

TEKMARINE



Marine Fenders



About TekMarine

From its base in the United States, TekMarine Systems LLC designs and supplies advanced marine fendering and mooring systems to ports, harbors and waterways across the world.

We bring a wealth of engineering and market experience to each project. Our fender solutions range from simple modules to the most sophisticated engineered systems. We supply every type of berth, including passenger terminals, bulk and RoRo ports, Oil and Gas installations and naval facilities.

We offer full support at each step from early concept discussions through to design and detailing, material selection, construction, testing, shipping, and installation. A full after-care service helps keep your investment working safely and reliably for many years after commission.

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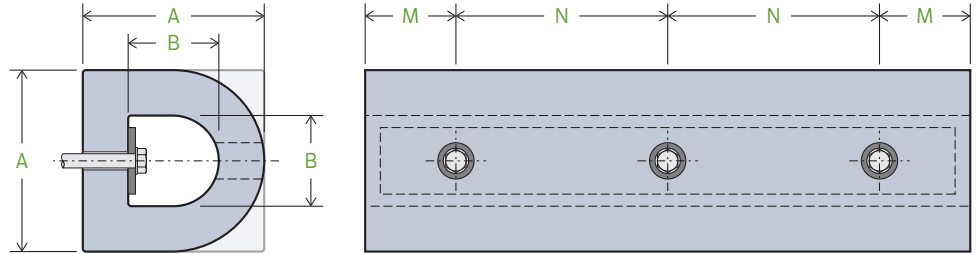
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Profile Fenders

Profile Fenders are used for smaller vessels and lighter applications. They are usually bolted to the structure, either through the top or sides of the fender. Available in various sections including D and square, they can be supplied in almost any length then cut and drilled as needed.

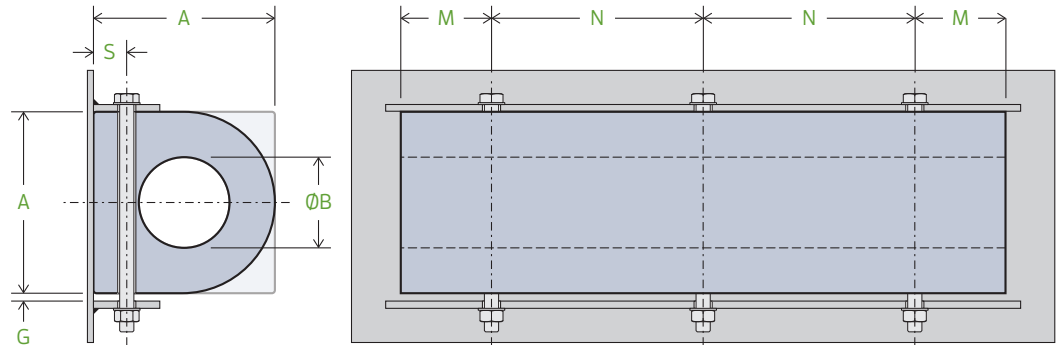
TJDD 
 TJSD 







A		B		M		N		Bolt	Weight				Performance							
									TJDD 		TJSD 		TJDD 				TJSD 			
mm	in	mm	in	mm	in	mm	in		kg	lb	kg	lb	Energy		Reaction		Energy		Reaction	
100	3.9	50	2.0	90-130	3.7-5.3	200-300	8.2-12.2	M12	8.0	17.6	9.3	20.5	1.4	1.0	76	17.0	2.6	1.9	137	30.8
150	5.9	75	3.0	110-150	4.5-6.1	250-350	10.2-14.3	M16	18.1	39.9	21.0	46.3	3.1	2.3	114	25.6	6.5	4.8	205	46.1
200	7.9	100	3.9	130-180	5.3-7.3	300-400	12.2-16.3	M20	32.1	70.8	37.3	82.2	5.6	4.1	152	34.2	11.3	8.3	273	61.4
250	9.8	125	4.9	140-200	5.7-8.2	350-450	14.3-18.4	M24	50.2	111	58.3	129	8.9	6.6	190	42.7	17.6	13.0	345	77.6
300	11.8	150	5.9	140-200	5.7-8.2	350-450	14.3-18.4	M24	72.3	159	83.9	185	12.8	9.4	232	52.2	25.3	18.7	413	92.8
350	13.8	175	6.9	140-200	5.7-8.2	350-450	14.3-18.4	M30	98.4	217	114	251	17.6	13.0	270	60.7	34.3	25.3	504	113
400	15.7	200	7.9	140-200	5.7-8.2	350-450	14.3-18.4	M30	129	284	149	328	23.2	17.1	305	68.6	45.1	33.3	590	133
500	19.7	250	9.8	140-200	5.7-8.2	350-450	14.3-18.4	M36	201	443	233	514	36.0	26.6	384	86.3	70.3	51.9	737	166

Values are for single units, L=1m.

TJDO 
 TJSO 



A		ØB		G		S		M		N		Bolt	Weight				Performance							
													TJDO 		TJSO 		TJDO 				TJSO 			
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in		kg	lb	kg	lb	Energy		Reaction		Energy		Reaction	
100	3.9	50	2.0	10	0.4	25	1.0	90-130	3.7-5.3	200-300	8.2-12.2	M12	9.9	21.8	11.1	24.5	1.9	1.4	154	34.7	2.8	2.1	173	38.9
150	5.9	75	3.0	12	0.5	30	1.2	110-150	4.5-6.1	250-350	10.2-14.3	M16	20.0	44.1	22.9	50.5	4.2	3.1	233	52.4	6.4	4.7	260	58.5
200	7.9	100	3.9	15	0.6	45	1.8	130-180	5.3-7.3	300-400	12.2-16.3	M20	37.4	82.5	42.6	93.9	7.5	5.5	315	70.8	11.2	8.3	343	77.1
250	9.8	125	4.9	20	0.8	50	2.0	140-200	5.7-8.2	350-450	14.3-18.4	M24	57.2	126	65.3	144	11.8	8.7	390	87.7	17.6	13.0	435	97.8
300	11.8	150	5.9	25	1.0	60	2.4	140-200	5.7-8.2	350-450	14.3-18.4	M24	81.3	179	92.9	205	16.9	12.5	474	107	25.3	18.7	520	117
350	13.8	175	6.9	25	1.0	70	2.8	140-200	5.7-8.2	350-450	14.3-18.4	M30	110	241	118	259	23.0	17.0	545	123	34.2	25.2	605	136
400	15.7	200	7.9	30	1.2	80	3.1	140-200	5.7-8.2	350-450	14.3-18.4	M30	142	313	154	339	29.3	21.6	625	141	45.0	33.2	688	155
500	19.7	250	9.8	40	1.6	90	3.5	140-200	5.7-8.2	350-450	14.3-18.4	M36	208	459	240	529	46.5	34.3	790	178	70.2	51.8	865	194

Values are for single units, L=1m.

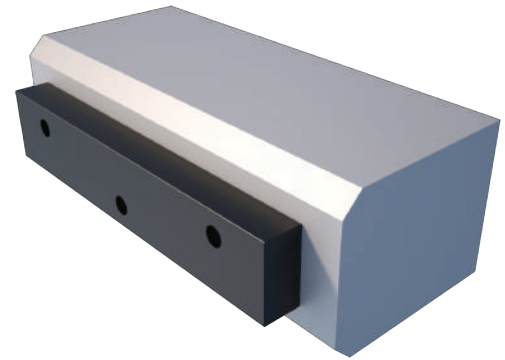


HD-PE Sliding Fenders

TekMarine HD-PE Fenders are durable, low friction strips that wear better and last longer than traditional timbers. HD-PE does not rot, split or suffer from marine borer infestation.

HD-PE Fenders are ideal for workboat berths, waterways and lock entrances and as components in larger fender installations.

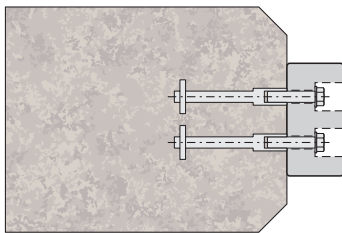
HD-PE is easy to machine and install onto concrete, steel or timber substrates. Better still, HD-PE is fully recyclable after its working life, and is a cost-effective alternative to tropical hardwoods.



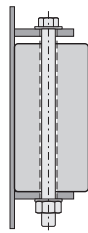
Fixing

HD-PE Fenders are equally at home mounted on concrete, steel plate or beam structures, or as a timber facing. Please ask TekMarine about the most suitable drilling diameters and fixings for your project.

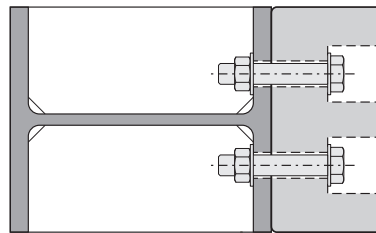
Concrete



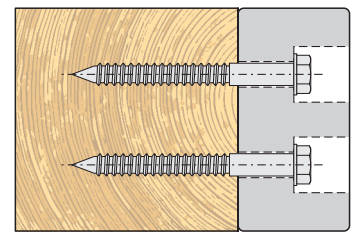
Plate



Beam



Timber



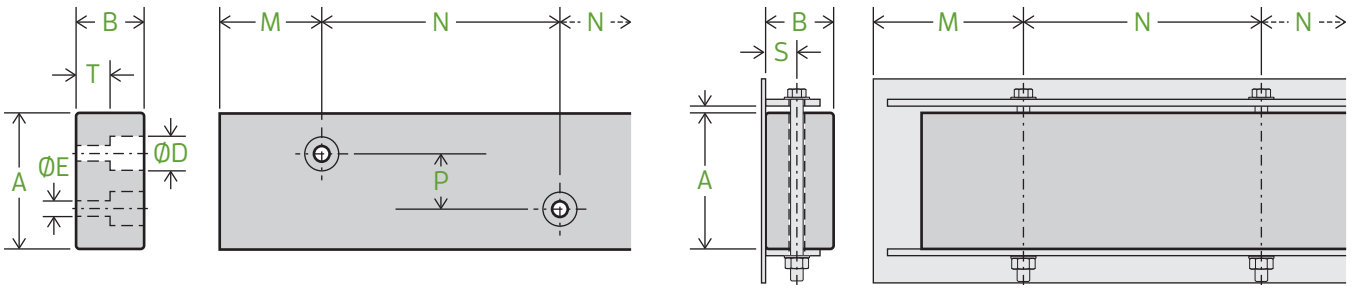
Physical Properties

Property	Test method	Typical results	Unit
Abrasion index (sand slurry)	ISO DIS 15527	~400	-
Density	ISO 1183-1	0.91-0.94	g/cm ³
Dynamic friction (wet plastic)	ISO 8295	0.20-0.25	-
Molecular weight	Light diffusion method ASTM D6474	~200,000 >4 × 10 ⁻⁶	g/mol
Operating temperature	Not applicable	-20 to +70	°C
Shore hardness	DIN 53505/ISO 868	48-50	Shore D
Thermal expansion	DIN 53752/ISO 3146	2 × 10 ⁻⁴	K ⁻¹
Yield strength	DIN 53504/ISO 527	10-15	MPa

Typical results are for virgin HD-PE. Actual values for Sliding Fenders can differ due to the proportion of recycled materials used in their manufacture.

For a comparison of the friction properties of various materials, please refer to p51.

HD-PE Dimensions



A		B		ØD		ØE		L		M		N		P		S		T		Flat Bar		Bolt	Weight	
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in		kg	lb
50	2.0	50	2.0	32	1.3	16	0.6	5500	217	75-125	3-5	250-300	10-12	0	0	25	1.0	-	-	-	-	M12	2.3	5.1
60	2.4	60	2.4	32	1.3	16	0.6	5500	217	75-125	3-5	250-300	10-12	0	0	30	1.2	-	-	-	-	M12	3.3	7.3
70	2.8	50	2.0	32	1.3	16	0.6	2500	98	75-125	3-5	250-300	10-12	0	0	25	1.0	-	-	-	-	M12	3.3	7.3
70	2.8	70	2.8	32	1.3	16	0.6	6500	256	75-125	3-5	250-300	10-12	0	0	35	1.4	-	-	-	-	M12	4.5	9.9
80	3.1	60	2.4	32	1.3	16	0.6	5000	197	75-125	3-5	250-300	10-12	0	0	30	1.2	-	-	-	-	M12	4.5	9.9
100	3.9	50	2.0	32	1.3	16	0.6	5500	217	75-125	3-5	250-300	10-12	0	0	25	1.0	-	-	-	-	M12	4.7	10.4
100	3.9	65	2.6	32	1.3	16	0.6	5500	217	75-125	3-5	250-300	10-12	0	0	30	1.2	-	-	-	-	M12	6.1	13.4
100	3.9	100	3.9	32	1.3	16	0.6	6000	236	75-125	3-5	250-300	10-12	0	0	50	2.0	32	1.3	50×6	2×0.25	M12	9.3	20.5
120	4.7	80	3.1	40	1.6	20	0.8	5000	197	100-150	4-6	300-350	12-14	0	0	40	1.6	-	-	-	-	M16	8.9	19.6
120	4.7	120	4.7	40	1.6	20	0.8	6000	236	100-150	4-6	300-350	12-14	0	0	60	2.4	40	1.6	65×10	2.5×0.4	M16	13.4	29.5
140	5.5	70	2.8	40	1.6	20	0.8	5500	217	100-150	4-6	300-350	12-14	0-50	0-2.0	35	1.4	-	-	-	-	M16	9.1	20.1
160	6.3	70	2.8	40	1.6	20	0.8	5000	197	100-150	4-6	300-350	12-14	0-70	0-2.8	35	1.4	-	-	-	-	M16	10.4	22.9
160	6.3	160	6.3	40	1.6	20	0.8	6000	236	100-150	4-6	300-350	12-14	0-80	0-3.1	80	3.1	40	1.6	80×10	3.1×0.4	M16	24.1	53.1
170	6.7	120	4.7	40	1.6	20	0.8	5500	217	100-150	4-6	300-350	12-14	0-80	0-3.1	60	2.4	40	1.6	65×10	2.5×0.4	M16	19.0	41.9
175	6.9	150	5.9	50	2.0	23	0.9	4000	157	125-175	5-7	350-450	14-18	0-80	0-3.1	75	3.0	40	1.6	80×10	3.1×0.4	M20	24.2	53.4
180	7.1	70	2.8	50	2.0	23	0.9	5000	197	125-175	5-7	350-450	14-18	0-80	0-3.1	35	1.4	-	-	-	-	M20	11.7	25.8
180	7.1	180	7.1	50	2.0	23	0.9	6000	236	125-175	5-7	350-450	14-18	0-80	0-3.1	90	3.5	46	1.8	80×10	3.1×0.4	M20	30.2	66.6
190	7.5	110	4.3	50	2.0	23	0.9	5000	197	125-175	5-7	350-450	14-18	0-90	0-3.5	55	2.2	46	1.8	80×10	3.1×0.4	M20	19.4	42.8
200	7.9	75	3.0	50	2.0	23	0.9	5000	197	125-175	5-7	350-450	14-18	0-100	0-3.9	35	1.4	46	1.8	-	-	M20	14.0	30.9
200	7.9	100	3.9	50	2.0	23	0.9	6000	236	125-175	5-7	350-450	14-18	0-100	0-3.9	50	2.0	46	1.8	80×10	3.1×0.4	M20	18.6	41.0
200	7.9	150	5.9	50	2.0	23	0.9	5500	217	125-175	5-7	350-450	14-18	0-100	0-3.9	75	3.0	46	1.8	80×10	3.1×0.4	M20	27.9	61.5
200	7.9	200	7.9	50	2.0	23	0.9	6000	236	125-175	5-7	350-450	14-18	0-100	0-3.9	100	3.9	46	1.8	80×10	3.1×0.4	M20	37.6	82.9
210	8.3	165	6.5	50	2.0	23	0.9	2000	79	150-200	6-8	450-550	18-22	0-130	0-5.1	80	3.1	46	1.8	80×10	3.1×0.4	M20	31.9	70.3
250	9.8	150	5.9	65	2.6	28	1.1	6500	256	150-200	6-8	450-550	18-22	0-130	0-5.1	75	3.0	46	1.8	80×10	3.1×0.4	M24	34.8	76.7
250	9.8	160	6.3	65	2.6	28	1.1	5000	197	150-200	6-8	450-550	18-22	0-130	0-5.1	80	3.1	46	1.8	80×10	3.1×0.4	M24	37.2	82.0
250	9.8	250	9.8	65	2.6	28	1.1	5000	197	150-200	6-8	450-550	18-22	0-130	0-5.1	125	4.9	56	2.2	100×10	3.9×0.4	M24	58.1	128
300	11.8	100	3.9	65	2.6	28	1.1	5500	217	150-200	6-8	450-550	18-22	0-160	0-6.3	50	2.0	-	-	-	-	M24	27.9	61.5
300	11.8	210	8.3	70	2.8	36	1.4	5000	197	175-225	7-9	500-600	20-24	0-160	0-6.3	105	4.1	56	2.2	100×12	3.9×0.5	M30	58.6	129
300	11.8	300	11.8	70	2.8	36	1.4	5000	197	175-225	7-9	500-600	20-24	0-160	0-6.3	105	4.1	72	2.8	100×12	3.9×0.5	M30	84.6	187
440	17.3	160	6.3	70	2.8	36	1.4	2000	79	175-225	7-9	500-600	20-24	0-160	0-6.3	80	3.1	-	-	-	-	M30	66.8	147

Values are for single units, L=1m.

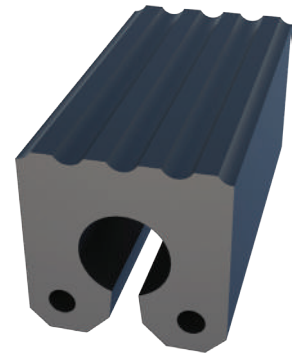


Block Fenders

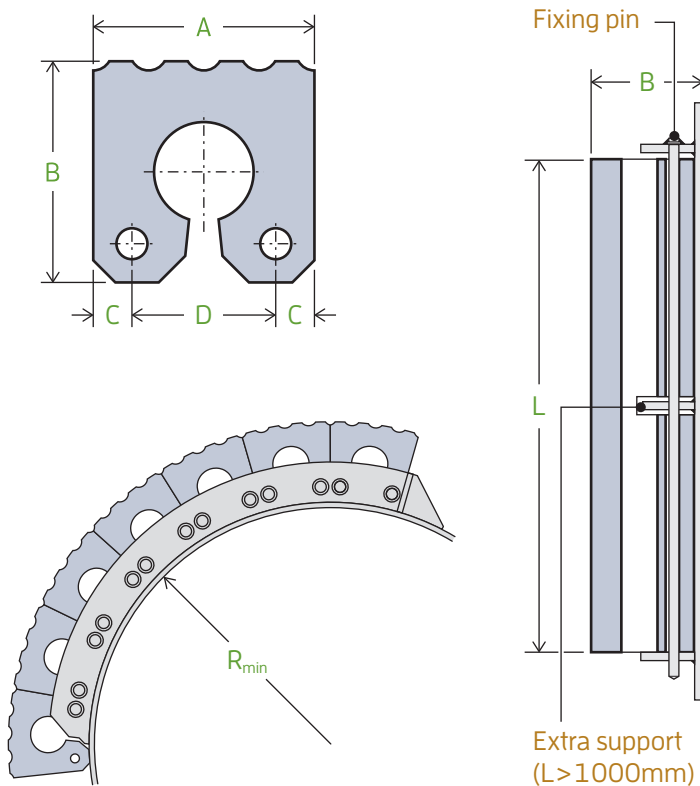
The Block Fender's instantly recognizable 'keyhole' section handles the most demanding tug operations. Block Fenders have optional smooth or grooved faces to suit different friction requirements, and can be fitted with low-friction UHMW-PE facings for heavy seas.

As well as tugs, Block Fenders are commonly fitted to pilings and similar structures to form a simple, reliable protective face.

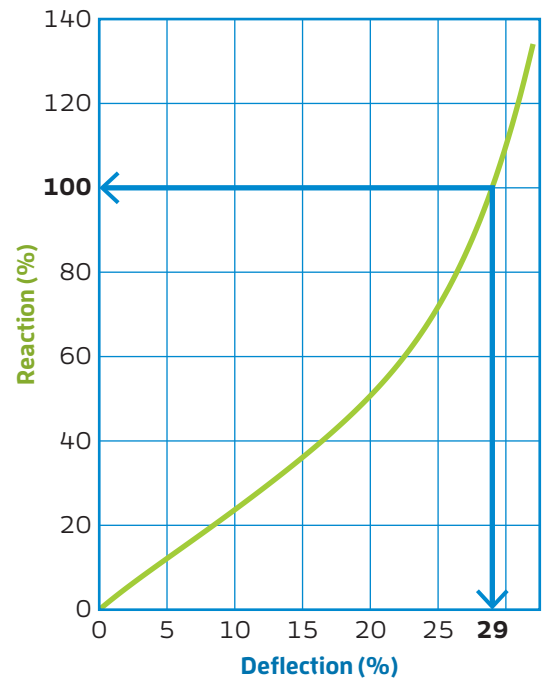
An intermediate support is recommended for fenders over 1000mm (3' 3") long.



Dimensions and Fixings



Performance



A		B		C		L _{max}		Weight	
mm	in	mm	in	mm	in	mm	in	kg	lb
200	7.9	200	7.9	35	1.4	2000	78.7	33	73
250	9.8	250	9.8	50	2.0	2000	78.7	54	119
300	11.8	300	11.8	60	2.4	1750	68.9	80	176
350	13.8	350	13.8	70	2.8	2000	78.7	114	251

Pin dia.		Flat bar		R _{min}	
mm	in	mm	in	mm	in
20	0.8	100 × 15	3.9 × 0.2	450	17.7
24	0.9	125 × 20	4.9 × 0.2	600	23.6
30	1.2	150 × 20	5.9 × 0.2	800	31.5
40	1.6	175 × 25	6.9 × 0.2	1000	39.4

Values are for single units, L=1m.



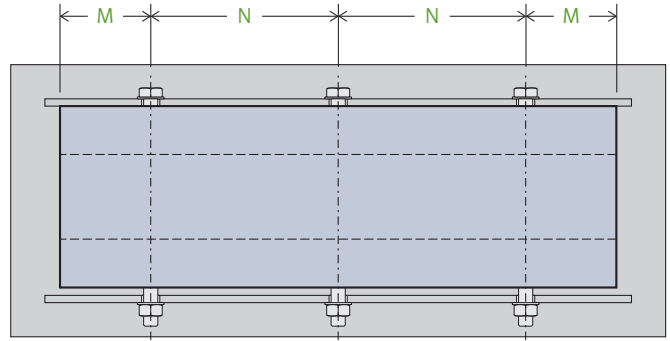
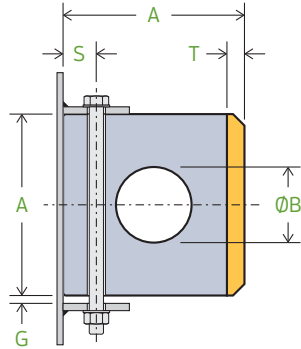
Composite Fenders

Composite Fenders combine a rubber body permanently bonded to a low-friction UHMW-PE face pad. The rubber body absorbs berthing energy while the facing reduces shear forces.

TJCA

Hollow

Solid



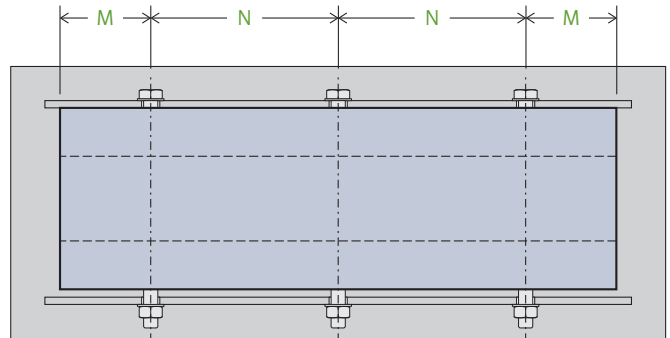
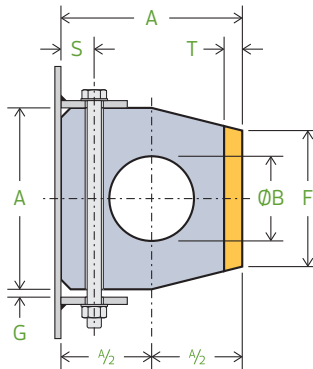
A		ØB*		G		S		T		M		N		Standard length		Flat bar		Bolt	Weight			
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in		Hollow		Solid	
kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb		kg	lb	kg	lb
100	3.9	30	1.2	10	0.4	25	1.0	20	0.8	90-130	3.5-5.1	200-300	7.9-11.8	3000	118	50 × 6	2.0 × 0.2	M12	10.3	22.7	11.1	24.5
150	5.9	65	2.6	12	0.5	30	1.2	20	0.8	110-150	4.3-5.9	250-350	9.8-13.8	3000	118	60 × 8	2.4 × 0.3	M16	21.5	47.4	27.0	59.5
200	7.9	75	3.0	20	0.8	45	1.8	25	1.0	130-180	5.1-7.1	300-400	11.8-15.7	3000	118	80 × 10	3.1 × 0.4	M20	40.2	88.6	48.0	106
250	9.8	100	3.9	25	1.0	50	2.0	30	1.2	140-200	5.5-7.9	350-450	13.8-17.7	2000	79	100 × 6	3.9 × 0.2	M24	60.2	133	75.0	165
300	11.8	125	4.9	30	1.2	60	2.4	30	1.2	140-200	5.5-7.9	350-450	13.8-17.7	3700	146	110 × 12	4.3 × 0.5	M24	92.1	203	108	238

Values are for single units, L=1m. *Dimension applies to hollow fenders only.

TJCB

Hollow

Solid

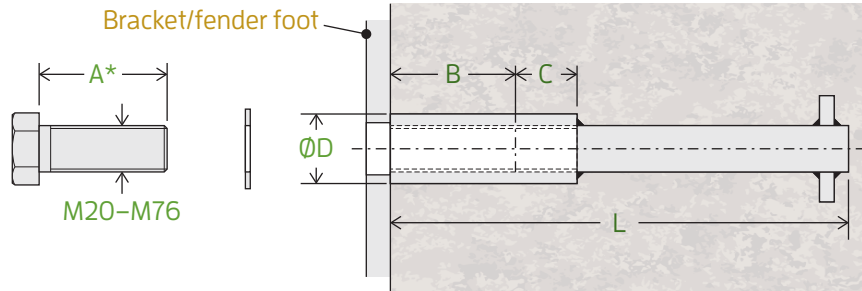


A		ØB*		F		G		S		T		M		N		Standard length		Flat bar		Bolt	Weight			
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in		Hollow		Solid	
kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb		kg	lb	kg	lb
80	3.1	42	1.7	60	2.4	6	0.2	25	1.0	10	0.4	90-130	3.5-5.1	200-300	7.9-11.8	2000	79	45 × 6	1.8 × 0.2	M12	5.4	11.9	7.0	15.4
100	3.9	45	1.8	74	2.9	8	0.3	25	1.0	10	0.4	90-130	3.5-5.1	200-300	7.9-11.8	2000	79	45 × 6	1.8 × 0.2	M12	8.4	18.5	11.0	24.3
120	4.7	65	2.6	88	3.5	10	0.4	30	1.2	12	0.5	110-150	4.3-5.9	250-350	9.8-13.8	2000	79	60 × 8	2.4 × 0.3	M16	12.2	26.9	15.8	34.8
150	5.9	73	2.9	110	4.3	12	0.5	30	1.2	15	0.6	110-150	4.3-5.9	250-350	9.8-13.8	3000	118	60 × 8	2.4 × 0.3	M16	19.7	43.4	24.8	54.7

Values are for single units, L=1m. *Dimension applies to hollow fenders only.

Anchors

Anchors are available in galvanized or stainless steel finishes, in various strength grades and in metric or inch sizes. Ask TekMarine for details if the required specification is not listed.



Cast-in type

Cast-in anchors are preferred for new concrete structures. The threaded anchor links via a long tail to an anchor plate, for even load distribution.

* Dimension A varies according to the thickness of the bracket or fender foot and should always be calculated.

Anchor	B	C	ØD	L	Weight
mm	mm	mm	mm	mm	kg
M20	50	20	30	214	0.9
M24	60	25	35	258	1.5
M30	70	30	45	318	2.7
M36	80	40	55	328	4.2
M42	85	45	65	416	6.9
M48	100	50	75	431	10.2
M56	105	60	85	436	14.0
M64	128	80	100	600	29.8
M76	152	90	114	700	46.1

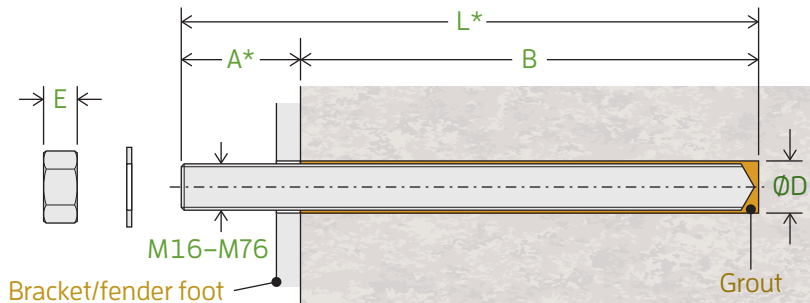
Chemical type

Chemical anchors are used for existing concrete structures.

Please ask about glass grout capsules and other grouting systems.

For an accurately drilled hole, allow for grout wastage of 10%–30%, depending on grout type.

* Dimensions A and L depend on the bracket/fender foot thickness and the concrete grade, and should always be calculated.



Anchor	B	ØD	E	Grout
mm	mm	mm	mm	ml
M16	140	20	13	16
M20	170	24	16	23
M24	210	28	19	34
M30	280	35	24	71
M36	360	42	29	132
M42	420	50	34	243
M48	460	54	38	221
M56	500	64	45	377
M64	560	72	51	479
M76	670	84	61	674



Tolerances

Standard manufacturing and performance tolerances apply to all TekMarine fenders. TekMarine may agree to smaller tolerances in special cases. Please ask TekMarine for tolerances of types not listed below.

Fender Type	Property	Tolerance	
TJCO, TJSC, TJUE, TJDA-A and TJDA-B	All dimensions	±3% or ±2mm (whichever greater)	
	Bolt hole spacing	±2mm	
TJCY	Outside diameter	±4%	
	Inside diameter	±4%	
	Length	±40mm	
TJDD, TJSD, TJDO and TJSO	Cross-section	±4%	
	Length	±2% or ±10mm (whichever greater)	
	Drilled hole centers	±4mm (non-cumulative)	
	Counterbore depth	±4mm (under-head depth)	
TJCA, TJCB	Cross-section	±3% or ±2mm (whichever greater)	
	Length	±2% or ±25mm (whichever greater)	
	Drilled hole centers	±4mm (non-cumulative)	
	Counterbore depth	±4mm (under-head depth)	
HD-PE fenders	Cross-section	±4%	
	Length	±2% or ±20mm (whichever greater)	
	Drilled hole centers	±4mm (non-cumulative)	
	Counterbore depth	±4mm (under-head depth)	
UHMW-PE panels	Length and width	(cut panels)	±5mm (cut pads)
		(uncut sheets)	±20mm (uncut sheets)
	Planed thickness	≤ 30mm	±0.2mm
		31–100mm	±0.3mm
		≥ 100mm	±0.5mm
	Unplaned thickness	≤ 30mm	±2.5mm
		31–100mm	±4.0mm
≥ 100mm		±6.0mm	
Drilled hole centers		±2mm (non-cumulative)	
Counterbore depth		±2mm (under-head depth)	
M, W and Block fenders	Cross-section	±3% or ±2mm (whichever greater)	
	Length	±3% or ±20mm (whichever greater)	
	Fixing hole centers	±3mm	
	Fixing hole diameter	±3mm	

Performance

Fender Type	Property	Tolerance
TJCO, TJSC, TJUE, TJDA-A and TJDA-B	Reaction, energy and deflection	±10%
Cylindricals (wrapped)	Reaction, energy and deflection	±10%
Cylindricals (extruded)	Reaction, energy and deflection	±10%
Profile fenders	Reaction, energy and deflection	±10%
Pneumatic fenders	Reaction and energy	±10%
Foam fenders	Reaction and energy	±15%

Unless otherwise listed or agreed with TekMarine, tolerances are ±20%.



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