



SERIES X NYLICON

**SERIES X**

**DAVID BROWN**  
R A D I C O N

**RMB Engineering Services Ltd**

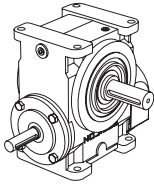
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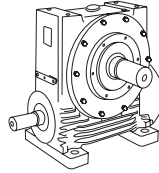
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### SERIES A - JUNIOR



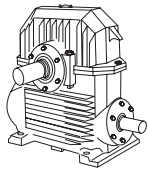
Power capacity to 11 kW  
Output torque capacity to 1,000 Nm  
Sizes 280, 410, 510, 610, 730 and 860  
Foot, flange and shaft mounting

### SERIES A - MID RANGE



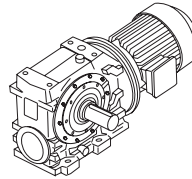
Power capacity to 140 kW  
Output torque capacity to 10,000 Nm  
Sizes 1002, 1252, 1602 and 2002  
Foot, flange and shaft mounting

### SERIES A - HEAVY DUTY



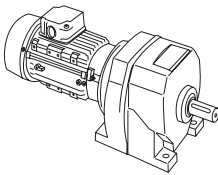
Power capacity to 835 kW  
Output torque capacity to 100,000 Nm  
Sizes 10, 12, 14, 17, 20 and 24  
Foot, flange and shaft mounting

### SERIES C



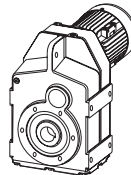
Power capacity to 45 kW  
Output torque capacity to 10,000 Nm  
Sizes 03, 04, 05, 06, 07, 08, 09 and 10  
Foot, flange and shaft mounting

### SERIES M



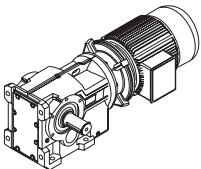
Power capacity to 90 kW  
Output torque capacity to 11,000 Nm  
Sizes 03, 04, 06, 07, 08, 09, 10, 13 and 14  
Foot and flange mounting

### SERIES F



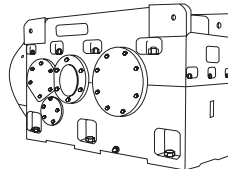
Power capacity to 45 kW  
Output torque capacity to 7,200 Nm  
Sizes 04, 06, 07, 08, 09 and 10  
Foot, flange and shaft mounting

### SERIES K



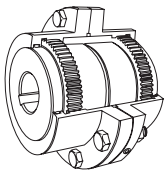
Power capacity to 90 kW  
Output torque capacity to 12,300 Nm  
Sizes 08, 09, 10 and 12  
Foot, flange and shaft mounting

### SERIES H



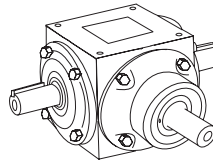
Power capacity to 8300 kW  
Output torque capacity to 128,000 Nm  
Sizes 140, 160, 180, 200, 225, 250, 280,  
315, 355, 400 and 450  
Single, double and triple parallel and  
right angle shaft  
Foot and shaft mounting

### SERIES X



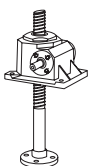
Nylicon low cost couplings to  
55 mm dia. bore  
610 Series Cone-Ring type to  
355 mm dia. bore  
620 Series Gear type to  
540 mm dia. bore  
Sadiguard Torque limiters for overload  
protection, to 115 mm dia. bore

### SERIES R



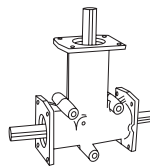
Power capacity to 265 kW  
Output torque capacity to 1,265 Nm  
Sizes 120, 160, 200, 260 and 350  
Output shaft and shaft mounting

### SERIES S



Load capacity to 100 tonnes  
Sizes 0.5, 1, 2.5, 5, 10, 25,  
50 and 100

### SERIES T



Power capacity to 15 kW  
Output torque capacity to 132 Nm  
Sizes 1, 2, 3, 4 and 5

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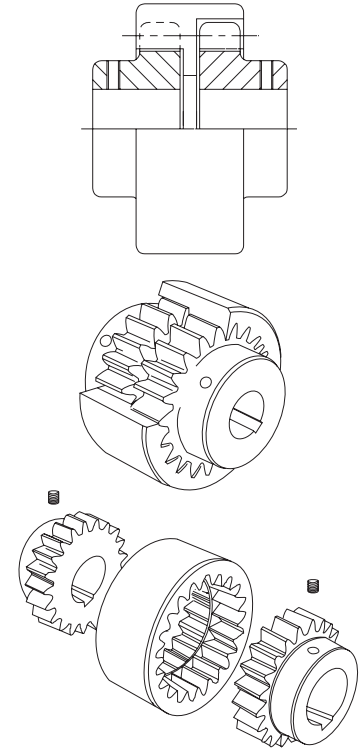
## GENERAL DESCRIPTION

Nylicon flexible gear couplings, type 600, are available in three sizes and are ideal for small power drives with bore sizes up to 55mm diameter and a basic rated torque up to 463 Nm.

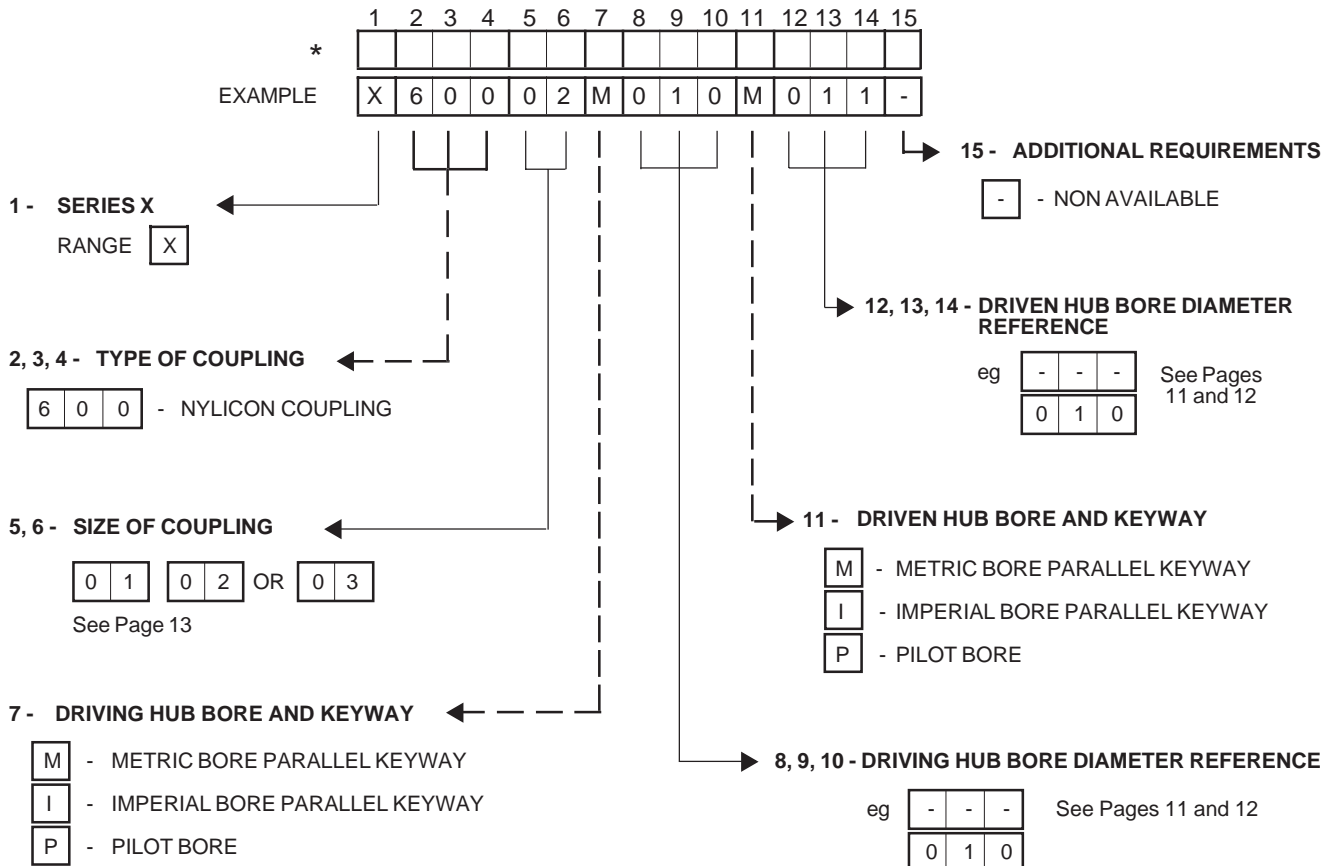
Thermosetting plastic sleeves provide non conductive assemblies. Staggered internal teeth ensure uniform loading and an internal central buffer ring between the two hubs promotes axial location giving protection to the gear teeth.

They compensate for all types of shaft misalignment and allow a small amount of end float. Nylicon couplings are easy to assemble and require no maintenance giving low cost reliable service under the most arduous conditions of weather, atmospheric pollution or humidity.

Nylicon couplings are available pilot bored (i.e. without keyways) allowing the customer to finish machine bores and keyways to special requirements, or supplied with standard bores and keyways. Each size of coupling can have any combination of pilot and/or standard bores. Socket set screws and setting gauge are provided with each coupling.



## UNIT DESIGNATIONS



\* THIS PAGE MAY BE PHOTOCOPIED ALLOWING THE CUSTOMER TO ENTER THEIR ORDER

The size of coupling required is determined by using the selection procedure in which the actual loads are compared with the catalogue rating.

**Fm** Mechanical Service Factor (table 2, page 7)

Catalogue ratings are based on a standard set of loading conditions, whereas in an actual application in order to provide for the dynamic torque which must be transmitted, it may be necessary to increase the power to be transmitted by a load classification/service factor. The factor (Fm) allows for momentary increases in torque due to the loading characteristics of the drive.

**Fs** Start/stop Factor (table 6, page 10)

The coupling basic rating allows for up to one start, braking cycle or momentarily overload per hour. If the application requires more, the factor (Fs) is applied.

**Fa** Ambient Temperature Factor (table 7, page 10)

A X600 coupling is capable of operating in the ambient range of -30°C to 90°C, for differing ambient temperatures within this range the factor (Fa) is applied.

**Fr** Rating Factor (table 8, page 10)

To allow the adjustment of the coupling basic rating for speed of rotation and misalignment the factor (Fr) is applied. To obtain this factor the following is required:

- (i) Maximum angular misalignment, or the equivalent angle due to the parallel offset (this can be obtained by reference to the summary table (table 4, page 9) where for the allowable parallel offset quoted, an equivalent angular misalignment is given)
- (ii) The size of the coupling
- (iii) The coupling operating speed (rev/min) expressed as a percentage of the maximum operating speed at zero angular misalignment for the size of coupling.

**Coupling Basic Ratings** (table 5, page 9)

The coupling basic rating (kW per 100 rev/min) and those at coupling speeds of 960 rev/min and 1450 rev/min are given based on:

- (i) The coupling operating up to 10 hours per day
- (ii) Up to one start or stop cycle per hour
- (iii) Total misalignment equivalent to an angular misalignment of 0.75° per mesh
- (iv) An ambient temperature of 20°C
- (v) 100% momentary overload during the start or stop cycle.

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**EXAMPLE APPLICATION DETAILS**

Connection = 5.5 kW 4 pole electric motor to a 25mm dia input shaft of a gear unit  
 Angular misalignment of shafts = 1.0°  
 Application = Plate planer in a machine shop  
 Ambient temperature = 30 °C  
 Duration of service (hours per day) = 10  
 Starts/stops per hour = 10  
 Does the application reverse ? = No

**1. DETERMINE FULL LOAD SPEED OF MOTOR & MOTOR SHAFT DIAMETER**

Refer to Motor Performance Data Page 7 Table 1  
 Application details state that:  
 Motor = 5.5 kW 4 pole electric motor

kW	NUMBER OF MOTOR POLES	MOTOR FRAME SIZE	FULL LOAD SPEED	SHAFT DIAMETER
5.5	2	132	2900	38
	4	132	1450	38
	6	132	960	38
	8	160	720	42

**Therefore:** Full load speed = 1450 rev/min  
 Motor shaft dia = 38 mm

**2. DETERMINE MACHINE LOAD CLASSIFICATION**

Refer to Load Classification by Application Page 8 Table 3  
 Application details state that:  
 Application = Plate planer in machine shop

Machine tools		
bending roll	M	H = Heavy shock load
punch press-gear driven	H	
notching press- belt driven	†	
plate planers	H	
tapping machine	H	
other machine tools		
main drives	M	
auxiliary drives	U	

**Therefore:**  
 Machine load classification = Heavy shock load

**3. DETERMINE MECHANICAL SERVICE FACTOR (Fm)**

Refer to Mechanical Service Factors Page 7 Table 2  
 Application details state that:  
 Prime mover = Electric motor  
 Duration of service (hours/day) = 10

Prime mover	Duration of service- hrs per day	Load classification-driven machine		
		Uniform	Moderate Shock	Heavy Shock
Electric motor, steam turbine or hydraulic motor	Under 3	0.80	1.00	1.50
	3 to 10	1.00	1.25	1.75
	Over 10	1.25	1.50	2.00

**Therefore:** Mechanical Service Factor (Fm) = 1.75

**4. DETERMINE START/STOP FACTOR (Fs)**

Refer to Start/stop Factors Page 10 Table 6  
 Application details state that:  
 Start/stops per hour = 10  
 Unidirectional

START/STOPS PER HOUR	UP TO 1	3	5	10
UNIDIRECTIONAL	1.0	0.97	0.95	0.9
REVERSING	0.92	0.81	0.78	0.72

**Therefore:** Start/stop factor (Fs) = 0.9

**5. DETERMINE AMBIENT FACTOR (Fa)**

Refer to Ambient Factors Page 10 Table 7  
 Application details state that:  
 Ambient temperature = 30 °C

AMBIENT TEMPERATURE °C	-30 to 20	30
RATING FACTOR (Fa)	1.0	0.83

**Therefore:** Ambient factor (Fa) = 0.83

**6. DETERMINE POWER REQUIRED (Pr)**

$$\frac{\text{Motor power (kW)} \times 100 \times F_m}{\text{Coupling speed (rev/min)} \times F_s \times F_a} = Pr$$

$$\frac{5.5 \times 100 \times 1.75}{1450 \times 0.9 \times 0.83} = 0.89$$

**Therefore:**  
 Power Required (Pr) = 0.89 kW per 100 rev/min

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### 7. DETERMINE COUPLING SIZE

Refer to Summary Table *Page 9 Table 4*  
Largest shaft diameter required = 38mm

ITEM		COUPLING SIZE	
		01	02
MAX BORE (1)	(mm)	25	38
	(ins)	1.000	1.625
MAX RATED POWER (kW)		0.592	2.30
kW Per 100 Rev/Min			

**Therefore:** Coupling Size = **02**

The size 02 coupling has adequate bore capacity for the application and the Max Rated Power is in excess of the required 0.89 kW per 100 rev/min required for the application, so coupling is acceptable

### 8. DETERMINE RATING FACTOR (Fr)

Determine % Coupling Speed  
Refer to Coupling Maximum Speeds *Page 10 Table 9*

COUPLING SIZE	ALLOWABLE SPEED (REV/MIN)	
	MISALIGNMENT/MESH (DEGREES)	
	0° (Nmax)	0.25°
01	8520	7330
02	7000	6160
03	5000	4430

$$\frac{\text{Coupling Speed (rev/min)}}{\text{Coupling Max Speed (rev/min)}} \times 100$$

$$\frac{1450}{7000} \times 100 = 20.7\%$$

**Therefore:** % Coupling Speed = **20.7%**

Determine Misalignment per mesh  
Application details state that:  
Angular misalignment between shafts = 1.0°

$$\text{Angular misalignment} = \frac{\text{Misalignment between shafts}}{2} \text{ per mesh}$$

$$\frac{1}{2} = 0.5^\circ$$

**Therefore:** Misalignment per mesh = **0.5**

Refer to Rating Factors *Page 10 Table 8*

% COUPLING SPEED	MISALIGNMENT PER GEAR MESH (DEGREES)		
	0°	0.25°	0.5°
0 TO 50	1.5	1.28	1.12

**Therefore:** Rating Factor (Fr) = **1.12**

### 9. DETERMINE EFFECTIVE COUPLING RATING (Pe)

$$\text{Max rated power (kW per 100 rev/min)} \times Fr = Pe$$

$$2.3 \times 1.12 = 2.58$$

**Therefore:**

Effective Coupling Rating (Pe) = **2.58** kW per 100 rev/min  
The Effective Coupling Rating is in excess of the required 0.89 kW per 100 rev/min required for the application, so coupling is acceptable

### 10. DETERMINE COUPLING MAXIMUM SPEED

Refer to Coupling Maximum Speeds *Page 10 Table 9*  
Misalignment per mesh = 0.5°

COUPLING SIZE	ALLOWABLE SPEED (REV/MIN)	
	MISALIGNMENT/MESH (DEGREES)	
	0.25°	5°
01	7330	5900
02	6160	5200
03	4430	3780

**Therefore:**

Coupling maximum speed = **5200** rev/min  
Coupling maximum speed (rev/min) is in excess of coupling speed required in the application (1450 rev/min), so coupling is acceptable

### 11. DETERMINE SPACE REQUIRED

Refer to Dimensions *Page 13 Table 12*  
Check space limitations

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**EXAMPLE APPLICATION DETAILS**

Connection = Two 19mm diameter shafts transmitting 0.75kW at 1450 rev/min from an electric motor  
 Angular misalignment of shafts = 0.75°  
 Parallel offset at running temp. = 0.1mm (due to thermal growth)  
 Application = Subject to moderate shock  
 Ambient temperature = 40°C  
 Duration of service (hours per day) = 20  
 Starts/stops per hour = 1  
 Does the application reverse ? = No

**1. DETERMINE COUPLING SIZE**

Refer to Bore Availability Page 11 Table 10  
 Application details state that:  
 Connection = Two 19mm dia shafts

Column Entry 7,8,9,10 or 11,12,13,14	Nominal Bore	Coupling Size		
		01	02	03
M 018	18			
M 019	19			
M 020	20			

**Therefore:**  
 Smallest coupling size available = 01

**2. DETERMINE EQUIVALENT ANGULAR MISALIGNMENT OF THE PARALLEL OFFSET (  $\theta_e$  )**

Refer to Summary Table Page 9 Table 4  
 Application details state that:  
 Parallel offset at running temp. = 0.1mm

ITEM	SIZE	
	01	
ALLOWABLE MISALIGNMENT	ANGULAR PER COUPLING MESH	0.75°
	PARALLEL OFFSET (mm)	±0.20
	EQUIVALENT ANGULAR MISALIGNMENT OF THE PARALLEL OFFSET PER MESH	0.65°

$$\frac{\text{Parallel offset of application}}{\text{Parallel offset of Summary Table}} \times \text{Equivalent angular misalignment of the parallel offset per mesh} = \theta_e$$

$$\frac{0.1}{0.2} \times 0.65^\circ = 0.325^\circ$$

**Therefore:** Equivalent angular misalignment of the parallel offset (  $\theta_e$  ) = 0.325°

**3. DETERMINE TOTAL ANGULAR MISALIGNMENT**

$$\theta_e + \frac{\text{Allowable Misalignment of Shafts}}{2}$$

$$0.325^\circ + \frac{0.75^\circ}{2} = 0.70^\circ$$

**Therefore:**  
 Total Angular Misalignment = 0.70° per mesh  
 The Allowable Misalignment Angle per Coupling Mesh (0.75°) is in excess of the Total Angular Misalignment (0.70°), so coupling is acceptable

**4. DETERMINE MECHANICAL SERVICE FACTOR (Fm)**

Refer to Mechanical Service Factors Page 7 Table 2  
 Application details state that:  
 Prime mover = Electric motor  
 Duration of service (hours/day) = 20

Prime mover	Duration of service-hrs per day	Load classification-driven	
		Uniform	Moderate Shock
Electric motor, steam turbine or hydraulic motor	Under 3	0.80	1.00
	3 to 10	1.00	1.25
	Over 10	1.25	1.50

**Therefore:** Mechanical Service Factor (Fm) = 1.5

**5. DETERMINE START/STOP FACTOR (Fs)**

Refer to Start/stop Factors Page 10 Table 6  
 Application details state that:  
 Start/stops per hour = 1  
 Unidirectional

START/STOPS PER HOUR	UP TO 1	3	5	10
UNIDIRECTIONAL	1.0	0.97	0.95	0.9
REVERSING	0.92	0.81	0.78	0.72

**Therefore:** Start/stop factor (Fs) = 1.0

Go to point 6 page 6

### 6. DETERMINE AMBIENT FACTOR (Fa)

Refer to Ambient Factors *Page 10 Table 7*  
Application details state that:  
Ambient temperature = 40°C

AMBIENT TEMPERATURE °C	-30 to 20	30	40
RATING FACTOR (Fa)	1.0	0.83	0.70

Therefore: Ambient factor (Fa) = **0.70**

### 7. DETERMINE POWER REQUIRED (Pr)

$$\frac{\text{Motor power(kW)} \times 100 \times F_m}{\text{Coupling speed(rev/min)} \times F_s \times F_a} = Pr$$

$$\frac{0.75 \times 100 \times 1.5}{1450 \times 1.0 \times 0.7} = 0.11$$

Therefore:  
Power Required (Pr) = **0.11 kW per 100 rev/min**

### 8. DETERMINE RATING FACTOR (Fr)

Determine % Coupling Speed  
Refer to Coupling Maximum Speeds *Page 10 Table 9*

COUPLING SIZE	ALLOWABLE SPEED (REV/MIN)	
	MISALIGNMENT/MESH (DEGREES)	
	0° (Nmax)	0.25°
01	8520	7330
02	7000	6160
03	5000	4430

$$\frac{\text{Coupling Speed (rev/min)}}{\text{Coupling Max Speed (rev/min)}} \times 100$$

$$\frac{1450 \times 100}{8520} = 17\%$$

Therefore: % Coupling Speed = **17%**

Refer to Rating Factors *Page 10 Table 8*  
Total Angular Misalignment per mesh = 0.7

% COUPLING SPEED	MISALIGNMENT PER GEAR MESH (DEGREES)		
	0.25°	0.5°	0.75°
0 TO 50	1.28	1.12	1.0

Therefore:  
Rating Factor (Fr) = **1.024** (obtained from table by linear interpolation)

### 9. DETERMINE EFFECTIVE COUPLING RATING (Pe)

Determine Max. Rated Power (kW per 100 rev/min)  
Refer to Summary Table *Page 9 Table 4*

ITEM	COUPLING SIZE	
	01	02
MAX RATED POWER (kW)	0.592	2.30
kW Per 100 Rev/Min		

Determine Effective Coupling Rating (Pe)

$$\text{Max rated power (kW per 100 rev/min)} \times Fr = Pe$$

$$0.592 \times 1.024 = 0.606$$

Therefore:  
Effective Coupling Rating (Pe) = **0.606 kW per 100 rev/min**  
The Effective Coupling Rating is in excess of the required 0.11 kW per 100 rev/min required for the application, so coupling is acceptable

### 10. DETERMINE COUPLING MAXIMUM SPEED

Refer to Coupling Maximum Speeds *Page 10 Table 9*  
Misalignment per mesh = 0.7°

COUPLING SIZE	ALLOWABLE SPEED (REV/MIN)	
	MISALIGNMENT/MESH (DEGREES)	
	5°	0.75°
01	5900	4000
02	5200	3410
03	3780	2630

Therefore:  
Coupling = **4380 rev/min** (obtained from max. speed table by linear interpolation)

Coupling maximum speed (rev/min) is in excess of coupling speed required in the application (1450 rev/min), so coupling is acceptable

### 11. DETERMINE SPACE REQUIRED

Refer to Dimensions *Page 13 Table 12*  
Check space limitations

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## MOTOR DETAILS

**Table 1 - Motor Details for David Brown Motors**

kW	NUMBER OF MOTOR POLES	MOTOR FRAME SIZE	FULL LOAD SPEED	SHAFT DIAMETER
0.12	4	63	1360	11
	6	63	835	11
	8	71	600	14
0.18	2	63	2680	11
	4	63	1360	11
	6	71	840	14
0.25	8	80	650	19
	2	63	2730	11
	4	71	1370	14
0.37	6	71	845	14
	8	80	650	19
	2	71	2730	14
0.55	4	71	1380	14
	6	80	925	19
	8	90	680	24
0.75	2	71	2720	14
	4	80	1370	19
	6	80	925	19
1.1	8	90	690	24
	2	80	2800	19
	4	80	1385	19
1.5	6	90	910	24
	8	100	700	28
	2	80	2840	19
1.1	4	90	1380	24
	6	90	920	24
	8	100	700	28
1.5	2	90	2820	24
	4	90	1390	24
	6	100	950	28
	8	112	700	28

kW	NUMBER OF MOTOR POLES	MOTOR FRAME SIZE	FULL LOAD SPEED	SHAFT DIAMETER
2.2	2	90	2850	24
	4	100	1410	28
	6	112	945	28
	8	132	705	38
3	2	100	2900	28
	4	100	1420	28
	6	132	950	38
	8	132	710	38
4	2	112	2900	28
	4	112	1425	28
	6	132	955	38
	8	160	720	42
5.5	2	132	2900	38
	4	132	1450	38
	6	132	960	38
	8	160	720	42
7.5	2	132	2900	38
	4	132	1450	38
	6	160	965	42
	8	160	720	42
9.2	2	132	2910	38
	4	132	1460	38
11	2	132	2920	38
	4	160	1460	42
	6	160	970	42
15	8	180	720	48
	2	160	2930	42
	4	160	1460	42
	6	180	970	48
	8	200	725	55

kW	NUMBER OF MOTOR POLES	MOTOR FRAME SIZE	FULL LOAD SPEED	SHAFT DIAMETER
18.5	2	160	2940	42
	4	180	1460	48
	6	200	970	55
	8	225	725	60
22	2	180	2940	48
	4	180	1465	48
	6	200	970	55
	8	225	725	60
30	2	200	2940	55
	4	200	1465	55
	6	225	975	60
	8	250	730	65
37	2	200	2950	55
	4	225	1470	60
	6	250	975	65
	8	280	730	75
45	2	225	2960	60
	4	225	1470	60
	6	280	980	75
	8	280	735	75
55	2	250	2960	65
	4	250	1475	65
	6	280	980	75
75	8	280	735	75
	2	280	2965	75
	4	280	1480	75
90	2	280	2965	75
	4	280	1480	75

## EXPLANATION OF THE RATINGS

The load classification/service factor given in *Tables 2 & 3* provide a basis for estimating the allowance for specific combinations of connected equipment and are sufficiently accurate for normal applications. For equipment not listed in *Table 3* or for drives where high inertia loads are to be absorbed the determination of a suitable service factor should be calculated in consultation with David Brown Radicon application engineers.

Where a motor is fitted with a brake whose rating exceeds that of the motor the coupling selected is decided by the rating of the brake.

Catalogue ratings allow 100% overload on starting, braking or momentarily occurring once per hour, the effect of more frequent occurrences on the coupling rating is given together with the ratings for that type of coupling. The coupling selected must therefore have a catalogue rating at least equal to half the maximum overload.

If overloads can be calculated, or accurately assessed, actual loads should be used instead of Fm.

**Table 2 - Mechanical Service Factor (Fm)**

Prime mover	Duration of service-hrs per day	Load classification-driven machine		
		Uniform	Moderate Shock	Heavy Shock
Electric motor, steam turbine or hydraulic motor	Under 3	0.80	1.00	1.50
	3 to 10	1.00	1.25	1.75
	Over 10	1.25	1.50	2.00
Multi-cylinder internal combustion engine	Under 3	1.00	1.25	1.75
	3 to 10	1.25	1.50	2.00
	Over 10	1.50	1.75	2.25
Single cylinder internal combustion engine	Under 3	1.25	1.50	2.00
	3 to 10	1.50	1.75	2.25
	Over 10	1.75	2.00	2.50



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**Table 4 - Summary**

ITEM		COUPLING SIZE		
		01	02	03
MAX BORE (1)	(mm)	25	38	55
	(ins)	1.000	1.625	2.250
PILOT BORE (mm)		10	15	28
HUB LENGTH (mm)		22	35	48
INERTIA $WR^2$ (kg cm <sup>2</sup> ) (2)		1.47	9.96	43.0
WEIGHT (kg) (2)		0.50	1.68	4.35
RATED TORQUE (Nm)		56.5	220	463
MAX RATED POWER (kW) kW Per 100 Rev/Min		0.592	2.30	4.85
MAX SPEED (Rev/Min.)	NO MISALIGNMENT	8520	7000	5000
	ANGULAR MISALIGNMENT 3/4° PER MESH	4000	3410	2630
ALLOWABLE MISALIGNMENT	ANGULAR PER COUPLING MESH	0.75°	0.75°	0.75°
	PARALLEL OFFSET (mm)	±0.20	±0.20	±0.35
	EQUIVALENT ANGULAR MISALIGNMENT OF THE PARALLEL OFFSET PER MESH	0.65°	0.41°	0.63°
BACKLASH	ANGULAR (RADIAN)	.0118 TO .0274	.0077 TO .0183	.0130 TO .0200
	LINEAR (mm at PITCH LINE DIAMETER)	.267 TO .617	.254 TO .604	.566 TO .868
TORSIONAL STIFFNESS (KN/RADIAN)	AT -30°C	6.79	22.1	54.3
	AT 0°C	5.68	18.5	45.4
	AT 20°C	3.88	12.6	31.0
	AT 60°C	1.91	6.22	15.3
	AT 90°C	1.33	4.31	10.6

NOTES (1) METRIC STANDARD BORES TO BS 4500 H7, METRIC STANDARD KEYWAYS TO BS 4325 P9  
IMPERIAL STANDARD BORES TO BS 1916 K7, IMPERIAL STANDARD KEYWAYS TO BS 46

(2) WEIGHTS AND  $WR^2$  ARE GIVEN FOR COUPLINGS WITH SOLID HUBS ie Fitted on steel shafts

**Table 5 - Basic Rating**

COUPLING RATING (kW)	COUPLING SIZE		
	01	02	03
BASIC RATING AT 100 rev/min *	0.592	2.30	4.85
RATING AT 960 rev/min	5.68	22.1	46.5
RATING AT 1450 rev/min	8.58	33.4	70.3

\* Basic rating based on 3/4° Angular Misalignment per mesh

**Table 6 - Start / Stop Factor (Fs)**

START /STOPS PER HOUR	UP TO 1	3	5	10	20	40	60	100
UNIDIRECTIONAL	1.0	0.97	0.95	0.9	0.86	0.81	0.77	0.72
REVERSING	0.92	0.81	0.78	0.72	0.67	0.62	0.58	0.56

**Table 7 - Ambient Factor (Fa)**

AMBIENT TEMPERATURE °C	-30 to 20	30	40	50	60	70	80	90
RATING FACTOR (Fa)	1.0	0.83	0.70	0.57	0.48	0.40	0.36	0.31

**Table 8 - Rating Factor (Fr)**

% COUPLING SPEED	MISALIGNMENT PER GEAR MESH (DEGREES)				
	0 °	0.25 °	0.5 °	0.75 °	1 °
0 TO 50	1.5	1.28	1.12	1.0	0.85
60	1.48	1.26	1.11	1.0	0.85
70	1.46	1.24	1.09	1.0	0.85
80	1.37	1.18	1.02	0.9	0.81
90	1.27	1.08	0.94	0.83	0.76
100	1.12	0.95	0.92	0.77	0.68

NB INTERMEDIATE VALUES ARE OBTAINED BY LINEAR INTERPOLATION

$$\% \text{ COUPLING SPEED} = \frac{N}{N_{\max}} \times 100$$

WHERE N = COUPLING SPEED (REV/MIN)  
AND N<sub>max</sub> = THE MAXIMUM SPEED AT ZERO ANGULAR MISALIGNMENT  
FOR THE SAME SIZE COUPLING.

**Table 9 - Coupling Maximum Speed (Rev/min)**

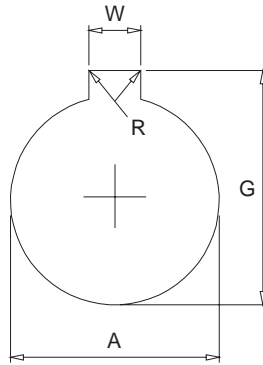
COUPLING SIZE	ALLOWABLE SPEED (REV/MIN)				
	MISALIGNMENT/MESH (DEGREES)				
	0 ° (N <sub>max</sub> )	0.25 °	0.5 °	0.75 °	1 °
01	8520	7330	5900	4000	3300
02	7000	6160	5200	3410	2550
03	5000	4430	3780	2630	2200

NOTE

IN TABLE 9 INTERMEDIATE VALUES ARE OBTAINED BY LINEAR INTERPOLATION

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**Table 10 - Metric Bore Availability and Bore Dimensions (mm)**

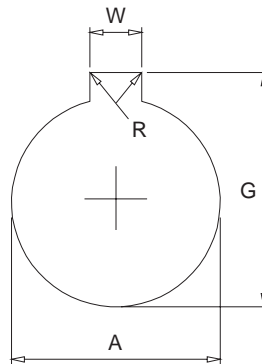


Column Entry 7,8,9,10 (driving) or 11,12,13,14 (driven)	Nominal Bore	Coupling Size			Bore A	Parallel Rectangular Keyway		
		01	02	03		Keyway Width W	Keyway Depth G	Keyway Corner Radius R
P - - -	Pilot	10	15	28	-	-	-	-
M 010	10				10.015 / 10.000	2.99 / 2.97	11.50 / 11.40	0.16 / 0.08
M 011	11				11.018 / 11.000	3.99 / 3.96	12.90 / 12.80	0.16 / 0.08
M 014	14				14.018 / 14.000	4.99 / 4.96	16.40 / 16.30	0.25 / 0.16
M 015	15				15.018 / 15.000	4.99 / 4.96	17.40 / 17.30	0.25 / 0.16
M 016	16				16.018 / 16.000	4.99 / 4.96	18.40 / 18.30	0.25 / 0.16
M 018	18				18.018 / 18.000	5.99 / 5.96	20.90 / 20.80	0.25 / 0.16
M 019	19				19.021 / 19.000	5.99 / 5.96	21.90 / 21.80	0.25 / 0.16
M 020	20				20.021 / 20.000	5.99 / 5.96	22.90 / 22.80	0.25 / 0.16
M 022	22				22.021 / 22.000	5.99 / 5.96	24.90 / 24.80	0.25 / 0.16
M 024	24				24.021 / 24.000	7.99 / 7.95	27.50 / 27.30	0.25 / 0.16
M 025	25				25.021 / 25.000	7.99 / 7.95	28.50 / 28.30	0.25 / 0.16
M 028	28				28.021 / 28.000	7.99 / 7.95	31.50 / 31.30	0.25 / 0.16
M 030	30				30.021 / 30.000	7.99 / 7.95	33.50 / 33.30	0.25 / 0.16
M 032	32				32.025 / 32.000	9.99 / 9.95	35.50 / 35.30	0.40 / 0.25
M 035	35				35.025 / 35.000	9.99 / 9.95	38.50 / 38.30	0.40 / 0.25
M 038	38				38.025 / 38.000	9.99 / 9.95	41.50 / 41.30	0.40 / 0.25
M 040	40				40.025 / 40.000	11.98 / 11.94	43.50 / 43.30	0.40 / 0.25
M 042	42				42.025 / 40.000	11.98 / 11.94	45.50 / 45.30	0.40 / 0.25
M 045	45				45.025 / 45.000	13.98 / 13.94	49.00 / 48.80	0.40 / 0.25
M 048	48				48.025 / 48.000	13.98 / 13.94	52.00 / 51.80	0.40 / 0.25
M 050	50				50.025 / 50.000	13.98 / 13.94	54.00 / 53.80	0.40 / 0.25
M 055	55				55.030 / 55.000	15.98 / 15.94	59.50 / 59.30	0.40 / 0.25

Metric Standard Bores are to BS 4500 : 1969 H7

Metric Standard keyways are to BS 4235 : Part 1 : 1972 P9

**Table 11 - Imperial Inch Bore Availability and Bore Dimensions**



Column Entry 7,8,9,10 (driving) or 11,12,13,14 (driven)	Nominal Bore	Coupling Size			Bore A	Parallel Square Keyway		
		01	02	03		Keyway Width W	Keyway Depth G	Keyway Corner Radius R
I 011	0.4375				0.4377 / 0.4370	0.126 / 0.125	0.503 / 0.497	0.010 / 0.006
I 013	0.500				0.5002 / 0.4995	0.126 / 0.125	0.556 / 0.550	0.010 / 0.006
I 014	0.5625				0.5627 / 0.5620	0.189 / 0.188	0.656 / 0.650	0.010 / 0.006
I 016	0.625				0.6252 / 0.6245	0.189 / 0.188	0.719 / 0.713	0.010 / 0.006
I 019	0.750				0.7502 / 0.7494	0.189 / 0.188	0.844 / 0.838	0.010 / 0.006
I 022	0.875				0.8752 / 0.8744	0.251 / 0.250	0.996 / 0.990	0.010 / 0.006
I 025	1.000				1.0002 / 0.9994	0.251 / 0.250	1.121 / 1.115	0.010 / 0.006
I 029	1.125				1.1252 / 1.1244	0.313 / 0.312	1.273 / 1.267	0.010 / 0.006
I 032	1.250				1.2503 / 1.2493	0.313 / 0.312	1.398 / 1.392	0.010 / 0.006

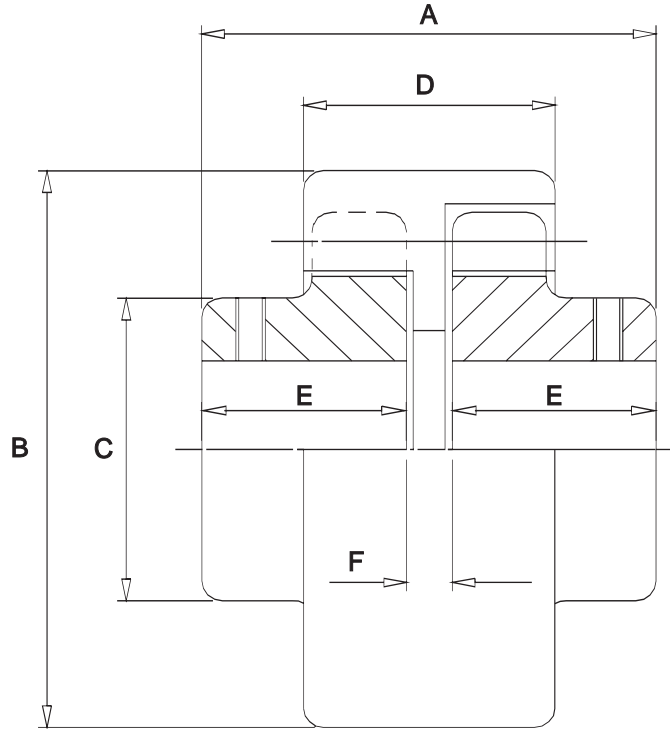
Column Entry 7,8,9,10 (driving) or 11,12,13,14 (driven)	Nominal Bore	Coupling Size			Bore A	Parallel Rectangular Keyway		
		01	02	03		Keyway Width W	Keyway Depth G	Keyway Corner Radius R
I 035	1.375				1.3753 / 1.3743	0.376 / 0.375	1.489 / 1.483	0.010 / 0.006
I 038	1.500				1.5003 / 1.4993	0.376 / 0.375	1.614 / 1.608	0.010 / 0.006
I 041	1.625				1.6253 / 1.6243	0.439 / 0.438	1.766 / 1.760	0.020 / 0.014
I 044	1.750				1.7503 / 1.7493	0.439 / 0.438	1.891 / 1.885	0.020 / 0.014
I 048	1.875				1.8753 / 1.8743	0.501 / 0.500	2.012 / 2.006	0.020 / 0.014
I 051	2.000				2.0004 / 1.9992	0.501 / 0.500	2.317 / 2.131	0.020 / 0.014
I 054	2.125				2.1254 / 2.1242	0.626 / 0.625	2.316 / 2.310	0.020 / 0.014
I 057	2.250				2.2504 / 2.2492	0.626 / 0.625	2.441 / 2.435	0.020 / 0.014

Imperial Standard Bores are to BS 1916 : Part 1 : 1953 K7

Imperial Standard keyways are to BS 46 : Part 1 : 1958

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**Table 12 - Coupling Dimensions**



COUPLING SIZE	DIMENSIONS ( MM )					
	A	B	C	D	E	DISTANCE BETWEEN HUB FACES F (Min)
<b>01</b>	50	64	39	28	22	6
<b>02</b>	76	89	58	42	35	6
<b>03</b>	104	115	78	56	48	8

**IMPORTANT****Product Safety Information**

**General** - The following information is important in ensuring safety. It **must** be brought to the attention of personnel involved in the selection of David Brown Radicon Limited power transmission equipment, those responsible for the design of the machinery in which it is to be incorporated and those involved in its installation, use and maintenance.

David Brown power transmission equipment will operate safely provided it is selected, installed, used and maintained properly. As with any power transmission equipment **proper precautions must** be taken as indicated in the following paragraphs, to ensure safety.

**Potential Hazards** - these are **not** necessarily listed in any order of severity as the degree of danger varies in individual circumstances. It is important therefore that the list is studied in its entirety:-

- 1) Fire/Explosion
  - (a) Oil mists and vapour are generated within gear units. It is therefore dangerous to use naked lights in the proximity of gearbox openings, due to the risk of fire or explosion.
  - (b) In the event of fire or serious overheating (over 300°C), certain materials (rubber, plastics, etc.) may decompose and produce fumes. Care should be taken to avoid exposure to the fumes, and the remains of burned or overheated plastic/rubber materials should be handled with rubber gloves.
- 2) Guards - Rotating shafts and couplings must be guarded to eliminate the possibility of physical contact or entanglement of clothing. It should be of rigid construction and firmly secured.
- 3) Noise - High speed gearboxes and gearbox driven machinery may produce noise levels which are damaging to the hearing with prolonged exposure. Ear defenders should be provided for personnel in these circumstances. Reference should be made to the Department of Employment Code of Practice for reducing exposure of employed persons to noise.
- 4) Lifting - Where provided (on larger units) only the lifting points or eyebolts must be used for lifting operations (see maintenance manual or general arrangement drawing for lifting point positions). Failure to use the lifting points provided may result in personal injury and/or damage to the product or surrounding equipment. Keep clear of raised equipment.
- 5) Lubricants and Lubrication
  - (a) Prolonged contact with lubricants can be detrimental to the skin. The manufacturer's instruction must be followed when handling lubricants.
  - (b) The lubrication status of the equipment must be checked before commissioning. Read and carry out all instructions on the lubricant plate and in the installation and maintenance literature. Heed all warning tags. Failure to do so could result in mechanical damage and in extreme cases risk of injury to personnel.
- 6) Electrical Equipment - Observe hazard warnings on electrical equipment and isolate power before working on the gearbox or associated equipment, in order to prevent the machinery being started.
- 7) Installation, Maintenance and Storage
  - (a) In the event that equipment is to be held in storage, for a period exceeding 6 months, prior to installation or commissioning, David Brown Radicon Limited must be consulted regarding special preservation requirements. Unless otherwise agreed, equipment must be stored in a building protected from extremes of temperature and humidity to prevent deterioration.  
  
The rotating components (gears and shafts) must be turned a few revolutions once a month (to prevent bearings brinelling).
  - (b) External gearbox components may be supplied with preservative materials applied, in the form of a "waxed" tape overwrap or wax film preservative. Gloves should be worn when removing these materials. The former can be removed manually, the latter using white spirit as a solvent.  
  
Preservatives applied to the internal parts of the gear units do not require removal prior to operation.
  - (c) Installation must be performed in accordance with the manufacturer's instructions and be undertaken by suitably qualified personnel.
  - (d) Before working on a gearbox or associated equipment, ensure that the load has been removed from the system to eliminate the possibility of any movement of the machinery and isolate power supply. Where necessary, provide mechanical means to ensure the machinery cannot move or rotate. Ensure removal of such devices after work is complete.
  - (e) Ensure the proper maintenance of gearboxes in operation. Use only the correct tools and David Brown Radicon Limited approved spare parts for repair and maintenance. Consult the Maintenance Manual before dismantling or performing maintenance work.
- 8) Hot Surfaces and Lubricants
  - (a) During operation, gear units may become sufficiently hot to cause skin burns. Care must be taken to avoid accidental contact.
  - (b) After extended running the lubricant in gear units and lubrication systems may reach temperatures sufficient to cause burns. Allow equipment to cool before servicing or performing adjustments.
- 9) Selection and Design
  - (a) Where gear units provide a holdback facility, ensure that back-up systems are provided if failure of the holdback device would endanger personnel or result in damage.
  - (b) The driving and driven equipment must be correctly selected to ensure that the complete machinery installation will perform satisfactorily, avoiding system critical speeds, system torsional vibration, etc.
  - (c) The equipment must not be operated in an environment or at speeds, powers, torques or with external loads beyond those for which it was designed.
  - (d) As improvements in design are being made continually the contents of this catalogue are not to be regarded as binding in detail, and drawings and capacities are subject to alterations without notice.

The above guidance is based on the current state of knowledge and our best assessment of the potential hazards in the operation of the gear units.

Any further information or clarification required may be obtained by telephoning or writing to: