

Flexible Shaft Couplings



- 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 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.

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.

Flexible Coupling Information

Flexible Coupling	Manufacturer	Gearbox Flange Dimensions						Flexible Coupling Details								Ref		
		Diameter		No Bolts	Nom Dia Of Holes		Bolt Pitch Circle		Register		Diameter		Length		Bolt Dia		Capacity /100 rpm	
		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	5.97	8	
910-005	Paragon	101.6	4.00	4	9.7	0.38	82.55	3.25	66.7	2.63	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	135.0	5.31	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	48.47	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	48.47	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	63.38	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
910-027	ZF W320 320A	225	8.86	8	17.0	0.67	196	7.72	140	5.51	228.6	9.0	44.5	1.75	1/2 UNF	48.47	65	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	89.48	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	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	8.95	12	#
910-035		340.0	13.38	8	25.4	1.00	295.3	11.63	152.4	6.00	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	4.13	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	Taipoungyang TK 250	178.0	7.00	6	14.3	0.56	152.0	5.99	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	1.00	247.6	9.75	152.4	6.00	292.1	11.5	58.4	2.30	5/8 UNF	104.4	140	O
910-042	Dong-I DMT 170HL	287.2	11.3	6	25.1	0.98	240.0	9.45	160.0	6.30	292.1	11.5	58.4	2.30	5/8 UNF	67.0	90	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	5.97	8	
910-045		340.0	13.38	8	25.4	1.00	295.3	11.63	152.4	6.00	348.0	13.7	108.0	4.25	3/4 UNF	171.5	230	O
910-046	Allison M25	228.6	9.00	8	19.0	0.75	190.5	7.50	152.4	6.00	222.2	8.75	44.5	1.75	1/2 UNF	48.47	65	O
910-047	Dong-I DMT 260H	292.1	11.5	6	21.0	0.826	240.0	9.45	150.0	5.905	292.1	11.5	58.4	2.30	5/8 UNF	67.0	90	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	48.47	65	O X O
910-049	ZF 325-1A Volvo Flange	205.0	8.07	10	18.0	0.71	170.0	6.69	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	63.38	85	O
910-051	Twin Disc MG 521	279.4	11.00	8	19.0	0.75	241.3	9.50	152.4	6.00	260.4	11.25	58.4	2.30	5/8 UNF	89.48	120	O
910-052	Lister	120.7	4.75	6	11.2	0.44	98.5	3.88	63.5	2.50	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
910-054	Open Centre V Drive	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	17.9	24	
910-055	Open Centre V Drive	102.0	4.01	4	11.2	0.44	107.9	4.25	63.5	2.50	143.0	5.63	45.0	1.77	7/16 UNF	5.2	7	#
910-057	B/W, 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	18.64	25	
910-058	Dong-I DMT 70T, 90T, 100T	178.0	7.00	6	16.0	0.63	152.0	5.98	100.0	3.94	190.5	7.50	63.3	2.49	5/8 UNF	41.0	55	
910-059	Volvo	101.6	4.00	4	10.0	0.39	80.0	3.15	60.0	2.36	114.3	4.5	35.6	1.40	M10	5.96	8	
910-060	TMP	112.8	4.44	2	11.2	0.44	81.0	3.19	---	---	112.8	4.44	38.1	1.50	7/16 UNF	2.42	3.25	

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

$$\text{HP} \times 0.7457 = \text{KW}$$

$$\text{KW} \times 1.341 = \text{HP}$$

Coupling Selection Guide

ALLISON

M25 9" Flange 910-046

BORG WARNER

4" Flange 910-001, 910-004, 910-014

70C
71C
500
1000
1500

5" Flange 910-009(BW) 910-029, 910-044(BW), 910-057

71C
72C
5000
6" Flange 910-003, 910-025, 910-032
73C
7000

BUKH

4" Flange 910-013, 910-028

DONG I

DMT 70T 178 mm Flange 910-058

DMT 90T
DMT 100T
DMT 150H 218 mm Flange 910-053
DMT 170HL 287 mm Flange 910-042
DMT 260H 292 mm Flange 910-047

ENFIELD and SONIC DRIVES

2 Bolt 910-021

LISTER

4 1/2" Flange 910-052

NEWAGE PRM

S= Shallow Case, D= Deep Case

4" Flange 910-001, 910-004, 910-014

Delta
80
120
150
5" Flange 910-009(PR) 910-044(PR)
101
140
160
260

6" Flange 910-003, 910-025, 910-032

175
265
301
302
310
401
402
500
750
601 3:1
1000 3:1

7 1/4" Flange 910-018, 910-040

601 4:1
1000 4:1
1200S
1500S
1750S
10 1/2" Flange 910-024
1200D
1500D
1750D

PARAGON

4" Flange 910-005

SELF CHANGE GEARS

8 3/4" Flange 910-015

350HD
10 3/4" Flange 910-016
700

TAIPEOUNGYANG

178 mm Flange 910-038
TK250

TECHNODRIVE

4" Flange 910-001, 910-004, 910-014

TMC30
TMC40
TMC50
TMC60
TM260

5" Flange 910-009(PR) 910-029

TM93 910-044(PR)
TM93A
TM170
TM170A
TM345
TM345A
TM485A
TM545A
TM880A

6" Flange 910-006, 910-026, 910-033

TM130B
TM200B up to 1.28: 1
TM265
TM265A
7 1/4" Flange 910-018
TMC200B up to 4.48: 1
TM1200A

TMP

2 Bolt 910-060
5" Flange 910-009(PR) 910-044(PR)
12000

TWIN DISC

SC= Shallow Case, DC= Deep Case

4" Flange 910-001, 910-004, 910-014

MG 340
MG 360
MG5010SC
MG5011SC
MG5010V

4 3/4" Flange Adaptor 202-148 with

MG502-I 910-003, 910-025, 910-032

MG502-V

5" Flange 4 1/4 PCD 910-036

MG5010A
MG5011A

5" Flange 4 1/4 PCD 910-009(PR) 910-044(PR)

MG5005A
MG5012SC
MG5015A
MG5020SC
MG5055A

6" Flange 910-006, 910-026, 910-033

MG5010DC
MG5050
MG5050-V
MG5050-A
MG5061SC
MG5061-A
MG5061V
MG5062V
MG506-1
MG506A-1
MG507-1
MG507A-1
MG50751V
MG5075-A
MG5075SC

7 1/4" Flange 910-017, 910-039

MG506DC
MG5065A
MG507-1
MG507-1SC
MG507-2SC
MG507A-2
MG5075A needs adaptor 202-356

MG5075SC
MG50751V
MG5081SC
MG5081A needs adaptor 202-356
MG5082A
MG5082SC
MG5085SC needs adaptor 202-356
MG5085A needs adaptor 202-356
MG5090A
MG509SC
MG509U
MG5091SC
MG5095A
MGX5095A

TWIN DISC cont'd

9" Scalloped Flange 910-048

MG5111SC
MG5114DC

9" Flange 910-022, 910-050

MG510SC
MG510A
MG5111A
MG5114A
MG5111V,
MG5114V
MG514CU
MG514U
MG5135A

10 1/2" Flange 910-024

MG5091DC
MG509DC
MG510DC
MG511DC
MG5114DC
MG5113
MG514DC

VOLVO

4" Flange 910-007

MS
RB

4" Flange 910-019, 910-020, 910-059

MS 2
MS 10
MS 15
MS25

5" Flange 910-009(VO), 910-029

MS 3 910-044(VO), 910-057

MS4
MS5
HS25A
HS45A
HS63A

YANMAR (KANZAKI)

4" Flange 78mm PCD 910-002

KBW10 910-043

KM2
KM3
KM35

5" Flange 100mm PCD 910-012

KBW20
KBW21
KM4
KM4A
KMH4A

5 1/2" Flange 4 1/4 PCD 910-009, 910-029, 910-037

KM40
KM5
KMH50

6" Flange 910-006, 910-026, 910-033

KMH6
KMH60

ZF-HURTH

4" Flange 910-001, 910-004, 910-014

HBW HSW ZF

35
40 4M
50 5M
100 10M

125 125H 12
150 12M
150A 15M
250 15MA
250 25M

250H 25
250A 25A
25MA
30M
45A 1.25:1
450D 45C

4 3/4" Adaptor 202-384 with 910-003
910-025, 910-032

IRM ZF
220A-1 220A
225A

ZF HURTH cont'd

5" Flange 910-009(PR) 910-029, 910-044(PR)

HBW HSW ZF
360

450H2
450A2 45A
450D 45C
630H1 63
630A1 63A
630D 63C
88C
90TS
90ATS
110TS

6" Flange 13.2 mm bolt holes 910-003, 910-025, 910-032

ZF 45

6" Flange 16.3mm bolt holes 910-006, 910-026, 910-033

HSW IRM ZF
800A2 80A
800A3 80-1A
85A

220PL 220 needs adaptor 202-329

280A
280-1
280V-LD 280-1A
280PL 280IV
280
285A
285IV
286
286A
286IV
300TS
300ATS
300-1TS
300ATS
300-1ATS

301PL-2 301C
301A-2 301A
300VTS 300IVTS
110ATS
110IVTS

8" Flange 910-049

IRM ZF
311PL 311
325-1A Volvo
350PL-2 350
350A-2 350A
350PL-1
350A-1

350TS
350ATS
350V 350V
350V-LD 350IV

8 3/4" Flange 910-027

IRM ZF
320-2 W320
320A

ZF-HURTH V DRIVE

4" Flange Adaptor 202-351 with
HSW ZF 910-034, 910-055
150V 15MIV

5" Flange 910-034, 910-055

HSW ZF
630V 63IV
6" Flange 910-054

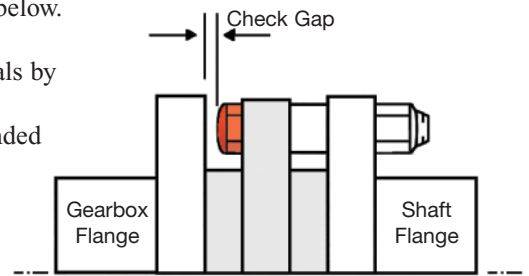
HSW ZF
110IVTS
220V-2 220IV
800V1 80IV
800V2 80-11V

8" Flange 910-049

ZF
325IV

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: 0.25 mm / 0.010 inch.
5. Run installation to bring engine compartment to working temperature.
Re-check torque settings.



Recommended tightening torque:

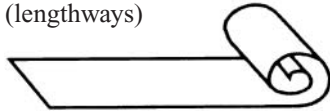
M8 - 27 Nm *20 lbsft* 3/8 UNF - 40 Nm *30 lbsft* M10 - 61 Nm *45 lbsft* 7/16 UNF - 81 Nm *60 lbsft* M12 - 108 Nm *80 lbsft*
 1/2 UNF - 100 Nm *75 lbsft* 5/8 UNF - 210 Nm *155 lbsft* M18 - 338 Nm *250 lbsft* 3/4 UNF - 366 Nm *270 lbsft*

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, 041, 042, 047, 051



R & D MARINE LTD.

Meadow Works
 Clothall Road
 Baldock
 Hertfordshire
 England
 SG7 6PD

Contact Us By:
 Tel: +44 (0)1462 892391
 Fax: +44 (0)1462 896448
 Web Site: www.randdmarine.com
 E mail: info@randdmarine.com