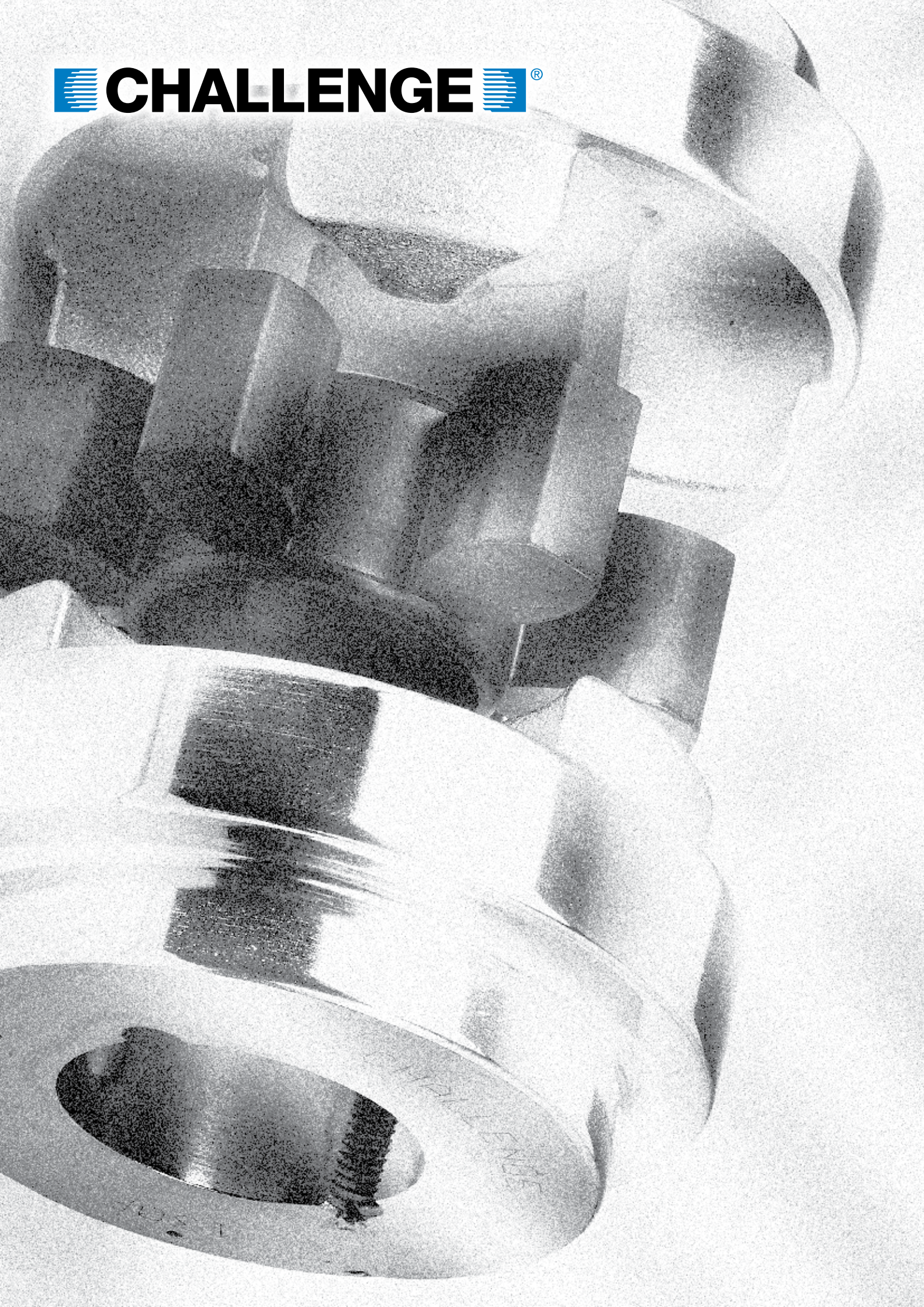
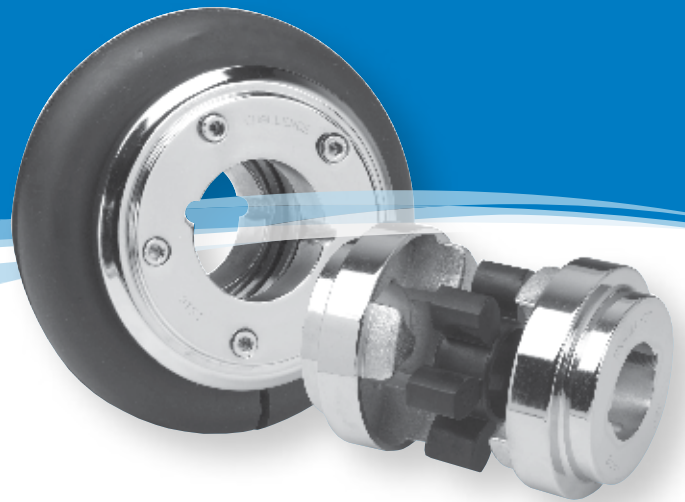


 **CHALLENGE**  <sup>®</sup>



# Shaft Couplings



## Features

### FFX

- Up to 14675 Nm torque on 6 pole motors
- Up to 4° angular misalignment
- Up to 12° 'wind up' shock absorption
- Can accommodate simultaneous maximum misalignment in all planes
- Tyre can be changed without moving prime mover or driven machine
- Visual inspection of tyre to detect wear
- Zero backlash makes the FFX ideal for reversing duties as the load carrying cords are wound in both directions. Reversing drives are not a problem
- Steel clamping rings used throughout the range for superior tyre/clamping ring grip
- Fire resistant and anti static (FRAS) tyres available
- No lubrication required
- Taper bush and pilot bore flanges available

### HRC

- Designed specifically for use with IEC motors
- Torques up to 3150 Nm
- Up to 1° angular misalignment
- Good shock absorption properties
- Quick and easy assembly
- Taper bush and Pilot bore flanges available
- High grade cast iron hubs
- Fail safe operation

### NPX

- Designed to industry standard
- Available with three part flanges, thus allowing the segments to be changed without disturbing either the driving or driven shaft
- High levels of torsional flexibility
- High speed capability
- Suit IEC electric motor applications
- Taper bore and pilot bore flanges

### RPX

- Fully machined with curved jaw design. This reduces vibration and allows for increased shock loading
- Designed to industry standard
- High torque for size
- Taper bore and pilot bore flanges
- 92 shore (yellow) and 98 shore (red) elements available

### JAW

- International design
- Low cost wide range of sizes from 16 mm to 127 mm diameter

### CHAIN

- High torque capacity
- Bores from 12 mm to 150 mm diameter
- Fully sealed casing with 'O' rings

# FFX Tyre Coupling Selection

## Tyre Coupling selection procedure

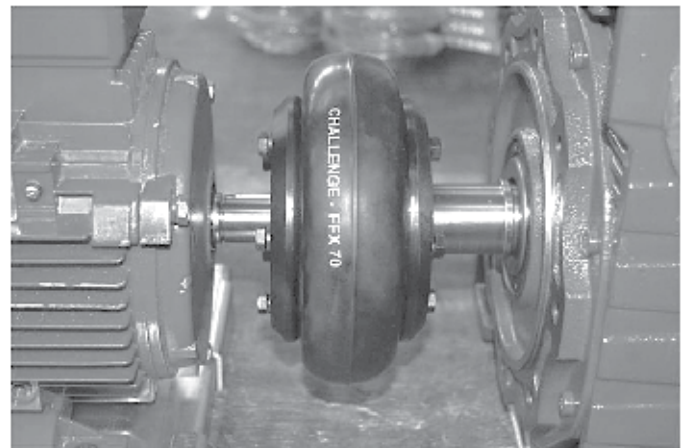
- 1] **Service Factor.**  
From Table 1 on page 247, select the service factor that is appropriate for the application
- 2] **Design Power.**  
Multiply the absorbed power of the driven machine, in kW, by the service factor, from step 1) to obtain the design power. If the absorbed power is not known, use the prime mover power.
- 3] **Tyre coupling size selection.**  
Refer to Table 2 on page 247.  
Read down the left hand vertical column to the required speed  
Read horizontally across on the speed line until a power equal to or in excess of the design power, from step 2), is reached.  
Read vertically to the top of the column to obtain the correct size of tyre coupling.
- 4] **Bore dimensions.**  
From the dimensions Table on page 248, check that the selected coupling will fit the shafts.



## Tyre Coupling selection example

Select a Challenge tyre coupling to drive a reciprocating pump from a 980 rev/min, 30 kW electric motor. The pump absorbs 24 kW and runs for 16 hours/day. The motor shaft is 60 mm diameter and the pump shaft 55 mm diameter. Taper bush flanges are required for both shafts.

- 1] **Service factor.**  
From Table 2 on page 247, the service factor for this application is 1.9
- 2] **Design power.**  
Using the absorbed power of the pump, the design power is  $24 \times 1.9 = 45.6$  kW
- 3] **Tyre coupling size selection.**  
Refer to Table 2 on page 247  
By reading down and interpolating for the required speed of 980 rev/min, it is seen that an FFX 090 will transmit 50.45 kW which is in excess of the 45.6 kW required from step 2)
- 4] **Bore dimensions.**  
From the dimensions Table on page 248, it is seen that both 'F' and 'H' flanges on an FFX 090 take a 2517 taper bush which are available with bores to suit the shaft requirements of the application.



# FFX Tyre Coupling Selection

**Table 1, Service Factors**

| Special cases<br>For applications where shock, vibration and torque fluctuations occur – consult Challenge   | Type of prime mover                                   |                   |            |                             |                   |            |
|--|---|-------------------|------------|-----------------------------|-------------------|------------|
|  | 'Soft' Starts   |                   |            | 'Heavy' Starts              |                   |            |
|  | Electric motors and other smooth running prime movers |                   |            | Internal Combustion Engines |                   |            |
|  | Number of hours per day running                       |                   |            |                             |                   |            |
| Type of driven machine   | 10 and under  | over 10 - 16 incl | over 16    | 10 and under                | over 10 - 16 incl | over 16    |
| <b>Uniform load</b><br>Light duty agitators, belt conveyors for sand etc., fans upto 7.5 kW, centrifugal compressors and pumps,  | <b>0.8</b>  | <b>0.9</b>        | <b>1.0</b> | <b>1.3</b>                  | <b>1.4</b>        | <b>1.5</b> |
| <b>Moderate load</b><br>Variable density agitators, belt conveyors (non-uniform loads), fans over 7.5 kW, other rotary compressors and pumps, generators, machine tools, printing machinery, laundry machinery, rotary screens, rotary woodworking machinery | <b>1.3</b>  | <b>1.4</b>        | <b>1.5</b> | <b>1.8</b>                  | <b>1.9</b>        | <b>2.0</b> |
| <b>Heavy load</b><br>Reciprocating compressors and pumps, positive displacement blowers, heavy duty conveyors such as screw, bucket etc., hammer mills, pulverisers, presses, shears, punches, rubber machinery  | <b>1.8</b>  | <b>1.9</b>        | <b>2.0</b> | <b>2.3</b>                  | <b>2.4</b>        | <b>2.5</b> |
| <b>Severe load</b><br>Crushers – gyratory, jaw, roll etc., rolling mills, calenders, quarry machinery, vibrating screens   | <b>2.3</b>  | <b>2.4</b>        | <b>2.5</b> | <b>2.8</b>                  | <b>2.9</b>        | <b>3.0</b> |

**Table 2, Power Ratings (kW)**

| Rotational speed in rev/min | FFX 40 | FFX 50 | FFX 60 | FFX 70 | FFX 80 | FFX 90 | FFX 100 | FFX 110 | FFX 120 | FFX 140 | FFX 160 | FFX 180 | FFX 200 | FFX 220 | FFX 250 |
|-----------------------------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 100                         | 0.28   | 0.87   | 1.58   | 2.59   | 4.06   | 5.16   | 6.83    | 9.09    | 14.2    | 26.7    | 41.8    | 65.4    | 96.8    | 120     | 154     |
| 500                         | 1.41   | 4.36   | 7.88   | 12.9   | 20.2   | 25.7   | 34.1    | 45.4    | 71.4    | 134     | 209     | 327     | 484     | 601     | 767     |
| 700                         | 1.97   | 6.10   | 11.0   | 18.1   | 28.4   | 36.0   | 47.7    | 63.6    | 99.8    | 187     | 292     | 458     | 678     | 842     | 1074    |
| 720                         | 2.02   | 6.26   | 11.3   | 18.6   | 29.2   | 37.1   | 49.1    | 65.4    | 103     | 192     | 301     | 471     | 697     | 866     | 1104    |
| 800                         | 2.25   | 6.97   | 12.5   | 20.7   | 32.4   | 41.2   | 54.5    | 72.3    | 114     | 214     | 334     | 523     | 775     | 962     | 1227    |
| 900                         | 2.53   | 7.84   | 14.1   | 23.3   | 36.5   | 46.3   | 61.4    | 81.8    | 128     | 241     | 376     | 589     | 872     | 1082    | 1380    |
| 960                         | 2.69   | 8.36   | 15.1   | 24.8   | 38.9   | 49.4   | 65.5    | 87.3    | 137     | 257     | 401     | 628     | 929     | 1154    | 1472    |
| 1000                        | 2.81   | 8.71   | 15.7   | 25.9   | 40.6   | 51.5   | 68.2    | 90.9    | 143     | 267     | 419     | 655     | 968     | 1203    | 1534    |
| 1200                        | 3.37   | 10.4   | 18.9   | 31.0   | 48.6   | 61.8   | 81.8    | 109     | 171     | 321     | 502     | 785     | 1162    | -       | -       |
| 1400                        | 3.93   | 12.2   | 22.0   | 36.2   | 56.8   | 72.1   | 95.5    | 127     | 200     | 375     | 585     | 916     | -       | -       | -       |
| 1440                        | 4.04   | 12.5   | 22.6   | 37.2   | 58.4   | 74.2   | 98.3    | 131     | 206     | 385     | 602     | 942     | -       | -       | -       |
| 1500                        | 4.21   | 13.0   | 23.6   | 38.8   | 60.9   | 77.3   | 102     | 136     | 214     | 401     | 627     | 982     | -       | -       | -       |
| 1800                        | 5.05   | 15.6   | 28.3   | 46.5   | 73.0   | 92.7   | 123     | 164     | 257     | 481     | -       | -       | -       | -       | -       |
| 2000                        | 5.62   | 17.4   | 31.5   | 51.8   | 81.1   | 103    | 136     | 182     | 286     | -       | -       | -       | -       | -       | -       |
| 2500                        | 7.02   | 21.7   | 39.3   | 64.7   | 102    | 129    | 145     | -       | -       | -       | -       | -       | -       | -       | -       |
| 2880                        | 8.08   | 25.0   | 45.3   | 74.5   | 117    | 149    | -       | -       | -       | -       | -       | -       | -       | -       | -       |
| 3000                        | 8.42   | 26.1   | 47.2   | 77.6   | 122    | 155    | -       | -       | -       | -       | -       | -       | -       | -       | -       |
| 3500                        | 9.82   | 30.4   | 55.1   | 90.6   | -      | -      | -       | -       | -       | -       | -       | -       | -       | -       | -       |
| 4000                        | 11.2   | 34.8   | 63.0   | -      | -      | -      | -       | -       | -       | -       | -       | -       | -       | -       | -       |
| 4500                        | 12.6   | 39.1   | -      | -      | -      | -      | -       | -       | -       | -       | -       | -       | -       | -       | -       |

All power ratings are constant torque  
Interpolate for speeds not listed

Every effort has been taken to ensure that the data listed in this catalogue is correct. Challenge accepts no liability for any inaccuracies or damage caused.

# FFX Tyre Couplings

## FFX Tyre Coupling Data

| Coupling Size | Bush Size | Max Bore |        | Pilot Bore | A   | B   | C     | M *  | Types F & H |      | Type B |      | Weight# kg |
|---------------|-----------|----------|--------|------------|-----|-----|-------|------|-------------|------|--------|------|------------|
|               |           | Metric   | Inch   |            |     |     |       |      | F           | D    | F      | D    |            |
| 040B          | -         | 32       | -      | 12         | 104 | -   | 82    | 11.0 | -           | -    | 33     | 22   | 0.84       |
| 040F          | 1008      | 25       | 1"     | -          | 104 | -   | 82    | 11.0 | 33.0        | 22   | -      | -    | 0.84       |
| 040H          | 1008      | 25       | 1"     | -          | 104 | -   | 82    | 11.0 | 33.0        | 22   | -      | -    | 0.84       |
| 050B          | -         | 38       | -      | 15         | 133 | 79  | 100   | 12.5 | -           | -    | 45     | 32.5 | 1.26       |
| 050F          | 1210      | 32       | 1.1/4" | -          | 133 | 79  | 100   | 12.5 | 37.5        | 25   | -      | -    | 1.26       |
| 050H          | 1210      | 32       | 1.1/4" | -          | 133 | 79  | 100   | 12.5 | 37.5        | 25   | -      | -    | 1.26       |
| 060B          | -         | 45       | -      | 18         | 165 | 103 | 124.5 | 16.5 | -           | -    | 55     | 38.5 | 2.10       |
| 060F          | 1610      | 42       | 1.5/8" | -          | 165 | 103 | 124.5 | 16.5 | 41.5        | 25   | -      | -    | 2.10       |
| 060H          | 1610      | 42       | 1.5/8" | -          | 165 | 103 | 124.5 | 16.5 | 41.5        | 25   | -      | -    | 2.10       |
| 070B          | -         | 50       | -      | 22         | 187 | 80  | 142   | 11.5 | -           | -    | 46.5   | 35   | 3.26       |
| 070F          | 2012      | 50       | 2"     | -          | 187 | 80  | 142   | 11.5 | 44.5        | 33   | -      | -    | 3.26       |
| 070H          | 1610      | 42       | 1.5/8" | -          | 187 | 80  | 142   | 11.5 | 42.5        | 31   | -      | -    | 3.15       |
| 080B          | -         | 60       | -      | 25         | 211 | 98  | 165   | 12.5 | -           | -    | 55     | 42.5 | 5.15       |
| 080F          | 2517      | 65       | 2.1/2" | -          | 211 | 98  | 165   | 12.5 | 58.5        | 46   | -      | -    | 5.15       |
| 080H          | 2012      | 50       | 2"     | -          | 211 | 98  | 165   | 12.5 | 45.5        | 33   | -      | -    | 4.83       |
| 090B          | -         | 70       | -      | 28         | 235 | 108 | 187   | 13.5 | -           | -    | 63.5   | 50   | 7.46       |
| 090F          | 2517      | 65       | 2.1/2" | -          | 235 | 108 | 187   | 13.5 | 59.5        | 46   | -      | -    | 7.35       |
| 090H          | 2517      | 65       | 2.1/2" | -          | 235 | 108 | 187   | 13.5 | 59.5        | 46   | -      | -    | 7.35       |
| 100B          | -         | 80       | -      | 32         | 254 | 120 | 214   | 13.5 | -           | -    | 70.5   | 57   | 10.4       |
| 100F          | 3020      | 75       | 3"     | -          | 254 | 120 | 214   | 13.5 | 65.5        | 52   | -      | -    | 10.4       |
| 100H          | 2517      | 65       | 2.1/2" | -          | 254 | 120 | 214   | 13.5 | 59.5        | 46   | -      | -    | 9.87       |
| 110B          | -         | 90       | -      | 30         | 279 | 134 | 232   | 12.5 | -           | -    | 70.5   | 58   | 13.1       |
| 110F          | 3020      | 75       | 3"     | -          | 279 | 134 | 232   | 12.5 | 64.5        | 52   | -      | -    | 12.3       |
| 110H          | 3020      | 75       | 3"     | -          | 279 | 134 | 232   | 12.5 | 64.5        | 52   | -      | -    | 12.3       |
| 120B          | -         | 100      | -      | 38         | 314 | 143 | 262   | 14.5 | -           | -    | 84.5   | 70   | 17.7       |
| 120F          | 3525      | 100      | 4"     | -          | 314 | 140 | 262   | 14.5 | 80.5        | 66   | -      | -    | 17.3       |
| 120H          | 3020      | 75       | 3"     | -          | 314 | 140 | 262   | 14.5 | 66.5        | 52   | -      | -    | 16.7       |
| 140B          | -         | 130      | -      | 75         | 359 | 178 | 313   | 16.0 | -           | -    | 110    | 94   | 23.3       |
| 140F          | 3525      | 100      | 4"     | -          | 359 | 178 | 313   | 16.0 | 82.0        | 66   | -      | -    | 23.4       |
| 140H          | 3525      | 100      | 4"     | -          | 359 | 178 | 313   | 16.0 | 82.0        | 66   | -      | -    | 23.4       |
| 160B          | -         | 140      | -      | 75         | 402 | 197 | 347   | 15.0 | -           | -    | 117    | 102  | 37.6       |
| 160F          | 4030      | 115      | 4.1/2" | -          | 402 | 197 | 347   | 15.0 | 92.4        | 77.4 | -      | -    | 34.1       |
| 160H          | 4030      | 115      | 4.1/2" | -          | 402 | 197 | 347   | 15.0 | 92.4        | 77.4 | -      | -    | 34.1       |
| 180B          | -         | 150      | -      | 75         | 470 | 205 | 396   | 23.0 | -           | -    | 137    | 114  | 51.6       |
| 180F          | 4535      | 125      | 5"     | -          | 470 | 205 | 396   | 23.0 | 112.0       | 89   | -      | -    | 44.3       |
| 180H          | 4535      | 125      | 5"     | -          | 470 | 205 | 396   | 23.0 | 112.0       | 89   | -      | -    | 44.3       |
| 200B          | -         | 150      | -      | 85         | 508 | 206 | 433   | 24.0 | -           | -    | 138    | 114  | 61.1       |
| 200F          | 4535      | 125      | 5"     | -          | 508 | 206 | 433   | 24.0 | 113.0       | 89   | -      | -    | 56.3       |
| 200H          | 4535      | 125      | 5"     | -          | 508 | 206 | 433   | 24.0 | 113.0       | 89   | -      | -    | 56.3       |
| 220B          | -         | 160      | -      | 85         | 562 | 224 | 472   | 27.5 | -           | -    | 154.5  | 127  | 83.6       |
| 220F          | 5040      | 125      | 5"     | -          | 562 | 224 | 472   | 27.5 | 129.5       | 102  | -      | -    | 75.6       |
| 220H          | 5040      | 125      | 5"     | -          | 562 | 224 | 472   | 27.5 | 129.5       | 102  | -      | -    | 75.6       |
| 250B          | -         | 190      | -      | 88         | 628 | 254 | 532   | 28.5 | -           | -    | 160.5  | 132  | 109.0      |
| 250F          | 5040      | 125      | 5"     | -          | 628 | 254 | 532   | 28.5 | 155.5       | 127  | -      | -    | 106.0      |
| 250H          | 5040      | 125      | 5"     | -          | 628 | 254 | 532   | 28.5 | 155.5       | 127  | -      | -    | 106.0      |

### Notes

# = Is the weight for a half coupling.

\* = M is half the distance between flange faces

**NB. All flexible tyres have an angular misalignment capacity up to 4°**

**Fire resistant and anti static (FRAS) tyres are available**

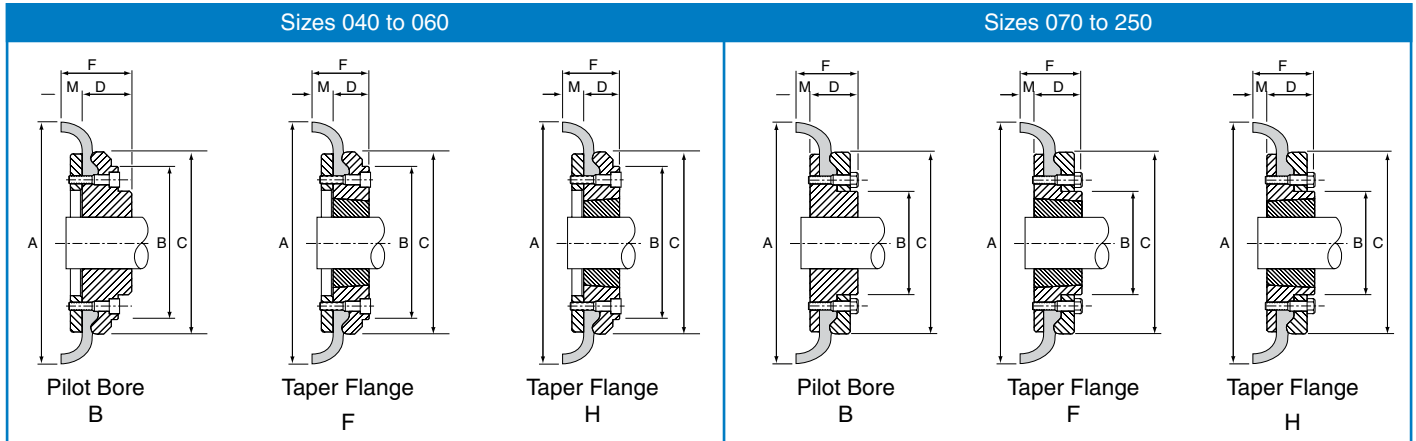
**Challenge standard tyres are manufactured from natural rubber with an operating temperature span between -50°C and +50°C.**

**Challenge FRAS tyres are manufactured from chloroprene rubber and have an operating temperature span between -15°C and +70°C**

**All Challenge FFX Flanges up to size 180 are produced from forged C45 steel. From size 200 upwards are produced from GGG.**

# FFX Tyre Couplings

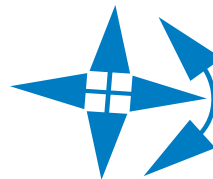
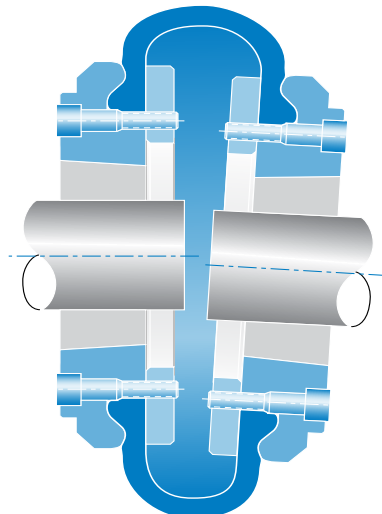
## FFX Tyre Coupling Data



## FFX Coupling Installation and Operational Data

| Coupling Size | Flange Face Spacing mm | Gap Between Tyre Ends mm | Nominal Torque Nm | Max Speed rev/min | Max Parallel Misalignment mm | Max End Float* mm | Clamping Screw |           |
|---------------|------------------------|--------------------------|-------------------|-------------------|------------------------------|-------------------|----------------|-----------|
|               |                        |                          |                   |                   |                              |                   | Size           | Torque Nm |
| 40            | 22                     | 2                        | 24                | 4500              | 1.1                          | 1.3               | M6             | 15        |
| 50            | 25                     | 2                        | 66                | 4500              | 1.3                          | 1.7               | M6             | 15        |
| 60            | 33                     | 2                        | 127               | 4000              | 1.6                          | 2.0               | M6             | 15        |
| 70            | 23                     | 3                        | 250               | 3600              | 1.9                          | 2.3               | M8             | 24        |
| 80            | 25                     | 3                        | 375               | 3100              | 2.1                          | 2.6               | M8             | 24        |
| 90            | 27                     | 3                        | 500               | 3000              | 2.4                          | 3.0               | M10            | 40        |
| 100           | 27                     | 3                        | 675               | 2600              | 2.6                          | 3.3               | M10            | 40        |
| 110           | 25                     | 3                        | 875               | 2300              | 2.9                          | 3.7               | M10            | 40        |
| 120           | 29                     | 3                        | 1330              | 2050              | 3.2                          | 4.0               | M12            | 50        |
| 140           | 32                     | 5                        | 2325              | 1800              | 3.7                          | 4.6               | M12            | 55        |
| 160           | 30                     | 5                        | 3770              | 1600              | 4.2                          | 5.3               | M16            | 80        |
| 180           | 46                     | 6                        | 6270              | 1500              | 4.8                          | 6.0               | M16            | 105       |
| 200           | 48                     | 6                        | 9325              | 1300              | 5.3                          | 6.6               | M16            | 120       |
| 220           | 55                     | 6                        | 11600             | 1100              | 5.8                          | 7.3               | M20            | 165       |
| 250           | 59                     | 6                        | 14675             | 1000              | 6.6                          | 8.2               | M20            | 165       |

\* End Float, alternatively called axial misalignment

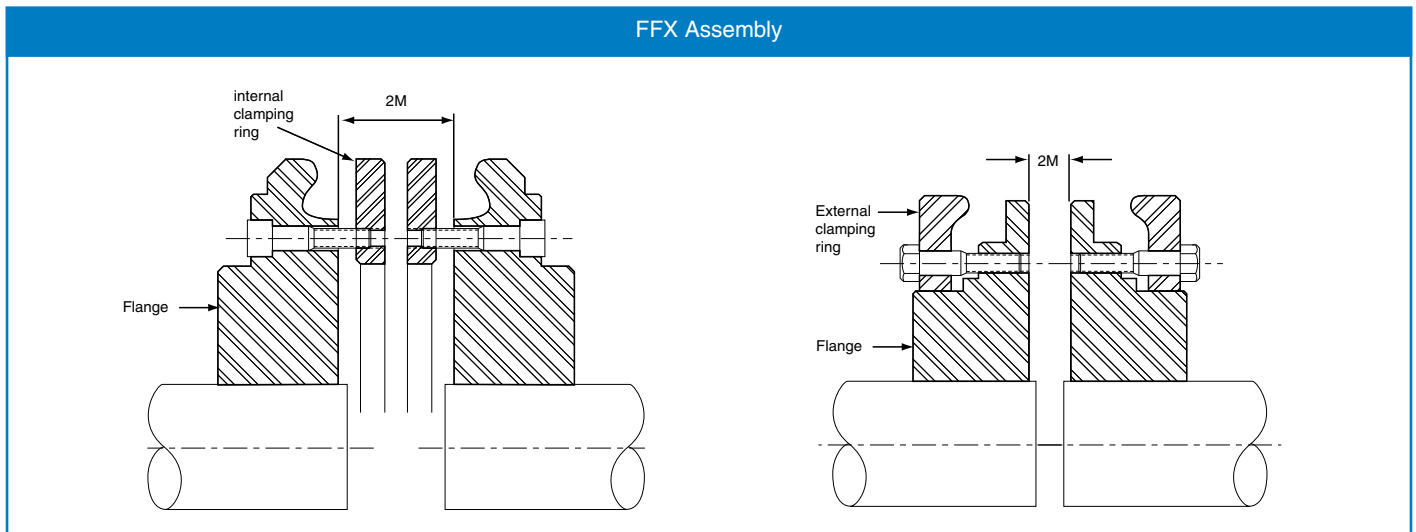


Accommodate simultaneous maximum misalignment in all planes.

# FFX Tyre Coupling Installation

## Installation Instructions

- 1] Clean all parts
- 2] Assemble the flanges onto the shafts after connecting the clamping rings loosely to them
- 3] Move the flanges along the shafts until dimension '2M' is obtained (see Table 3). Ensure there is sufficient gap between the shaft ends to allow for any axial movement
- 4] Check the alignment in both parallel and angular planes to ensure the shafts are aligned as accurately as possible – the more accurate the alignment, the less the tyre wear. See Table 3 for misalignment values
- 5] Fit the tyre into the gap between the flange and clamping ring, ensuring the tyre bead is correctly located. When correctly seated, the tyre gap should match the value in Table 4
- 6] Tighten the clamping ring screws alternately, and gradually, until the correct torque is achieved (see Table 3)



**Table 3**

| FFX Coupling size               | 040 | 050 | 060 | 070 | 080 | 090 | 100 | 110 | 120 | 140 | 160 | 180 | 200 | 220 | 250 |
|---------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Parallel misalignment           | 1.0 | 1.3 | 1.6 | 1.9 | 2.1 | 2.4 | 2.6 | 2.9 | 3.2 | 3.7 | 4.2 | 4.8 | 5.3 | 5.8 | 6.6 |
| Axial (end float) misalignment  | 1.3 | 1.7 | 2.0 | 2.3 | 2.6 | 3.0 | 3.3 | 3.7 | 4.0 | 4.6 | 5.3 | 6.0 | 6.6 | 7.3 | 8.2 |
| Angular misalignment            | 4°  | 4°  | 4°  | 4°  | 4°  | 4°  | 4°  | 4°  | 4°  | 4°  | 4°  | 4°  | 4°  | 4°  | 4°  |
| '2M' dimension                  | 22  | 25  | 33  | 23  | 25  | 27  | 27  | 25  | 29  | 32  | 30  | 46  | 48  | 55  | 59  |
| Clamping ring screw torque - Nm | 15  | 15  | 15  | 24  | 24  | 40  | 40  | 40  | 50  | 55  | 80  | 105 | 120 | 165 | 165 |

**Table 4**

| FFX Coupling Size     | 040 to 060 | 070 to 120 | 140 to 160 | 180 to 250 |
|-----------------------|------------|------------|------------|------------|
| Gap between tyre ends | 2          | 3          | 5          | 6          |

All dimensions in millimetres unless otherwise stated. Every effort has been taken to ensure that the data listed in this catalogue is correct. Challenge accepts no liability for any inaccuracies or damage caused.

# HRC Couplings

## HRC Coupling selection procedure

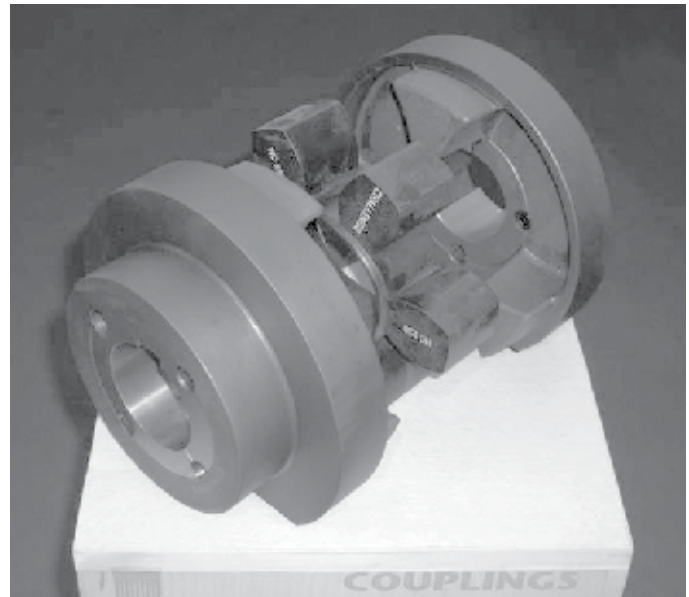
- 1] **Service Factor**  
from Table 1 on page 252, select the service factor that is appropriate for the application
- 2] **Design Power**  
Multiply the absorbed power of the driven machine, in kW, by the service factor, from step 1) to obtain the design power. If the absorbed power is not known, use the prime mover power.
- 3] **HRC coupling size selection**  
Refer to Table 2 on page 252.  
Read down the left hand vertical column to the required speed. Interpolate if the exact speed is not listed  
Read horizontally across on the speed line until a power equal to or in excess of the design power, from step 2), is reached  
Read vertically to the top of the column to obtain the correct size of HRC coupling.
- 4] **Bore dimensions**  
From the dimension Tables on page 253, check that the selected coupling will fit the shafts.



## HRC Coupling selection example

Select a Challenge HRC coupling to couple an 11 kW, 970 rev/min motor to a machine tool which has to run for 17 hours/day. The motor shaft is 42 mm diameter and the machine tool shaft 38 mm diameter  
Taper bush flanges are required for both shafts.

- 1] **Service factor**  
From Table 1 on page 252, the service factor for this application is 2.00
- 2] **Design power**  
As the machine tool absorbed power is not known, the motor power is used as a basis for selecting the coupling.  
The design power is  $11 \times 2.00 = 22.0 \text{ kW}$
- 3] **HRC coupling size selection**  
Refer to Table 2 on page 252.  
By reading down and interpolating for the required speed of 970 rev/min, it is seen that an HRC 130 will transmit 32.0 kW which is in excess of the 22.0 kW required from step 2)
- 4] **Bore dimensions**  
From the dimension Table on page 253, the flanges on an HRC 130 take 1610 taper bushes which are available with bores to suit the shaft requirements of the application.





# HRC Coupling Selection

**Table 1, Service Factors**

| <b>Special cases</b><br>For applications where shock, vibration and torque fluctuations occur – consult Challenge  | <b>Type of prime mover</b>                            |                   |             |                             |                   |             |
|--|---|-------------------|-------------|-----------------------------|-------------------|-------------|
|  | <b>‘Soft’ Starts</b>                                  |                   |             | <b>‘Heavy’ Starts</b>       |                   |             |
|  | Electric motors and other smooth running prime movers |                   |             | Internal Combustion Engines |                   |             |
|  | <b>Number of hours per day running</b>                |                   |             |                             |                   |             |
| <b>Type of driven machine</b>  | 10 and under  | over 10 - 16 incl | over 16     | 10 and under                | over 10 - 16 incl | over 16     |
| <b>Uniform load</b><br>Light duty agitators, belt conveyors for sand etc., fans up to 7.5 kW, centrifugal compressors and pumps,   | <b>1.0</b>  | <b>1.12</b>       | <b>1.25</b> | <b>1.25</b>                 | <b>1.40</b>       | <b>1.60</b> |
| <b>Moderate load</b><br>Variable density agitators, belt conveyors (non-uniform loads), fans over 7.5 kW, other rotary compressors and pumps, machine tools, printing machinery, laundry machinery, rotary screens, rotary woodworking machinery | <b>1.5</b>  | <b>1.75</b>       | <b>2.00</b> | <b>2.00</b>                 | <b>2.25</b>       | <b>2.50</b> |
| <b>Heavy load</b><br>Reciprocating compressors and pumps, positive displacement blowers, heavy duty conveyors such as screw, bucket etc., hammer mills, pulverisers, presses, shears, punches, rubber machinery, crushers, metal mills           | <b>2.50</b>   | <b>2.75</b>       | <b>3.00</b> | <b>3.00</b>                 | <b>3.50</b>       | <b>4.00</b> |

**Table 2, Power Ratings (kW)**

| Rotational speed in rev/min | 70   | 90   | 110  | 130  | 150  | 180  | 230  | 280  |
|-----------------------------|------|------|------|------|------|------|------|------|
| 100                         | 0.33 | 0.84 | 1.68 | 3.30 | 6.28 | 9.95 | 20.9 | 33.0 |
| 500                         | 1.65 | 4.20 | 8.40 | 16.5 | 31.4 | 49.8 | 105  | 165  |
| 700                         | 2.31 | 5.88 | 11.8 | 23.1 | 44.0 | 69.7 | 146  | 231  |
| 720                         | 2.37 | 6.05 | 12.1 | 23.8 | 45.2 | 71.6 | 150  | 238  |
| 800                         | 2.64 | 6.72 | 13.4 | 26.4 | 50.3 | 79.6 | 167  | 264  |
| 900                         | 2.97 | 7.56 | 15.1 | 29.7 | 56.5 | 89.6 | 188  | 297  |
| 960                         | 3.17 | 8.06 | 16.1 | 31.7 | 60.3 | 95.5 | 201  | 317  |
| 1000                        | 3.33 | 8.40 | 16.8 | 33.0 | 62.8 | 99.5 | 209  | 330  |
| 1200                        | 3.96 | 10.1 | 20.2 | 39.6 | 75.4 | 119  | 251  | 396  |
| 1400                        | 4.62 | 11.8 | 23.5 | 46.2 | 87.9 | 139  | 293  | 462  |
| 1440                        | 4.75 | 12.1 | 24.2 | 47.5 | 90.4 | 143  | 301  | 475  |
| 1500                        | 4.95 | 12.6 | 25.2 | 49.5 | 94.2 | 149  | 314  | 495  |
| 1800                        | 5.94 | 15.1 | 30.2 | 59.4 | 113  | 179  | 376  | 594  |
| 2000                        | 6.60 | 16.8 | 33.6 | 66.0 | 126  | 199  | 418  | 660  |
| 2500                        | 8.25 | 21.0 | 42.0 | 82.5 | 157  | 249  | 523  | -    |
| 2880                        | 9.50 | 24.2 | 48.4 | 95.0 | 181  | 287  | -    | -    |
| 3000                        | 9.90 | 25.2 | 50.4 | 99.0 | 188  | 299  | -    | -    |
| 3500                        | 11.6 | 29.4 | 58.8 | 116  | 220  | 348  | -    | -    |
| 4000                        | 13.2 | 33.6 | 67.2 | 132  | 251  | -    | -    | -    |
| 4500                        | 14.9 | 37.8 | 75.6 | 149  | 283  | -    | -    | -    |
| 5000                        | 16.5 | 42.0 | 84.0 | -    | -    | -    | -    | -    |

All power ratings are constant torque  
Interpolate for speeds not listed

# HRC Couplings

## HRC Common Data

| Coupling Size | Nominal Torque Nm | Overall Diameter A | Hub Diameter B | Assembled Length F | Element    |              | Parallel Misalignment | Weight kg | Assembled Length (L) |       |       |
|---------------|-------------------|--------------------|----------------|--------------------|------------|--------------|-----------------------|-----------|----------------------|-------|-------|
|               |                   |                    |                |                    | Ring Dia E | Ring Width G |                       |           | FF, FH, HH           | FB,HB | BB    |
| 70            | 31                | 69                 | 60             | 25.5               | 31         | 18.5         | 0.3                   | 1.00      | 65.5                 | 65.5  | 65.5  |
| 90            | 80                | 85                 | 70             | 30.5               | 32         | 22.5         | 0.3                   | 1.17      | 69.5                 | 76.5  | 82.5  |
| 110           | 160               | 112                | 100            | 45.5               | 45         | 29.5         | 0.3                   | 5.00      | 82.5                 | 100.5 | 119.5 |
| 130           | 315               | 130                | 105            | 53.5               | 50         | 36.5         | 0.4                   | 5.46      | 89.5                 | 110.5 | 131.5 |
| 150           | 600               | 150                | 115            | 60.5               | 62         | 40.5         | 0.4                   | 7.11      | 107.5                | 129.5 | 152.5 |
| 180           | 950               | 180                | 125            | 73.5               | 77         | 49.5         | 0.4                   | 16.65     | 142.5                | 165.5 | 189.5 |
| 230           | 2000              | 225                | 155            | 85.5               | 99         | 59.5         | 0.5                   | 26.05     | 164.5                | 202.5 | 239.5 |
| 280           | 3150              | 275                | 206            | 105.5              | 119        | 74.5         | 0.5                   | 50.05     | 207.5                | 246.5 | 285.5 |

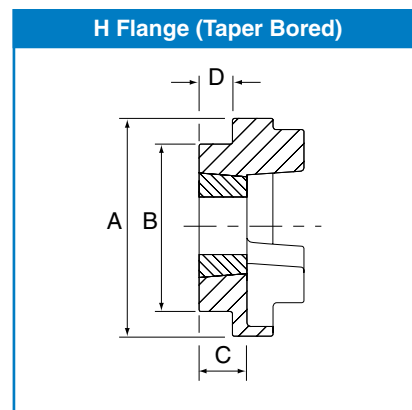
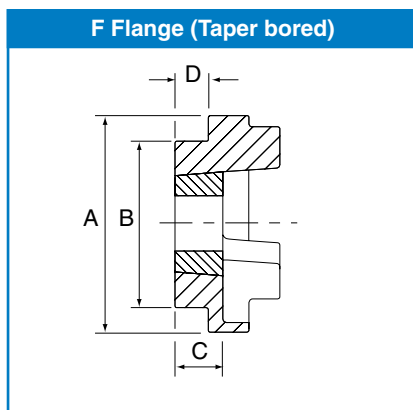
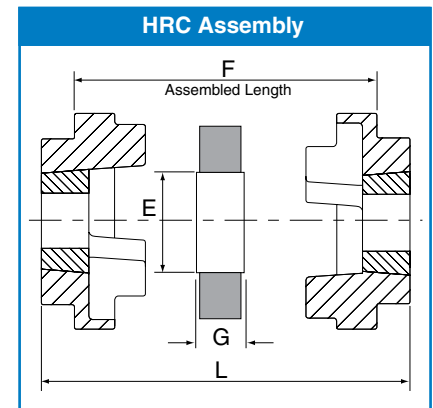
### Angular misalignment capacity up to 1 deg

Weight is for an FF, FH or HH coupling with mid range Taper Bushes  
F refers to combinations of flanges: FF, FH, HH, FB, HB, BB.

The elastomeric element in Challenge HRC couplings is manufactured from nitrile rubber with an operating temperature span between -40°C and +100°C.

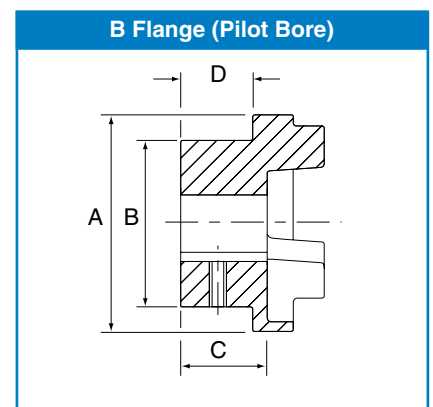
## HRC Type F & H

| Coupling No | Bush size | Max. Bore |        | Shoulder Width D | Hub Width C |
|-------------|-----------|-----------|--------|------------------|-------------|
|             |           | mm        | inch   |                  |             |
| 70          | 1008      | 25        | 1"     | 20.0             | 23.5        |
| 90          | 1108      | 28        | 1.1/8" | 19.5             | 23.5        |
| 110         | 1610      | 42        | 1.5/8" | 18.5             | 26.5        |
| 130         | 1610      | 42        | 1.5/8" | 18.0             | 26.5        |
| 150         | 2012      | 50        | 2"     | 23.5             | 33.5        |
| 180         | 2517      | 65        | 2.1/2" | 34.5             | 46.5        |
| 230         | 3020      | 75        | 3"     | 39.5             | 52.5        |
| 280         | 3525      | 100       | 4"     | 51.0             | 66.5        |



## HRC Type B (Pilot Bore)

| Coupling No | Max. Bore | Pilot Bore | Keyway Screw Size | Shoulder Width D | Hub Width C |
|-------------|-----------|------------|-------------------|------------------|-------------|
| 70          | 32        | 8          | M 6               | 20               | 23.5        |
| 90          | 42        | 10         | M 6               | 26               | 30.5        |
| 110         | 55        | 10         | M10               | 37               | 45.5        |
| 130         | 60        | 15         | M10               | 39               | 47.5        |
| 150         | 70        | 20         | M10               | 46               | 56.5        |
| 180         | 80        | 25         | M10               | 58               | 70.5        |
| 230         | 100       | 25         | M12               | 77               | 90.5        |
| 280         | 115       | 30         | M16               | 90               | 105.5       |



# NPX Couplings

## NPX Coupling selection procedure

### Based on Power and Speed

- 1] **Service Factor**  
From Table 1 on page 255, select the service factor that is appropriate for the application
- 2] **Design Power**  
Multiply the absorbed power, kW, of the driven machine by the service factor, from step 1) to obtain the design power.  
If the absorbed power is not known, use the prime mover power.
- 3] **NPX coupling size selection**  
Refer to Table 2 on page 255.  
  
Read down the left hand vertical column to the required speed.  
Interpolate if the exact speed is not listed  
Read horizontally across on the speed line until a power equal to or in excess of the design power, from step 2), is reached.  
Read vertically to the top of the column to obtain the correct size of NPX coupling.
- 4] **Bore dimensions**  
From the dimension Tables on pages 257 and 258, check that the selected coupling will fit the shafts.

### Based on IEC Electric Motors (page 256)

- 1] Note the frame size of the motor, power, speed (or number of poles)
- 2] Read across to the column headed by the motor speed (or number of poles)
- 3] The next column to the motor power gives the size of NPX coupling required  
Pilot bore flange sizes are in normal type face. Taper bore flanges are in italic

## NPX coupling selection example

Select a Challenge NPX coupling to couple a 15.0 kW, 1460 rev/min motor to a pulveriser which absorbs 13.2 kW.

Both shaft diameters are 42 mm and Taper bush flanges are required for both shafts.

- 1] **Service factor**  
from Table 1 on page 255, the service factor for this application is 1.75
- 2] **Design power**  
using the absorbed power of the pulveriser, the design power is  $13.2 \times 1.75 = 23.1$  kW
- 3] **NPX coupling size selection**  
Refer to Table 2 on page 255  
By reading down and interpolating for the required speed of 1460 rev/min, it is seen that an NPX size 110 will transmit 24.5 kW which is in excess of the 23.1 kW required from step 2)
- 4] **Bore dimensions**  
from the dimension Table on page 258, the flanges on an NPX 110 take a 1610 taper bush which are available with bores to suit the shaft requirements of the application



# NPX Coupling Selection

**Table 1, Service Factors**

| Special cases<br>For applications where shock, vibration and torque fluctuations occur – consult Challenge   | Type of prime mover                              |  |  |
|--|--|--|--|
|  | Electric motors and other smooth running devices | Internal combustion engines with 4 or more cylinders | Internal combustion engines with less than 4 cylinders |
| Type of driven machine   |  |  |  |
| <b>Uniform load</b><br>Light duty agitators, belt conveyors for sand etc., fans upto 7.5 kW, centrifugal compressors and pumps, generators   | <b>1.00</b>                                      | <b>1.25</b>  | <b>1.50</b>  |
| <b>Moderate load</b><br>Variable density agitators, belt conveyors (non-uniform loads), fans over 7.5 kW, other rotary compressors and pumps, machine tools, printing machinery, laundry machinery, rotary screens, rotary woodworking machinery | <b>1.25</b>                                      | <b>1.50</b>  | <b>2.00</b>  |
| <b>Heavy load</b><br>Reciprocating compressors and pumps, positive displacement blowers, heavy duty conveyors such as screw, bucket etc., hammer mills, pulverisers, presses, shears, punches, rubber machinery, crushers, metal mills           | <b>1.75</b>                                      | <b>2.00</b>  | <b>2.50</b>  |

The above Service Factors are based on 24 hours/day duty

**Table 2, Power Ratings (kW)**

| Rotational speed in rev/min | 58   | 68   | 80   | 95   | 110  | 125  | 140  | 160  | 180  | 200  | 225  | 250  |
|-----------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| 100                         | 0.20 | 0.36 | 0.63 | 1.05 | 1.68 | 2.51 | 3.77 | 5.86 | 9.22 | 14.0 | 20.9 | 29.3 |
| 500                         | 1.00 | 1.80 | 3.15 | 5.25 | 8.40 | 12.6 | 18.9 | 29.3 | 46.1 | 70.2 | 105  | 147  |
| 700                         | 1.40 | 2.52 | 4.41 | 7.35 | 11.8 | 17.6 | 26.4 | 41.0 | 64.5 | 98.2 | 147  | 205  |
| 720                         | 1.44 | 2.59 | 4.54 | 7.56 | 12.1 | 18.1 | 27.1 | 42.2 | 66.4 | 101  | 151  | 211  |
| 800                         | 1.60 | 2.88 | 5.04 | 8.40 | 13.4 | 20.1 | 30.2 | 46.9 | 73.8 | 112  | 168  | 235  |
| 900                         | 1.80 | 3.24 | 5.67 | 9.45 | 15.1 | 22.6 | 33.9 | 52.7 | 83.0 | 126  | 188  | 264  |
| 960                         | 1.92 | 3.46 | 6.05 | 10.1 | 16.1 | 24.1 | 36.2 | 56.3 | 88.5 | 135  | 201  | 281  |
| 1000                        | 2.00 | 3.60 | 6.30 | 10.5 | 16.8 | 25.1 | 37.7 | 58.6 | 92.2 | 140  | 209  | 293  |
| 1200                        | 2.40 | 4.32 | 7.56 | 12.6 | 20.2 | 30.1 | 45.2 | 70.3 | 111  | 168  | 251  | 352  |
| 1400                        | 2.80 | 5.04 | 8.82 | 14.7 | 23.5 | 35.1 | 52.8 | 82.0 | 129  | 196  | 293  | 410  |
| 1440                        | 2.88 | 5.18 | 9.07 | 15.1 | 24.2 | 36.1 | 54.3 | 84.4 | 133  | 202  | 302  | 422  |
| 1500                        | 3.00 | 5.40 | 9.45 | 15.8 | 25.2 | 37.7 | 56.6 | 87.9 | 138  | 210  | 314  | 440  |
| 1800                        | 3.60 | 6.48 | 11.3 | 18.9 | 30.2 | 45.2 | 67.9 | 105  | 166  | 253  | 377  | 528  |
| 2000                        | 4.00 | 7.20 | 12.6 | 21.0 | 33.6 | 50.2 | 75.4 | 117  | 184  | 281  | 419  | 586  |
| 2500                        | 5.00 | 9.00 | 15.8 | 26.3 | 42.0 | 62.8 | 94.3 | 147  | 231  | 351  | 524  | 733  |
| 2880                        | 5.76 | 10.4 | 18.1 | 30.2 | 48.4 | 72.3 | 109  | 169  | 266  | 404  | 603  | -    |
| 3000                        | 6.00 | 10.8 | 18.9 | 31.5 | 50.4 | 75.3 | 113  | 176  | 277  | 421  | 628  | -    |
| 3500                        | 7.00 | 12.6 | 22.1 | 36.8 | 58.8 | 87.9 | 132  | 205  | 323  | -    | -    | -    |
| 4000                        | 8.00 | 14.4 | 25.2 | 42.0 | 67.2 | 100  | 151  | 234  | -    | -    | -    | -    |
| 4500                        | 9.00 | 16.2 | 28.4 | 47.3 | 75.6 | 113  | 170  | -    | -    | -    | -    | -    |
| 5000                        | 10.0 | 18.0 | 31.5 | 52.5 | 84.0 | 126  | -    | -    | -    | -    | -    | -    |

All power ratings are constant torque  
Interpolate for speeds not listed

# NPX Coupling Selection

## IEC motor selection Table (50Hz)

| Frame size, shaft diameter and length |          |              | Motor power (kW)<br>2-pole 3000<br>rev/min | NPX<br>size *    | Motor power (kW)<br>4-pole 1500<br>rev/min | NPX<br>size *    | Motor power (kW)<br>6-pole 1000<br>rev/min | NPX<br>size *    | Motor power (kW)<br>8-pole 750<br>rev/min | NPX<br>size *    |
|---------------------------------------|----------|--------------|--|------------------|--|------------------|--|------------------|---|------------------|
|                                       | 2 pole   | 4, 6, 8 pole |  |                  |  |                  |  |                  |   |                  |
| <b>80</b>                             | 19 x 40  |              | 0.75                                       | <b>58 / 80</b>   | 0.55                                       | <b>58 / 80</b>   | 0.37                                       | <b>58 / 80</b>   | 0.18                                      |                  |
|                                       |          |              | 1.1  | <b>58 / 80</b>   | 0.75                                       | <b>58 / 80</b>   | 0.55                                       | <b>58 / 80</b>   | 0.25                                      |                  |
| <b>90S</b>                            | 24 x 50  |              | 1.5  | <b>68 / 80</b>   | 1.1  | <b>68 / 80</b>   | 0.75                                       | <b>68 / 80</b>   | 0.37                                      |                  |
| <b>90L</b>                            |          |              | 2.2  | <b>68 / 80</b>   | 1.5  | <b>68 / 80</b>   | 1.1  | <b>68 / 80</b>   | 0.55                                      |                  |
| <b>100L</b>                           | 28 x 60  |              | 3.0  | <b>80 / 80</b>   | 2.2  | <b>80 / 80</b>   | 1.5  | <b>80 / 80</b>   | 0.75                                      | <b>80 / 80</b>   |
|                                       |          |              |  |                  | 3.0  |                  |  |                  | 1.1                                       | <b>80 / 80</b>   |
| <b>112M</b>                           |          |              | 4.0  | <b>80 / 80</b>   | 4.0  | <b>80 / 80</b>   | 2.2  | <b>80 / 80</b>   | 1.5                                       | <b>80 / 80</b>   |
| <b>132S</b>                           | 38 x 80  |              | 5.5  | <b>95 / 110</b>  | 5.5  | <b>95 / 110</b>  | 3.0  | <b>95 / 110</b>  | 2.2                                       | <b>95 / 110</b>  |
|                                       |          |              |  |                  | 7.5  | <b>95 / 110</b>  |  | <b>95 / 110</b>  |   |                  |
| <b>132M</b>                           |          |              |  |                  | 7.5  |                  | 4.0  | <b>95 / 110</b>  | 3.0                                       | <b>95 / 110</b>  |
|                                       |          |              |  |                  |  |                  | 5.5  | <b>95 / 110</b>  |   |                  |
| <b>160M</b>                           | 42 x 110 |              | 11   | <b>95 / 110</b>  | 11   | <b>95 / 110</b>  | 7.5  | <b>95 / 110</b>  | 4.0                                       | <b>95 / 110</b>  |
|                                       |          |              |  |                  | 15   | <b>95 / 110</b>  |  |                  |   | 5.5              |
| <b>160L</b>                           |          |              | 18.5                                       | <b>95 / 110</b>  | 15   | <b>110 / 110</b> | 11   | <b>110 / 110</b> | 7.5                                       | <b>110 / 110</b> |
| <b>180M</b>                           | 48 x 110 |              | 22   | <b>110 / 125</b> | 18.5                                       | <b>110 / 125</b> |  |                  |   |                  |
| <b>180L</b>                           |          |              |  |                  | 22   | <b>125 / 125</b> | 15   | <b>125 / 125</b> | 11  | <b>125 / 125</b> |
| <b>200L</b>                           | 55 x 110 |              | 30   | <b>125 / 160</b> | 30   | <b>125 / 160</b> | 18.5                                       | <b>125 / 160</b> | 15  | <b>125 / 160</b> |
|                                       |          |              |  |                  | 37   | <b>125 / 160</b> |  |                  | 22  | <b>140 / 160</b> |
| <b>225S</b>                           | 55 x 110 | 60 x 140     |  | <b>125 / 160</b> | 37   | <b>140 / 160</b> |  |                  | 18.5                                      | <b>140 / 160</b> |
| <b>225M</b>                           |          |              | 45   | <b>125 / 160</b> | 45   | <b>140 / 160</b> | 30   | <b>140 / 160</b> | 22  | <b>140 / 160</b> |
| <b>250M</b>                           | 60 x 140 | 65 x 140     | 55   | <b>140 / 160</b> | 55   | <b>160 / 160</b> | 37   | <b>160 / 160</b> | 30  | <b>160 / 160</b> |
| <b>280S</b>                           | 75 x 140 |              | 75   | <b>160 / 160</b> | 75   | <i>200</i>       | 45   | <i>200</i>       | 37  | <i>250</i>       |
| <b>280M</b>                           |          |              | 90   | <b>160 / 160</b> | 90   | <i>200</i>       | 55   | <i>200</i>       | 45  | <i>250</i>       |
| <b>315S</b>                           | 80 x 170 |              | 110  | <b>160 / 160</b> | 110  | <i>250</i>       | 75   | <i>250</i>       | 55  | <i>250</i>       |
| <b>315M</b>                           |          |              | 132  | <b>160 / 160</b> | 132  |                  | 90   | <i>250</i>       | 75  | <i>250</i>       |
| <b>315L</b>                           | 65 x 140 |              | 160  | <b>160 / 160</b> | 160  |                  | 110  | <i>250</i>       | 90  | <i>250</i>       |
|                                       |          |              |  |                  | 200  |                  | 200  |                  | 132                                       | <i>250</i>       |
| <b>315</b>                            | 85 x 170 |              |  |                  |  |                  | 160  | <i>250</i>       | 132                                       | <i>250</i>       |
|                                       |          |              |  |                  | 250  |                  | 250  |                  | 200                                       |                  |

The above selection procedure is based on the following parameters:-

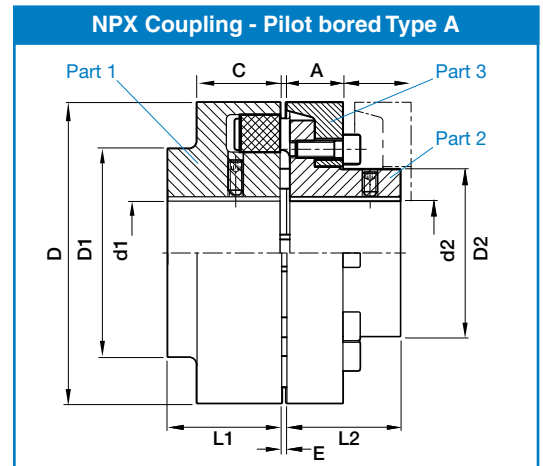
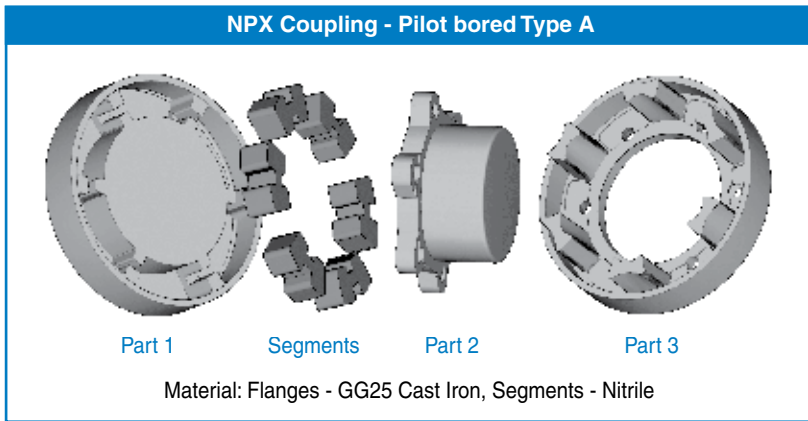
- Service factor of 1.25
- No more than 25 starts per hour

If the parameters differ from the above, the selection should be based on power and speed

\* Pilot bore flanges are in **bold normal** type face

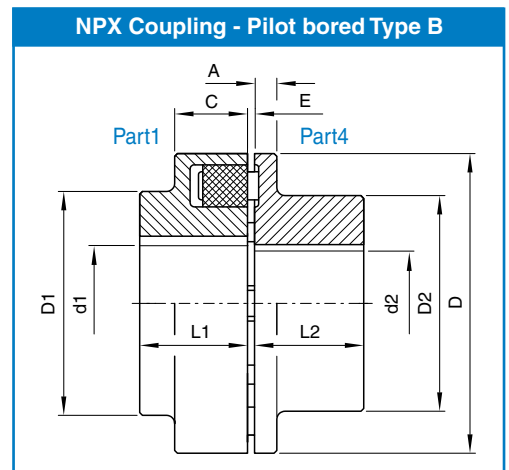
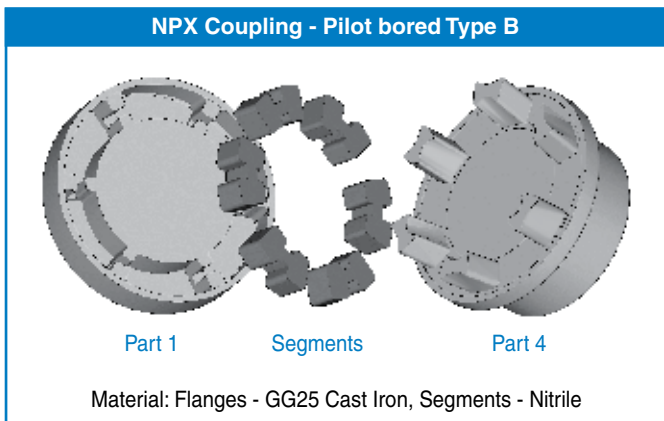
\* Taper bore flanges are in *light italic* type face

# NPX Couplings



## Pilot bored Type A

| Size | Power at 100 rev/min kW | Torque   |        | Max Speed rev/min | Maximum bore |           | D parts 1 and 3 | L1 part 1 | L2 part 2 | D1 part 1 | D2 part 2 | A part 3 | C part 1 | E     | Weight of flange kg |               |               |
|------|-------------------------|----------|--------|-------------------|--------------|-----------|-----------------|-----------|-----------|-----------|-----------|----------|----------|-------|---------------------|---------------|---------------|
|      |                         | Rated Nm | Max Nm |                   | d1 part 1    | d2 part 2 |                 |           |           |           |           |          |          |       | flange part 1       | flange part 2 | flange part 3 |
| 110  | 1.68                    | 160      | 480    | 5000              | 48           | 38        | 110             | 40        | 40        | 86        | 62        | 20.0     | 34       | 2 - 4 | 1.95                | 1.38          | 1.97          |
| 125  | 2.51                    | 240      | 720    | 5000              | 55           | 45        | 125             | 50        | 50        | 100       | 75        | 23.5     | 36       | 2 - 4 | 3.05                | 2.42          | 1.97          |
| 140  | 3.77                    | 360      | 1080   | 4900              | 60           | 50        | 140             | 55        | 55        | 100       | 82        | 28.0     | 34       | 2 - 4 | 3.65                | 3.04          | 2.50          |
| 160  | 5.86                    | 560      | 1680   | 4250              | 65           | 58        | 160             | 60        | 60        | 108       | 95        | 28.0     | 40       | 2 - 6 | 5.05                | 4.19          | 3.49          |
| 180  | 9.22                    | 880      | 2640   | 3800              | 75           | 65        | 180             | 70        | 70        | 125       | 108       | 30.0     | 42       | 2 - 6 | 7.80                | 5.94          | 4.41          |
| 200  | 14.03                   | 1340     | 4020   | 3400              | 85           | 75        | 200             | 80        | 80        | 140       | 122       | 32.5     | 47       | 2 - 6 | 11.0                | 8.61          | 6.02          |
| 225  | 20.94                   | 2000     | 6000   | 3000              | 90           | 85        | 225             | 90        | 90        | 150       | 138       | 38.0     | 52       | 2 - 6 | 15.0                | 12.06         | 8.93          |
| 250  | 29.32                   | 2800     | 8400   | 2750              | 100          | 95        | 250             | 100       | 100       | 165       | 155       | 42.0     | 60       | 3 - 8 | 19.5                | 17.41         | 11.70         |



## Pilot bored Type B

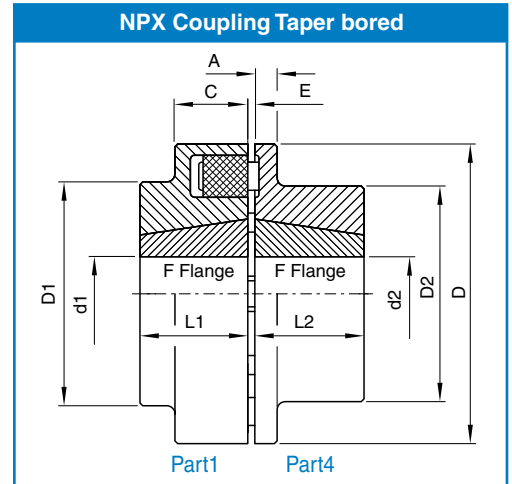
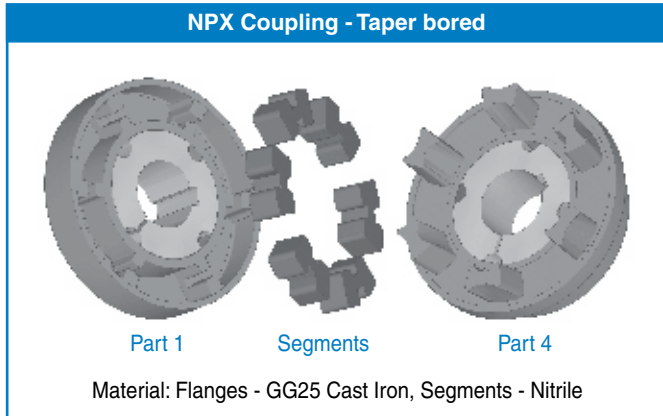
| Size | Power at 100 rev/min kW | Torque   |        | Max Speed rev/min | Maximum bore |           | D parts 1 and 4 | L1 part 1 | L2 part 4 | D1 part 1 | D2 part 4 | A part 4 | C part 1 | E     | Weight of flange kg |        |
|------|-------------------------|----------|--------|-------------------|--------------|-----------|-----------------|-----------|-----------|-----------|-----------|----------|----------|-------|---------------------|--------|
|      |                         | Rated Nm | Max Nm |                   | d1 part 1    | d2 part 4 |                 |           |           |           |           |          |          |       | part 1              | part 4 |
| 58   | 0.20                    | 19       | 57     | 5000              | 19           | 24        | 58              | 20        | 20        | -         | 40        | 8        | 20       | 2 - 4 | 0.24                | 0.28   |
| 68   | 0.36                    | 34       | 102    | 5000              | 24           | 28        | 68              | 20        | 20        | -         | 49        | 8        | 20       | 2 - 4 | 0.32                | 0.45   |
| 80   | 0.63                    | 60       | 180    | 5000              | 30           | 38        | 80              | 30        | 30        | -         | 68        | 10       | 30       | 2 - 4 | 0.75                | 0.94   |
| 95   | 1.05                    | 100      | 300    | 5000              | 42           | 42        | 95              | 35        | 36        | 76        | 76        | 13       | 30       | 2 - 4 | 1.30                | 1.55   |
| 110  | 1.68                    | 160      | 480    | 5000              | 48           | 48        | 110             | 40        | 40        | 86        | 86        | 14       | 34       | 2 - 4 | 1.95                | 2.25   |
| 125  | 2.51                    | 240      | 720    | 5000              | 55           | 55        | 125             | 50        | 50        | 100       | 100       | 18       | 36       | 2 - 4 | 3.05                | 3.60   |
| 140  | 3.77                    | 360      | 1080   | 4900              | 60           | 60        | 140             | 55        | 55        | 100       | 100       | 20       | 34       | 2 - 4 | 3.65                | 4.50   |
| 160  | 5.86                    | 560      | 1680   | 4250              | 65           | 65        | 160             | 60        | 60        | 108       | 108       | 20       | 40       | 2 - 6 | 5.05                | 5.95   |
| 180  | 9.22                    | 880      | 2640   | 3800              | 75           | 75        | 180             | 70        | 70        | 125       | 125       | 20       | 42       | 2 - 6 | 7.80                | 8.50   |
| 200  | 14.03                   | 1340     | 4020   | 3400              | 85           | 85        | 200             | 80        | 80        | 140       | 140       | 24       | 47       | 2 - 6 | 11.0                | 12.4   |
| 225  | 20.94                   | 2000     | 6000   | 3000              | 90           | 90        | 225             | 90        | 90        | 150       | 150       | 18       | 52       | 2 - 6 | 15.0                | 15.5   |
| 250  | 29.32                   | 2800     | 8400   | 2750              | 100          | 100       | 250             | 100       | 100       | 165       | 165       | 18       | 60       | 3 - 8 | 19.5                | 19.5   |

Weight and inertia figures are for a mid range bore.

Temperature range -30°C to 75°C

Every effort has been taken to ensure that the data listed in this catalogue is correct. Challenge accepts no liability for any inaccuracies or damage caused. All dimensions in millimetres unless otherwise stated.

# NPX Couplings



## Taper bored

| Size       | Power at 100 rev/min kW | Torque   |        | Max speed rev/min | Bush for F flange | Max bore d1/d2 parts 1 and 4 | D parts 1 and 4 | L1 part 1 | L2 part 4 | D1 part 1 | D2 part 4 | A part 4 | C part 1 | E     | Weight of flange kg |               |
|------------|-------------------------|----------|--------|-------------------|-------------------|------------------------------|-----------------|-----------|-----------|-----------|-----------|----------|----------|-------|---------------------|---------------|
|            |                         | rated Nm | max Nm |                   |                   |                              |                 |           |           |           |           |          |          |       | flange part 1       | flange part 4 |
| <b>80</b>  | 0.63                    | 60       | 180    | 5000              | 1108              | 28                           | 80              | 22.5      | 22.5      | 0         | 0         | 22.5     | 22.5     | 2 - 4 | 0.75                | 0.94          |
| <b>95</b>  | 1.05                    | 100      | 300    | 5000              | 1210              | 32                           | 95              | 26.5      | 26.5      | 0         | 76        | 13.0     | 26.5     | 2 - 4 | 1.30                | 1.55          |
| <b>110</b> | 1.68                    | 160      | 480    | 5000              | 1615              | 42                           | 110             | 38.5      | 38.5      | 86        | 86        | 14.0     | 34.0     | 2 - 4 | 1.95                | 2.25          |
| <b>125</b> | 2.51                    | 240      | 720    | 5000              | 2012              | 50                           | 125             | 32.5      | 32.5      | 0         | 100       | 18.0     | 32.5     | 2 - 4 | 3.05                | 3.60          |
| <b>140</b> | 3.77                    | 360      | 1080   | 4900              | 2012              | 50                           | 140             | 32.5      | 32.5      | 0         | 100       | 20.0     | 32.5     | 2 - 4 | 3.65                | 4.50          |
| <b>160</b> | 5.86                    | 560      | 1680   | 4250              | 2517              | 65                           | 160             | 46.0      | 46.0      | 108       | 108       | 20.0     | 40.0     | 2 - 6 | 5.05                | 5.95          |
| <b>180</b> | 9.22                    | 880      | 2640   | 3800              | 2517              | 65                           | 180             | 46.0      | 46.0      | 125       | 125       | 20.0     | 42.0     | 2 - 6 | 7.80                | 8.50          |
| <b>200</b> | 14.03                   | 1340     | 4020   | 3400              | 3020              | 75                           | 200             | 52.0      | 52.0      | 140       | 140       | 24.0     | 47.0     | 2 - 6 | 11.0                | 12.4          |
| <b>225</b> | 20.94                   | 2000     | 6000   | 3000              | 3020              | 75                           | 225             | 52.0      | 52.0      | 150       | 150       | 18.0     | 52.0     | 2 - 6 | 15.0                | 15.5          |
| <b>250</b> | 29.32                   | 2800     | 8400   | 2750              | 3535              | 90                           | 250             | 90.0      | 90.0      | 165       | 165       | 18.0     | 60.0     | 3 - 8 | 19.5                | 19.5          |

Weight and inertia figures are for a mid range bore.

Temperature range -30°C to 75°C

# RPX Couplings

## RPX Coupling selection procedure Based on Power and Speed

- 1] **Service Factor**  
From Table 1 on page 260, select the service factor that is appropriate for the application
- 2] **Design Power**  
Multiply the absorbed power, kW, of the driven machine by the service factor, from step 1) to obtain the design power. If the absorbed power is not known, use the prime mover power.
- 3] **RPX coupling size selection**  
Refer to Table 2 on page 261 and select either the standard 92 shore spider or the higher torque 98 shore spider. Read down the left hand vertical column to the required speed. (Interpolate if the exact speed is not listed). Read horizontally across on the speed line until a power equal to or in excess of the design power, from step 2), is reached. Read vertically to the top of the column to obtain the correct size of RPX coupling.
- 4] **Bore dimensions**  
From the dimension Tables on page 263, check that the selected coupling will fit the shafts.

## Based on IEC Electric Motors, see page 262

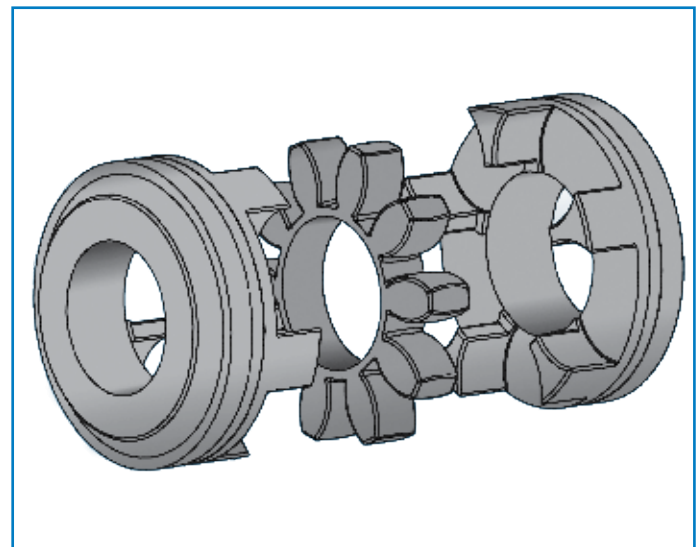
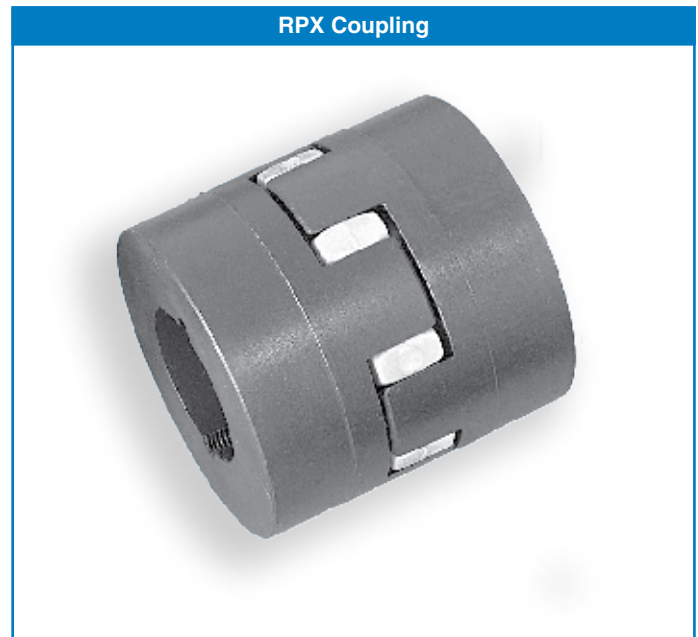
- 1] Note the frame size of the motor, power, speed (or number of poles)
- 2] Read across to the column headed by the motor speed (or number of poles)
- 3] The next column to the motor power gives the size of RPX coupling required

## RPX Coupling selection example

Select a Challenge RPX coupling to couple an 11.0 kW, 1450 rev/min motor to a hammer mill which absorbs 9.6 kW running for 12 hours per day with no more than 30 stops/starts per hour. A good shock absorbing spider is required for this heavy duty application.

The ambient temperature is + 38°C. The motor shaft is 42mm diameter and the kiln shaft 38mm.

- 1] **Service factor**  
From Table 1 on page 260, the service factor for this application is:  $1.75 \times 1.2 \times 1.0 = 2.1$
- 2] **Design power**  
The design power is  $9.6 \times 2.1 = 20.2$  kW



- 3] **RPX coupling size selection**  
Because of its shock absorbing characteristics, the 92 shore spider is chosen: Refer to Table 2 on page 261  
  
By reading down and interpolating for the required speed of 1450 rev/min, it is seen that an RPX size 38 will transmit 28.9 kW which is in excess of the 20.2 kW required from step 2)
- 4] **Bore dimensions**  
From the dimension Tables on page 263, the flanges on an RPX 38 take an 1108 taper bush with a maximum bore of 28mm. Therefore, pilot bore flanges will be required as follows: Flange Type 1 bored 38mm and flange Type 1a bored 42mm  
  
If taper bore flanges are required then a RPX size 42 will have to be used. The RPX size 42 utilises a 1610 taper bush with a maximum bore of 42mm.



# RPX Coupling Selection

**Table 1, Service Factors**

| <b>Special cases</b><br>For applications where shock, vibration and torque fluctuations occur – consult Challenge  | <b>Type of prime mover</b>    |  |  |
|--|-------------------------------|--|--|
|  | <b>Type of driven machine</b> | Electric motors and other smooth running devices | Internal combustion engines with 4 or more cylinders |
| <b>Uniform load</b><br>Light duty agitators, belt conveyors for sand etc., fans up to 7.5 kW, centrifugal compressors and pumps,   | <b>1.0</b>                    | <b>1.25</b>                                      | <b>1.50</b>  |
| <b>Moderate load</b><br>Variable density agitators, belt conveyors (non-uniform loads), fans over 7.5 kW, other rotary compressors and pumps, machine tools, printing machinery, laundry machinery, rotary screens, rotary woodworking machinery | <b>1.25</b>                   | <b>1.50</b>                                      | <b>2.00</b>  |
| <b>Heavy load</b><br>Reciprocating compressors and pumps, positive displacement blowers, heavy duty conveyors such as screw, bucket etc., hammer mills, pulverisers, presses, shears, punches, rubber machinery, crushers, metal mills           | <b>1.75</b>                   | <b>2.00</b>                                      | <b>2.50</b>  |

**The above Service Factors are based on 24 hours/day duty**

Additional service factor multiplier for temperature : -30°C to +30° = 1.00, +40°C = 1.2, +60°C = 1.4, +80°C = 1.8

Additional frequent start multiplier : up to 100 starts/hour = 1.0 100-200 = 1.2 200-400= 1.4 400-800=1.6

**Challenge elements are manufactured from polyurethane with an operating temperature span between -40°C to +100°C.**

**They can also accommodate transient temperatures up to +120°C**

# RPX Coupling Selection

**Table 2, Power Ratings (kW) for 92 shore elements (Yellow)**

| Rotational speed in rev/min | 19   | 24   | 28   | 38   | 42   | 48   | 55   | 65   | 75   | 90   |
|-----------------------------|------|------|------|------|------|------|------|------|------|------|
| 100                         | 0.10 | 0.37 | 1.00 | 1.99 | 2.78 | 3.25 | 4.29 | 6.55 | 13.4 | 25.1 |
| 500                         | 0.52 | 1.83 | 4.98 | 9.95 | 13.9 | 16.2 | 21.5 | 32.7 | 67.0 | 126  |
| 700                         | 0.73 | 2.56 | 6.97 | 13.9 | 19.4 | 22.7 | 30.1 | 45.8 | 93.8 | 176  |
| 720                         | 0.75 | 2.64 | 7.16 | 14.3 | 20.0 | 23.4 | 30.9 | 47.1 | 96.5 | 181  |
| 800                         | 0.84 | 2.93 | 7.96 | 15.9 | 22.2 | 26.0 | 34.3 | 52.4 | 107  | 201  |
| 900                         | 0.94 | 3.29 | 8.96 | 17.9 | 25.0 | 29.2 | 38.6 | 58.9 | 121  | 226  |
| 960                         | 1.01 | 3.51 | 9.55 | 19.1 | 26.6 | 31.2 | 41.2 | 62.8 | 129  | 241  |
| 1000                        | 1.05 | 3.66 | 9.95 | 19.9 | 27.8 | 32.5 | 42.9 | 65.5 | 134  | 251  |
| 1200                        | 1.26 | 4.39 | 11.9 | 23.9 | 33.3 | 39.0 | 51.5 | 78.5 | 161  | 302  |
| 1400                        | 1.47 | 5.12 | 13.9 | 27.9 | 38.9 | 45.4 | 60.1 | 91.6 | 188  | 352  |
| 1440                        | 1.51 | 5.27 | 14.3 | 28.7 | 40.0 | 46.7 | 61.8 | 94.2 | 193  | 362  |
| 1500                        | 1.57 | 5.49 | 14.9 | 29.9 | 41.6 | 48.7 | 64.4 | 98.2 | 201  | 377  |
| 1800                        | 1.88 | 6.59 | 17.9 | 35.8 | 50.0 | 58.4 | 77.3 | 118  | 241  | 452  |
| 2000                        | 2.09 | 7.32 | 19.9 | 39.8 | 55.5 | 64.9 | 85.9 | 131  | 268  | 503  |
| 2500                        | 2.62 | 9.15 | 24.9 | 49.8 | 69.4 | 81.2 | 107  | 164  | 335  | 628  |
| 2880                        | 3.02 | 10.5 | 28.7 | 57.3 | 79.9 | 93.5 | 124  | 188  | 386  | 724  |
| 3000                        | 3.14 | 11.0 | 29.9 | 59.7 | 83.3 | 97.4 | 129  | 196  | 402  | 754  |
| 3500                        | 3.66 | 12.8 | 34.8 | 69.7 | 97.1 | 114  | 150  | 229  | 469  | 880  |
| 4000                        | 4.19 | 14.6 | 39.8 | 79.6 | 111  | 130  | 172  | 262  | 536  | -    |
| 4500                        | 4.71 | 16.5 | 44.8 | 89.6 | 125  | 146  | 193  | 295  | 603  | -    |
| 5000                        | 5.24 | 18.3 | 49.8 | 99.5 | 139  | 162  | 215  | 327  | -    | -    |

All power ratings are constant torque  
Interpolate for speeds not listed

92 shore (yellow) are the standard elements and 98 shore (red) elements can be used for higher torques.

**Table 2, Power Ratings (kW) for 98 shore elements (Red)**

| Rotational speed in rev/min | 19   | 24   | 28   | 38   | 42   | 48   | 55   | 65   | 75   | 90   |
|-----------------------------|------|------|------|------|------|------|------|------|------|------|
| 100                         | 0.18 | 0.63 | 1.68 | 3.40 | 4.71 | 5.50 | 7.17 | 9.84 | 20.1 | 37.7 |
| 500                         | 0.89 | 3.14 | 8.38 | 17.0 | 23.6 | 27.5 | 35.9 | 49.2 | 101  | 189  |
| 700                         | 1.25 | 4.40 | 11.7 | 23.8 | 33.0 | 38.5 | 50.2 | 68.9 | 141  | 264  |
| 720                         | 1.28 | 4.52 | 12.1 | 24.5 | 33.9 | 39.6 | 51.6 | 70.9 | 145  | 271  |
| 800                         | 1.42 | 5.02 | 13.4 | 27.2 | 37.7 | 44.0 | 57.4 | 78.7 | 161  | 302  |
| 900                         | 1.60 | 5.65 | 15.1 | 30.6 | 42.4 | 49.5 | 64.6 | 88.6 | 181  | 339  |
| 960                         | 1.71 | 6.03 | 16.1 | 32.7 | 45.2 | 52.8 | 68.9 | 94.5 | 193  | 362  |
| 1000                        | 1.78 | 6.28 | 16.8 | 34.0 | 47.1 | 55.0 | 71.7 | 98.4 | 201  | 377  |
| 1200                        | 2.14 | 7.54 | 20.1 | 40.8 | 56.5 | 66.0 | 86.1 | 118  | 241  | 452  |
| 1400                        | 2.49 | 8.79 | 23.5 | 47.6 | 66.0 | 77.0 | 100  | 138  | 281  | 528  |
| 1440                        | 2.56 | 9.04 | 24.1 | 49.0 | 67.9 | 79.2 | 103  | 142  | 290  | 543  |
| 1500                        | 2.67 | 9.42 | 25.1 | 51.0 | 70.7 | 82.5 | 108  | 148  | 302  | 566  |
| 1800                        | 3.20 | 11.3 | 30.2 | 61.3 | 84.8 | 98.9 | 129  | 177  | 362  | 679  |
| 2000                        | 3.56 | 12.6 | 33.5 | 68.1 | 94.2 | 110  | 143  | 197  | 402  | 754  |
| 2500                        | 4.45 | 15.7 | 41.9 | 85.1 | 118  | 137  | 179  | 246  | 503  | 943  |
| 2880                        | 5.13 | 18.1 | 48.2 | 98.0 | 136  | 158  | 207  | 283  | 579  | 1086 |
| 3000                        | 5.34 | 18.8 | 50.3 | 102  | 141  | 165  | 215  | 295  | 603  | 1131 |
| 3500                        | 6.23 | 22.0 | 58.6 | 119  | 165  | 192  | 251  | 345  | 704  | 1320 |
| 4000                        | 7.12 | 25.1 | 67.0 | 136  | 188  | 220  | 287  | 394  | 804  | -    |
| 4500                        | 8.01 | 28.3 | 75.4 | 153  | 212  | 247  | 323  | 443  | 905  | -    |
| 5000                        | 8.90 | 31.4 | 83.8 | 170  | 236  | 275  | 359  | 492  | -    | -    |

All power ratings are constant torque  
Interpolate for speeds not listed

92 shore (yellow) are the standard elements and 98 shore (red) elements can be used for higher torques.

# RPX Coupling Selection

## IEC Motor Selection Table (50Hz)

| Frame size shaft diameter and length |          | Motor power (kW)<br>2-pole 3000<br>rev/min | RPX<br>size *  | Motor power (kW)<br>4-pole 1500<br>rev/min | RPX<br>size *  | Motor power (kW)<br>6-pole 1000<br>rev/min | RPX<br>size *  | Motor power (kW)<br>8-pole 750<br>rev/min | RPX<br>size *  |                |
|--------------------------------------|----------|--|----------------|--|----------------|--|----------------|---|----------------|----------------|
|                                      | 2 pole   | 4, 6, 8 pole                               |                |  |                |  |                |   |                |                |
| <b>80</b>                            | 19 x 40  |  | 0.75           | <b>19 / 24</b>                             | 0.55           | <b>19 / 24</b>                             | 0.37           | <b>19 / 24</b>                            | 0.18           | <b>19 / 24</b> |
|                                      |          |  | 1.1            | <b>19 / 24</b>                             | 0.75           | <b>19 / 24</b>                             | 0.55           | <b>19 / 24</b>                            | 0.25           | <b>19 / 24</b> |
| <b>90S</b>                           | 24 x 50  |  | 1.5            | <b>19 / 24</b>                             | 1.1            | <b>19 / 24</b>                             | 0.75           | <b>19 / 24</b>                            | 0.37           | <b>19 / 24</b> |
| <b>90L</b>                           |          |  | 2.2            | <b>19 / 24</b>                             | 1.5            | <b>19 / 24</b>                             | 1.1            | <b>19 / 24</b>                            | 0.55           | <b>19 / 24</b> |
| <b>100L</b>                          | 28 x 60  |  | 3.0            | <b>24 / 28</b>                             | 2.2            | <b>24 / 28</b>                             | 1.5            | <b>24 / 28</b>                            | 0.75           | <b>24 / 28</b> |
|                                      |          |  |                |  | 3.0            | <b>24 / 28</b>                             |                |   | 1.1            | <b>24 / 28</b> |
| <b>112M</b>                          | 38 x 80  |  | 4.0            | <b>24 / 28</b>                             | 4.0            | <b>24 / 28</b>                             | 2.2            | <b>24 / 28</b>                            | 1.5            | <b>24 / 28</b> |
| <b>132S</b>                          |          |  | 5.5            | <b>28 / 42</b>                             | 5.5            | <b>28 / 42</b>                             | 3.0            | <b>28 / 42</b>                            | 2.2            | <b>28 / 42</b> |
| <b>132M</b>                          |          |  | 7.5            | <b>28 / 42</b>                             |                |  |                |   |                |                |
|                                      |          |  |                |  | 7.5            | <b>28 / 42</b>                             | 4.0            | <b>28 / 42</b>                            | 3.0            | <b>28 / 42</b> |
| <b>160M</b>                          | 42 x 110 |  | 11             | <b>38 / 42</b>                             | 11             | <b>38 / 42</b>                             | 7.5            | <b>38 / 42</b>                            | 4.0            | <b>38 / 42</b> |
|                                      |          |  | 15             | <b>38 / 42</b>                             |                |  |                |   | 5.5            | <b>38 / 42</b> |
| <b>160L</b>                          | 48 x 110 |  | 18.5           | <b>38 / 42</b>                             | 15             | <b>38 / 42</b>                             | 11             | <b>38 / 42</b>                            | 7.5            | <b>38 / 42</b> |
| <b>180M</b>                          |          |  | 22             | <b>38 / 42</b>                             | 18.5           | <b>42 / 55</b>                             |                |   |                |                |
| <b>180L</b>                          | 55 x 110 |  |                |  | 22             | <b>42 / 55</b>                             | 15             | <b>42 / 55</b>                            | 11             | <b>42 / 55</b> |
| <b>200L</b>                          |          |  | 30             | <b>42 / 65</b>                             | 30             | <b>42 / 65</b>                             | 18.5           | <b>42 / 65</b>                            | 15             | <b>42 / 65</b> |
| <b>225S</b>                          | 55 x 110 | 60 x 140                                   | 37             | <b>42 / 65</b>                             |                |  | 22             | <b>42 / 65</b>                            |                |                |
|                                      |          |  |                |  | 37             | <b>48 / 65</b>                             |                |   | 18.5           | <b>48 / 65</b> |
| <b>225M</b>                          | 60 x 140 | 65 x 140                                   | 45             | <b>42 / 65</b>                             | 45             | <b>55 / 65</b>                             | 30             | <b>55 / 65</b>                            | 22             | <b>55 / 65</b> |
| <b>250M</b>                          |          |  | 55             | <b>48 / 65</b>                             | 55             | <b>55 / 65</b>                             | 37             | <b>65 / 65</b>                            | 30             | <b>65 / 65</b> |
| <b>280S</b>                          | 80 x 170 | 75 x 140                                   | 75             | <b>48 / 65</b>                             | 75             | <b>65 / 75</b>                             | 45             | <b>65 / 75</b>                            | 37             | <b>65 / 75</b> |
| <b>280M</b>                          |          | 90   | <b>48 / 65</b> | 90   | <b>75 / 75</b> | 55   | <b>75 / 75</b> | 45  | <b>75 / 75</b> |                |
| <b>315S</b>                          | 65 x 140 |  | 110            | <b>65 / 65</b>                             | 110            | <b>75 / 90</b>                             | 75             | <b>75 / 90</b>                            | 55             | <b>75 / 90</b> |
| <b>315M</b>                          |          |  | 132            | <b>65 / 65</b>                             | 132            | <b>75 / 90</b>                             | 90             | <b>75 / 90</b>                            | 75             | <b>90 / 90</b> |
| <b>315L</b>                          |          |  | 160            | <b>65 / 65</b>                             | 160            | <b>90 / 90</b>                             | 110            | <b>90 / 90</b>                            | 90             | <b>90 / 90</b> |
|                                      |          |  | 200            | <b>75 / 75</b>                             | 200            | <b>90 / 90</b>                             | 132            | <b>90 / 90</b>                            | 110            | <b>90 / 90</b> |
| <b>315</b>                           | 85 x 170 |  |                |  |                |  | 160            | <b>90 / 90</b>                            | 132            | <b>90 / 90</b> |
|                                      |          |  | 250            | <b>75 / 75</b>                             | 250            | <b>90 / 90</b>                             | 200            | <b>90 / 90</b>                            |                |                |

The above selection procedure is based on the following parameters:-

- Service factor of 2.0
- 30° C maximum temperature
- 92 Shore insert
- 100 starts per hour maximum

If the parameters differ from the above, selection should be based on power and speed

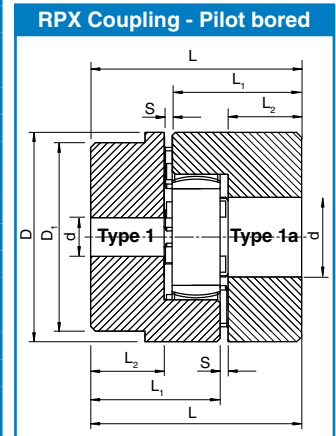
\* Pilot bore flanges are in **bold normal** type face

\* Taper bore flanges are in *light italic* type face

# RPX Coupling Selection

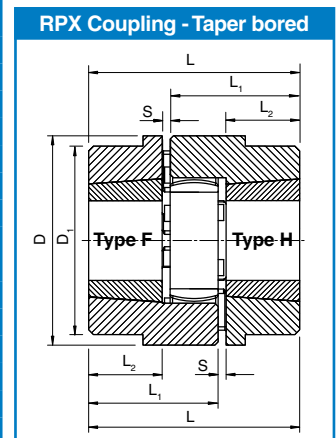
## RPX Coupling Data - Pilot bored

| TYPE | Max Speed<br>rev/min | Rated Torque   |                | D   | D <sub>1</sub> | d-min | d-max | S   | L <sub>1</sub> | L <sub>2</sub> | L   | Material | Weight<br>kg/hub |
|------|----------------------|----------------|----------------|-----|----------------|-------|-------|-----|----------------|----------------|-----|----------|------------------|
|      |                      | 92 shore<br>Nm | 98 shore<br>Nm |     |                |       |       |     |                |                |     |          |                  |
| 19 1 | 19000                | 10             | 17             | 40  | 32             | 6     | 19    | 1.0 | 39.0           | 25             | 65  | Al       | 0.19             |
| 1a   |                      |                |                | 40  | -              | 19    | 24    | 1.0 | 39.0           | 25             | 65  | Al       | -                |
| 24 1 | 14000                | 35             | 60             | 56  | 40             | 9     | 24    | 1.0 | 46.0           | 30             | 77  | Al       | 0.38             |
| 1a   |                      |                |                | 56  | -              | 22    | 28    | 1.0 | 46.0           | 30             | 77  | Al       | -                |
| 28 1 | 11800                | 95             | 160            | 65  | 48             | 10    | 28    | 1.5 | 52.5           | 35             | 89  | Al       | 0.62             |
| 1a   |                      |                |                | 65  | -              | 28    | 38    | 1.5 | 52.5           | 35             | 89  | Al       | -                |
| 38 1 | 9500                 | 190            | 325            | 80  | 66             | 12    | 38    | 1.0 | 66.0           | 45             | 112 | CI       | 1.36             |
| 1a   |                      |                |                | 80  | -              | 38    | 45    | 1.0 | 66.0           | 45             | 112 | CI       | -                |
| 42 1 | 8000                 | 265            | 450            | 95  | 75             | 14    | 42    | 1.0 | 73.0           | 50             | 124 | CI       | 2.03             |
| 1a   |                      |                |                | 95  | -              | 42    | 55    | 1.0 | 73.0           | 50             | 124 | CI       | -                |
| 48 1 | 7100                 | 310            | 525            | 105 | 85             | 15    | 48    | 1.5 | 80.5           | 56             | 138 | CI       | 2.85             |
| 1a   |                      |                |                | 105 | -              | 48    | 60    | 1.5 | 80.5           | 56             | 138 | CI       | -                |
| 55 1 | 6300                 | 410            | 685            | 120 | 98             | 20    | 55    | 2.0 | 91.0           | 65             | 158 | CI       | 4.32             |
| 1a   |                      |                |                | 120 | -              | 55    | 70    | 2.0 | 91.0           | 65             | 158 | CI       | -                |
| 65 1 | 5600                 | 625            | 940            | 135 | 115            | 20    | 65    | 1.5 | 105.5          | 75             | 182 | CI       | 6.66             |
| 1a   |                      |                |                | 135 | -              | 22    | 65    | 1.5 | 105.5          | 75             | 182 | CI       | -                |
| 75 1 | 4750                 | 1280           | 1920           | 160 | 135            | 30    | 75    | 1.0 | 120.0          | 85             | 206 | CI       | 10.48            |
| 1a   |                      |                |                | 160 | -              | 30    | 75    | 1.0 | 120.0          | 85             | 206 | CI       | -                |
| 90 1 | 3750                 | 2400           | 3600           | 200 | 160            | 40    | 90    | 1.5 | 139.5          | 100            | 241 | CI       | 17.89            |
| 1a   |                      |                |                | 200 | 180            | 40    | 90    | 1.5 | 139.5          | 100            | 241 | CI       | -                |



## RPX Coupling Data - Taper bored

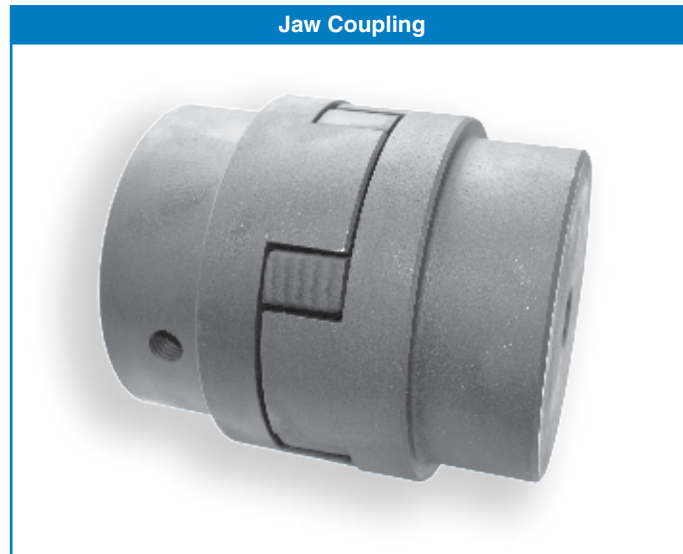
| TYPE | Max Speed<br>rev/min | Rated Torque   |                | Bush Size | Max Bore | D   | D <sub>1</sub> | S   | L <sub>1</sub> | L <sub>2</sub> | L   | Material | Weight<br>kg/hub |
|------|----------------------|----------------|----------------|-----------|----------|-----|----------------|-----|----------------|----------------|-----|----------|------------------|
|      |                      | 92 shore<br>Nm | 98 shore<br>Nm |           |          |     |                |     |                |                |     |          |                  |
| 24 F | 14000                | 35             | 60             | 1008      | 25       | 56  | -              | 1.0 | 39.0           | 23             | 63  | CI       | 0.31             |
| H    |                      |                |                | 1008      | 25       | 56  | -              | 1.0 | 39.0           | 23             | 63  | CI       | 0.31             |
| 28 F | 11800                | 95             | 160            | 1108      | 28       | 65  | -              | 1.5 | 40.5           | 23             | 65  | CI       | 0.46             |
| H    |                      |                |                | 1108      | 28       | 65  | -              | 1.5 | 40.5           | 23             | 65  | CI       | 0.46             |
| 38 F | 9500                 | 190            | 325            | 1108      | 28       | 80  | 78             | 1.0 | 44.0           | 23             | 68  | CI       | 0.79             |
| H    |                      |                |                | 1108      | 28       | 80  | 78             | 1.0 | 44.0           | 23             | 68  | CI       | 0.79             |
| 42 F | 8000                 | 265            | 450            | 1610      | 42       | 95  | 94             | 1.0 | 49.0           | 26             | 76  | CI       | 1.10             |
| H    |                      |                |                | 1610      | 42       | 95  | 94             | 1.0 | 49.0           | 26             | 76  | CI       | 1.10             |
| 48 F | 7100                 | 310            | 525            | 1615      | 42       | 105 | 104            | 1.5 | 63.5           | 39             | 104 | CI       | 2.07             |
| H    |                      |                |                | 1615      | 42       | 105 | 104            | 1.5 | 63.5           | 39             | 104 | CI       | 2.07             |
| 55 F | 6300                 | 410            | 685            | 2012      | 50       | 120 | 118            | 2.0 | 59.0           | 33             | 94  | CI       | 2.22             |
| H    |                      |                |                | 2012      | 50       | 120 | 118            | 2.0 | 59.0           | 33             | 94  | CI       | 2.22             |
| 65 F | 5600                 | 625            | 940            | 2012      | 50       | 135 | 133            | 1.5 | 63.5           | 33             | 98  | CI       | 3.14             |
| H    |                      |                |                | 2517      | 65       | 135 | 133            | 1.5 | 75.5           | 45             | 122 | CI       | 4.03             |
| 75 F | 4750                 | 1280           | 1920           | 2517      | 65       | 160 | 135            | 1.0 | 81.0           | 46             | 128 | CI       | 4.69             |
| H    |                      |                |                | 3020      | 75       | 160 | 135            | 1.0 | 87.0           | 52             | 140 | CI       | 4.99             |
| 90 F | 3750                 | 2400           | 3600           | 3020      | 75       | 200 | 160            | 1.5 | 91.5           | 52             | 145 | CI       | 7.74             |
| H    |                      |                |                | 3525      | 100      | 200 | 160            | 1.5 | 103.5          | 64             | 169 | CI       | 8.74             |



RPX Elements are manufactured from polyurethane and are available in Shore 92 (yellow) and Shore 98 (red) hardness

**Material: Al = Aluminium CI = GG25 Cast Iron**

# Jaw Couplings

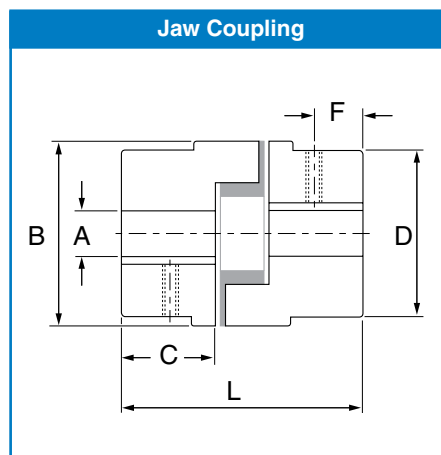


## Jaw Coupling Data

| Coupling Size | Nominal Torque Nm | Maximum Speed rev/min | Pilot Bore A | Maximum Bore A | Overall Diameter B | Assembled Length L | Hub Width C | Hub Diameter D | Set Screw Position F | Set Screw Size | Complete Weight kg |
|---------------|-------------------|-----------------------|--------------|----------------|--------------------|--------------------|-------------|----------------|----------------------|----------------|--------------------|
| 035           | 0.50              | 31000                 | 4.8          | 8              | 16.0               | 20                 | 7           | 16.0           | 3.0                  | M3             | 0.06               |
| 050           | 3.51              | 18000                 | 6            | 14             | 27.5               | 44                 | 16          | 27.5           | 6.5                  | M6             | 0.10               |
| 070           | 5.77              | 14000                 | 9            | 19             | 35.0               | 51                 | 19          | 35.0           | 9.5                  | M6             | 0.25               |
| 075           | 11.9              | 11000                 | 9            | 24             | 44.5               | 54                 | 21          | 44.5           | 8.0                  | M6             | 0.45               |
| 090           | 19.2              | 9000                  | 9            | 24             | 54.0               | 54                 | 21          | 54.0           | 8.7                  | M6             | 0.55               |
| 095           | 25.8              | 9000                  | 9            | 28             | 54.0               | 64                 | 25          | 54.0           | 11.5                 | M8             | 0.65               |
| 100           | 55.4              | 7000                  | 12           | 35             | 65.0               | 89                 | 35          | 65.0           | 12.5                 | M8             | 1.60               |
| 110           | 105               | 5000                  | 15           | 42             | 84.0               | 108                | 43          | 84.0           | 20.5                 | M10            | 3.00               |
| 150           | 150               | 4000                  | 15           | 48             | 96.0               | 115                | 45          | 96.0           | 22.5                 | M10            | 4.90               |
| 190           | 200               | 3600                  | 19           | 55             | 115.0              | 133                | 54          | 102.0          | 22.5                 | M12            | 7.00               |
| 225           | 280               | 3600                  | 19           | 60             | 127.0              | 153                | 64          | 108.0          | 25.5                 | M12            | 9.00               |

Angular misalignment capacity up to 1°  
Parallel misalignment capacity up to 0.38mm

Weight is for a complete coupling with a pilot bore  
Nitrile insert temperature range -40 °C to 100 °C



# Chain Couplings

## Chain Coupling Data

| Coupling Size | Chain Size | Bore |     | Casing O.D. A | Casing Width B | Assembled Width C | Hub Length D | Hub Diameter E | Bolt Centres F | Torque Ratings Nm | Complete Weight kg |
|---------------|------------|------|-----|---------------|----------------|-------------------|--------------|----------------|----------------|-------------------|--------------------|
|               |            | Min  | Max |               |                |                   |              |                |                |                   |                    |
| 3012          | 35-2       | 12   | 15  | 70            | 62             | 65                | 28           | 25             | 57             | 150               | 0.5                |
| 4012          | 40-2       | 12   | 20  | 78            | 72             | 78                | 36           | 31             | 61             | 210               | 1.0                |
| 4014          | 40-2       | 12   | 25  | 85            | 75             | 80                | 36           | 43             | 72             | 300               | 1.4                |
| 4016          | 40-2       | 14   | 30  | 92            | 75             | 80                | 36           | 50             | 77             | 380               | 1.8                |
| 5014          | 50-2       | 14   | 35  | 101           | 84             | 100               | 45           | 53             | 82             | 550               | 2.5                |
| 5016          | 50-2       | 16   | 40  | 111           | 85             | 100               | 45           | 60             | 92             | 725               | 3.2                |
| 5018          | 50-2       | 16   | 45  | 123           | 85             | 100               | 45           | 70             | 106            | 925               | 4.0                |
| 6018          | 60-2       | 20   | 55  | 144           | 106            | 122               | 54           | 85             | 122            | 1750              | 7.2                |
| 6020          | 60-2       | 20   | 70  | 160           | 108            | 123               | 54           | 98             | 132            | 2050              | 9.5                |
| 6022          | 60-2       | 25   | 75  | 168           | 116            | 123               | 54           | 110            | 145            | 2400              | 11.3               |
| 8018          | 80-2       | 30   | 75  | 190           | 128            | 140               | 67           | 110            | 160            | 3800              | 14.7               |
| 8020          | 80-2       | 30   | 85  | 211           | 138            | 144               | 67           | 120            | 184            | 4700              | 18.2               |
| 8022          | 80-2       | 35   | 95  | 226           | 138            | 155               | 67           | 140            | 196            | 5500              | 23.3               |
| 10020         | 100-2      | 40   | 110 | 280           | 152            | 176               | 91           | 160            | 250            | 8700              | 36.0               |
| 12018         | 120-2      | 40   | 120 | 305           | 180            | 196               | 119          | 170            | 280            | 13250             | 49.0               |
| 12022         | 120-2      | 40   | 150 | 355           | 180            | 220               | 119          | 210            | 335            | 17800             | 77.0               |

### Chain Coupling Selection

In general, the torque capacity of the coupling exceeds the normal torque transmitted by the largest shaft size that the coupling can accommodate.

Therefore, select the smallest coupling which accommodates both shaft diameters.

Where there is reverse operation, shock loads, or any other severe operating condition, it is recommended that the next coupling size up is selected.

### Operation

In order to ensure that the maximum service life of the coupling is achieved, the cover together with the supplied 'O' rings should always be used. This is even more important when the drive is operating at high speeds or in a moist environment. The space between the cover and chain, should be filled with a soft to medium consistency grease.

