubs. Conventional bores and keyways are used to drive the inner and outer hubs.



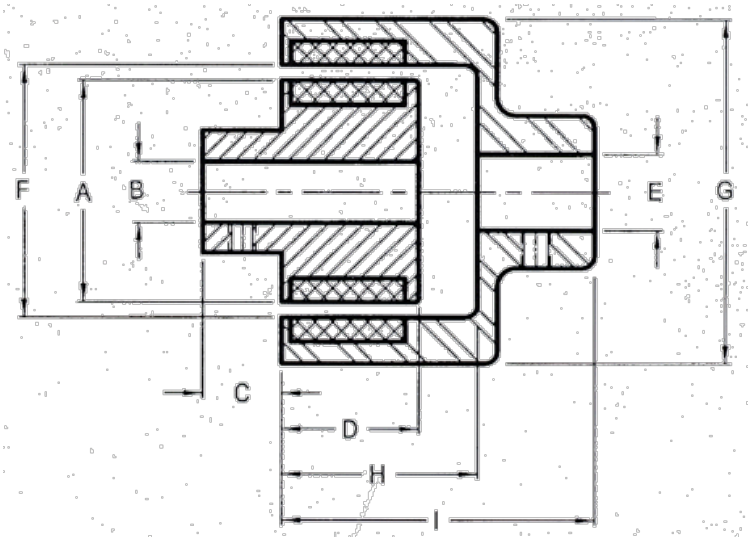

## Specifications - Shown in English measure

(Click here for Metric)

**Note:** The dimensions and ratings for all co-axial type couplings are shown using only NdFeB type rare earth magnets. Ratings and dimensions may vary for the SmCo versions.

## Advantages of Co-Axial Type Couplings

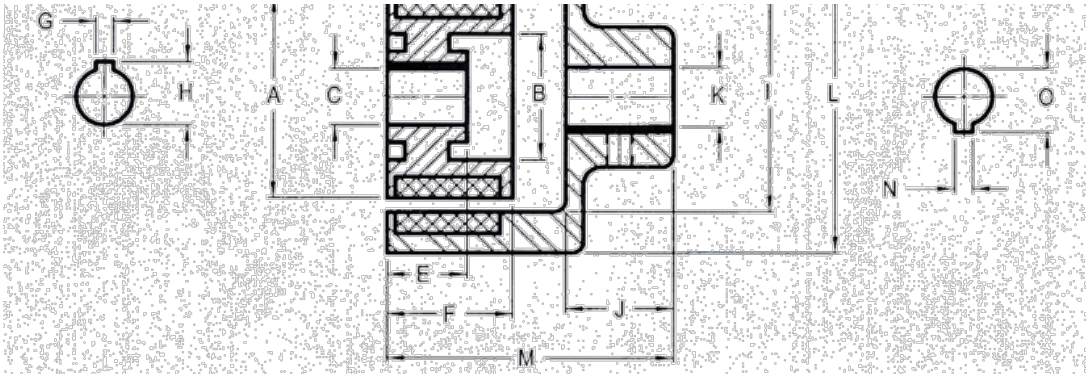
- **Eliminates Rotating Seals**
- **No Wearing Parts**
- **Synchronous Design, No Slip at Any Speed**
- **No Physical Contact Between Driving and Driven Parts**
- **Custom Designs Available**




## MTC-0.1 thru MTC-10

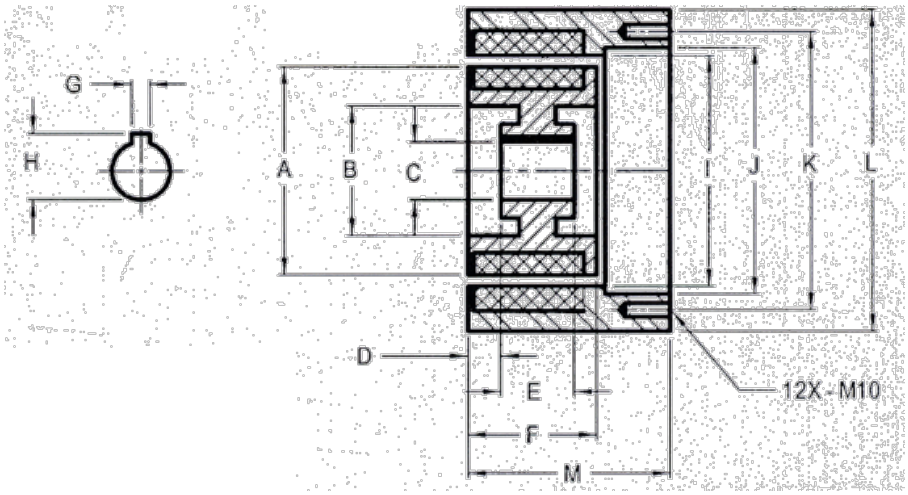
| | | | | | INNER HUB | | | | OUTER HUB | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Part Number | Max Speed (rpm) | Total Weight (lb) | Nominal Torque (in/lb) | Peak Torque (in/lb) | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | G (in) | H (in) | I (in) |
| MTC-0.1 | 44000 | 0.2 | 1.0 | 1.75 | 0.50 | 0.197 | 0.28 | 0.59 | 0.236 | 0.71 | 1.02 | 0.75 | 1.18 |
| MTC-0.3 | 26000 | 0.6 | 2.6 | 4.5 | 0.87 | 0.315 | 0.31 | 0.63 | 0.315 | 1.10 | 1.73 | 0.87 | 1.42 |
| MTC-1 | 22000 | 1.7 | 9 | 13 | 1.10 | 0.394 | 0.47 | 0.79 | 0.394 | 1.38 | 2.13 | 1.10 | 1.73 |
| MTC-3 | 18000 | 2.2 | 27 | 30 | 1.38 | 0.472 | 0.63 | 1.26 | 0.472 | 1.654 | 2.52 | 1.65 | 2.44 |
| MTC-10 | 13000 | 5.5 | 90 | 105 | 2.28 | 0.630 | 0.79 | 1.38 | 0.787 | 2.60 | 3.54 | 1.97 | 3.15 |

## MTC-16 thru MTC-140




| | | | | | INNER HUB | | | | | | | OUTER HUB | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Part Number | Max Speed (rpm) | Total Weight (lb) | Nominal Torque (in/lb) | Peak Torque (in/lb) | A (in) | B (in) | C (in) | E (in) | F (in) | G (in) | H (in) | I (in) | J (in) | K (in) | L (in) | M (in) | N (in) | O (in) |
| MTC-16 | 13000 | 6.6 | 140 | 230 | 2.28 | 1.02 | 0.551 | 0.79 | 2.44 | 0.20 | 0.64 | 2.60 | 1.57 | 0.748 | 3.54 | 4.72 | 0.24 | 0.86 |
| MTC-22 | 9400 | 16 | 200 | 310 | 3.47 | 1.97 | 0.787 | 1.18 | 1.97 | 0.24 | 0.90 | 3.82 | 1.97 | 0.945 | 4.88 | 4.72 | 0.31 | 1.07 |
| MTC-30 | 9400 | 18 | 265 | 425 | 3.47 | 1.97 | 0.945 | 1.18 | 2.44 | 0.31 | 1.07 | 3.82 | 1.97 | 1.102 | 4.88 | 5.12 | 0.31 | 1.23 |
| MTC-50 | 7300 | 26 | 450 | 708 | 4.80 | 3.15 | 1.181 | 1.18 | 1.97 | 0.31 | 1.31 | 5.20 | 2.36 | 1.496 | 6.30 | 5.12 | 0.39 | 1.63 |
| MTC-65 | 7300 | 33 | 575 | 885 | 4.80 | 3.15 | 1.181 | 1.57 | 2.56 | 0.31 | 1.31 | 5.20 | 2.36 | 1.496 | 6.30 | 5.71 | 0.39 | 1.63 |
| MTC-80 | 6500 | 42 | 710 | 1151 | 5.59 | 3.54 | 1.378 | 1.57 | 2.56 | 0.39 | 1.51 | 5.98 | 3.15 | 1.654 | 7.09 | 6.50 | 0.47 | 1.78 |
| MTC-110 | 6500 | 48 | 1000 | 1460 | 5.59 | 3.54 | 1.378 | 1.57 | 3.15 | 0.39 | 1.51 | 5.98 | 3.15 | 1.654 | 7.09 | 7.09 | 0.47 | 1.78 |
| MTC-140 | 6500 | 64 | 1250 | 1859 | 5.59 | 3.54 | 1.575 | 1.57 | 4.33 | 0.47 | 1.70 | 5.98 | 3.15 | 1.890 | 7.09 | 8.27 | 0.55 | 2.04 |

## MTC-180 thru MTC-280



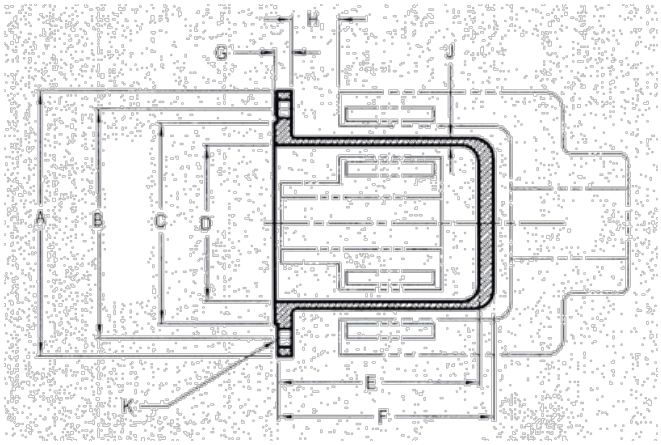

| | | | | | INNER HUB | | | | | | | | OUTER HUB | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Part Number | Max Speed (rpm) | Total Weight (lb) | Nominal Torque (in/lb) | Peak Torque (in/lb) | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | G (in) | H (in) | I (in) | J (in) | K (in) | L (in) | M (in) |
| MTC-180 | 6200 | 51 | 1600 | 2567 | 5.59 | 3.54 | 1.575 | 2.36 | 1.97 | 5.51 | 0.47 | 1.72 | 5.98 | 6.142 | 6.69 | 7.48 | 7.09 |
| MTC-220 | 6200 | 57 | 2000 | 2921 | 5.59 | 3.54 | 1.890 | 2.76 | 2.36 | 6.30 | 0.55 | 2.06 | 5.98 | 6.142 | 6.69 | 7.48 | 7.87 |
| MTC-280 | 6200 | 66 | 2500 | 3363 | 5.59 | 3.54 | 1.890 | 3.54 | 2.36 | 7.09 | 0.55 | 2.06 | 5.98 | 6.142 | 6.69 | 7.48 | 9.06 |

| Technical Data | | |
|---|---|---|
| **Inner Cylinder** | | 300 Stainless Steel, Hermetically Sealed |
| **Outer Cylinder** | | Mild Steel, All Magnets Encapsulated |
| **Magnet (Nickel-Plated)** | | NdFeB* |
| **Operating Temp*** | | 140C (284F) |

**Note:**
Co-Axial couplings are also available with SmCo magnets, rated up to 280C (536F)

### Optional Containment Barrier

An optional stainless steel barrier can be used to separate the atmosphere or fluids surrounding the inner and outer hubs. This eliminates the need for a rotating shaft seal. Both standard and custom barrier designs up to 75 hp are available. All sizes over MTC-10-SB are made to order. All designed applications are economically produced, even in small quantities.




| | STOCK CONTAINMENT BARRIER | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Part Number | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | G (in) | H (in) | J (in) | K (in) | # of Holes |
| MTC-0.1-SB | 1.42 | 1.102 | 0.79 | 0.591 | 1.02 | 1.10 | 0.16 | 0.24 | 0.039 | 0.18 | 4 |
| MTC-0.3-SB | 1.93 | 1.575 | 1.18 | 0.945 | 1.18 | 1.26 | 0.20 | 0.28 | 0.039 | 0.22 | 4 |
| MTC-1-SB | 2.17 | 1.811 | 1.42 | 1.181 | 1.38 | 1.46 | 0.20 | 0.28 | 0.039 | 0.22 | 6 |
| MTC-3-SB | 2.60 | 2.165 | 1.73 | 1.496 | 1.77 | 1.97 | 0.26 | 0.39 | 0.039 | 0.26 | 6 |
| MTC-10-SB | 3.78 | 3.268 | 2.87 | 2.362 | 2.36 | 2.60 | 0.59 | 0.24 | 0.039 | 0.26 | 6 |

**Note:** The MTC-0.1 through -10 containment shells are 316 stainless, and are rated to a minimum of 450 psi. Containment shells for other sizes are made to order and are rated according to customer requirements.

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