



Renoldflex Coupling

Brochure

RENOLD | Couplings

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Innovation Everyday

Renold have been driving industry forward through innovation since 1879. Renold Couplings drives industry the world over, from marine, cranes and hoists to manufacture, mass transportation and the pulp and paper industry. Our couplings connect machines to machines through stock solutions and bespoke-crafted connections, all manufactured in our high-tech engineering factories.

Engineering capability

A team of in-house design engineers work to continuously improve the existing product range, introduce new products and deliver innovative new solutions to our customers challenges.

British manufacturer

Since 1946 Renold Couplings have manufactured a full range of couplings and clutches.

Based in Cardiff, UK, we control the full design and manufacture process, bringing class leading quality and complete customer peace of mind.

Worldwide support

With manufacturing facilities in 4 continents and support offices in over 30 countries Renold Couplings can offer service that understands the requirements and challenges of your particular market.

Availability

Renold Couplings holds significant stock of standard items and component parts both in our UK facility and with our partners around the world.

Controlling the full manufacturing process, Renold Couplings can deliver responsive lead times for manufactured parts.



Renoldflex

A torsionally stiff, backlash free coupling with misalignment capacity. Designed for use at high speeds and in high temperatures.

Coupling capacity

- Maximum power at 100rpm: 482kW
- Maximum torque: 46000Nm (Using HTT flexible elements)

General details

- 100% steel construction
- Steel hubs
- Stainless steel laminated flexible elements



Standard range comprises

- Shaft to Shaft
- Spacer type

Applications

- Pumps
- Fans
- Blowers
- Material handling
- Servo motor drives
- Machine tools
- Presses
- Cranes
- Wind turbines
- General industrial applications

Features and benefits

- Torsionally stiff – ideal for use on precision machines
- 100% maintenance free – long life with little wear
- Misalignment capabilities allowing flexibility in installation
- Zero backlash guarantees operational accuracy
- High operating temperatures, suitable for harsh operating environments and temperatures up to 240°C
- Taper bored and cone clamp hubs also available
- High transmissible torque (HTT) flexible elements available from size 70 up
- High operating speeds
- Multiple configurations – easily fits into your existing systems
- Large stock holding at Renold



Keyway dimensions

Metric (mm)

Keyways comply with BS4235: Part 1: 1972

Shaft dia.		Keyway		
Over	Incl.	J	K	L
6	8	2	2	1.0
8	10	3	3	1.4
10	12	4	4	1.8
12	17	5	5	2.3
17	22	6	6	2.8
22	30	8	7	3.3
30	38	10	8	3.3
38	44	12	8	3.3
44	50	14	9	3.8
50	58	16	10	4.3
58	65	18	11	4.4
65	75	20	12	4.9
75	85	22	14	5.4
85	95	25	14	5.4
95	110	28	16	6.4
110	130	32	18	7.4
130	150	36	20	8.4
150	170	40	22	9.4
170	200	45	25	10.4
200	230	50	28	11.4

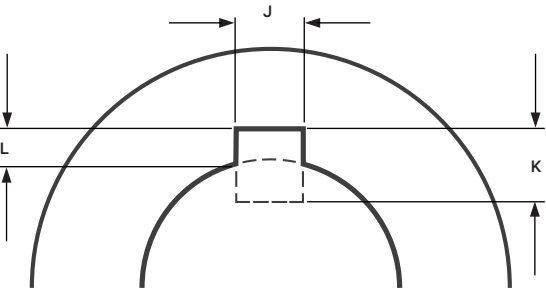
Imperial (inches)

Keyways comply with BS46: Part 1: 1958

Shaft dia.		Keyway		
Over	Incl.	J	K	L
0.25	0.05	0.125	0.125	0.060
0.50	0.75	0.187	0.187	0.088
0.75	1.00	0.250	0.250	0.115
1.00	1.25	0.312	0.250	0.090
1.25	1.50	0.375	0.250	0.085
1.50	1.75	0.437	0.312	0.112
1.75	2.00	0.500	0.312	0.108
2.00	2.50	0.625	0.437	0.162
2.50	3.00	0.750	0.500	0.185
3.00	3.50	0.875	0.625	0.245
3.50	4.00	1.000	0.750	0.293
4.00	5.00	1.250	0.875	0.340
5.00	6.00	1.500	1.000	0.384

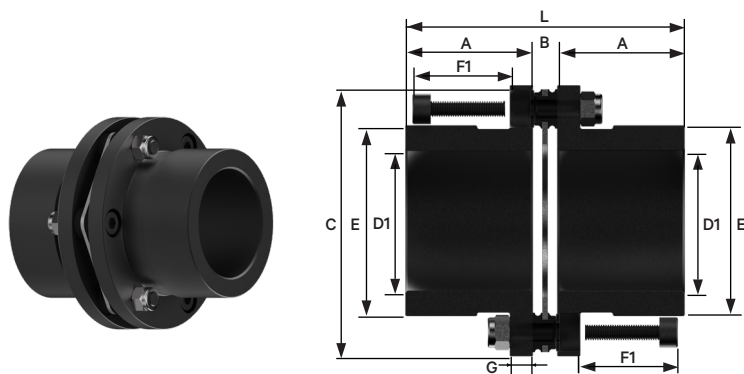
Keyway dimensions

Parallel keyways are supplied unless customer states otherwise.

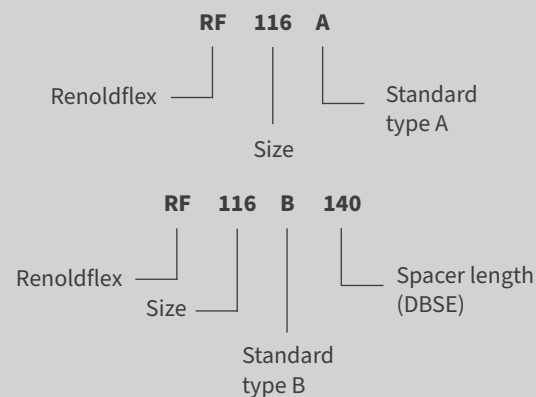


Renoldflex

Type A



Ordering code

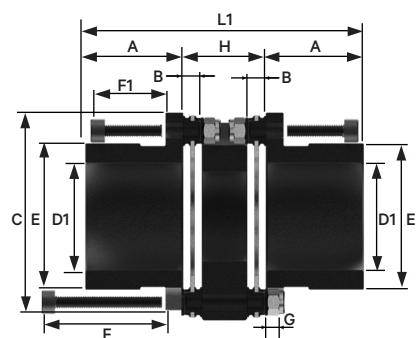


Catalogue number	A mm	B mm	C mm	Pilot bore D mm	Max bore D ₁ * mm	E mm	F ₁ mm	G mm	Spacer length		L mm	L ₁ mm	Coupling weights		
									H mm				Hub (pilot bore) kg	Disc packs kg	Spacer kg
40	17	2.9	40	6	15	26	15	4	16		36.9	50	Please consult Renold		
53	24.5	6.9	53	6	22	32.5	25	5	30		55.9	79	0.2	0.6	0.2
									39			88	0.2	0.7	0.2
70	39.5	7.5	70.5	10	35	47	25	5	31.2		86.5	110.2	0.6	0.1	0.3
									60			139	0.6	0.1	0.3
									100			179	0.6	0.1	0.5
									140			219	0.6	0.1	0.6
88	45	8.8	88.3	14	45	62.5	32	8	37.6		98.8	127.6	1.2	0.1	0.6
									70			160	1.2	0.2	0.7
									80			170	1.2	0.2	0.7
									100			190	1.2	0.2	0.8
									140			230	1.2	0.2	1.1
116	55	10.4	116.5	15	60	82	40	10	46.3		120.4	156.3	2.4	0.3	1.3
									100			210	2.5	0.2	1.4
									140			250	2.5	0.2	1.7
									180			290	2.5	0.2	2.0
140	60	12	140.5	19	75	98	47	11	55		132	175	3.7	0.4	2.3
									100			220	3.9	0.4	2.1
									140			260	3.9	0.4	2.6
									180			300	3.9	0.4	3.0
166	75	13	166.5	25	90	118	56	12	62.6		163	216.6	7.0	0.9	3.2
									100			250	7.0	0.9	3.8
									140			290	7.0	0.9	4.5
									180			330	7.0	0.9	4.5
198	90	15	198.5	30	100	141	64	14	71.8		195	251.8	11.8	1.4	5.2
									140			320	11.8	1.4	6.0
									180			360	11.8	1.4	6.0
238	125	20.8	238	39	120	169	81	16	140		270.8	392.4	23.3	2.2	10.0
									180			432.4	23.23	2.2	11.8
295	160	28	295	59	150	205	112	22	200		348	520	Please consult Renold		
									250						
345	200	32	345	79	180	254	133	26	224		432.2	624	Please consult Renold		
									250			650	Please consult Renold		

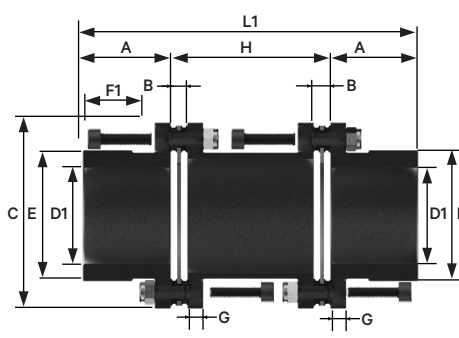
*Use maximum bore D₁ only for uniform load. For heavy duty class, maximum bore: $D_1 = \frac{E}{1.45}$

Renoldflex

Type B H-MIN

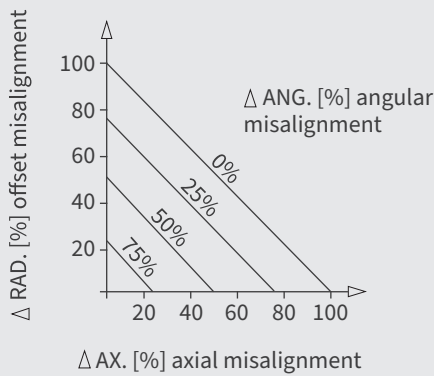
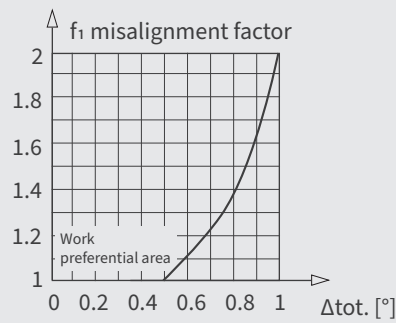


Type B

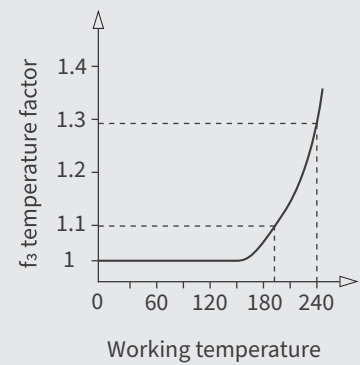


			Renoldflex type A Single disc pack				Renoldflex type B Double disc pack					Torsional stiffness ***			
Size	Nominal torque T* Nm	Max speed V** rpm	Misalignment			Inertia J kg m²	Spacer length H mm		Misalignment			Inertia J kg m²	Disc pack CK Nm/rad	Spacer CH 10⁶ Nm mm/rad	C TOT Nm/rad
			Radial offset mm	Axial mm	Angular (°)				Radial offset mm	Axial mm	Angular (°)				
40	18	12000	0	0.4	0.75	0.00002	16 26	Available up to 3000mm upon request	0.2 0.3	0.8	1.75	0.00005 0.00004	Please consult Renold		
53	75	10000	0	0.4	0.75	0.00011	30 39		0.3 0.4	0.8	1.5	0.00016 0.00019	113406	4.1	56703 41988.45
70	170	8400	0	0.5	0.75	0.00049	31.2 60 100 140		0.3 0.7 1.2 1.4	1.1	1.5	0.00071 0.00076 0.00081 0.00087	142464	11.8	71232 56065.02 47142.56 40670.11
88	320	6800	0	0.6	0.75	0.00164	37.6 70 80 100 140		0.4 0.8 0.9 1.2 1.7	1.2	1.5	0.00218 0.00252 0.00256 0.00265 0.00282	200260	51.6	100130 90889.35 89316.32 86328.13 80913.99
116	750	5400	0	0.8	0.75	0.00991	46.3 100 140 180		0.5 1.2 1.7 2.2	1.6	1.5	0.00795 0.00928 0.00986 0.01047	341665	130.4	170832.5 154769.46 147752.84 141344.84
140	1350	4600	0	1	0.75	0.01359	55 100 140 180		0.7 1.1 1.7 2.2	2.1	1.5	0.01824 0.02093 0.02179 0.02264	503858	236	233020.5 224165.39 215958.66
166	2400	3800	0	1.2	0.75	0.0345	62.6 100 140 180	0.7 1.1 1.7 2.2	2.5	1.5	0.05175 0.05379 0.05584	938363	576.1	442511.2 429319.64 416891.81	
198	4000	3400	0	1.4	0.75	0.08368	71.8 140 180	0.7 1.6 2.2	2.8	1.5	0.12413 0.12736	1258733	959.8	587023.07 573004.37	
238	6500	3000	0	1.7	0.75	0.22773	140 180	1.6 2.1	3.4	1.5	0.33419 0.34564	23.3 23.23	2.2 2.2	10.0 11.8	
295	21000	2500	0	1.1	0.5	0.7	200 250	1.4 1.8	2.2	1	1.07 1.1	Please consult Renold			
345	36000	2100	0	1.3	0.5	1.75	224 250 300	1.6 1.8 2.2	2.6	1	2.62 2.64 2.68	Please consult Renold			

[fig 02] misalignment diagram

[fig 03] misalignment factor f_1 

Note: allowance should be made for change in misalignment encountered during operation. e.g. due to thermal expansion.

[fig 04] temperature factor f_2 

For applications with temperatures over 80°C this must be stated on order.

Renoldflex coupling size selection

In order to select the most suitable sized coupling, a number of service factors must be taken into consideration. These service factors make adjustments to the design torque (T) of an application to take into account factors such as misalignment, load classification, driver classification as well as high ambient temperatures to produce a selection torque (T_s , where $T_s = T \times f_s$). The most suitable coupling is then selected by comparing the selection torque (T_s) and the couplings nominal torque (T_N). Please note – it is important to ensure that the coupling selected will accept the required shaft diameters. Should shaft diameter exceed the maximum permissible then a larger coupling should be selected.

The total service factor $f_s = f_1 \times f_2 \times f_3$; where f_1 is the misalignment factor, f_2 is the load classification factor and f_3 is the temperature factor. Note; the load classification factor is weighted depending upon the prime mover classification. These service factors are defined below:

Misalignment factor f_1

The maximum misalignments quoted within the technical data for the Renoldflex coupling range cannot be present at the same time. Therefore, the presence of any axial misalignment Δax reduces the possibility for offset misalignment Δrad and angular misalignment Δang , which can be seen in [fig 02]. The combined total angular misalignment ΔTOT is a function of the angular misalignment Δang and offset misalignment Δrad of the shafts, according to the following formula:

$$\Delta TOT [^\circ] = \frac{\Delta ang}{2} + \arctan \frac{\Delta rad}{(H-B)}$$

The values H and B [mm] are given in the overall dimensions table. The misalignment factor f_1 is a function of ΔTOT as shown in [fig 03].

Load factor f_2

The following load factors apply for machines operated by electric or hydraulic motors as well as steam or gas turbines.

Operating machine	Load factor f_2
Blowers: low inertia	1.1
Blowers: high inertia, cooling towers	2.0
Centrifugal pumps: low inertia and light liquids	1.1
Centrifugal pumps: high inertia or semi-liquid materials	1.75
Conveyors	1.5
Elevators and cranes	2.0
Gear pumps	1.5
Machine tools: auxiliary drives	1.1
Machine tools: main drives	1.75
Mills	2.5
Paper machines and textile machines	2.0
Presses	3.0
Reciprocating pumps	2.5
Woodworking machines	1.5

For machines operated by alternative prime movers the load factor f_2 must be adjusted as follows:

- $f_2 + 1$ for machines operated by IC engines with 4 or 5 pistons.
- $f_2 + 0.5$ for machines operated by IC engines with 6 pistons, hydraulic turbines or with a start torque > 2 .
- The following must be taken into account with regard to repetitive high peak torque applications:
 - For non reversing duty: $T > \text{Peak torque}$
 - For reversing duty: $T > 1.5 \text{ Peak torque}$.

Temperature factor f_3

Renoldflex couplings are unaffected by temperatures up to 160°C. For applications with higher temperatures, the temperature factor f_3 seen in [fig 04] must be taken into consideration.

* Renoldflex allows 1.75 times the nominal

** See [fig 05] & [fig 06]

*** The torsional stiffness of a single pack complete coupling can be approximated to the torsional stiffness of 1 disc pack C_k

The torsional angle of a single pack coupling

$$[\circ] = \frac{180}{\pi} \frac{T}{C_k}$$

The torsional stiffness of a complete double pack coupling can be approximated to:

$$C_{TOT} = \frac{1}{\frac{2}{C_k} + \frac{H-2B}{C_h}}$$

H, B – see catalogue overall dims

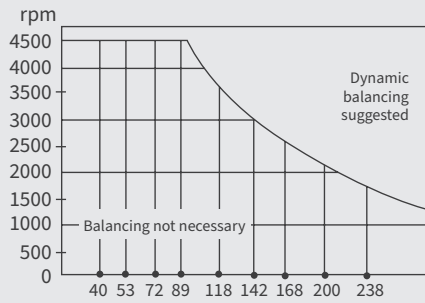
The torsional angle of a double pack coupling

$$[\circ] = \frac{180}{\pi} \frac{T}{C_k}$$

T (Nm) – Transmitted torque

[fig 05] balancing

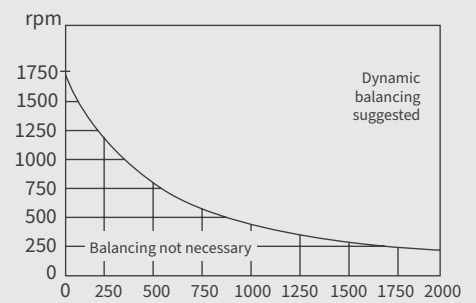
Renoldflex type A



Size

[fig 06] balancing

Renoldflex type B



H = spacer length

Balancing; Renoldflex standard elements are balanced to grade G6.3 - BS ISO 1940-1:2003.

Additional balancing is recommended for applications over the speed curves in [fig 05] and [fig 06].

Type E/F



- Spacer Assembly with reversed hubs inside spacer
- Allows radial misalignment whilst maintaining a shorter DBSE
- TYPE E – 1 reversed hub
- Type F – 2 reversed hubs
- Available with a variety of spacer lengths

Type N/P



- Clamping hub with radial screws
- TYPE N – single disc pack
- Type P – double disc pack with variety of spacer lengths
- Type Pmin – double disc pack with minimum spacer length

Type G/H



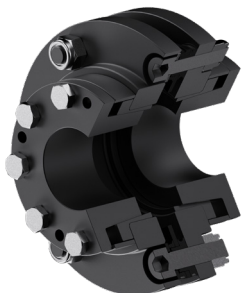
- 3-part shrink disc to clamp shaft to hub
- 2-part option also available
- TYPE G – single disc pack
- Type H – double disc pack with variety of spacer lengths
- Type Hmin – double disc pack with minimum spacer length

Type X/Y



- Split hubs with radial screws
- Allows seamless drop-in installation with no need to move equipment
- TYPE X – single disc pack
- Type Y – double disc pack with variety of spacer lengths
- Type Ymin – double disc pack with minimum spacer length

Type L/M



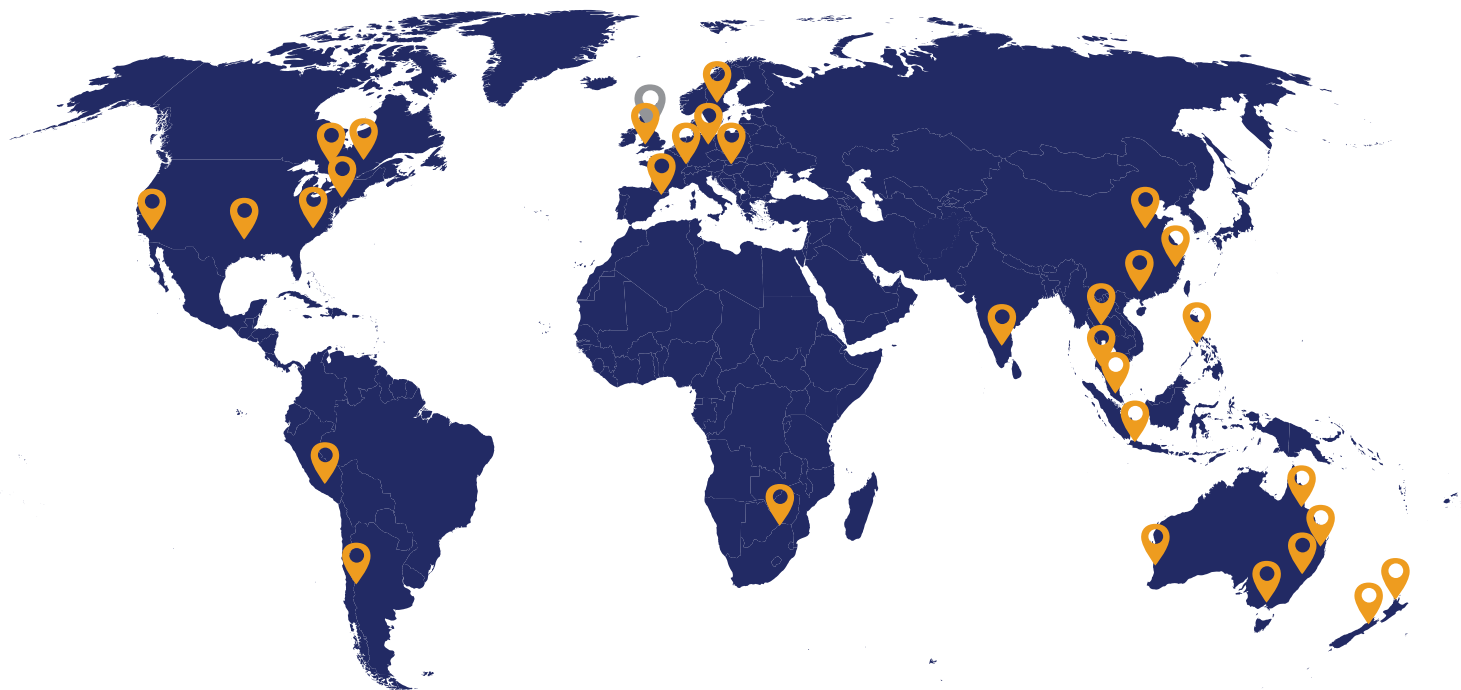
- Internal clamping element within hub
- TYPE L – single disc pack
- Type M – double disc pack with variety of spacer lengths
- Type Mmin – double disc pack with minimum spacer length



Additional configurations available with alternative installation methods

**Please contact Renold Sales at Cardiff.
sales@renold.com for further information.**

Global services



 **Head office**  **Renold locations**



Internal support

Sales team embedded in the manufacturing site with unrivalled product knowledge



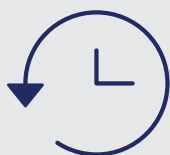
Large engineering team

Our team can design a quality coupling to match your exact requirements



Manufacturing facility

Designed and manufactured in house by Renold; giving ultimate control on our solutions



History and Longevity

Manufacturing in the UK for over 100 years and commitment in our facilities for the long term, we are here to stay



Excellent Communication

From an accessible sales team, weekly order updates and a global sales network we make it easy to communicate



Record investment

Heavy investment in our business; spending millions of pounds upgrading CNC equipment, metrology arms and the newest software and test rigs

Get in touch

For your local Renold
sales and service location

+44 (0) 29 2079 2737



cardiff.sales@renold.com



www.renold.com



Wentloog Corporate Park
Newlands Road, Cardiff
CF3 2EU



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