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 220 kN.m
- Full scale axial and radial stiffness measurement
- Misalignment testing of couplings up to 2m diameter
- Static and dynamic balancing
- 3D stp and AutoCAD files
- Finite element analysis of both metal and rubber components
- Torsional vibration calculations
- Transient analysis

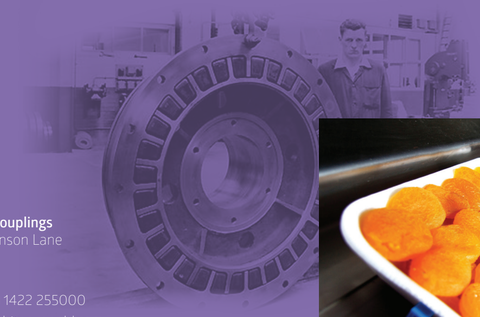
To discuss your project, contact us today on

+44 (0) 1422 255000

www.renold.com sales@hitec.renold.com

Renold Couplings has been established since the 1940's and consists of three facilities, manufacturing the widest range of couplings worldwide, including the Hi-Tec product range.

Renold is recognised 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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RENOLD HI-TEC RBI COUPLING

General purpose, cost effective range, which is manufactured in SG iron for torques up to 60kN.m.

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

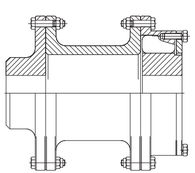
Features
- Intrinsically fail safe
- Control of resonant torsional vibration
- Maintenance free
- Severe shock load protection
- Misalignment capability
- Zero backlash
- Low cost.

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

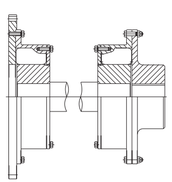
The Hi-Tec RBI Coupling can be adapted to meet customer requirements, as can be seen from some of the design variations shown below. For a more comprehensive list, contact Renold Couplings.

SPACER COUPLING



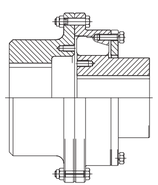
Spacer Coupling. Used to increase distance between shaft ends and allow easy access to driven and driving machines.

CARDAN SHAFT COUPLING



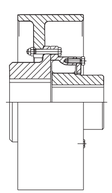
Cardan Shaft Coupling. Used to increase the distance between shaft ends and give a higher misalignment capability.

COUPLING WITH LONG BOSS INNER MEMBER



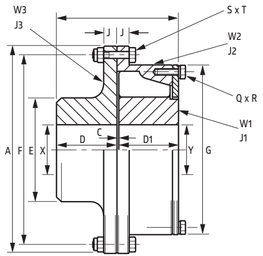
Coupling with long boss inner member and large boss driving flange to increase shaft engagement and to accept larger shafts.

BRAKE DRUM COUPLING



Coupling with brake drum for use 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	J1	0.0044	0.0084	0.0131	0.0233	0.0563	0.1399	0.3227	0.8489	1.9633
(kgm²)	J2	0.0232	0.0375	0.0546	0.0887	0.20	0.3674	1.1035	1.9161	3.4391
	J3	0.0153	0.027	0.0396	0.0644	0.1475	0.2862	0.7998	1.512	2.9796

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 (mm)	A	200.0	222.2	238.1	260.3	308.0	358.8	466.7	508.0	571.5
	B	104.8	111.2	123.8	136.5	174.6	193.7	233.4	260.4	285.8
	C	3.2	3.2	3.2	3.2	3.2	3.2	4.8	6.4	6.4
	D	50.8	54.0	60.3	66.7	85.7	95.2	114.3	127.0	139.7
	D1	50.8	54.0	60.3	66.7	85.7	95.2	114.3	127.0	139.7
	E	79.4	95.2	101.6	120.6	152.4	184.1	222.2	279.4	330.2
	F	177.8	200.0	212.7	235.0	279.4	323.8	438.15	469.9	542.92
	G	156.5	178	186.5	210	251	295	362	435	501.5
	J	12.7	14.3	15.9	17.5	19.0	19.0	19.0	22.2	25.4
	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	50	60	65	80	95	115	140	170	210
	MAX.Y	55	70	75	85	95	115	140	170	210
	MIN. X&Y	30	35	40	40	55	55	70	80	90
Rubber	Per Cavity	1	1	1	1	1	1	1	1	1
Elements	Per Coupling	10	12	12	12	12	12	12	14	16
Maximum Speed (rpm)	(1)	5250	4725	4410	4035	3410	2925	2250	2070	1820
Weight (3) (kg)	W1	2.82	4.04	5.29	7.49	12.82	23.39	35.88	62.81	102.09
	W2	4.00	5.05	6.38	8.14	13.29	18.41	33.98	43.87	59.00
	W3	4.06	5.82	7.42	10.44	18.03	27.37	47.43	75.39	113.32
Allowable Misalignment (2)										
Radial (mm)		0.75	0.75	0.75	0.75	1.0	1.5	1.5	1.5	1.5
Axial (mm)		1.5	1.5	1.5	1.5	1.5	1.5	2.0	3.0	3.0
Angular (degree)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

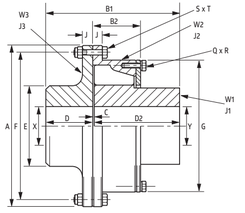
(1) For operation above 80% of the declared maximum coupling speed, it is recommended that the coupling is dynamically balanced.

(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.

RENOLD RBI TECHNICAL DATA

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	0.0059	0.0121	0.0193	0.0326	0.0770	0.1896	0.4347	1.1833	2.8953
(kgm²)	J2	0.0232	0.0375	0.0546	0.0887	0.2000	0.3674	1.1035	1.9161	3.4391
	J3	0.0153	0.0270	0.0396	0.0644	0.1475	0.2862	0.7998	1.5120	2.9796

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 (kN.m)	0.471	0.725	0.855	1.319	2.595	4.097	7.673	13.739	19.575
Maximum Torque TKN (kN.m)	1.39	2.14	2.58	3.95	8.03	12.15	22.95	41.10	61.50
Vibratory Torque TKN (kN.m)	0.183	0.282	0.333	0.513	1.008	1.593	2.984	5.342	7.613
Allowable Dissipated Heat at Ambient Temperature of 30° C Pkw (Watts)	100	138	154	173	228	250	302	410	520
Dynamic Torsional Stiffness CTdym (MNm/rad)									
@0.10 TKN	0.010	0.013	0.016	0.025	0.050	0.076	0.143	0.220	0.499
@0.25 TKN	0.014	0.018	0.021	0.034	0.068	0.102	0.193	0.297	0.673
@0.5 TKN	0.029	0.037	0.045	0.070	0.141	0.214	0.405	0.621	1.326
@0.75 TKN	0.062	0.080	0.096	0.148	0.301	0.456	0.861	1.320	2.533
@1.0 TKN	0.107	0.137	0.166	0.254	0.517	0.782	1.477	2.268	4.153
Radial Stiffness - No Load (N/mm)	2136	2209	2504	2800	3680	4050	5008	5600	6170
Radial Stiffness - @ TKN (N/mm)	6768	8365	9523	10577	14300	15340	19045	24800	31400
Axial Stiffness - No Load (N/mm	177	198	245	258	319	342	413	516	683
Max. Axial Force - @ TKN (N)	3250	4000	4400	4500	6500	7250	8750	11500	14500

Rubber Grade	$Temp_{max}$ °C	S_t	Dynamic Magnifier (M_{100})	Relative Damping Ψ 30
SM80	100	S_t100 0.58	4	1.57