# Couplings

## Flexible Membrane - Rivetted Series

### Materials & Finishes

| | |
|---|---|
| Hubs : | Al. Alloy 2014 T6<br>Clear anodised finish |
| Membranes : | Spring quality stainless steel<br>Heat treated |
| Rivet assembly : | Brass rivets flanked by formed steel washers.<br>Steel, zinc plate & colour passivate |
| Fasteners : | Alloy steel |

### General description
Precision couplings with excellent kinematic properties. dynamically balanced construction.
Single-stage versions make up into 'whirl' free Cardans. The 2-stage versions offer short envelopes and low bearing loads respectively.

### Where to use
High-end servo drives, pulse generators, scanners, positioning slides, high speed dynamometers, unsupported drive shafts, etc.

### Speeds
Up to 5000 rpm in standard form.
Up to 30000 rpm in balanced form.

### Peak torque largest size
100 Nm

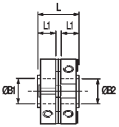
### Standard bores
3mm to 16mm

### Temperature range
-40˚C to +120˚C

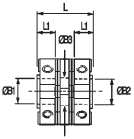
### Electrically isolating
No, unless used with insulating bore adaptors.

### Connection
Clamp or Set Screw

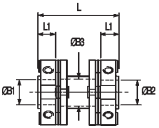
## Set screw hubs



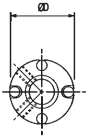

**Ref. HPC460**
For use in pairs or with floating shafts




**Ref. HPC464**
For precisely aligned shafts

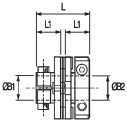



**Ref. HPC468**
For greater radial misalignment and lower bearing loads

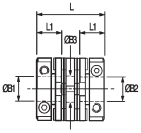



**Typical**

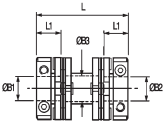
## Clamp hubs



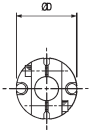

**Ref. HPC462**
For use in pairs or with floating shafts




**Ref. HPC466**
For precisely aligned shafts




**Ref. HPC470**
For greater radial misalignment and lower bearing loads




**Typical**

## Drive shafts


*Unless specified otherwise, drive shafts are supplied with set screw hubs inboard.*

**Drive shafts are supplied to order.**
Please specify:

- Coupling size
- Hub style and bore diameter at each end
- Keyway details
- Coupling size
- Overall length L2
- Minimum torsional stiffness, if critical
- Quantity

## Performance

| PART NUMBER | | Coupling Size | ❶ Peak torque Nm | ❷ Max compensation | | |
|---|---|---|---|---|---|---|
| Set Screw Hubs | Clamp Hubs | | | Angular deg | Radial mm | Axial +/- mm |
| HPC460 | HPC462 | 19 | 0.9 | 2 | 0 | 0.1 |
| HPC464 | HPC466 | | | 4 | 0.2 | 0.2 |
| HPC468 | HPC470 | | | 4 | 0.4 | 0.2 |
| HPC460 | HPC462 | 26 | 2.3 | 2 | 0 | 0.1 |
| HPC464 | HPC466 | | | 4 | 0.2 | 0.2 |
| HPC468 | HPC470 | | | 4 | 0.4 | 0.2 |
| HPC460 | HPC462 | 33 | 5.6 | 1.5 | 0 | 0.1 |
| HPC464 | HPC466 | | | 3 | 0.2 | 0.2 |
| HPC468 | HPC470 | | | 3 | 0.4 | 0.2 |
| HPC460 | HPC462 | 41 | 11.3 | 1 | 0 | 0.1 |
| HPC464 | HPC466 | | | 2 | 0.2 | 0.2 |
| HPC468 | HPC470 | | | 2 | 0.4 | 0.2 |

❶ **Peak torque**. Select a size where Peak Torque exceeds the application torque x service factor
❷ Max. compensation values are mutually exclusive.
❸ Torsional stiffness values apply at 50% peak torque with no misalignment, measured shaft-to-shaft with largest standard bores.

## Standard Bores

| Bore Size / Coupling Size | ØB1, ØB2 + 0.03 / - 0 mm | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 3 | 3.175 | 4 | 4.763 | 5 | 6 | 6.350 | 8 | 9 |
| 19 | ● | ● | ● | ● | ● | ● | ● | | |
| 26 | | | ● | ● | ● | ● | ● | ● | ● |
| 33 | | | | | | ● | ● | ● | ● |
| 41 | | | | | | | ● | ● | ● |
| *Bore ref.* | 14 | 16 | 18 | 19 | 20 | 22 | 24 | 28 | 30 |
| Corresponding bore adaptor | | | | | 251 | | 253 | 255 | |

Diameters for which a bore adaptor is shown can be adapted to smaller shaft sizes.

| PART NUMBER | | | ❸ Flexural stiffness | | | |
|---|---|---|---|---|---|---|
| Set Screw Hubs | Clamp Hubs | Coupling Size | Torsional Nm/rad | Angular N/deg | Radial N/mm | Axial N/mm |
| HPC460 | HPC462 | 19 | 220 | 0.4 | - | < 7 |
| HPC464 | HPC466 | | 150 | 0.25 | 14 | |
| HPC468 | HPC470 | | 145 | 0.3 | 4 | |
| HPC460 | HPC462 | 26 | 585 | 0.75 | - | < 7 |
| HPC464 | HPC466 | | 385 | 0.5 | 37 | |
| HPC468 | HPC470 | | 400 | 0.4 | 7 | |
| HPC460 | HPC462 | 33 | 1560 | 2 | - | < 8 |
| HPC464 | HPC466 | | 935 | 1 | 48 | |
| HPC468 | HPC470 | | 980 | 1.2 | 13 | |
| HPC460 | HPC462 | 41 | 2710 | 4 | - | < 8 |
| HPC464 | HPC466 | | 1980 | 2 | 100 | |
| HPC468 | HPC470 | | 2020 | 2 | 25 | |

| Bore Size / Coupling Size | ØB1, ØB2 + 0.03 / - 0 mm | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 9.525 | 10 | 11 | 12 | 12.700 | 14 | 15 | 15.875 | 16 |
| 19 | | | | | | | | | |
| 26 | ● | ● | | | | | | | |
| 33 | ● | ● | ● | ● | ● | | | | |
| 41 | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| *Bore ref.* | 31 | 32 | 33 | 35 | 36 | 38 | 40 | 41 | 42 |
| Corresponding bore adaptor | | 257 | | | 259 | | | | 260 |

## Dimensions & Order Codes

| PART NUMBER | | Coupling Size | ØD | L | ❹ L1 | ØB1, ØB2 max | ❺ ØB3 |
|---|---|---|---|---|---|---|---|
| Set Screw Hubs | Clamp Hubs | | | | | | |
| HPC460.19.---- | | 19 | 19.2 | 13.0 | 5.6 | 6.35 | N/A |
| HPC464.19.---- | - | | | 19.6 | | | 7.3 |
| HPC468.19.---- | - | | | 27.3 | | | |
| - | HPC462.19.---- | | | 20.2 | 9.2 | | N/A |
| - | HPC466.19.---- | | | 26.8 | | | 7.3 |
| - | HPC470.19.---- | | | 34.5 | | | |
| HPC460.26.---- | - | 26 | 25.6 | 15.8 | 6.9 | 10 | N/A |
| HPC464.26.---- | - | | | 22.4 | | | 11.0 |
| HPC468.26.---- | - | | | 30.1 | | | |
| - | HPC462.26.---- | | | 21.8 | 10.0 | | N/A |
| - | HPC466.26.---- | | | 28.4 | | | 11.0 |
| - | HPC470.26.---- | | | 36.1 | | | |
| HPC460.33.---- | - | 33 | 33.5 | 22.5 | 10.0 | 12.7 | N/A |
| HPC464.33.---- | - | | | 32.1 | | | 14.1 |
| HPC468.33.---- | - | | | 42.8 | | | |
| - | HPC462.33.---- | | | 30.5 | 14.0 | | N/A |
| - | HPC466.33.---- | | | 40.1 | | | 14.1 |
| - | HPC470.33.---- | | | 50.8 | | | |
| HPC460.41.---- | - | 41 | 41.5 | 27.1 | 12.0 | 16 | N/A |
| HPC464.41.---- | - | | | 38.5 | | | 17.5 |
| HPC468.41.---- | - | | | 50.1 | | | |
| - | HPC462.41.---- | | | 37.1 | 17.0 | | N/A |
| - | HPC466.41.---- | | | 48.5 | | | 17.5 |
| - | HPC470.41.---- | | | 60.1 | | | |

***Order codes:*** Please combine the coupling part number in the above table with the bore reference in the standard bores table (see pages 3.14 & 3.15).
Please identify both bores to complete the part number eg. HPC460. 19. 14 24

Part Number ØB1 ØB2

# Flexible Membrane - Rivetted Series

| DISCOUNTS | 1 - 19 | 20-39 | 40-59 | 60-99 | 100 + |
|---|---|---|---|---|---|
| | List Price | -15% | -20% | -25% | -30% |

| PART NUMBER | | Fasteners | | | ❼ | ❼ | |
|---|---|---|---|---|---|---|---|
| Set Screw Hubs | Clamp Hubs | Screw | ❻ Torque Nm | Wrench mm | Mi | M | PRICE EACH 1-19 |
| HPC460.19.---- | - | M3 | 0.94 | 1.5 | 30 | 7 | £39.06 |
| HPC464.19.---- | - | | | | 50 | 10 | £57.14 |
| HPC468.19.---- | - | | | | 60 | 12 | £57.14 |
| - | HPC462.19.---- | M2.5 | 1.32 | 2 | 40 | 9 | £47.56 |
| - | HPC466.19.---- | | | | 60 | 13 | £67.39 |
| - | HPC470.19.---- | | | | 60 | 14 | £67.39 |
| HPC460.26.---- | - | M4 | 2.27 | 2 | 120 | 15 | £42.68 |
| HPC464.26.---- | - | | | | 160 | 18 | £61.36 |
| HPC468.26.---- | - | | | | 200 | 23 | £61.36 |
| - | HPC462.26.---- | M2.5 | 1.32 | 2 | 130 | 16 | £51.87 |
| - | HPC466.26.---- | | | | 160 | 20 | £77.85 |
| - | HPC470.26.---- | | | | 210 | 25 | £77.85 |
| HPC460.33.---- | - | M5 | 4.62 | 2.5 | 560 | 37 | £55.74 |
| HPC464.33.---- | - | | | | 800 | 52 | £77.67 |
| HPC468.33.---- | - | | | | 830 | 55 | £77.67 |
| - | HPC462.33.---- | M3 | 2.43 | 2.5 | 520 | 37 | £79.27 |
| - | HPC466.33.---- | | | | 730 | 51 | £96.76 |
| - | HPC470.33.---- | | | | 760 | 55 | £96.76 |
| HPC460.41.---- | - | M6 | 7.61 | 3 | 1540 | 69 | £69.25 |
| HPC464.41.---- | - | | | | 2250 | 97 | £114.72 |
| HPC468.41.---- | - | | | | 2450 | 107 | £114.72 |
| - | HPC462.41.---- | M4 | 5.66 | 3 | 1530 | 72 | £99.50 |
| - | HPC466.41.---- | | | | 2220 | 100 | £124.74 |
| - | HPC470.41.---- | | | | 2370 | 109 | £124.74 |

❹ Length of support thro' bore.
❺ Clearance bore thro' spacer.
❻ Maximum recommended tightening torque.
❼ Values apply with max bores.

*Mi: Moment of inertia $kgm^2 \times 10^{-8}$*
*M: Mass $kg \times 10^{-3}$*

# Couplings

## Flexible Membrane - Bolted Series



| | |
|---|---|
| **Materials & Finishes** | |
| Hubs & spacer : | Al. Alloy 2014 T6<br>Clear anodised finish |
| Membranes : | Spring quality stainless steel<br>Heat treated |
| Bolt assembly : | Bolt, alloy steel, black oiled finish<br>Bush assembly, steel, zinc plate & black chromate<br>Safety washer, carbon steel, black/brown oiled finish |
| Fasteners : | Alloy steel, black oiled |

### General description
Precision couplings with excellent kinematic properties. Dynamically balanced construction.
Single-stage versions make up into 'whirl' free Cardans. The 2-stage versions offer short envelopes and low bearing loads respectively.

### Where to use
High-end servo drives, pulse generators, scanners, positioning slides, high speed dynamometers, unsupported drive shafts, etc.

### Speeds
Up to 5000 rpm in standard form.
Up to 30000 rpm in balanced form.

### Peak torque largest size
100 Nm

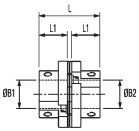
### Standard bores
3mm to 28mm

### Temperature range
-40°C to +120°C

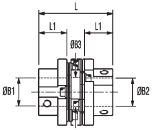
### Electrically isolating
No, unless used with insulating bore adaptors.

### Connection
Clamp or Set Screw

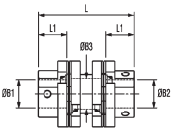
## Set screw hubs



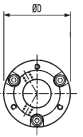

**Ref. HPC660**
For use in pairs or with floating shafts




**Ref. HPC664**
For precisely aligned shafts

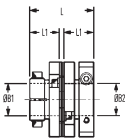



**Ref. HPC668**
For greater radial misalignment and lower bearing loads

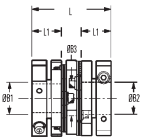



**Typical**

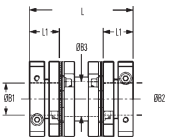
## Clamp hubs




**Ref. HPC662**
For use in pairs or with floating shafts




**Ref. HPC666**
For precisely aligned shafts




**Ref. HPC670**
For greater radial misalignment and lower bearing loads


**Typical**

## Drive shafts


*Unless specified otherwise, drive shafts are supplied with set screw hubs inboard and/or bonded to link shaft.*

**Drive shafts are supplied to order.**
Please specify:

- Coupling size
- Hub style and bore diameter at each end
- Keyway details
- Overall length L2
- Minimum torsional stiffness, if critical
- Quantity

## Performance

| PART NUMBER | | Coupling Size | ❶ Peak torque Nm | ❷ Max compensation | | |
|---|---|---|---|---|---|---|
| Set Screw Hubs | Clamp Hubs | | | Angular deg | Radial mm | Axial +/- mm |
| HPC660 | HPC662 | 41 | 11.3 | 1 | 0 | 0.1 |
| HPC664 | HPC666 | | | 2 | 0.2 | 0.2 |
| HPC668 | HPC670 | | | 2 | 0.4 | 0.2 |
| HPC660 | HPC662 | 52 | 30 | 1 | 0 | 0.1 |
| HPC664 | HPC666 | | | 2 | 0.2 | 0.2 |
| HPC668 | HPC670 | | | 2 | 0.4 | 0.2 |
| HPC660 | HPC662 | 66 | 60 | 1 | 0 | 0.1 |
| HPC664 | HPC666 | | | 2 | 0.2 | 0.2 |
| HPC668 | HPC670 | | | 2 | 0.4 | 0.2 |

❶ **Peak torque**. Select a size where Peak Torque exceeds the application torque x service factor

❷ Max. compensation values are mutually exclusive.

❸ Torsional stiffness values apply at 50% peak torque with no misalignment, measured shaft-to-shaft with largest standard bores.

## Standard Bores

| Bore Size / Coupling Size | ØB1, ØB2 + 0.03 / - 0 mm | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 6.350 | 8 | 9 | 9.525 | 10 | 11 | 12 | 12.700 | 14 | 15 |
| 41 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 52 | | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 66 | | | | | | | ● | ● | ● | ● |
| *Bore ref.* | 24 | 28 | 30 | 31 | 32 | 33 | 35 | 36 | 38 | 40 |
| Corresponding bore adaptor | 253 | 255 | | | 257 | | | 259 | | |

Diameters for which a bore adaptor is shown can be adapted to smaller shaft sizes.

| PART NUMBER | | | ❸ Flexural stiffness | | | |
|---|---|---|---|---|---|---|
| Set Screw Hubs | Clamp Hubs | Coupling Size | Torsional Nm/rad | Angular N/deg | Radial N/mm | Axial N/mm |
| HPC660 | HPC662 | 41 | 4000 | 3.7 | - | < 8 |
| HPC664 | HPC666 | | 2800 | 1.6 | 97 | |
| HPC668 | HPC670 | | 2600 | 1.6 | 23 | |
| HPC660 | HPC662 | 52 | 7500 | 10.0 | - | < 9 |
| HPC664 | HPC666 | | 4800 | 5.0 | 313 | |
| HPC668 | HPC670 | | 4800 | 5.0 | 57 | |
| HPC660 | HPC662 | 66 | 19000 | 84.0 | - | < 9 |
| HPC664 | HPC666 | | 12000 | 23.0 | 379 | |
| HPC668 | HPC670 | | 12000 | 23.0 | 93 | |

| Bore Size / Coupling Size | ØB1, ØB2 + 0.03 / - 0 mm | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 15.875 | 16 | 18 | 19 | 19.050 | 20 | 24 | 25 | 25.400 | 28 |
| 41 | ● | ● | | | | | | | | |
| 52 | ● | ● | ● | ● | ● | ● | | | | |
| 66 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| *Bore ref.* | 41 | 42 | 45 | 46 | 47 | 48 | 51 | 52 | 53 | 54 |
| Corresponding bore adaptor | | 260 | | | | 261 | | | 262 | 263 |

## Dimensions & Order Codes

| PART NUMBER | | Coupling Size | ØD | L | ❹ L1 | ØB1, ØB2 max | ❺ ØB3 |
|---|---|---|---|---|---|---|---|
| Set Screw Hubs | Clamp Hubs | | | | | | |
| HPC660.41.---- | - | 41 | 41.5 | 36.9 | 17.1 | 16 | N/A |
| HPC664.41.---- | - | | | 47.9 | | | 16.8 |
| HPC668.41.---- | - | | | 59.7 | | | 17.5 |
| - | HPC662.41.---- | | | 36.9 | | | N/A |
| - | HPC666.41.---- | | | 47.9 | | | 16.8 |
| - | HPC670.41.---- | | | 59.7 | | | 17.5 |
| HPC660.52.---- | | 52 | 52.0 | 44.2 | 20.0 | 20 | N/A |
| HPC664.52.---- | - | | | 55.0 | | | 22.0 |
| HPC668.52.---- | - | | | 72.4 | | | |
| - | HPC662.52.---- | | | 50.0 | 22.9 | | N/A |
| - | HPC666.52.---- | | | 60.8 | | | 22.0 |
| - | HPC670.52.---- | | | 78.1 | | | |
| HPC660.66.---- | | 66 | 66.0 | 60.4 | 28.0 | 28 | N/A |
| HPC664.66.---- | - | | | 73.6 | | | 28.7 |
| HPC668.66.---- | - | | | 94.7 | | | 30.2 |
| - | HPC662.66.---- | | | 56.4 | 26.0 | | N/A |
| - | HPC666.66.---- | | | 69.6 | | | 28.7 |
| - | HPC670.66.---- | | | 90.7 | | | 30.2 |

***Order codes:*** Please combine the coupling part number in the above table with the bore reference in the standard bores table (see pages 3.20 & 3.21).
Please identify both bores to complete the part number eg. HPC660. 41. 24 42

Part Number ØB1 ØB2

# Flexible Membrane - Bolted Series

| DISCOUNTS | 1 - 19 | 20-39 | 40-59 | 60-99 | 100 + |
|---|---|---|---|---|---|
| | List Price | -15% | -20% | -25% | -30% |

| PART NUMBER | | Fasteners | | | ❼ | ❼ | PRICE EACH 1-19 |
|---|---|---|---|---|---|---|---|
| Set Screw Hubs | Clamp Hubs | Screw | ❻ Torque Nm | Wrench mm | Mi | M | |
| HPC660.41.---- | - | M6 | 7.60 | 3 | 1160 | 63 | £108.25 |
| HPC664.41.---- | - | | | | 1680 | 90 | £163.65 |
| HPC668.41.---- | - | | | | 1790 | 101 | £172.70 |
| - | HPC662.41.---- | M4 | 5.66 | 3 | 1400 | 74 | £138.20 |
| - | HPC666.41.---- | | | | 2010 | 101 | £193.74 |
| - | HPC670.41.---- | | | | 2250 | 112 | £202.79 |
| HPC660.52.---- | | M6 | 7.60 | 3 | 3740 | 124 | £223.76 |
| HPC664.52.---- | - | | | | 5490 | 168 | £289.86 |
| HPC668.52.---- | - | | | | 6840 | 208 | £301.60 |
| - | HPC662.52.---- | M5 | 11.4 | 4 | 5660 | 164 | £232.09 |
| - | HPC666.52.---- | | | | 7470 | 208 | £298.05 |
| - | HPC670.52.---- | | | | 8870 | 247 | £309.83 |
| HPC660.66.---- | | M8 | 18.3 | 4 | 13370 | 272 | £279.23 |
| HPC664.66.---- | - | | | | 18040 | 360 | £376.95 |
| HPC668.66.---- | - | | | | 23400 | 447 | £428.87 |
| - | HPC662.66.---- | M5 | 11.4 | 4 | 14200 | 269 | £356.97 |
| - | HPC666.66.---- | | | | 19300 | 357 | £454.69 |
| - | HPC670.66.---- | | | | 24320 | 444 | £506.61 |

❹ Length of support thro' bore.
❺ Clearance bore thro' spacer.
❻ Maximum recommended tightening torque.
❼ Values apply with max bores.

*Mi: Moment of inertia kgm$^2$ x 10$^{-8}$*
*M: Mass kg x 10$^{-3}$*