R & D MARINE LTD.

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.

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

$$\frac{150}{2500} \times 2 \times 100 = 12 \text{ HP/100 rpm}$$

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

	Gearbox Flange Dimensions									Flexible Coupling Details						
Flexible Coupling	Manufacturer	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	5.97	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	Taipeoungyang 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

HP x 0.7457 = KW KW x 1.341 = 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 ½" 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 ¼" Flange 910-018, 910-040
601 4:1
1000 4:1
1200S
1500S
1750S

10 ½" Flange 910-024
1200D
1500D
1750D

PARAGON

4" Flange 910-005

SELF CHANGE GEARS

8 ¼" Flange 910-015
350HD

10 ¾" 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) 910-029 910-044(PR)
TM93
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 ¼" 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 ¾" Flange Adaptor 202-148 with
MG502-I 910-003, 910-025, 910-032
MG502-V

5" Flange 4 ½ PCD 910-036
MG5010A
MG5011A

5" Flange 4 ½ 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
MG5075IV
MG5075-A
MG5075SC

7 ¼" Flange 910-017, 910-039
MG506DC
MG5065A
MG507-1
MG507-1SC
MG507-2SC
MG507A-2
MG5075A needs adaptor 202-356
MG5075SC
MG5075IV
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
MG5114SC

9" Flange 910-022, 910-050
MG510SC
MG510A
MG5111A
MG5114A
MG5111V,
MG5114V
MG514CU
MG514U
MG5135A

10 ½" Flange 910-024
MG5091DC
MG509DC
MG510DC
MG5111DC
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 ½"Flange 4 ¼ 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
	125H	12
125		12M
150		15M
150A		15MA
250		25M
	250H	25
	250A	25A
		25MA
		30M
		45A 1.25:1
	450D	45C

4 ¾ " 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
		45-1
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
		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

8¾" 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
	90IVTS
630V	63IV

6" Flange 910- 054

HSW	ZF
	110IVTS
220V-2	220IV
800V1	80IV
800V2	80-1IV

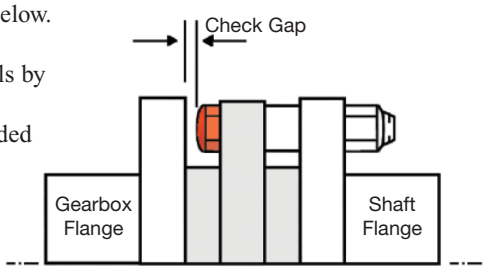
8" Flange 910-049

	ZF
	325IV

Couplings 910-030, 910-035, 910-041 and 910-045 will require suitable adaptors for the gearbox flange

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.



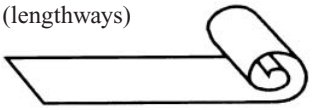
Recommended tightening torque:
M8 - 27 Nm *20 lbsft* 3/8 UNF - 40 Nm *30 lbsft* M10 - 61 Nm *45 lbsft* 7/16 UNF - 81 Nm *60 lbsft* M12 - 108 Nm *80 lbsft*
1/2 UNF - 100 Nm *75 lbsft* 5/8 UNF - 210 Nm *155 lbsft* M18 - 338 Nm *250 lbsft* 3/4 UNF - 366 Nm *270 lbsft*

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**

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R & D MARINE LTD.

Damper Drive Plates

R & D Marine has developed a wide range of competitively priced Damper Drive Plates to fit most engine/gearbox combinations.

The R & D Damper Drive Plates reduce gear noise and allow the engine to run at lower speeds.

Linear Stiffness elements for general applications and High-Deflection elements to stop gear noise and spline wear at slow speeds.

All dampers are designed to be Fail-Safe and maintain the drive if the flexible element fails.

The flexible elements are made from a Polyester Elastomer which has good heat qualities and is not affected by salt water, diesel and lubrication oils.

Non-standard items are available for special installations, maximum back plate diameter of 533mm (21.0").

Installation is made quick and easy as the R & D Damper Drive Plate requires no machining and is ready to bolt to the flywheel.

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

- **For engines up to 800 HP**
- **Torque range 60-1400 lb ft**
- **Reduces gear noise**
- **Allows engine to run at lower speeds**
- **Fail safe design**
- **Machined ready to install**
- **Elements suitable for every application**
- **Element has good heat qualities**
- **Special back plates up to 533mm (21.0") diameter**
- **Element is impervious to salt water, diesel and lubrication oils**
- **Wide range of stock**
- **Competitively priced**
- **No springs to rust or fret**
- **Worldwide availability**

R & D Marine Damper Drive Plates

Element Selection

Consider the following criteria when making a decision on the element design.

Loop type General purpose robust element which can be mounted either way round on the flywheel and can rotate in either direction. Linear stiffness up to 3 degrees of deflection.

Hammer Head More torsionally flexible than the loop type, usually has smaller diameter element than our other designs but still retains the ability to be mounted either way round on the flywheel and rotate in either direction. Three stage stiffness with up to 9 degrees of deflection.

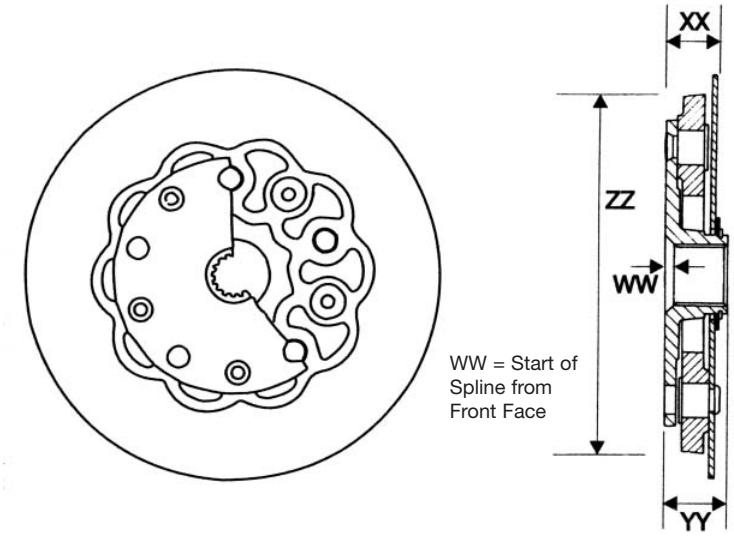
High Deflection (H/D) Softer than our other designs with a maximum deflection up to 30 degrees, slightly larger diameter element than other designs and can only be fitted to rotate in the standard direction of rotation (anti-clockwise looking at the flywheel). With the element facing the gearbox. Suitable for work boats with slow speed applications and pleasure boats.

Details required for Damper Selection

1. **Manufacturer of Engine, Engine Horse Power, Engine Speed, Number of cylinders**
2. **Manufacturer of Gearbox, Model Number and Input Spline Details.**
3. **Back plate diameter, Number of holes, Size of holes, Pitch circle diameter of holes. Does the plate fit on the face of the flywheel or locate in a register?**
4. **Will the element of the Drive Plate fit on the outside of the flywheel or be reversed and fit inside a flywheel recess?**
5. **Type of application. Pleasure or Work Boat? Does it spend long periods at low engine speeds**
   - **If an existing installation with a failed part •**
6. **Type and Part Number of Damper that has failed**
7. **What has failed. Spline or Element/Springs?**

Gearbox Spline Details

Gearbox	Spline	Spline Dia mm	Spline Dia inch
Borg Warner			
71, 72, 73, 5000	26T 20/40 DP	35.4	1.394
1000, 1500	22T PA 30	18.5	0.729
500	10T B10 x 23 x 29 DIN 5464	29.0	1.142
7000	SAE 1 1/2 x 10T	38.1	1.50
Newage PRM			
Delta	17T 24/48 DP	19.7	0.776
80, 120, 150	10T B10 x 23 x 29 DIN 5464	29.0	1.142
100, 101, 140, 160, 260	SAE 1" x 10T	25.4	1.000
175, 250, 265, 310	SAE 1 1/8" x 10T	28.6	1.125
301. 302, 401, 402, 500, 750	17T 16/32 DP	28.84	1.135
In-Line 301, 302, 401 402, 500, 750	26T 20/40 DP	35.4	1.394
601, 1000	18T 12/24 DP	40.5	1.595
1200, 1500	20T 12/24 DP	44.8	1.761
Paragon			
P Series	26T 20/40 DP	35.4	1.394
Parsons			
	SAE 1 1/2 x 10T	38.1	1.50
Self Change Gear			
MRF 350HD	32T 16/32 DP	52.3	2.060
MRF 350	SAE 1 5/8 x 10T	41.3	1.625
Technodrive			
TMC 30, 40, 50, 60	10T B10 x 23 x 29 DIN 5464	29.0	1.142
TM 93, 170, 260, 345 485, 545, 880	26T 20/40 DP	35.4	1.394
TMP			
1200, 1500	26T 20/40 DP	35.4	1.394
Twin Disc			
502, 501	26T 20/40 DP	35.4	1.394
Volvo			
140 Leg Old 270-280 Leg	SAE 1" x 10T	25.4	1.000
MS3, 4, 5, HS1 Sale Drive 110 New 270-280 Leg	26T 20/40 DP	35.4	1.394
120 Leg, MS	20T 30PA 24/48 DP	22.6	0.89
Yanmar			
Kanzaki	20T 30PA 24/48 DP	22.6	0.89
ZF - Hurth			
HBW 35, 40, 50, 100, 125, 150	10T B10 x 23 x 29 DIN 5464	29.0	1.142
HSW 125 HBW 250, 360	26T 20/40 DP	35.4	1.394
HSW 450, 630, 800 IRM 220A	26T 20/40 DP	35.4	1.394



Torque Nm	Torque lb ft	Design	Code	Element Fixing	Rotation
80	60	Loop	A	3 x 3/8 (4.00)	Either
135	100	Loop	B	3 x 3/8 (4.00)	Either
135	100	H/D	AA	3 x 3/8 (4.00)	Anti-Clockwise
135	100	Hammer	W	3 x 3/8 (4.00)	Either
215	160	Hammer	D	5 x 3/8 (5.59)	Either
245	180	Loop	E	5 x 3/8 (5.59)	Either
270	200	Loop	F	3 x 1/2 (4.50)	Either
270	200	H/D	AC	4 x 3/8 (6.00)	Anti-Clockwise
270	200	H/D	AG	4 x 3/8 (6.00)	Anti-Clockwise
340	250	Loop	G	5 x 3/8 (5.59)	Either
340	250	Hammer	Y	5 x 1/2 (5.59)	Either
360	270	Loop	H	4 x 1/2 (4.50)	Either
405	300	Loop	J	3 x 1/2 (4.50)	Either
405	300	Hammer	AJ	3 x 1/2 (4.50)	Either
445	330	Loop	K	5 x 1/2 (5.59)	Either
420	310	Hammer	L	5 x 3/8 (5.59)	Either
475	350	Hammer	U	5 x 1/2 (5.59)	Either
540	400	Loop	M	5 x 3/8 (5.59)	Either
610	450	Loop	N	4 x 1/2 (4.50)	Either
610	450	Loop	V	5 x 1/2 (5.59)	Either
670	500	H/D	AD	4 x 1/2 (8.00)	Anti-Clockwise
745	550	Loop	P	5 x 1/2 (5.59)	Either
745	550	Hammer	R	5 x 1/2 (5.59)	Either
940	700	H/D	AE	4 x 1/2 (8.00)	Anti-Clockwise
1015	750	Loop	S	5 x 1/2 (5.59)	Either
1630	1200	Loop	Z	6 x 5/8 (10.2)	Anti-Clockwise
1630	1200	Loop	AF	6 x 5/8 (10.2)	Clockwise
1901	1400	Loop	AH	6 x 5/8 (10.2)	Anti-Clockwise

Damper Selection Procedure

Example 1) Ford 150 HP at 2500 RPM 6 Cylinder
2) Borg Warner Velvet Drive 72C Spline 26 teeth 20/40 DP 1.394 diameter
3) Back Plate diameter 14.250, fixing holes 6 x 0.375 diameter on13.500 pcd spaced in 3 groupe of 2. No register
4) Element fits on outside of flywheel
5) Work Boat with a lot of slow speed work.

The R & D Damper comprises 3 main components, Spline plate, Element and Back plate, these 3 components are given a code which make up the finished part number.. The following procedure will lead you through the selection process.

1. **Select the correct power and style of element for the application .**
   Use the manufacturers maximum torque figure for the engine or calculate from the known data of maximum horsepower rating at what rpm. Using the example installation above we get 315 lb ft or 427 Nm
   To calculate output Torque of engine

$$\frac{\text{Horse Power of Engine} \times 5250}{\text{Engine Speed}} = \text{Torque lbft} \qquad \frac{150 \times 5250}{2500} = 315 \text{ lb ft}$$

$$\frac{\text{Horse Power of Engine} \times 7123}{\text{Engine Speed}} = \text{Torque Nm} \qquad \frac{150 \times 7123}{2500} = 427 \text{ Nm}$$

From the Element selection chart we see the most suitable element has a code of AD and a fixing of 4 x 1/2 (8.00)

2. **Select the correct Spline Plate to suit the Gearbox Input Shaft**
   Using the example, go to the Gearbox Details to find the Borg Warner 72 has a 26 Tooth 20/40 DP input spline. In the Selection Chart below look down the Element Fixing column find 4 x 1/2 (8.00) looking across find the 26T 20/40 DP input spline, in the next column is the correct code of 48 for the spline plate. The furthest column to the right gives the list number of the Back Plates available for this Element fixing, in this case List 7

3. **Select the correct Back Plate to suit the Flywheel**
   Using the example, go to Back Plate List 7 on page 4. Looking down the list find the matching bolt pattern, in this case Back Plate 2

Damper Required for this example **Spline Plate** [48] **Element** [AD] **Back Plate** [2]

Spline	Spline Plate No	Element Code Group 1 (ZZ1)	Element Code Group 2 (ZZ2)	Element Fixing	Damper Dimensions Black mm / Red inches WW	XX	YY	Group 1 ZZ 1	Group 2 ZZ 2	Back Plate List
22T PA 30	1	A, B, W,		3 x 3/8 (4.00)	0.0 0.00	25.4 1.00	32.0 1.25	127 5.00		L1
26T 20/40 DP	2	AA			2.3 0.09	25.4 1.00	32.0 1.25	127 5.00		
17T 24/48 DP	12				0.0 0.00	25.4 1.00	32.0 1.25	127 5.00		
1" x 10 SAE	13				0.0 0.00	25.4 1.00	32.0 1.25	127 5.00		
10T DIN 5464	22				0.0 0.00	25.4 1.00	32.0 1.25	127 5.00		
20T 30PA 24/48 DP	66				0.0 0.00	25.4 1.00	32.0 1.25	127 5.00		
26T 20/40 DP	42	AC	AG	4 x 3/8 (6.00)	5.0 0.20	25.4 1.00	35.0 1.38	182 7.13	214 8.43	L2
10T DIN 5464	43				0.0 0.00	25.4 1.00	35.0 1.38	182 7.13	214 8.43	
17T 24/48 DP	44				0.0 0.00	25.4 1.00	35.0 1.38	182 7.13	214 8.43	
17T 16/32 DP	46				1.8 0.07	25.4 1.00	35.0 1.38	182 7.13	214 8.43	
1" x 10 SAE	45				2.3 0.09	25.4 1.00	35.0 1.38	182 7.13	214 8.43	
20T 30PA 24/48 DP	65				0.0 0.00	25.4 1.00	35.0 1.38	182 7.13	214 8.43	
26T 20/40 DP	3	D, L,	E, G, M	5 x 3/8 (5.593)	5.0 0.20	25.4 1.00	35.0 1.38	175 6.90	207 8.13	L3
26T 20/40 DP	5				5.0 0.20	25.4 1.00	35.0 1.38	175 6.90	207 8.13	
1" x 10 SAE	14				2.3 0.09	25.4 1.00	35.0 1.38	175 6.90	207 8.13	
1 1/8" x 10 SAE	16				2.3 0.09	25.4 1.00	35.0 1.38	175 6.90	207 8.13	
17T 16/32 DP	18				1.8 0.07	25.4 1.00	35.0 1.38	175 6.90	207 8.13	
10T DIN 5464	23				0.0 0.00	25.4 1.00	35.0 1.38	175 6.90	207 8.13	
17T 24/48 DP	32				0.0 0.00	25.4 1.00	35.0 1.38	175 6.90	207 8.13	
26T 20/40 DP	4	Y, U, R,	K, V, P	5 x 1/2 (5.593)	5.0 0.20	28.7 1.13	35.0 1.38	182 7.13	207 8.13	L3
26T 20/40 DP Long	9				0.0 0.00	28.7 1.13	43.0 1.69	182 7.13	207 8.13	
18T 12/24 DP	21				0.0 0.00	28.7 1.13	38.1 1.50	182 7.13	207 8.13	
17T 16/32 DP	31				1.8 0.07	28.7 1.13	35.0 1.38	182 7.13	207 8.13	
32T 16/32 DP	26				0.0 0.00	38.5 1.52	57.2 2.25		207 8.13	
1 5/8" x 10	27				0.0 0.00	28.7 1.13	38.1 1.50		207 8.13	
1 1/2" x 10	11				0.0 0.00	28.7 1.13	38.1 1.50	182 7.13	207 8.13	
PR 1500	54				0.0 0.00	63.2 2.49	79.3 3.12		207 8.13	
26T 20/40 DP	4	S		5 x 1/2 (5.593)	5.0 0.20	31.8 1.25	35.0 1.38	207 8.13		L4
26T 20/40 DP Long	9				0.0 0.00	31.8 1.25	43.0 1.69	207 8.13		
18T 12/24 DP	21				0.0 0.00	31.8 1.25	38.1 1.50	207 8.13		
32T 16/32 DP	26				0.0 0.00	41.7 1.64	57.2 2.25	207 8.13		
1 5/8" x 10	27				0.0 0.00	31.8 1.25	38.1 1.50	207 8.13		
1 1/2" x 10	11				0.0 0.00	31.8 1.25	38.1 1.50	207 8.13		
PR 1500	54				0.0 0.00	66.3 2.61	79.3 3.12	207 8.13		
26T 20/40 DP	6	H, N		4 x 1/2 (4.50)	5.0 0.20	29.5 1.16	36.0 1.41	183 7.19		L5
26T 20/40 DP HT	8				5.0 0.20	29.5 1.16	36.0 1.41	183 7.19		
1 1/2" x 10	10				0.0 0.00	29.5 1.16	36.0 1.41	183 7.19		
1 1/8" x 10 SAE	17				2.3 0.09	29.5 1.16	36.0 1.41	183 7.19		
17T 16/32 DP	19				1.8 0.07	29.5 1.16	36.0 1.41	183 7.19		
1 5/8" x 10	28				0.0 0.00	29.5 1.16	38.1 1.50	183 7.19		
26T 20/40 DP	7	F, J, AJ		3 x 1/2 (4.50)	8.1 0.32	29.5 1.16	36.0 1.41	158 6.19		L6
1" x 10 SAE	15				2.3 0.09	29.5 1.16	36.0 1.41	158 6.19		
17T 16/32 DP	20				1.8 0.07	29.5 1.16	36.0 1.41	158 6.19		
17T 24/48 DP	41				1.8 0.07	29.5 1.16	36.0 1.41	158 6.19		
26T 20/40 DP	48	AD		4 x 1/2 (8.00)	6.0 0.24	29.0 1.14	36.0 1.41	235 9.25		L7
17T 16/32 DP	49				1.8 0.07	29.0 1.14	36.0 1.41	235 9.25		
26T 20/40 DP	57				0.0 0.00	29.0 1.14	36.0 1.41	235 9.25		
32T 16/32 DP	40	Z, AF		6 x 5/8 (8.00)	0.0 0.00	44.2 1.74	57.2 2.25	330 13.00		L8
PR 1500	55				0.0 0.00	68.6 2.70	79.3 3.12	330 13.00		
26T 20/40 DP	56				0.0 0.00	44.2 1.74	51.6 2.03	330 13.00		
32T 16/32 DP	40	AH		6 x 5/8 (8.00)	0.0 0.00	47.3 1.86	57.2 2.25	330 13.00		L8
PR 1500	55				0.0 0.00	71.9 2.83	79.3 3.12	330 13.00		
26T 20/40 DP	56				0.0 0.00	47.3 1.86	51.6 2.03	330 13.00		
26T 20/40 DP	50	AE		4 x 1/2 (10.25)	0.0 0.00	31.8 1.25	39.0 1.53	302 11.88		L9
18T 12/24 DP	51				0.0 0.00	31.8 1.25	39.0 1.53	302 11.88		
17T 16/32 DP	52				0.0 0.00	31.8 1.25	39.0 1.53	302 11.88		

List 1

Element Fixing 3 x 3/8 (4.00) 3 mm thick plate

Ref	O/D Met	O/D Imp	Flywheel Fixing Metric	Flywheel Fixing Imperial	Remarks
4	155.45	6.12	5 x 6.35 on 142	5 x .25 on 5.593	
8	298.5	11.75	6 x 8.1 on 200 6 x 8.1 on 250 6 x 8.1 on 269.9 6 x 8.1 on 273	6 x .32 on 7.875 6 x .32 on 9.843 6 x .32 on 10.625 6 x .32 on 10.75	
37	266.7	10.5	12 x 8.1 on 222.3 6 x 8.1 on 244.5 Spaced 3 groups of 2 apart 23°59`07 12 x 8.1 on 246 12 x 8.1 on 242	12 x .32 on 8.750 6 x .32 on 9.625 Spaced 3 groups of 2 apart 23°59`07 12 x .32 on 9.685 12 x .32 on 9.527	Suit Ford XLD And Mitsubishi
43	263.5	10.375	6 x 9.5 on 244.5	6 x .375 on 9.625	SAE 8
49	241.3	9.500	8 x 8.5 on 222.25	8 x .334 on 8.750	SAE 7 1/2
60	215.9	8.500	6 x 8.1 on 200	6 x .32 on 7.875	Beta SAE 6 1/2
91	314.3 -0.05 -0.13	12.375 -0.002 -0.005 SAE 10	6 x 8.1 on 200 6 x 8.1 on 250 6 x 8.1 on 269.9 6 x 8.1 on 273 8 x 10.6 on 296	6 x .32 on 7.875 6 x .32 on 9.843 6 x .32 on 10.625 6 x .32 on 10.750 8 x .416 on 11.625	SAE 10

List 2

Element Fixing 4 x 3/8 (6.00) 3 mm thick plate

Ref	O/D Met	O/D Imp	Flywheel Fixing Metric	Flywheel Fixing Imperial	Remarks
8	298.5	11.75	6 x 8.1 on 200 6 x 8.1 on 250 6 x 8.1 on 269.9 6 x 8.1 on 273	6 x .32 on 7.875 6 x .32 on 9.843 6 x .32 on 10.625 6 x .32 on 10.75	
37	266.7	10.5	12 x 8.1 on 222.3 6 x 8.1 on 244.5 Spaced 3 groups of 2 apart 23°59`07 12 x 8.1 on 246 12 x 8.1 on 242	12 x .32 on 8.750 6 x .32 on 9.625 Spaced 3 groups of 2 apart 23°59`07 12 x .32 on 9.685 12 x .32 on 9.527	Suit Ford XLD And Mitsubishi
49	241.3	9.500	8 x 8.5 on 222.25	8 x .334 on 8.750	SAE 7 1/2
60	215.9	8.500	6 x 8.1 on 200	6 x .32 on 7.875	Beta SAE 6 1/2
91	314.3 -0.05 -0.13	12.375 -0.002 -0.005 SAE 10	6 x 8.1 on 200 6 x 8.1 on 250 6 x 8.1 on 269.9 6 x 8.1 on 273 8 x 10.6 on 296	6 x .32 on 7.875 6 x .32 on 9.843 6 x .32 on 10.625 6 x .32 on 10.750 8 x .416 on 11.625	SAE 10
94	287.4	11.312	6 x 9.1 on 269.96 6 x 6.3 on 269.96	6 x .356 on 10.625 3 x .25 on 10.625	Trans Auto TAMD 40

List 3

Element Fixing 5 x 3/8 (5.593) 3 mm thick plate

Ref	O/D Met	O/D Imp	Flywheel Fixing Metric	Flywheel Fixing Imperial	Remarks
1	298.5	11.75	6 x 8.1 on 200 6 x 8.1 on 250 6 x 8.1 on 269.9 6 x 8.1 on 273	6 x .32 on 7.875 6 x .32 on 9.843 6 x .32 on 10.625 6 x .32 on 10.75	
2	362	14.25	6 x 8.1 on 200 6 x 8.1 on 210 6 x 8.1 on 263 6 x 8.1 on 269.9 6 x 8.1 on 276.3 6 x 8.1 on 289 6 x 8.1 on 295.3 6 x 8.8 on 304.8 6 x 8.1 on 314.4 6 x 9.5 on 320.7 12 x 9.5 on 343 Ford	6 x .32 on 7.875 6 x .32 on 8.268 6 x .32 on 10.375 6 x .32 on 10.625 6 x .32 on 10.875 6 x .32 on 11.375 6 x .32 on 11.625 6 x .344 on 12.00 6 x .32 on 12.375 6 x .375 on 12.625 12 x .375 on 13.5 Ford	
3	336.5	13.24	6 x 8.1 on 200 6 x 8.1 on 210 6 x 8.1 on 263 6 x 8.1 on 269.9 6 x 8.1 on 276.3 6 x 8.1 on 289 6 x 8.1 on 295.3 6 x 8.8 on 304.8 6 x 8.1 on 314.4 6 x 9.5 on 320.7	6 x .32 on 7.875 6 x .32 on 8.268 6 x .32 on 10.375 6 x .32 on 10.625 6 x .32 on 10.875 6 x .32 on 11.375 6 x .32 on 11.625 6 x .344 on 12.00 6 x .32 on 12.375 6 x .375 on 12.625	
5	352.5	13.875	8 x 10.6 on 333.4	8 x .416 on 13.125	SAE 11 1/2
17	314.3	12.375	6 x 8.1 on 200 6 x 8.1 on 250 6 x 8.1 on 269.9 6 x 8.1 on 273 8 x 10.6 on 296	6 x .32 on 7.875 6 x .32 on 9.843 6 x .32 on 10.625 6 x .32 on 10.750 8 x .416 on 11.625	SAE 10
25	287.4	11.312	6 x 9.1 on 269.96 6 x 6.3 on 269.96	6 x .356 on 10.625 3 x .25 on 10.625	TAMD 40
35	263.5	10.375	6 x 9.5 on 244.5	6 x .375 on 9.625	SAE 8
36	266.7	10.5	12 x 8.1 on 222.3 6 x 8.1 on 244.5 Spaced 3 groups of 2 apart 23°59`07 12 x 8.1 on 246 12 x 8.1 on 242	12 x .32 on 8.750 6 x .32 on 9.625 Spaced 3 groups of 2 apart 23°59`07 12 x .32 on 9.685 12 x .32 on 9.527	Suit Ford XLD And Mitsubishi
40	241.3	9.500	8 x 8.5 on 222.25	8 x .334 on 8.750	SAE 7 1/2

List 4

Element Fixing 4 x 1/2 (5.593) 6 mm thick plate

Ref	O/D Met	O/D Imp	Flywheel Fixing Metric	Flywheel Fixing Imperial	Remarks
14	352.5	13.875	8 x 10.6 on 333.4	8 x .416 on 13.125	SAE 11 1/2
15	362	14.25	12 x 9.5 on 342.9	12 x .375 on 13.50	Ford
52	466.7	18.375	8 x 13.5 on 438.15	8 x .53 on 17.250	SAE 14

List 5

Element Fixing 4 x 1/2 (4.50) 4 mm thick plate

Ref	O/D Met	O/D Imp	Flywheel Fixing Metric	Flywheel Fixing Imperial	Remarks
6	202.6	7.978	8 x 8.1 on 181	8 x .32 on 7.125	
13	234	9.212	6 x 13.1 on 210	6 x .515 on 8.267	

List 6

Element Fixing 3 x 1/2 (4.50) 4 mm thick plate

Ref	O/D Met	O/D Imp	Flywheel Fixing Metric	Flywheel Fixing Imperial	Remarks
7	180.8	7.12	9 x 6.35 on 167.4	9 x .25 on 6.589	

List 7

Element Fixing 4 x 1/2 (8.00) 3 mm thick plate

Ref	O/D Met	O/D Imp	Flywheel Fixing Metric	Flywheel Fixing Imperial	Remarks
1	298.5	11.75	6 x 8.1 on 200 6 x 8.1 on 250 6 x 8.1 on 269.9 6 x 8.1 on 273	6 x .32 on 7.875 6 x .32 on 9.843 6 x .32 on 10.625 6 x .32 on 10.75	
2	362	14.25	6 x 8.1 on 200 6 x 8.1 on 210 6 x 8.1 on 263 6 x 8.1 on 269.9 6 x 8.1 on 276.3 6 x 8.1 on 289 6 x 8.1 on 295.3 6 x 8.8 on 304.8 6 x 8.1 on 314.4 6 x 9.5 on 320.7 12 x 9.5 on 343 Ford	6 x .32 on 7.875 6 x .32 on 8.268 6 x .32 on 10.375 6 x .32 on 10.625 6 x .32 on 10.875 6 x .32 on 11.375 6 x .32 on 11.625 6 x .344 on 12.00 6 x .32 on 12.375 6 x .375 on 12.625 12 x .375 on 13.5 Ford	
3	336.5	13.24	6 x 8.1 on 200 6 x 8.1 on 210 6 x 8.1 on 263 6 x 8.1 on 269.9 6 x 8.1 on 276.3 6 x 8.1 on 289 6 x 8.1 on 295.3 6 x 8.8 on 304.8 6 x 8.1 on 314.4 6 x 9.5 on 320.7	6 x .32 on 7.875 6 x .32 on 8.268 6 x .32 on 10.375 6 x .32 on 10.625 6 x .32 on 10.875 6 x .32 on 11.375 6 x .32 on 11.625 6 x .344 on 12.00 6 x .32 on 12.375 6 x .375 on 12.625	
5	352.5	13.875	8 x 10.6 on 333.4	8 x .416 on 13.125	SAE 11 1/2
17	314.3	12.375	6 x 8.1 on 200 6 x 8.1 on 250 6 x 8.1 on 269.9 6 x 8.1 on 273 8 x 10.6 on 296	6 x .32 on 7.875 6 x .32 on 9.843 6 x .32 on 10.625 6 x .32 on 10.750 8 x .416 on 11.625	SAE 10
25	287.4	11.312	6 x 9.1 on 269.96 6 x 6.3 on 269.96	6 x .356 on 10.625 3 x .25 on 10.625	TAMD 40
34	466.7	18.375	8 x 13.5 on 438.15	8 x .53 on 17.250	SAE 14

List 8

Element Fixing 6 x 1/2 (8.00) 6 mm thick plate

Ref	O/D Met	O/D Imp	Flywheel Fixing Metric	Flywheel Fixing Imperial	Remarks
78	352.5	13.875	8 x 10.6 on 333.4	8 x .416 on 13.125	SAE 11 1/2
79	466.7	18.375	8 x 13.5 on 438.15	8 x .53 on 17.250	SAE 14

List 9

Element Fixing 4 x 1/2 (10.25) 6 mm thick plate

Ref	O/D Met	O/D Imp	Flywheel Fixing Metric	Flywheel Fixing Imperial	Remarks
101	352.5	13.875	8 x 10.6 on 333.4	8 x .416 on 13.125	SAE 11 1/2
103	466.7	18.375	8 x 13.5 on 438.15	8 x .53 on 17.250	SAE 14

R & D MARINE LTD.

PYI Inc.
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Lynnwood, WA
98087
USA

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Fax: 425-355-3661
Web Site: www.pyiinc.com
E mail: info@pyiinc.com

R & D MARINE LTD.

Flexible Engine Mountings

R & D Marine has developed a comprehensive range of fail safe competitively priced Engine Mountings to fit all major installations.

Shear mountings are available where good isolation is required and compression mounts where there is a restriction on the available space.

Installation is made as quick and easy as possible with slotted holes and height adjusting studs to simplify alignment.

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

- **Capacity 30 - 2000 lbs per mount**
- **Good vibration isolation**
- **Fail safe design**
- **Will withstand roll over test**
- **Competitively priced**
- **Wide range of stock**
- **Available in standard sizes**
- **Accepts propeller thrust**
- **Pre-loaded**
- **Slotted holes to assist alignment**
- **Height adjusting to simplify alignment**
- **Fast installation time**
- **Worldwide availability**

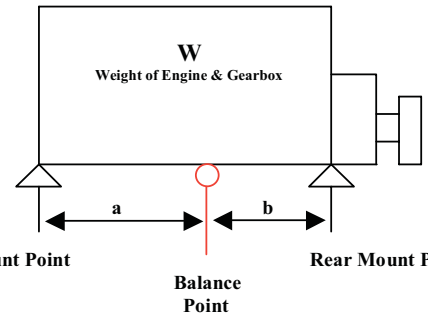
R & D Marine Engine Mountings

How to select (details required)

1. Engine type, number of cylinders
2. Type of gearbox and reduction ratio
3. Weight of engine and gearbox combined by weighing or manufacturers literature
4. Is flywheel in conventional place between the engine and gearbox
5. Position of engine mounting points
6. Find centre of gravity by balancing on a roller (if possible)

Weight on each front mount = $\frac{W \times b}{2 \times (a+b)}$

Weight on each Rear Mount = $\frac{W \times a}{2 \times (a+b)}$



Example: **Total weight of engine and gearbox = 1200 lbs**
Distance a (balance point to front mount) = 17 inches
Distance b (balance point to rear mount) = 14 inches

Front mount $\frac{1200 \times 14}{2 \times (17+14)}$ **= 270 lbs per front mount**

Rear Mount $\frac{1200 \times 17}{2 \times (17+14)}$ **= 329 lbs per rear mount**

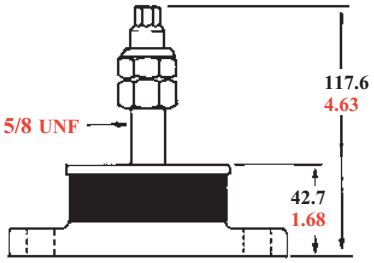
7. **If Centre of Gravity cannot be found, assume weight distribution of 60% on rear mounts, with 40% on front mounts. (if rear mount is in line with flywheel).**

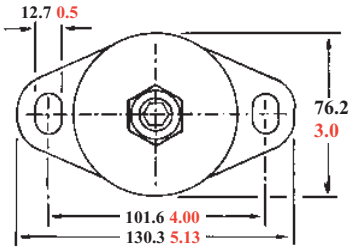
Type of Engine	Recommended Mounting Type				
	Double Acting	Small Compression	Compression	Small Shear	Medium & Large Shear
2 & 3 Cylinder Long Stroke	800-032, 034, 042	800-036	800-003, 4, 5		
1, 2 & 3 Cylinder Short Stroke High Speed		800-033, 036		800-038, 039 800-040, 041	800-010, 011
4 Cylinder		800-033, 036	800-003, 4, 5		SUPER MOUNTS See page 3
6 Cylinder and More			800-003, 4, 5		SUPER MOUNTS See Page 3 800-015, 016, 017

Installation Details

Maximum clearance between the underside of the height adjusting nut and top washer must not be more than 10mm. If more height is required use a spacer under the mounting casting. This applies to all mountings in the R & D Marine Range.

Compression Mountings





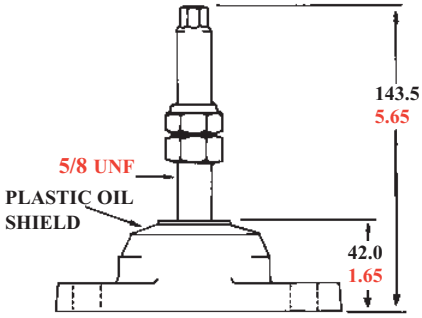
R & D MARINE COMPRESSION MOUNTING

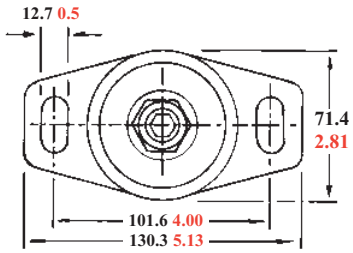
This is a low height mounting with minimum deflection

5/8 Stud

Part No	Capacity per mount kg	lbs
800-003	45-82	100-180
800-004	73-168	160-370
800-005	145-227	320-500

Mount Pre-loaded 1.5mm 0.06 inch
Deflection 2.3mm 0.09 inch
Height adjusting nut thickness 14mm 0.55 inch





R & D MARINE COMPRESSION MOUNTING

This mounting is a competitive, low height medium capacity mount giving good engine control

5/8 Stud

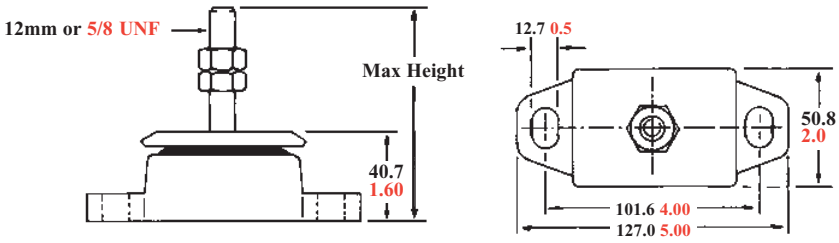
Part No	Capacity per mount kg	lbs
800-033	86	190
800-036	136	300

Deflection 1.65mm 0.065 inch
Height adjusting nut thickness 14mm 0.55 inch

Units of measurement: Black Millimetres Red Inches

Rectangular Shear Mountings

The R & D Rectangular Shear Mountings offer low height with the best combination of stiffness.
Soft vertically and at right angles to the crankshaft to isolate vibration, stiff fore and aft to take the propeller thrust.

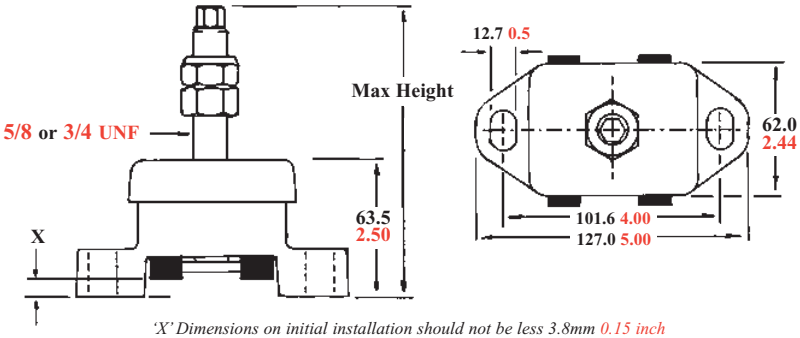


R & D MARINE SMALL SHEAR LOADED MOUNTING

This mounting has a low height giving good vibration isolation

12mm Stud			5/8 Stud		
Part No	Capacity per mount kg	lbs	Part No	Capacity per mount kg	lbs
800-038	14-41	30-90	800-040	14-42	30-91
800-039	32-77	70-170	800-041	32-78	70-171

Mount Pre-loaded 1.8mm 0.07 inch
Deflection 1.8-3.4mm 0.07-0.14 inch
Height adjusting
nut thickness : 10mm 0.39 inch | 14mm 0.55 inch
Maximum height: 99mm 3.9 inch | 116mm 4.57 inch



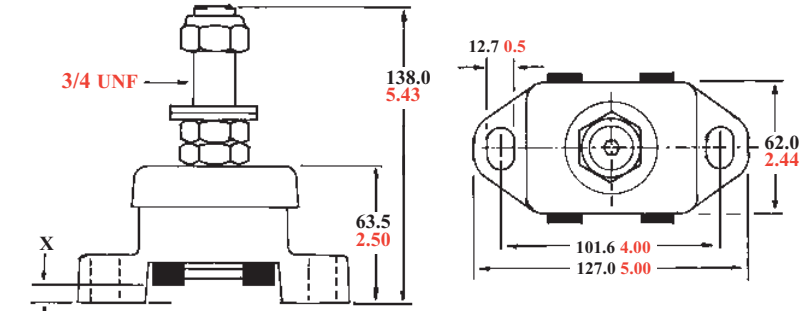
'X' Dimensions on initial installation should not be less 3.8mm 0.15 inch

R & D MARINE SHEAR LOADED "SUPER MOUNTS"

Fitted with an oil shield to protect the rubber

5/8 Stud			3/4 Stud		
Part No	Capacity per mount kg	lbs	Part No	Capacity per mount kg	lbs
800-037	23-80	50-175			
800-010	36-105	80-230	800-020	36-106	80-231
800-011	55-186	120-410	800-021	55-187	120-411
800-012	114-255	250-560	800-022	114-256	250-561
800-014	136-309	300-680	800-023	136-310	300-681

Mount Pre-loaded 2.3mm 0.09 inch
Deflection 2.3-5.4mm 0.09-0.21 inch
Height adjusting
nut thickness : 14mm 0.55 inch | 11mm 0.43 inch
Maximum height: 137mm 5.38 inch | 165mm 6.5 inch



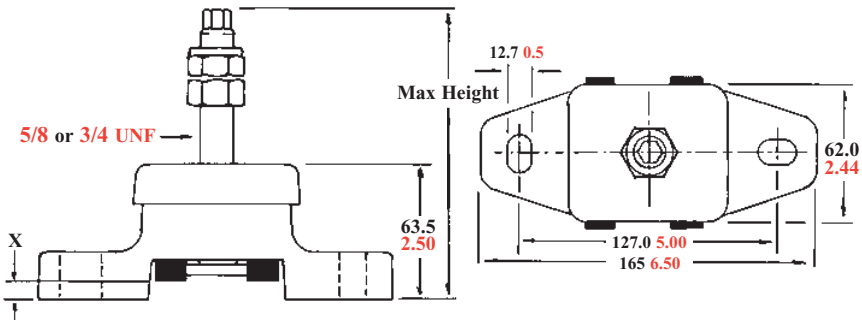
'X' Dimensions on initial installation should not be less 3.8mm 0.15 inch

R & D MARINE SHEAR LOADED "SUPER MOUNTS"

Fitted with an oil shield to protect the rubber

3/4 Stud		
Part No	Capacity per mount kg	lbs
800-051	36-108	80-235
800-052	55-187	120-415
800-053	114-257	250-565
800-054	136-311	300-685

Mount Pre-loaded 2.3mm 0.09 inch
Deflection 2.3-5.4mm 0.09-0.21 inch
Height adjusting double nut and washer thickness
25mm 0.97 inch



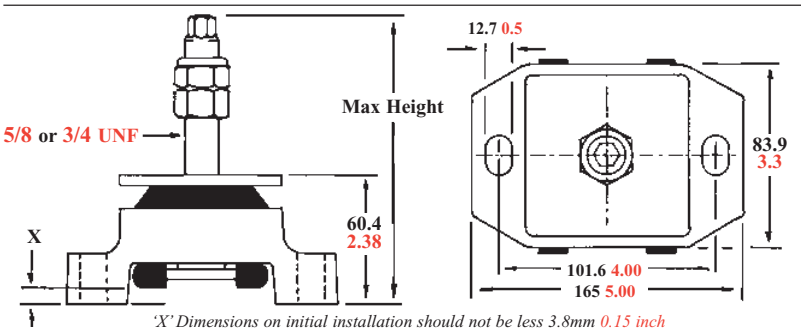
'X' Dimensions on initial installation should not be less 3.8mm 0.15 inch

R & D MARINE SHEAR LOADED "SUPER MOUNTS"

Fitted with an oil shield to protect the rubber

5/8 Stud			3/4 Stud		
Part No	Capacity per mount kg	lbs	Part No	Capacity per mount kg	lbs
800-062	23-81	50-176			
800-024	36-106	80-232	800-028	36-107	80-233
800-025	55-187	120-412	800-029	55-188	120-413
800-026	114-256	250-562	800-030	114-257	250-563
800-027	136-310	300-682	800-031	136-311	300-683

Mount Pre-loaded 2.3mm 0.09 inch
Deflection 2.3-5.4mm 0.09-0.21 inch
Height adjusting
nut thickness: 14mm 0.55 inch | 11mm 0.43 inch
Maximum height: 137mm 5.38 inch | 165mm 6.5 inch



'X' Dimensions on initial installation should not be less 3.8mm 0.15 inch

R & D MARINE SHEAR LOADED "SUPER MOUNTS"

Fitted with an oil shield to protect the rubber

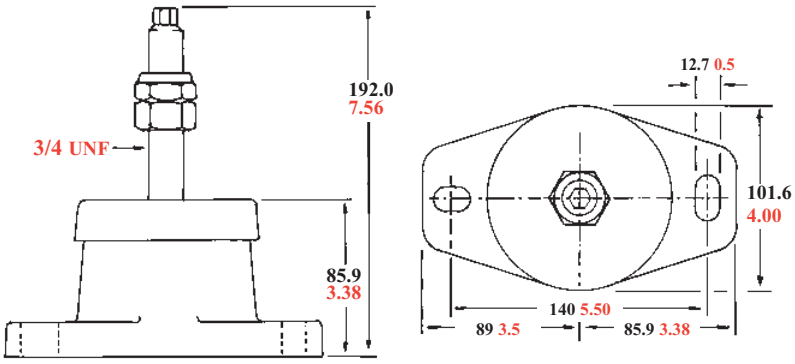
5/8 Stud			3/4 Stud		
Part No	Capacity per mount kg	lbs	Part No	Capacity per mount kg	lbs
800-013	155-345	340-760	800-035	155-346	340-761

Mount Pre-loaded 2.3mm 0.09 inch
Deflection 2.3-4.8mm 0.09-0.19 inch
Height adjusting
nut thickness: 14mm 0.55 inch | 11mm 0.43 inch
Maximum height: 137mm 5.38 inch | 152mm 6.0 inch

Units of measurement: Black Millimetres Red Inches

R & D Marine Engine Mountings

Circular Shear Mountings



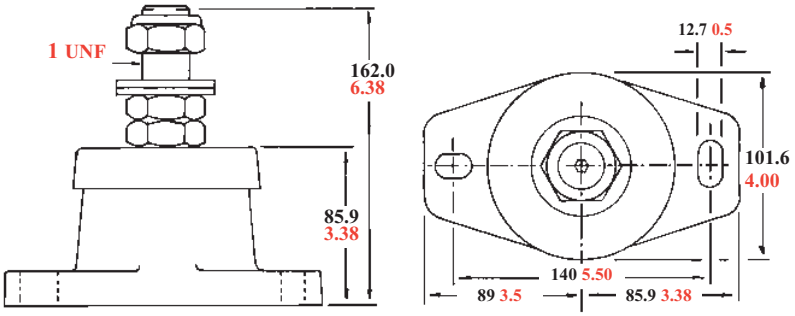
R & D MARINE HEAVY DUTY CIRCULAR SHEAR MOUNTING

This mounting is designed to give excellent vibration isolation and is fitted with an oil shield to protect the rubber

3/4 Stud

Part No	Capacity per mount kg	lbs
800-015	228-546	500-1200
800-016	296-682	650-1500
800-017	400-910	880-2000

Mount Pre-loaded 3mm 0.12 inch
Deflection 3-6.4mm 0.012-0.25 inch
Height adjusting nut thickness 16mm 0.63 inch



R & D MARINE HEAVY DUTY CIRCULAR SHEAR MOUNTING

This mounting is designed to give excellent vibration isolation and is fitted with an oil shield to protect the rubber

1.00 Stud

Part No	Capacity per mount kg	lbs
800-055	228-546	500-1201
800-056	296-682	650-1501
800-057	400-910	880-2001

Mount Pre-loaded 3mm 0.12 inch
Deflection 3-6.4mm 0.012-0.25 inch
Height adjusting double nut and washer thickness 31.75mm 1.25 inch

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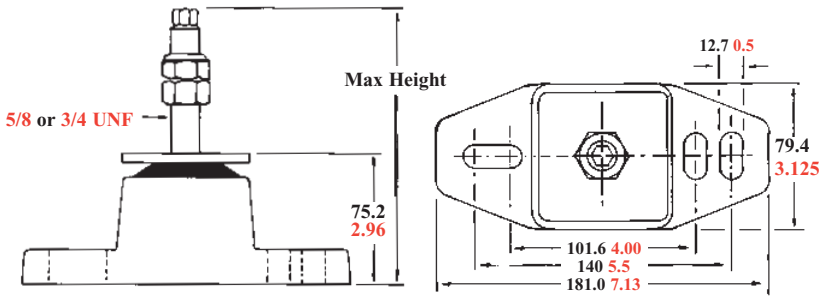
Double Acting Mounting



R & D MARINE DOUBLE ACTING SHEAR LOADED MOUNTING

The Double Acting Shear Mount is a unique mounting incorporating 2 rubber elements which are pre-loaded against each other, giving excellent isolation together with good control on problem installations

5/8 Stud			3/4 Stud		
Part No	Capacity per mount kg	lbs	Part No	Capacity per mount kg	lbs
800-032	46-190	100-420			
800-034	73-305	160-670	800-042	73-305	160-671

Mount Pre-loaded 4.8mm 0.19 inch
Deflection 4.8-7.6mm 0.19-0.30 inch

Height adjusting nut thickness :	14mm 0.55 inch	11mm 0.43 inch
Maximum height	153mm 6.0 inch	153mm 6.0 inch

Units of measurement: Black Millimetres Red Inches

R & D MARINE LTD.

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Web Site: www.pyiinc.com
E mail: info@pyiinc.com

R & D MARINE LTD.

Steel Clamp Half Couplings Adaptors & Bobbins

- **Clamps to give a better fit than a solid coupling**
- **Machined from solid steel**
- **Able to accommodate normal shaft tolerances**
- **Available in standard sizes (Both Metric and Imperial)**
- **Easy to install and position**
- **Wide range of stock**
- **Competitively priced**
- **In - House customization**
- **Special Half Couplings can be supplied in small batches**
- **Worldwide availability**

R & D Marine has developed a comprehensive range of competitively priced Steel Clamp Half Couplings with flange sizes from 4 to 7 1/4 inch diameter.

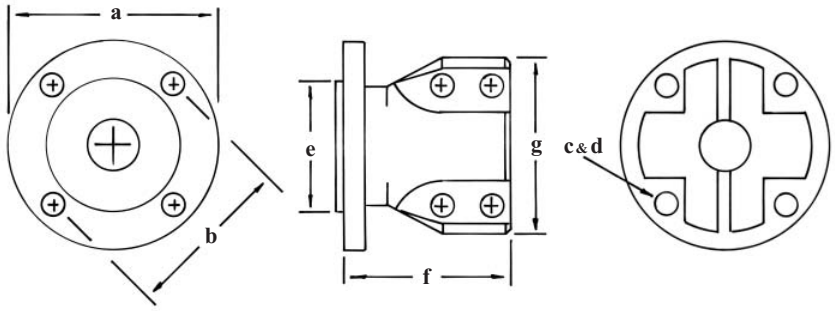
Steel Clamp Half Couplings can accommodate the variations that occur with normal shaft tolerances, are easy to install and can be adjusted to the required position on the shaft.

R & D Marine have the capacity to machine Split Half Couplings to special sizes not in the literature.

R & D Marine can also offer pilot drilled Solid Half Couplings suitable for parallel and taper boring. Adaptors to fit larger couplings to gearbox flanges and Bobbins to extend the shaft.

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

R & D Marine Steel Split Half Couplings



Supplied with Shaft Clamp Bolts and Nuts

Imperial Sizes
Keyways to BS46: Part 1 Square

Metric Sizes
Keyways to BS4235: Part 1 Rectangular

Shaded area designates range of bores covered. **Units of measurement: Black Millimetres Red Inches**

Part No	Type of Gearbox	Imperial Bore Diameters (Inch)										Coupling Dimensions						
		-	-	B	D	F	H	J	K	L	M	a	b	c	d	e	f	g
		.750	.875	1.00	1.250	1.50	1.750	2.00	2.250	2.50	2.750	Flange Diameter	Hole Pitch Circle	No of Holes	Hole Size	Register Diameter M = Male F = Female	Length	Boss Diameter
202-153	4" BW, PRM, Hurth Max Bore 1.500	B		B	B	B						102.0 4.00	82.55 3.25	4	10.0 0.394	63.5 M 2.50	81.0 3.19	85.9 3.38
202-254	4" Yanmar Max Bore 1.500	B		B	B							102.0 4.00	78.00 3.07	4	10.0 0.394	50.0 M 1.97	81.0 3.19	85.9 3.38
202-255	4" Volvo Max Bore 1.500	B										102.0 4.00	80.00 3.15	4	10.0 0.394	60.0 F 2.36	85.8 3.28	85.9 3.38
202-489	4" Bukh Max Bore 1.500	B										90.0 3.54	74.5 2.93	4	8.1 0.32	47.0 F 1.85	85.8 3.28	85.9 3.38
202-168	5" BW, PRM, Hurth, Volvo. Max Bore 2.000		P	B	BK	BK	BK	BK				127.0 5.00	107.95 4.25	4	11.2 0.44	63.5 M 2.50	95.3 3.75	103.2 4.06
202-316	5" Yanmar Max Bore 2.000		P		BK							119.9 4.72	100.00 3.94	4	10.0 0.394	65.0 M 2.56	95.3 3.75	103.2 4.06
202-176	6" PRM Max Bore 2.500		P		BK	BK	BK	BK	BK	BK		146.0 5.75	120.6 4.75	6	12.7 0.50	76.2 M 3.00	139.7 5.50	136.7 5.38
202-188	6" Twin Disc Max Bore 2.500		P			BK	BK					146 5.75	120.6 4.75	6	16.0 0.63	76.2 F 3.00	139.7 5.50	136.7 5.38
202-313	5" IRM 220, MG 502 Max Bore 2.000		P									127.0 5.00	98.6 3.88	6	12.0 0.47	63.5 F 2.50	143.0 5.63	103.2 4.06
202-381	7 ¼" PRM 601, 1000 4:1 Max Bore 2.750					P						189.2 7.45	152.4 6.00	6	16.0 0.63	95.25 M 3.75	190.5 7.50	168.4 6.63
202-468	7 ¼" PRM 1500 Max Bore 2.750					P						189.2 7.45	152.4 6.00	6	16.0 0.63	95.25 F 3.75	190.5 7.50	168.4 6.63
202-469	7 ¼" Twin Disc Max Bore 2.750					P						189.2 7.45	152.4 6.00	6	19.0 0.75	95.25 F 3.75	190.5 7.50	168.4 6.63
202-470	7 ¼" ZF 311A Max Bore 2.750					P						189.2 7.45	152.4 6.00	8	16.0 0.63	95.25 F 3.75	190.5 7.50	168.4 6.63

Part No	Type of Gearbox	Metric Bore Diameters (mm)										Coupling Dimensions						
		B	C	D	F	H	J	K	L	M	N	a	b	c	d	e	f	g
		22	25	30	35	40	45	50	55	60	70	Flange Diameter	Hole Pitch Circle	No of Holes	Hole Size	Register Diameter M = Male F = Female	Length	Boss Diameter
202-165	4" BW, PRM, Hurth Max Bore 40mm	B	B	B	B							102.0 4.00	82.55 3.25	4	10.0 0.394	63.5 M 2.50	81.0 3.19	85.9 3.38
202-257	4" Yanmar Max Bore 40mm	B	B	B								102.0 4.00	78.00 3.07	4	10.0 0.394	50.0 M 1.97	81.0 3.19	85.9 3.38
202-258	4" Volvo Max Bore 40mm	B	B	B								102.0 4.00	80.00 3.15	4	10.0 0.394	60.0 F 2.36	85.8 3.28	85.9 3.38
202-490	4" Bukh Max Bore 40mm											90.0 3.54	74.5 2.93	4	8.1 0.32	47.0 F 1.85	85.8 3.28	85.9 3.38
202-171	5" BW, PRM, Hurth Volvo. Max Bore 50mm			BK	BK	BK	BK	BK				127.0 5.00	107.95 4.25	4	11.2 0.44	63.5 M 2.50	95.3 3.75	103.2 4.06
202-300	5" Yanmar Max Bore 50mm			BK	BK							119.9 4.72	100.00 3.94	4	10.0 0.394	65.0 M 2.56	95.3 3.75	103.2 4.06
202-178	6" PRM Max Bore 60mm					BK	BK	BK	BK	BK		146.0 5.75	120.6 4.75	6	12.7 0.50	76.2 M 3.00	139.7 5.50	136.7 5.38
202-314	6" Twin Disc Max Bore 60mm							BK		BK		146 5.75	120.6 4.75	6	16.0 0.63	76.2 F 3.00	139.7 5.50	136.7 5.38
202-315	5" IRM 220, MG 502 Max Bore 50mm											127.0 5.00	98.6 3.88	6	12.0 0.47	63.5 F 2.50	143.0 5.63	103.2 4.06
202-466	7 ¼" PRM 601, 1000 4:1 Max Bore 70mm											189.2 7.45	152.4 6.00	6	16.0 0.63	95.25 M 3.75	190.5 7.50	168.4 6.63
202-471	7 ¼" PRM 1500 Max Bore 70mm											189.2 7.45	152.4 6.00	6	16.0 0.63	95.25 F 3.75	190.5 7.50	168.4 6.63
202-472	7 ¼" Twin Disc Max Bore 70mm											189.2 7.45	152.4 6.00	6	19.0 0.75	95.25 F 3.75	190.5 7.50	168.4 6.63
202-473	7 ¼" ZF 311A Max Bore 70mm											189.2 7.45	152.4 6.00	8	16.0 0.63	95.25 F 3.75	190. 7.50	168.4 6.63

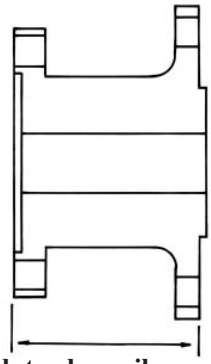
P - Pilot Drilled **B - Bored Only** **BK - Bored & Keyed**

Recommended tightening torque: M10 - 61 Nm *45 lbsft* 7/16 UNF - 81 Nm *60 lbsft* 1/2 UNF - 100 Nm *75 lbsft* 5/8 UNF - 210 Nm *155 lbsft*

R & D Marine Gearbox Output Flange Adaptors

R & D Marine can provide an adaptor for most gearboxes to allow the fitting of a flexible coupling from their extensive range. If the gearbox fitting you require is not listed please contact R & D Marine.

Flange machined to suit the gearbox output flange.
The register could be male or female
See listing below.



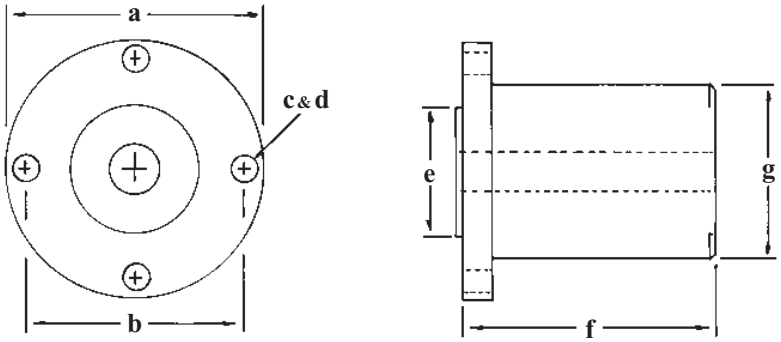
Length to clear oil pump etc

Flange machined to fit the selected R & D Flexible Coupling.
The register could be male or female.

Gearbox	Gearbox Register	Coupling	Maximum HP of Coupling kW	HP	Effective length of Coupling Mm	Inch	R & D Marine Reference	Effective length of Adaptor Mm	Inch
B/W, PRM, ZF-Hurth, Twin Disc, Volvo									
4" to 5"	Female	910-029	14.92	20	52.4	2.06	202-351	22.3	0.88
5" to 6"	Female	910-032	27.6	37	55.4	2.18	202-411	74.7	2.94
Twin Disc									
MG 502	Male	910-032	27.6	37	55.4	2.18	202-148	54	2.13
MG 5075A	Male	910-039	41	55	63.3	2.49	EXP 249	69.9	2.75
MG 5090A	Male	910-024	63.1	85	56.7	2.23	EXP 244	193.7	7.63
MG 5111 SC	Male	910-022	44	65	44.5	1.75	EXP 147	17.8	0.70
MG 5111	Male	910-022	44	65	44.5	1.75	EXP 193	115.9	4.56
MG 5114	Male	910-025	20.9	28	49.8	1.96	EXP 184-2	45	1.75
MG 5114A	Male	910-024	63.1	85	56.7	2.23	EXP 205	155.7	6.13
MG 5114A	Male	910-030	89.52	120	58.4	2.30	EXP 238	155.7	6.13
MG 5135A	Male	910.024	67.5	85	56.7	2.23	202-477	62.5	2.5
MGX 5145 SC	Male	910-025	20.9	28	49.8	1.96	EXP 251	45	1.75
MGX 5145 SC	Male	910-030	89.4	120	58.5	2.30	EXP 253	135	5.32
MGX 5145 SC	Male	910-030	89.4	120	58.5	2.30	EXP 260	159	6.25
MG 6449	Male	910-030	89.4	120	58.5	2.30	EXP 208	46	1.81
ZF-Hurth									
BW 61	Male	910-018	29.84	40	60.7	2.39	EXP 221	122.0	4.81
BW 120	Male	910-025	20.9	28	49.8	1.96	EXP 182	76	3.00
BW 195VP, 1950A 2000, 2050, 2050A	Male	910-035	215	160	108.0	4.25	EXP 242	241.3	9.50
BW 250A 255A, 255AP	Male	910-030	89.52	120	58.4	2.30	EXP 239	155.8	6.13
BW 255 VP	Male	910-045	171.4	230	108.0	4.25	EXP 246	181	7.13
HSW 630 A1	Female	910-025	20.9	28	49.8	1.96	EXP 240	75	2.96
ZF 2000	Male	910-030	89.52	120	58.4	2.30	EXP 247	241	9.50
ZF 2500A	Male	910-030	89.52	120	58.4	2.30	202-412	156	6.13
ZF 2500A	Male	910-035	215	160	108.0	4.25	EXP 266	150	4.25
ZF 550A	Male	910-030	89.52	120	58.4	2.30	EXP 245	124	4.88
IRM 220A	Male	910-032	27.6	37	55.4	2.18	202-384	54	2.13
IRM 280A	Male	910-039	41	55	63.5	2.49	202-382	97	3.82
IRM 280A	Male	910-039	41	55	63.5	2.49	EXP 224 R1	25.4	1.00
IRM 280A	Male	910-039	41	55	63.5	2.49	202-387	50.8	2.00
IRM 305A	Male	910-033	27.6	37	55.4	2.18	EXP 234	115	4.53
IRM 311A	Male	910-039	41	55	63.5	2.49	EXP 230	108	4.25
IRM 311A	Male	910-024	63.1	85	56.7	2.23	EXP 259	266.7	10.50
IRM 311A	Male	910-040	41	55	63.5	2.49	EXP 243	117.6	4.65
IRM 305A	Male	910-040	41	55	63.5	2.49	EXP 261	130.0	5.12
IRM 311-PL	Male	910-024	63.1	85	56.7	2.23	EXP 227	135	5.32
IRM 320A	Male	910-018	29.84	40	60.7	2.39	EXP 130	165.1	6.50
IRM 320AL	Male	910-022	44	65	44.5	1.75	EXP 170	106	4.18
IRM 320A-1	Male	910-024	63.1	85	56.7	2.23	EXP 200	106	4.18
IRM 325A ZF 12 Bolt	Male	910-024	63.1	85	56.7	2.23	202-392	178	7.00
IRM 325 IV	Male	910-039	41	55	63.5	2.49	202-467	111	4.38
IRM 325 IV	Male	910-040	41	55	63.5	2.49	202-474	50.8	2.00
IRM 325A Volvo 10 Bolt	Male	910-024	63.1	85	56.7	2.23	EXP 232	178	7.00
IRM 350A	Male	910-024	63.1	85	56.7	2.23	EXP 177	152.4	6.00
IRM 350A	Male	910-018	63.1	40	60.7	2.39	EXP 207	125	4.92
W350A	Male	910-024	63.1	85	56.7	2.23	202-443	130	5.13

R & D Marine Steel Half Couplings

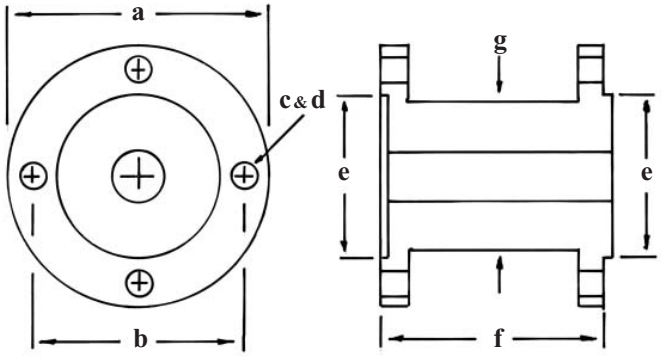
Pilot drilled only for finish parallel or taper boring by customer



Part No	Type of Gearbox	Pilot drilled only Customer to finish bore	a Flange Diameter	b Hole Pitch Circle	c No of Holes	d Hole Size	e Register Diameter		f Length	g Boss Diameter
202-026	4" BW, PRM Hurth	Pilot drilled to 16.5mm diameter	102.0 4.00	82.55 3.25	4	10.0 0.394	63.5 2.50	M	54.9 2.16	57.2 2.25
202-027	5" B/W, PRM Hurth, Volvo	Pilot drilled to 19.0mm diameter	127.0 5.00	109.95 4.25	4	11.2 0.44	63.5 2.50	M	54.9 2.16	85.9 3.38
202-006	5" B/W, PRM Hurth, Volvo	Pilot drilled to 19.0mm diameter	127.0 5.00	109.95 4.25	4	11.2 0.44	63.5 2.50	M	124.5 4.90	85.9 3.38
202-037	6" PRM	Pilot drilled to 21.0mm diameter	146.0 5.75	120.6 4.75	6	12.7 0.50	76.2 3.00	M	89.4 3.52	92.7 3.65
202-054	6" PRM	Pilot drilled to 21.0mm diameter	146.0 5.75	120.6 4.75	6	12.7 0.50	76.2 3.00	M	149.0 5.87	92.7 3.65
202-120	6" Twin Disc	Pilot drilled to 21.0mm diameter	146.0 5.75	120.6 4.75	6	19.0 0.63	76.2 3.00	F	152.4 6.00	92.7 3.65

R & D Marine Bobbins

R & D Marine can provide a Bobbin to extend the shaft. If the gearbox fitting you require is not listed, please contact R & D Marine



Part No	Type of Gearbox	Bobbin Dimensions						
		a Flange Diameter	b Hole Pitch Circle	c No of Holes	d Hole Size	e Register Diameter	f Length	g Neck Diameter
202-169	4" BW, PRM Hurth	102.0 4.00	82.55 3.25	4	10.0 0.394	63.5 2.50 M/F	87.4 3.44	57.2 2.25
202-251	5" BW, PRM Hurth,Volvo	127.0 5.00	109.95 4.25	4	11.2 0.44	63.5 2.50 M/F	124.5 4.90	85.9 3.38
202-250	6" PRM	146.0 5.75	120.6 4.75	6	12.7 0.50	76.2 3.00 M/F	148.9 5.86	92.7 3.65
Exp 225	7 ¼" Twin Disc	184.2 7.25	152.4 6.00	6	19.0 0.75	95.25 3.75 M/F	152.4 6.00	108.0 4.25

Units of measurement: Black Millimetres Red Inches

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