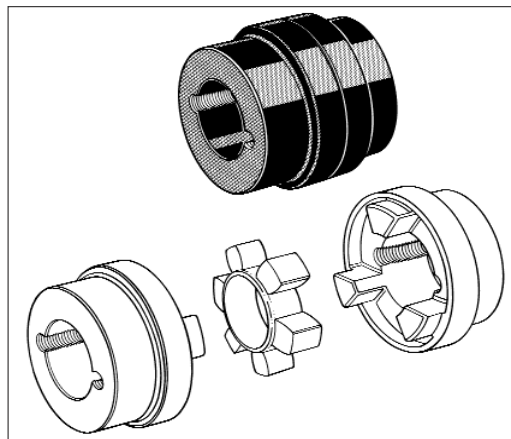
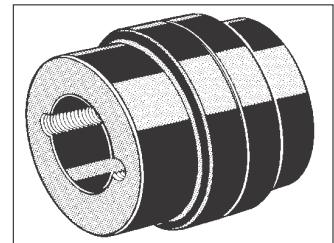
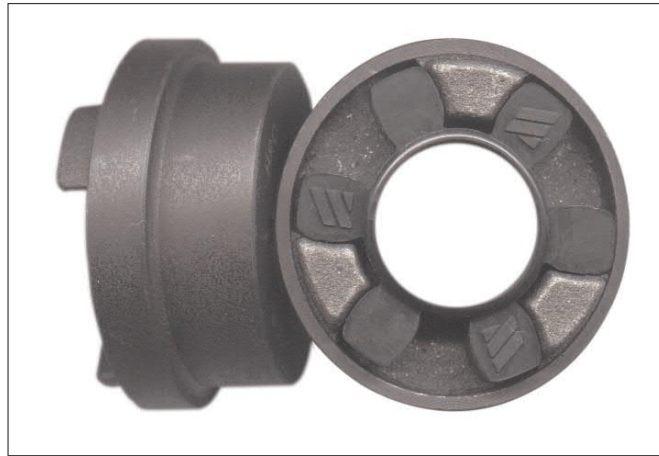


## HRC COUPLINGS

 HRC Couplings offer a range of hub and element selection to meet the demand for a low cost, general purpose spacer type flexible coupling. They allow for incidental misalignment, absorb shock loads and dampen out small amplitude vibrations. They are offered in both Pilot bore, Finished bore, and Taper bushed with both face and hub mount.





# HRC Couplings

These semi-elastomeric couplings are designed for general purpose applications and permit quick and easy assembly by means of Taper bush. Outside diameters are fully machined to allow alignment by simple straight edge methods. Shaft connection is "fail safe" due to interacting jaw design.

## SELECTION

### (a) Service Factor

Determine appropriate Service Factor from table below.

### (b) Design Power

Multiply running power of driven machinery by the service factor. This gives the design power which is used as a basis for coupling selection.

### (c) Coupling Size

Refer to Power Ratings table below and read across from the appropriate speed until a power greater than the design power is found. The size of coupling is given at the head of that column.

### (d) Bore Size

From Dimensions table (page C-16) check that the required bores can be accommodated.

### EXAMPLE

A shaft coupling is required to transmit 70kW between a 1200 rev/min diesel engine and a hoist running over 16hrs/day. Engine shaft is 70mm and the hoist shaft is 75mm.

### (a) Service Factor

The appropriate Service Factor is 2,5.

### (b) Design Power

Design power  $70 \times 2,5 = 175\text{kW}$ .

### (c) Coupling Size

Reading across from 1200 rev/min in the speed column of Power Ratings table below, 251kW is the first power to exceed the required 175kW (design power). The size of the coupling at the head of this column is 230.

### (d) Bore Size

The Dimensions table (page C-16) shows that both shaft diameters are within the bore range available.

## SERVICE FACTORS

| SPECIAL CASES<br>For application where substantial shock, vibration and torque fluctuation occur, and for reciprocating machines e.g. internal combustion engines, piston type pumps and compressors, refer to  with full machine details for torsional analysis. | Type of Driving Unit              |                        |         |                                                                |                        |         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|------------------------|---------|----------------------------------------------------------------|------------------------|---------|
|                                                                                                                                                                                                                                                                                                                                                    | Electric Motors<br>Steam Turbines |                        |         | Internal Combustion Engines<br>Steam Engines<br>Water Turbines |                        |         |
|                                                                                                                                                                                                                                                                                                                                                    | Hours per day duty                |                        |         | Hours per day duty                                             |                        |         |
| Driven Machine Class                                                                                                                                                                                                                                                                                                                               | 8 and under                       | over 8 to 16 inclusive | over 16 | 8 and under                                                    | over 8 to 16 inclusive | over 16 |
| UNIFORM<br>Agitators, Brewing machinery, Centrifugal blowers, Centrifugal compressors+, Conveyors, Centrifugal fans and pumps, Generators, Sewage disposal equipment.                                                                                                                                                                              | 1,00                              | 1,12                   | 1,25    | 1,25                                                           | 1,40                   | 1,60    |
| MODERATE SHOCK*<br>Clay working machinery, crane hoists, Laundry machinery, Wood working machinery, Machine tools, Rotary mills, Paper mill machinery, Textile machinery, Non-uniformly loaded centrifugal pumps.                                                                                                                                  | 1,60                              | 1,80                   | 2,00    | 2,00                                                           | 2,24                   | 2,50    |
| HEAVY SHOCK*<br>Reciprocating conveyors, Crushers, Shakers, Metal mills, Rubber machinery (Banbury mixers and mills), Reciprocating compressors, Welding sets.                                                                                                                                                                                     | 2,50                              | 2,80                   | 3,12    | 3,12                                                           | 3,55                   | 4,00    |

\*It is recommended that keys (with top clearance if in Taper bushes) are fitted for applications where load fluctuation is expected.

+ For Centrifugal Compressors multiply Service Factor by an additional 1,15.

## POWER RATINGS (Kw)

| Speed<br>rev/min    | Coupling Size |        |        |        |         |         |         |         |
|---------------------|---------------|--------|--------|--------|---------|---------|---------|---------|
|                     | 70            | 90     | 110    | 130    | 150     | 180     | 230     | 280     |
| 100                 | 0,33          | 0,84   | 1,68   | 3,30   | 6,28    | 9,95    | 20,90   | 33,00   |
| 200                 | 0,66          | 1,68   | 3,35   | 6,60   | 12,60   | 19,90   | 41,90   | 65,00   |
| 400                 | 1,32          | 3,35   | 6,70   | 13,20  | 25,10   | 39,80   | 83,80   | 132,00  |
| 600                 | 1,98          | 5,03   | 10,10  | 19,80  | 37,70   | 59,70   | 126,00  | 198,00  |
| 720                 | 2,37          | 6,03   | 12,10  | 23,80  | 45,20   | 71,60   | 151,00  | 238,00  |
| 800                 | 2,65          | 6,70   | 13,40  | 26,40  | 50,30   | 79,60   | 168,00  | 264,00  |
| 960                 | 3,17          | 8,04   | 16,10  | 31,70  | 60,30   | 95,50   | 201,00  | 317,00  |
| 1200                | 3,96          | 10,10  | 20,10  | 39,60  | 75,40   | 119,00  | 251,00  | 396,00  |
| 1440                | 4,75          | 12,10  | 24,10  | 47,50  | 90,50   | 143,00  | 302,00  | 475,00  |
| 1600                | 5,28          | 13,40  | 26,80  | 52,80  | 101,00  | 159,00  | 335,00  | 528,00  |
| 1800                | 5,94          | 15,10  | 30,20  | 59,40  | 113,00  | 179,00  | 377,00  | 594,00  |
| 2000                | 6,60          | 16,80  | 33,50  | 66,00  | 126,00  | 199,00  | 419,00  | 660,00  |
| 2200                | 7,26          | 18,40  | 36,90  | 72,60  | 138,00  | 219,00  | 461,00  | 726,00  |
| 2400                | 7,92          | 20,10  | 40,20  | 79,20  | 151,00  | 239,00  | 503,00  |         |
| 2600                | 8,58          | 21,80  | 43,60  | 85,80  | 163,00  | 259,00  | 545,00  |         |
| 2880                | 9,50          | 24,10  | 48,30  | 95,00  | 181,00  | 286,00  |         |         |
| 3000                | 9,90          | 25,10  | 50,30  | 99,00  | 188,00  | 298,00  |         |         |
| 3600                | 11,90         | 30,10  | 60,30  | 118,00 | 226,00  |         |         |         |
| Nominal Torque (Nm) | 31,50         | 80,00  | 160,00 | 315,00 | 600,00  | 950,00  | 2000,00 | 3150,00 |
| Max Torque (Nm)     | 72,00         | 180,00 | 360,00 | 720,00 | 1500,00 | 2350,00 | 5000,00 | 7200,00 |

Fire Resistant/Anti-Static (F.R.A.S.) inserts are available to special order.

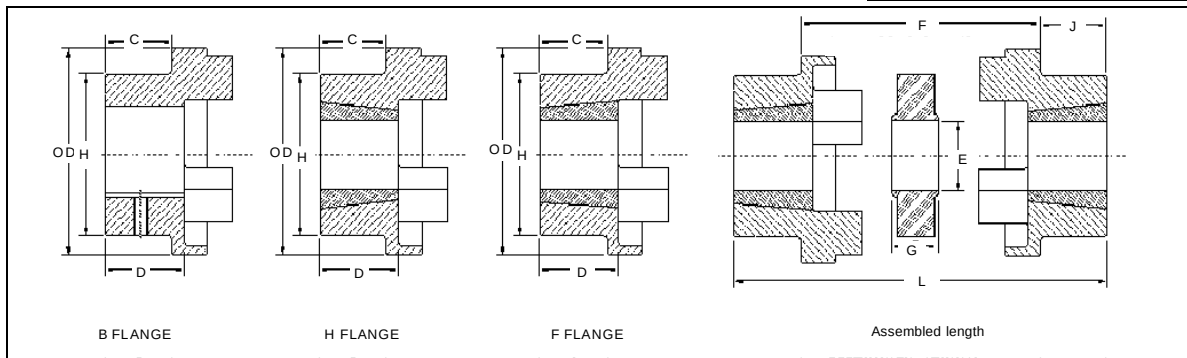
For speeds below 100 rev/min and intermediate speeds use nominal torque ratings.

\*Maximum coupling speeds are calculated using an allowable peripheral speed for the hub material. For selection of smaller sizes with speeds in excess of 3600 rev/min - Consult 

C-15

# HRC Couplings

*Martin*



## PHYSICAL DIMENSIONS AND CHARACTERISTICS

| Common Dimensions |       |       |       |       |      | Type F&H |           |        |      |      |      | Type B    |             |                   |      |       |
|-------------------|-------|-------|-------|-------|------|----------|-----------|--------|------|------|------|-----------|-------------|-------------------|------|-------|
| Size              | OD    | H     | E     | F+    | G    | Bush     | Max. Bore |        | C    | D    | J+   | Bore Dia. |             | Screw<br>over key | C    | D     |
|                   |       |       |       |       |      |          | MM        | Inches |      |      |      | Max.      | Pilot<br>H9 |                   |      |       |
| 70                | 69,0  | 60,0  | 31,0  | 25,0  | 18,0 | 1008     | 25        | 1,000  | 20,0 | 23,5 | 29,0 | 32        | 10          | M 6               | 20,0 | 25,8  |
| 90                | 85,0  | 70,0  | 32,0  | 30,5  | 22,5 | 1108     | 28        | 1,125  | 19,5 | 23,5 | 29,0 | 38        | 10          | M 6               | 26,0 | 30,0  |
| 110               | 112,0 | 100,0 | 45,0  | 45,0  | 29,0 | 1610     | 42        | 1,625  | 18,5 | 26,5 | 38,0 | 55        | 10          | M10               | 37,0 | 45,3  |
| 130               | 130,0 | 105,0 | 50,0  | 54,0  | 36,0 | 1610     | 42        | 1,625  | 18,0 | 26,5 | 38,0 | 60        | 20          | M10               | 39,0 | 47,5  |
| 150               | 150,0 | 115,0 | 62,0  | 61,0  | 40,0 | 2012     | 50        | 2,000  | 23,5 | 33,5 | 42,0 | 70        | 28          | M10               | 46,0 | 60,0  |
| 180               | 180,0 | 125,0 | 77,0  | 74,0  | 49,0 | 2517     | 60        | 2,500  | 34,5 | 46,5 | 48,0 | 80        | 28          | M10               | 58,0 | 70,0  |
| 230               | 225,0 | 155,0 | 99,0  | 85,5  | 59,5 | 3020     | 75        | 3,000  | 39,5 | 52,5 | 55,0 | 100       | 45          | M12               | 77,0 | 90,0  |
| 280               | 275,0 | 206,0 | 119,0 | 105,5 | 74,5 | 3525     | 100       | 4,000  | 51,0 | 66,5 | 67,0 | 115       | 55          | M16               | 90,0 | 105,5 |

+ 'J' is the wrench clearance required for tightening/loosening the bush on the shaft. A shortened wrench will allow this dimension to be reduced.

+ F, refers to combinations of flanges: FF, FH, HH, FB, HB, BB.

Bore limits H7 unless specified otherwise.

## ASSEMBLED

| Size | Assembled Length (L*)<br>Comprising Flange Types |       |       | Mass<br>(kg) | Inertia Mr2<br>(kgm2) | Dynamic<br>Stiffness<br>(Nm) | Maximum<br>Misalignment |       | Nominal<br>Torque<br>(Nm) |
|------|--------------------------------------------------|-------|-------|--------------|-----------------------|------------------------------|-------------------------|-------|---------------------------|
|      | FF,FH,HH                                         | FB,HB | BB    |              |                       |                              | Parallel                | Axial |                           |
| 70   | 65,0                                             | 65,0  | 65,0  | 1,00         | 0,00085               | —                            | 0,3                     | +0,2  | 70                        |
| 90   | 69,5                                             | 76,0  | 82,5  | 1,17         | 0,00115               | —                            | 0,3                     | +0,5  | 90                        |
| 110  | 82,0                                             | 100,5 | 119,0 | 5,00         | 0,00400               | 65                           | 0,3                     | +0,6  | 110                       |
| 130  | 89,0                                             | 110,0 | 131,0 | 5,46         | 0,00780               | 130                          | 0,4                     | +0,8  | 130                       |
| 150  | 107,0                                            | 129,5 | 152,0 | 7,11         | 0,01810               | 175                          | 0,4                     | +0,9  | 150                       |
| 180  | 142,0                                            | 165,5 | 189,0 | 16,60        | 0,04340               | 229                          | 0,4                     | +1,1  | 180                       |
| 230  | 164,5                                            | 202,0 | 239,5 | 26,00        | 0,12068               | 587                          | 0,5                     | +1,3  | 230                       |
| 280  | 207,5                                            | 246,5 | 285,5 | 50,00        | 0,44653               | 1025                         | 0,5                     | +1,7  | 280                       |

Dimensions in millimeters unless otherwise specified.

All HRC Elements have an angular misalignment capacity of up to 1°.

Mass is for an FF, FH or HH coupling with mid range Taper Bushes.

## ORDERING CODES

| Size | Type F  | Type H  | Type B<br>Unbored | Standard<br>Element<br>Tempr.-40°C/+100°C | FRAS<br>Element<br>Tempr.-20°C/+80°C |
|------|---------|---------|-------------------|-------------------------------------------|--------------------------------------|
| 70   | HRC70F  | HRC70H  | HRC70B            | HRC70NA                                   | HRC70FR                              |
| 90   | HRC90F  | HRC90H  | HRC90B            | HRC90NA                                   | HRC90FR                              |
| 110  | HRC110F | HRC110H | HRC110B           | HRC110NA                                  | HRC110FR                             |
| 130  | HRC130F | HRC130H | HRC130B           | HRC130NA                                  | HRC130FR                             |
| 150  | HRC150F | HRC150H | HRC150B           | HRC150NA                                  | HRC150FR                             |
| 180  | HRC180F | HRC180H | HRC180B           | HRC180NA                                  | HRC180FR                             |
| 230  | HRC230F | HRC230H | HRC230B           | HRC230NA                                  | HRC230FR                             |
| 280  | HRC280F | HRC280H | HRC280B           | HRC280NA                                  | HRC280FR                             |

Note: For details of HRC couplings suitable for application to drives involving SAE engine flywheels, consult *Martin*.

Type B flanges can be supplied finished bored, with keyway if required.



## Precisa dimensionar ou cotar?

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