

Flexible Shaft Couplings



R & D Marine has developed a wide range of competitively priced Flexible Couplings to fit all major installations.

The R & D Flexible Couplings reduce engine noise, vibration transmission and are designed to accept propeller thrust, a separate thrust bearing and bulk head are not required.

The couplings are made from a polyester elastomer which is not affected by salt water, diesel and lubrication fluids.

If electrical continuity is required an earthing connector can be fitted in the centre of most Flexible Couplings.

Installation is quick and easy as the R & D Coupling requires no machining and comes supplied with bolts to connect between the two existing shaft flanges.

Checking alignment on installation and during service checks is quick and easy using the red cone headed bolt.

Products are available ex-stock and worldwide through our distribution network.

- For engines 5 to 1500 HP
- Reduces engine noise and vibration transmission
- Fail safe design
- Bolts between existing shaft flanges
- Requires no machining
- Simple to install
- Simple to periodically check alignment
- Wide range of stock
- Accepts propeller thrust
- Impervious to salt water, diesel and lubrication oils
- Fast installation time
- Electrical continuity available
- Worldwide availability
- Competitively priced

R & D Marine Flexible Shaft Couplings

How to Select (details required)

1. Engine horse power and Engine Speed
2. Gearbox type and reduction ratio
3. Gearbox flange details. Diameter of flange. Diameter of register. Pitch circle diameter of fixing holes. Size and quantity of holes (Pitch circle diameter is the distance between the centre of hole at 12 o'clock position to the centre of the hole at 6 o'clock)

Example

1. Ford 150 HP at 2500 RPM
2. Borg Warner Velvet Drive 72C 2:1 Reduction
3. 5" Flange, 2.500 dia Register, 4.250 PCD, 4 off holes 0.437 diameter

To calculate Power of coupling required.

$$\frac{\text{Horse Power of Engine} \times \text{Reduction Ratio} \times 100}{\text{Engine Speed}} = \text{HP}/100\text{rpm}$$

$$\frac{150 \times 2 \times 100}{2500} = 12 \text{ HP}/100 \text{ rpm} \quad \text{Coupling Required 910-009 Borg Warner}$$

The R & D 910 Series couplings consist of a contoured flexible disc moulded in tough yet resilient new type Polyester Elastomer. The contoured disc gives clearance for bolt heads, and is able to flex freely to take up any temporary misalignment of the engine and shaft, due to flexing of the boat structure or the engine moving on its rubber vibration isolation mountings. Forward thrust is taken in compression on the disc between the two half couplings and reverse thrust is taken again in compression on the disc between the two fail safe straps. In the unlikely event of a disc failure, the steel straps make the coupling fail safe and ensure drive is maintained in both forward and reverse.

Couplings as standard are non-conducting but we can supply a silver impregnated rubber element to fit in the centre of the coupling between the two fail safe straps to give continuity if required.

Coupling Selection Guide

Borg Warner

500	910-014, 910-001
1000	910-014, 910-001
1500	910-014, 910-001, 910-004
71C	910-014, 910-001, 910-004, 910-009 (BW)
72C	910-009 (BW), 910-029
5000	910-009 (BW), 910-029
73 C	910-003, 910-025, 910-032
7000	910-003, 910-025, 910-032

Bukh

4"	910-013
4"	910-028

Enfield & Sonic Drives

910-021

Lister

910-052

Newage PRM

80, 120	910-014, 910-001
Delta, 150	910-014, 910-001, 910-004
101, 140	910-009 (PR)
160, 260	910-009 (PR)
175, 265, 310	910-003
301, 302, 500	910-003
401, 402, 750	910-003, 910-025, 910-032
601, 1000 to 3:1	910-003, 910-025, 910-032
601, 1000 4:1	910-018, 910-040
1200S, 1500S	910-018, 910-040
1200D, 1500D	910-024

Paragon

4"	910-005
----	---------

Self Change Gears

350HD	910-015
700	910-016

Technodrive

TMC40	910-014, 910-001
TMC50	910-014, 910-001
TMC60	910-014, 910-001
TM93	910-009, 910-029
TM170	910-009, 910-029
TM265A	910-006, 910-026, 910-033
TM345A	910-009, 910-029
TM545A	910-009, 910-029

TMP

1200 5" Flange	910-009
----------------	---------

Twin Disc

MG 5010A	910-036
MG 5011A	910-036
MG 502	Adaptor 202-148, with 910-003, 910-025, 910-032
MG 5050	910-006, 910-026, 910-033
MG 5061	910-006, 910-026, 910-033
MG 506	910-006, 910-026, 910-033, 910-017, 910-039
MG 507	910-006, 910-026, 910-033, 910-017, 910-039
MG 5075,	910-006, 910-026, 910-033, 910-017, 910-039
MG 5075A	910-006, 910-026, 910-033, 910-017, 910-039
MG 5081	Adaptor 202-356, with 910-017, 910-039
MG 5082	Adaptor 202-356, with 910-017, 910-039
MG 5085 SC	910-017, 910-039
MG 5085 A	910-017, 910-039
MG 509	910-017, 910-039, 910-024
MG 510	910-022, 910-024
MG 511	910-022, 910-024
MG 5114	910-022, 910-024
MG 5135 A	910-022
MG 514	910-024

Volvo

MS & RB	910-007
MS 2, 10, 15, 25	910-019, 910-020
MS 3	910-009 (MS3)
MS 4	910-009 (Volvo)
MS 5, 45, 63	910-009 (Volvo), 910-029

Yanmar

KBW10, KM3	910-002 (78mm PCD)
KBW20, 21, KM4	910-012 (100mm PCD)
KM5 (4.25" PCD)	910-037

ZF - Hurth

35	910-014, 910-001
40, ZF4	910-014, 910-001, 910-004
50, ZF5	910-014, 910-001, 910-004
100, ZF10	910-014, 910-001, 910-004
125, Z12	910-014, 910-001, 910-004
150, ZF125	910-014, 910-001, 910-004
250, ZF25	910-014, 910-001, 910-004
360	910-009 (Hurth), 910-029
450A, ZF45A	910-009 (Hurth), 910-029
450H, ZF45-1	910-003, 910-025
630	910-009 (Hurth), 910-029
800, ZF80	910-006, 910-026, 910-033
IRM 41	910-009, 910-029
IRM 50	910-009, 910-029
ZF/IRM 220A	Adaptor 202-384, with 910-003, 910-025, 910-032
ZF/IRM 220PL	910-006, 910-026, 910-033
ZF/IRM 280/6 A	910-006, 910-026, 910-033
ZF/IRM 301	910-006, 910-026, 910-033
IRM 310	910-018, 910-040

R & D Marine Flexible Coupling Information

Flexible Coupling	Manufacturer	Gearbox Flange Dimensions						Flexible Coupling Details										
		Diameter		No Bolts	Nom Dia Of Holes		Bolt Pitch Circle		Register		Diameter		Length		Bolt Dia	Capacity /100 rpm		Ref
		mm	Inch		mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch		kW	HP	
910-001	B/W, PRM, ZF-Hurth, Technodrive	101.6	4.00	4	10.0	0.39	82.55	3.25	63.5	2.50	114.3	4.5	32.5	1.28	M10	3.73	5	
910-002	Yanmar	101.6	4.00	4	10.0	0.39	78.00	3.07	50.0	1.97	114.3	4.5	32.5	1.28	M10	2.24	3	
910-003	B/W, PRM, ZF-Hurth, Twin Disc	146.0	5.75	6	12.7	0.50	120.6	4.75	76.2	3.00	152.4	6.0	47.5	1.87	1/2 UNF	14.92	20	X O
910-004	B/W,PRM, ZF-Hurth	101.6	4.00	4	10.0	0.39	82.55	3.25	63.5	2.50	114.3	4.5	35.6	1.40	M10	5.22	7	
910-005	Paragon	101.6	4.00	4	9.7	0.38	82.55	3.25	66.7	2.625	114.3	4.5	34.5	1.35	3/8 UNF	5.22	7	
910-006	Twin Disc, ZF-Hurth	146.0	5.75	6	16.0	0.63	120.6	4.75	76.2	3.00	152.4	6.0	47.5	1.87	1/2 UNF	14.92	20	O X O
910-007	Volvo	101.6	4.00	4	10.0	0.39	80.0	3.15	60.0	2.36	114.3	4.5	43.7	1.72	M10	2.24	3	
910-009	B/W, PRM, ZF-Hurth, Volvo	127.0	5.00	4	11.2	0.44	107.9	4.25	63.5	2.50	143.0	5.63	45.0	1.77	7/16 UNF	9.69	13	X O
910-012	Yanmar	127.0	5.00	4	10.0	0.39	100.0	3.93	65.0	2.56	143.0	5.63	45.0	1.77	M10	7.46	10	
910-013	Bukh	90.0	3.54	4	8.1	0.32	74.5	2.93	47.0	1.85	114.3	4.5	32.5	1.28	M8	2.24	3	
910-014	B/W, PRM, ZF-Hurth, Technodrive	101.6	4.00	4	10.0	0.39	82.55	3.25	63.5	2.50	114.3	4.5	32.5	1.28	M10	2.24	3	
910-015	Self Change 350HD	222.2	8.75	6	11.2	0.44	190.5	7.50	152.4	6.00	222.2	8.75	43.2	1.70	7/16 UNF	32.1	43	O
910-016	Self Change 700HD	260.4	10.25	6	16.0	0.63	228.6	9.00	152.4	6.00	276.4	10.88	58.0	2.28	5/8 UNF	48.0	65	X O
910-017	Twin Disc	184.2	7.25	6	19.0	0.75	152.4	6.00	95.25	3.75	190.5	7.5	60.7	2.39	5/8 UNF	29.84	40	O X O
910-018	PRM	184.2	7.25	6	16.0	0.63	152.4	6.00	95.25	3.75	190.5	7.5	60.7	2.39	5/8 UNF	29.84	40	X O
910-019	Volvo	101.6	4.00	4	10.0	0.39	80.0	3.15	60.0	2.36	114.3	4.5	32.5	1.28	M10	2.24	3	
910-020	Volvo	101.6	4.00	4	10.0	0.39	80.0	3.15	60.0	2.36	114.3	4.5	32.5	1.28	M10	3.73	5	
910-021	Enfield, Sonic	101.6	4.00	2	11.2	0.44	76.0	3.00	---	---	108.0	4.25	41.7	1.64	7/16 UNF	1.87	2.5	
910-022	Twin Disc	228.6	9.00	8	22.6	0.89	190.5	7.50	152.4	6.00	222.2	8.75	44.5	1.75	1/2 UNF	48.00	65	O X O
910-024	Twin Disc	266.7	10.5	8	25.4	1.00	222.2	8.75	127.0	5.00	276.4	10.88	56.7	2.23	5/8 UNF	63.41	85	O X O
910-025	B/W, PRM, ZF-Hurth, Twin Disc	146.0	5.75	6	12.7	0.5	120.6	4.75	76.2	3.00	152.4	6.0	49.8	1.96	1/2 UNF	20.88	28	X O
910-026	Twin Disc	146.0	5.75	6	16.0	0.63	120.6	4.75	76.2	3.00	152.4	6.0	49.8	1.96	1/2 UNF	20.88	28	O X O
910-028	Bukh	90.0	3.54	4	8.1	0.32	74.5	2.93	47.0	1.85	114.3	4.5	32.5	1.28	M8	3.73	5	
910-029	B/W, ZF-Hurth, Volvo	127.0	5.00	4	11.2	0.44	107.9	4.25	63.5	2.50	143.0	5.63	52.4	2.06	7/16 UNF	14.92	20	O
910-030		292.1	11.5	8	25.4	1.00	247.6	9.75	152.4	6.00	292.1	11.5	58.4	2.30	5/8 UNF	89.52	120	O X O
910-032	B/W, PRM, ZF-Hurth, Twin Disc	146.0	5.75	6	12.7	0.5	120.6	4.75	76.2	3.00	152.4	6.0	55.4	2.18	1/2 UNF	27.6	37	
910-033	Twin Disc, ZF-Hurth	146.0	5.75	6	16.0	0.63	120.6	4.75	76.2	3.00	152.4	6.0	55.4	2.18	1/2 UNF	27.6	37	O
910-034	Open Centre V Drive	102.0	4.01	4	M10	Tapped	82.5	3.25	63.5	2.50	143.0	5.63	45.0	1.77	7/16 UNF	9.69	13	#
910-035		340.0	13.38	8	25.4	1.00	293.3	11.625	152.4	6.0	348.0	13.7	108.0	4.25	5/8 UNF	119.3	160	O
910-036	Twin Disc	127.0	5.00	4	10.0	0.39	104.8	4.125	63.5	2.50	143.0	5.63	45.0	1.77	M10	7.46	10	
910-037	Yanmar	130.0	5.12	4	12.3	0.48	107.9	4.25	63.5	2.50	143.0	5.63	51.1	2.01	7/16 UNF	9.69	13	
910-038	Taipeoungyang TK 250	178.0	7.00	6	14.3	0.56	152.0	5.985	100	3.937	190.5	7.50	63.3	2.49	M14	41.0	55	
910-039	Twin Disc	184.2	7.25	6	19.0	0.75	152.4	6.00	95.25	3.75	190.5	7.50	63.3	2.49	5/8 UNF	41.0	55	O
910-040	PRM	184.2	7.25	6	16.0	0.63	152.4	6.00	95.25	3.75	190.5	7.50	63.3	2.49	5/8 UNF	41.0	55	
910-041		292.1	11.5	8	25.4	1.0	247.6	9.75	152.4	6.0	292.1	11.5	58.4	2.30	5/8 UNF	104.5	140	O
910-042	Dong-I DMT 170HL	287.2	11.3	6	25.1	0.98	240.0	9.45	160.0	6.3	292.1	11.5	58.4	2.30	5/8 UNF	89.52	120	O
910-043	Yanmar	101.6	4.00	4	10.0	0.39	78.0	3.07	50.0	1.97	114.3	4.5	32.5	1.28	M10	3.73	5	
910-044	B/W, PRM, ZF-Hurth, Volvo	127.0	5.00	4	11.2	0.44	107.9	4.25	63.5	2.50	143.0	5.6	45.0	1.77	7/16 UNF	5.96	8	
910-045		340.0	13.38	8	25.4	1.00	293.3	11.625	152.4	6.0	348.0	13.7	108.0	4.25	1/2 UNF	171.5	230	O
910-046	Allison M25	228.6	9.00	8	22.6	0.89	190.5	7.50	152.4	6.00	222.2	8.75	44.5	1.75	1/2 UNF	48.00	65	O
910-047	Dong-I DMT 260H	292.1	11.5	6	21.0	0.826	240.0	9.449	150.0	5.905	292.1	11.5	58.4	2.30	5/8 UNF	89.52	120	O
910-048	Twin Disc MG 5111 SC	228.6	9.00	6 (8)	22.6	0.89	190.5	7.50	152.4	6.00	222.2	8.75	62.7	2.47	1/2 UNF	48.00	65	O X O
910-049	ZF 325-1A Volvo Flange	205.0	8.07	10	18.0	0.71	170.0	6.693	140.0	5.51	223.0	8.78	124.0	4.88	M18	56	75	
910-050	Twin Disc 510A/5114A	230.0	9.00	8	22.6	0.89	190.5	7.50	152.4	6.00	230.0	9.00	101.6	4.0	1/2 UNF	63.41	85	O
910-051	Twin Disc MG 521	260.4	10.25	8	19.0	0.75	241.3	9.50	152.4	6.00	260.4	11.25	58.4	2.30	5/8 UNF	89.52	120	O
910-052	Lister	120.7	4.75	6	11.2	0.44	98.5	3.875	63.5	2.5	150.9	5.94	69.9	2.75	7/16 UNF	7.46	10	
910-053	Dong-I DMT 150H	218	8.58	6	20.0	0.79	180.0	7.09	140.0	5.51	222.2	8.75	45.0	1.77	1/2 UNF	35.8	48	O

O These couplings are fitted with a shouldered bush to locate in the gearbox flange

X These flexible couplings have been approved by LLOYDS REGISTER OF SHIPPING

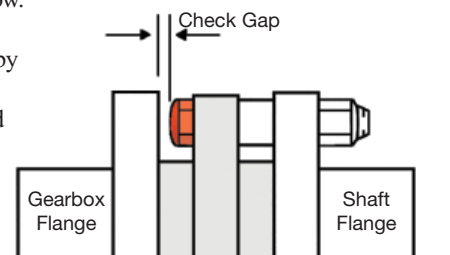
O These flexible couplings have been approved by BUREAU VERITAS

For the Hurth HBW 150 V Gearbox an adaptor 202-351 is required (22.3 mm 0.875" long)

For the IRM 220A Gearbox, we can supply adapter plate 202-384 (54mm 2.125" long) and for the Twin Disc 502 Gearbox, adapter plate 202-148 (54mm 2.125" long) that bolt onto flexible coupling 910-003, 910-025 or 910-032 and with half coupling 202-037 or 202-054, alternatively clamp type 202-176 or 202-178

INSTALLATION PROCEDURE FOR R & D MARINE COUPLINGS

1. Roughly align engine and stern gear without flexible coupling i.e. only two rigid half couplings pushed together.
2. Bolt "R & D Marine" coupling between the two rigid couplings. Tightening details as below.
3. Check alignment of engine by placing feeler gauges between the **RED CONE HEADED BOLT** and the rigid half coupling. Repeat for the **SAME** bolt at 90° intervals by rotating the shaft.
4. If the gap is the same in all four positions, the engine is accurately aligned. Recommended minimum to maximum gap difference: 0.010 inch / 0.25 mm.
5. Run installation to bring engine compartment to working temperature.
Re-check torque settings.



Recommended tightening torque:

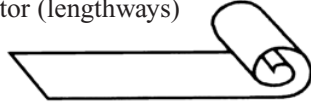
3/8 UNF - 40 Nm **30 lbsft** M10 - 61 Nm **45 lbsft** 7/16 UNF - 81 Nm **60 lbsft** M12 - 108 Nm **80 lbsft**
 1/2 UNF - 100 Nm **75 lbsft** 5/8 UNF - 210 Nm **155 lbsft** 3/4 UNF - 366 Nm **270 lbsft**

EARTHING CONNECTORS

'R & D Marine' Earthing Connector consists of a silver impregnated rubber strip, which when fitted through the axis of the coupling between the two fail safe straps gives electrical continuity. R & D have sizes to fit most 910 series couplings.

INSTALLATION PROCEDURE FOR R&D EARTHING CONNECTORS

1. While carrying out the following procedure, ensure that the connector is not contaminated by grease or dirt.
2. Before fitting the coupling into the drive train, remove 2 off bolts holding one of the fail safe straps.
3. Remove the fail safe strap to uncover the hole in the centre of the coupling.
4. Roll up the earthing connector (lengthways) as tight as possible.



5. Push into the hole previously uncovered by removing the strap as far as possible.
6. Replace the fail safe strap ensuring that the connector is not damaged, replace 2 off bolts.
7. Fit the coupling as per the installation instructions.
8. Check electrical continuity on installation and thereafter at three to six month intervals.

R & D Marine Earthing Connector Application Guide		
Part No	Size (mm)	To Suit Coupling
103-036	9 x 57	910-021
103-037	11 x 57	910-001, 002, 007, 013, 014, 019, 020, 028, 043
103-038	15 x 57	910-004, 005
103-039	17 x 57	910-003 006, 009, 012, 036, 037, 044, 052
103-040	19 x 57	910-017, 018, 025, 026
103-041	23 x 57	910-029, 039, 040
103-042	25 x 57	910-032, 033
103-043	15 x 75	910-015, 016, 022, 024, 046, 048, 053
103-044	17 x 75	910-030, 040, 042, 047, 051



R & D MARINE LTD.

From PYI Inc.

12532 Beverly Park Rd.
Lynnwood, WA 98087

Contact Us By:
Tel: 800-523-7558 or 425-355-3669
Fax: 425-355-3661
Web Site: www.pyiinc.com
E mail: info@pyiinc.com