



HIGH
TORQUE
LOW
COST

RBI HI-TEC INDUSTRIAL COUPLINGS



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RENOLD
Engineering for Life

RENOLD HI-TEC RBI COUPLING

General purpose, cost effective range, which is manufactured in SG iron for torques up to 44253 Lb. Ft.

The Standard Range Comprises

- Shaft to shaft
- Shaft to shaft with increased shaft engagement

Applications

- Rubber processing and plastics industry
- Fluid transmission industry
- Material Handling
- Cranes & Hoists
- Metal manufacture
- Bulk handling
- Pulp and paper industry
- General purpose industrial applications.

Benefits

- Ensures continuous operation of the driveline in the unlikely event of rubber damage
- Achieves low vibratory loads in the driveline components by selection of optimum stiffness characteristics
- With no lubrication or adjustment required resulting in low running costs
- Avoids failure of the driveline under short circuit and other transient conditions
- Allows axial and radial misalignment between the driving and driven machines
- Eliminates torque amplifications through pre-compression of the rubber elements
- The RBI Coupling gives the lowest lifetime cost.



Features

- Intrinsic fail safe
- Control of resonant torsional vibration
- Maintenance free
- Severe shock load protection
- Misalignment capability
- Zero backlash
- Low cost.

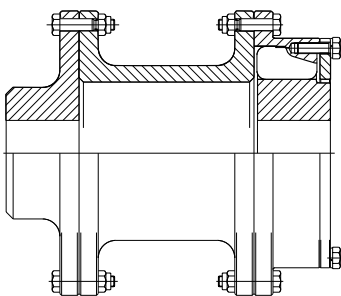
Construction Details

- Spheroidal graphite to BS EN 1563:2011 Grade 400-15
- Separate rubber elements with a standard SM80 shore hardness
- Rubber elements which are totally enclosed and loaded in compression.

BESPOKE SERVICES

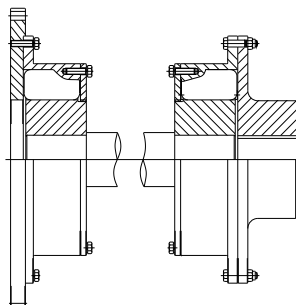
The Hi-Tec RBI Coupling can be adapted to meet customer requirements, as can be seen from some of the design variations shown below. For a more comprehensive list, contact Renold Couplings.

SPACER COUPLING



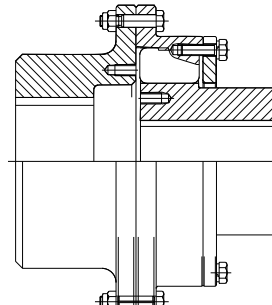
Spacer Coupling: Used to increase distance between shaft ends and allow easy access to driven and driving machines.

CARDAN SHAFT COUPLING



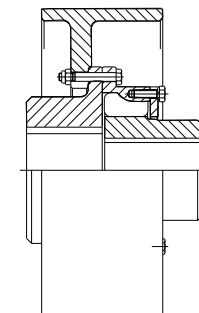
Cardan Shaft Coupling: Used to increase the distance between shaft ends and give a higher misalignment capability.

COUPLING WITH LONG BOSS INNER MEMBER



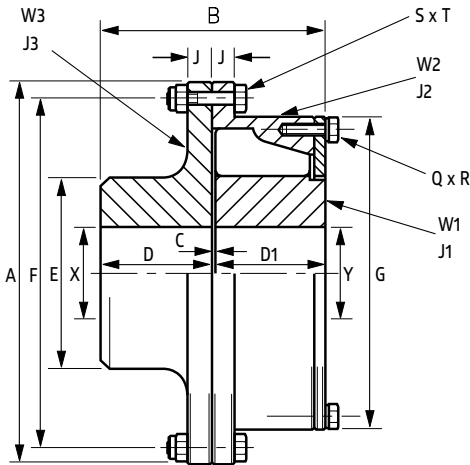
Coupling with long boss inner member and large boss driving flange: Increases shaft engagement and accepts larger shafts.

BRAKE DRUM COUPLING



Coupling with brake drum: Used on cranes, fans, and conveyor drives (brake disk couplings are available).

RENOLD RBI SHAFT TO SHAFT



Features

- Can accommodate a wide range of shaft diameters
- Easy disconnection of the outer member and driving flange
- Coupling available with limited end float

Benefits

- Allows the optimum coupling to be selected
- Allows the driving and driven machines to be disconnected
- Provides axial location for armatures with axial float

Coupling Size		RBI 1.4	RBI 2.1	RBI 2.6	RBI 4	RBI 8	RBI 12	RBI 23	RBI 40	RBI 60
INERTIA (lb.in ²)	J1	15.04	28.70	44.76	79.62	192.39	478.06	1102.72	2900.84	6708.93
	J2	79.28	128.14	186.58	303.10	683.43	1255.47	3770.85	6547.64	11752.00
	J3	52.28	92.26	135.32	220.07	504.03	977.99	2733.05	5166.76	10181.81

Dimensions, Weight and Alignment

Coupling Size		RBI 1.4	RBI 2.1	RBI 2.6	RBI 4	RBI 8	RBI 12	RBI 23	RBI 40	RBI 60
DIMENSIONS (in)	A	7.87	8.75	9.37	10.25	12.13	14.13	18.37	20.00	22.50
	B	4.13	4.38	4.87	5.37	6.87	7.63	9.19	10.25	11.25
	C	0.13	0.13	0.13	0.13	0.13	0.13	0.19	0.25	0.25
	D	2.00	2.13	2.37	2.63	3.37	3.75	4.50	5.00	5.50
	D1	2.00	2.13	2.37	2.63	3.37	3.75	4.50	5.00	5.50
	E	3.13	3.75	4.00	4.75	6.00	7.25	8.75	10.88	13.00
	F	7.00	7.87	8.37	9.25	11.00	12.75	17.25	18.50	21.37
	G	6.16	7.01	7.34	8.27	9.88	11.61	14.25	17.13	19.74
	J	0.50	0.56	0.63	0.69	0.75	0.75	0.75	0.87	1.00
	Q	5	6	6	6	6	6	6	7	8
	R	M8	M8	M8	M10	M10	M12	M12	M12	M12
	S	6	10	6	8	8	18	16	22	22
	T	M8	M8	M10	M10	M12	M12	M12	M16	M16
	MAX.X	1.97	2.36	2.56	3.15	3.74	4.53	5.51	6.69	8.27
	MAX.Y	2.17	2.76	2.95	3.35	3.74	4.53	5.51	6.69	8.27
MIN. X&Y	1.18	1.38	1.57	1.57	2.17	2.17	2.76	3.15	3.54	
Rubber Elements	Per Cavity	1	1	1	1	1	1	1	1	1
Maximum Speed (rpm)	(1)	5250	4725	4410	4035	3410	2925	2250	2070	1820
Weight (3) (lb)	W1	6.22	8.91	11.66	16.52	28.27	51.57	79.12	138.50	225.11
	W2	8.82	11.14	14.07	17.95	29.30	40.59	74.93	96.73	130.10
	W3	8.95	12.83	16.36	23.02	39.76	60.35	104.58	166.23	249.87

Allowable Misalignment (2)

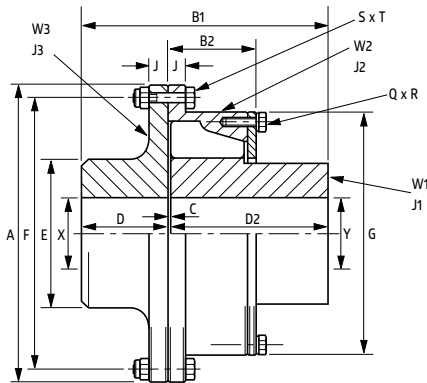
Radial (in)	0.03	0.03	0.03	0.03	0.04	0.06	0.06	0.06	0.06
Axial (in)	0.06	0.06	0.06	0.06	0.06	0.06	0.08	0.12	0.12
Angular (degree)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

(1) For operation above 80% of the declared maximum coupling speed, it is recommended that the coupling is dynamically balanced.

(2) Installations should be initially aligned as accurately as possible. In order to allow for deterioration in alignment over time, it is recommended that initial alignment should not exceed 25% of the above noted data. The forces on the driving and driven machinery should be calculated to ensure that these do not exceed the manufacturers allowables.

(3) Weights and inertias are based on the minimum bore size.

RBI SHAFT TO SHAFT WITH INCREASED SHAFT ENGAGEMENT (OPTIONAL)



Features

- Long Boss Inner Member

Benefits

- Allows small diameter long length shafts to be used
- Reduces key stress
- Allows increased distances between shaft ends
- Full shaft engagement avoids the need for spacer collars

Coupling Size	RBI 1.4	RBI 2.1	RBI 2.6	RBI 4	RBI 8	RBI 12	RBI 23	RBI 40	RBI 60	
INERTIA	J1	20.16	41.35	65.95	111.40	263.12	647.90	1485.44	4043.54	9893.74
(lb.in²)	J2	79.28	128.14	186.58	303.10	683.43	1255.47	3770.85	6547.64	11752.00
	J3	52.25	92.26	135.32	220.07	504.03	977.99	2733.05	5166.76	10181.81

Coupling Size	RBI 1.4	RBI 2.1	RBI 2.6	RBI 4	RBI 8	RBI 12	RBI 23	RBI 40	RBI 60
Nominal Torque TKN (Lb. Ft.)	347.39	534.73	630.62	972.84	1913.97	3021.79	5659.31	10133.37	14437.78
Maximum Torque TKN (Lb. Ft.)	1025.21	1578.38	1902.91	2913.37	5922.62	8961.38	16927.05	30313.80	45360.07
Vibratory Torque TKN (Lb. Ft.)	134.97	207.99	245.61	378.37	743.46	1174.94	2200.89	3940.06	56150.6

Allowable Dissipated Heat at Ambient Temperature of 86° F Pkw (Watts)	100	138	154	173	228	250	302	410	520
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Dynamic Torsional Stiffness CTdym (x10⁶ lb-in/rad)

@0.10 TKN	0.089	0.115	0.142	0.221	0.443	0.673	1.266	1.947	4.417
@0.25 TKN	0.124	0.159	0.186	0.301	0.602	0.903	1.708	2.629	5.957
@0.5 TKN	0.257	0.327	0.398	0.62	1.248	1.894	3.585	5.496	11.736
@0.75 TKN	0.549	0.708	0.850	1.31	2.664	4.036	7.621	11.683	22.419
@1.0 TKN	0.947	1.213	1.469	2.248	4.576	6.921	13.073	20.074	36.757

Radial Stiffness - No Load (x10³ Lb/In)	12.197	12.614	14.298	15.988	21.013	23.126	28.596	31.977	35.232
Radial Stiffness - @ TKN (x10³ Lb/In)	38.646	47.765	54.378	60.396	81.655	87.594	108.750	141.612	179.299

Axial Stiffness - No Load (lb/in)	1011	1131	1399	1473	1822	1953	2358	2946	3900
Max. Axial Force - @ TKN (lb ft)	731	899	989	1012	1461	1630	1967	2585	3260

Rubber Grade	Temp _{max} °F	S _t	Dynamic Magnifier (M _{B6})	Relative Damping Ψ 86
SM80	212	S _t 212 0.58	4	1.57

Should you require a custom Hi-Tec coupling to meet a specific requirement, our experienced team of engineers will work alongside you to create a bespoke offering to meet your needs.

Our team are supported by substantial facilities to enable ongoing testing and development, which includes the capability for:

- Measurement of torsional stiffness up to 162263 Lb. Ft.
- Full scale axial and radial stiffness measurement
- Misalignment testing of couplings up to 6.56 ft diameter
- Static and dynamic balancing
- 3D stp and AutoCAD files
- Finite element analysis of both metal and rubber components
- Torsional vibration calculations
- Transient analysis

To discuss your project, contact us today

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RENOLD
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Renold Couplings has been established since the 1940's. We consist of three facilities which manufacture the widest range of couplings worldwide, including the Hi-Tec product line.

Renold is recognized throughout the industry for its capability to create specific solutions to customer's unique requirements. International companies and industries, from steel to food processing to escalators to rubber and plastics machinery, have chosen Renold to solve their problems.

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