

Sea Port Marine



1-800-446-8056

seaport-marine.com

P.O. BOX 3108

CHESAPEAKE, VA

23327



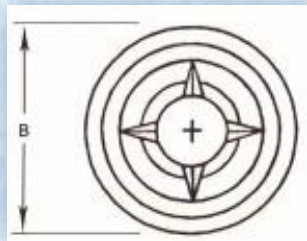
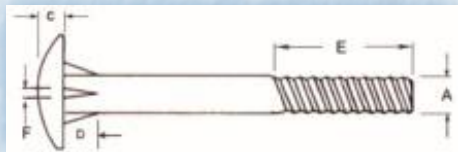


Phone: 800-446-8056
757-436-4400
Fax: 757-436-1460

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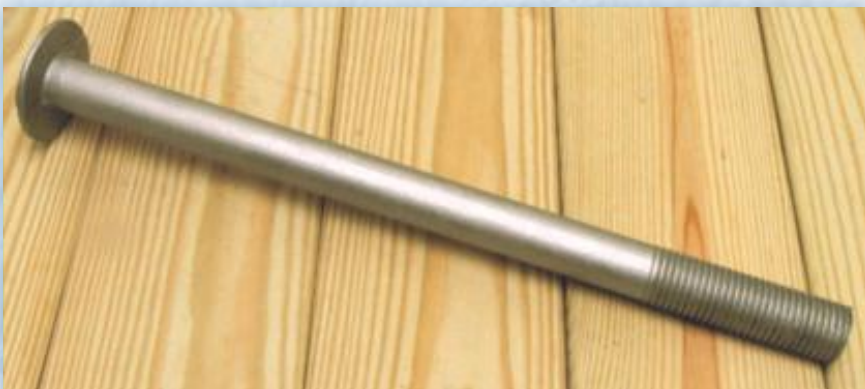
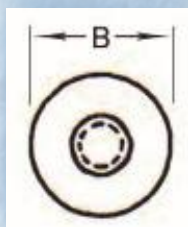
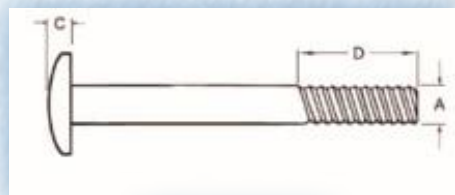
Weather-Tuff Timber Bolts Hot Dip Galvanized & Stainless Steel



A	B	C	D	E*	F
1/2	1-3/4	.275	1/4	6	.200
5/8	2-1/4	5/16	5/8	6	1/4
3/4	2-5/8	7/16	3/4	6	1/4
7/8	3	7/16	7/8	6	9/32
1	3	1/2	1	6	5/16
1-1/4"	3	1/2	1	6	5/16

* On bolts over 12" in length

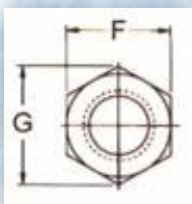
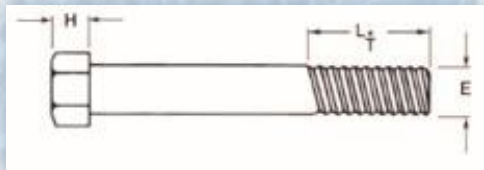
Dome Head Bolts Hot Dip Galvanized



A	B	C	D*
5/8	2-1/4	5/16	6
3/4	2-5/8	7/16	6
7/8	3	7/16	6
1	3	1/2	6

* On bolts over 12" in length

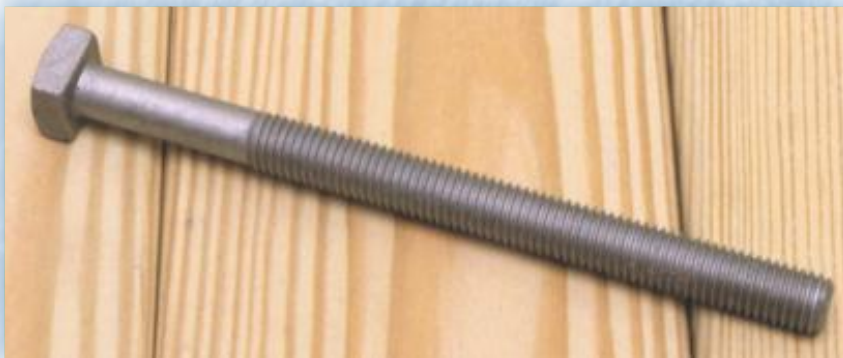
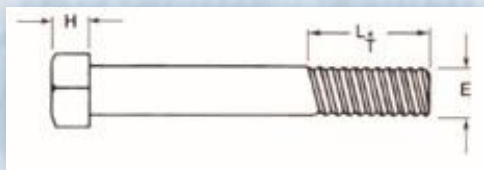
Hex Head Machine Bolts Hot Dip Galvanized & Stainless Steel



E	F	G	H	L _T *
1/2	3/4	27/32	11/32	6
5/8	15/16	1-1/16	7/16	6
3/4	1-1/8	1-1/4	1/2	6
7/8	1-5/16	1-1/2	9/16	6
1	1-1/2	1-11/16	11/16	6
1-1/8	1-11/16	1-7/8	3/4	6
1-1/4	1-7/8	2-1/8	7/8	6
1-1/2	2-1/4	2-1/2	1	6

* On bolts over 12" in length
 SEE ASTM FOR DIMENSION TOLERANCES

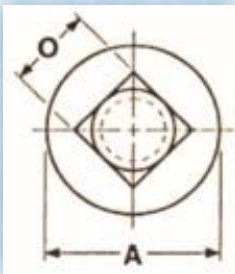
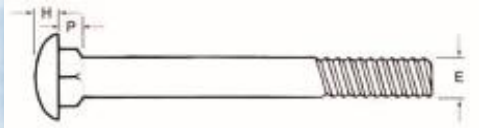
Square Head Machine Bolts Hot Dip Galvanized



E	F	G	H	L _T *
1/2	3/4	1-1/64	11/32	6
5/8	15/16	1-5/16	7/16	6
3/4	1-1/8	1-1/2	1/2	6
7/8	1-5/16	1-3/4	19/32	6
1	1-1/2	1-1/16	21/32	6
1-1/8	1-11/16	2-5/16	3/4	6
1-1/4	1-7/8	2-9/16	7/8	6
1-1/2	2-1/4	3-1/8	1	6

* On bolts over 12" in length
 SEE ASTM FOR DIMENSION TOLERANCES

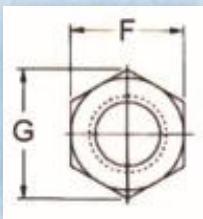
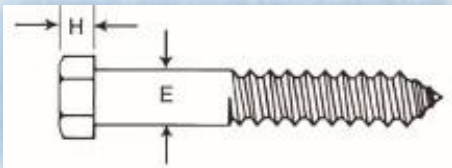
Carriage Bolts Hot Dip Galvanized & Stainless Steel



E	A	H	O	P
3/8	13/16	13/64	3/8	13/64
1/2	1-1/16	1/4	1/2	1/4
5/8	1-5/16	5/16	5/8	5/16
3/4	1-9/16	3/8	3/4	3/8

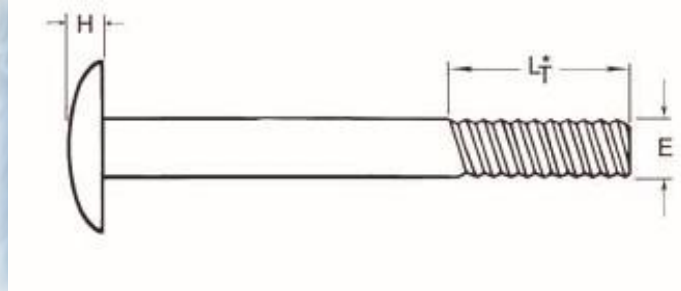
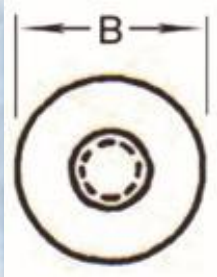
SEE ASTM FOR DIMENSION TOLERANCES

Hex Lag Screws Hot Dip Galvanized & Stainless Steel



E	F	G	H
3/8	9/16	5/8	1/4
1/2	3/4	27/32	11/32
5/8	15/16	1-1/16	7/16
3/4	1-1/8	1-1/4	1/2
7/8	1-5/16	1-1/2	9/16
1	1-1/2	1-11/16	11/16

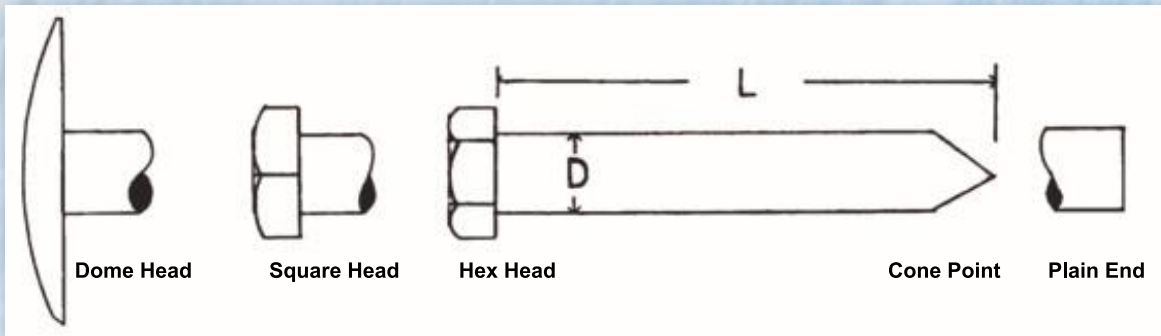
Button Head Bolts Hot Dip Galvanized



E	B	H	LT*
5/8	1-5/16	5/16	6
3/4	1-9/16	3/8	6
7/8	1-13/16	7/16	6
1	2-1/16	1/2	6

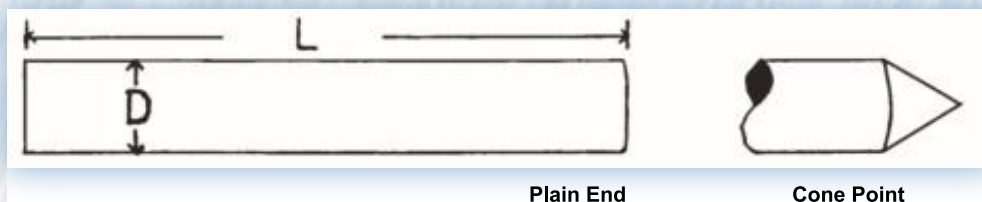
* On bolts over 12" in length

Drift Bolts Hot Dip Galvanized



D = Diameter
L = Length

Drift Pins Hot Dip Galvanized



D = Diameter
L = Length

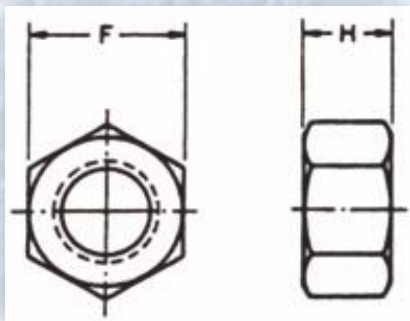
ASTM and SAE Standards for Bolts

Bolt Specifications, Proof Loads, Tensile Strengths

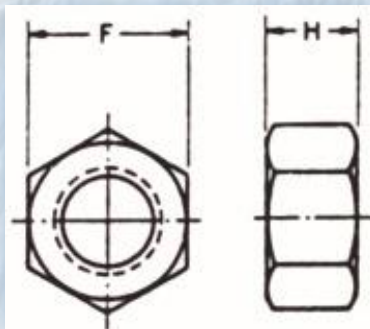
Grade Marking	Specification	Material	Bolt and Screw Size In.	Proof Load, psi	Tensile Strength, min. psi
	SAE J429 Grade 1	Low or Medium Carbon Steel	1/4 thru 1-1/2	33,000	60,000
	ASTM A307		1/4 thru 1-1/2 Over 1-1/2 to 4		60,000 60,000
	SAE J429 Grade 2	Low or Medium Carbon Steel	1/4 thru 3/4 Over 3/4 thru 1-1/2	55,000 33,000	74,000 60,000
	SAE J429 Grade 5	Medium Carbon Steel, Quenched and Tempered	1/4 thru 1 Over 1 thru 1-1/2	85,000 74,000	120,000 105,000
	ASTM A449		1/4 thru 1 Over 1 thru 1-1/2 Over 1-1/2 thru 3	85,000 74,000 55,000	120,000 105,000 90,000
	ASTM A325 Type 1	Medium Carbon Steel, Quenched and Tempered	1/2 thru 1 Over 1 thru 1-1/2	85,000 74,000	120,000 105,000
	ASTM A325 Type 2	Low Carbon Martensite Steel, Quenched and Tempered	1/2 thru 1	85,000	120,000
	ASTM A325 Type 3	Weather Resistant Steel, Quenched and Tempered	1-1/8 thru 1-1/2 1/2 thru 1	74,000 85,000	105,000 120,000
	ASTM A354 Grade BC	Low Allow Steel Quenched and Tempered	1/4 thru 2-1/2 Over 2-1/2 thru 4	105,000 95,000	125,000 115,000
	SAE J429 Grade 8	Medium Carbon Alloy Steel, Quenched and Tempered	1/4 thru 1-1/2	120,000	150,000
	ASTM A354 Grade BD	Alloy Steel, Quenched and Tempered			
	ASTM A490 Type 1	Alloy Steel, Quenched and Tempered	1/2 thru 1-1/2	120,000	150,000
	ASTM A490 Type 2	Low Carbon Martensite Steel, Quenched and Tempered	1/2 thru 1	120,000	150,000
	ASTM A490 Type 3	Weather Resistant Alloy Steel, Quenched and Tempered	1/2 thru 1-1/2	120,000	150,000

Nuts

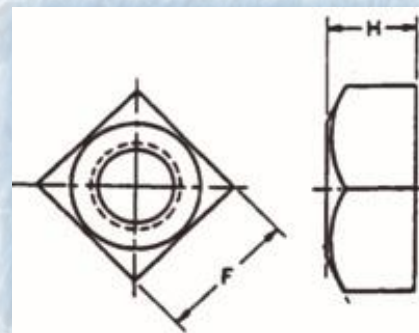
Hot Dip Galvanized



Hex



Heavy Hex



Square

Diameter	Course Threads Per In.	Hex		Heavy Hex		Square	
		Width F	Thickness H	Width F	Thickness H	Width F	Thickness H
3/8	16	9/16	21/64	11/16	23/64	5/8	21/64
1/2	13	3/4	7/16	7/8	31/64	13/16	7/16
5/8	11	15/16	35/64	1-1/16	39/64	1	35/64
3/4	10	1-1/8	41/64	1-1/4	47/64	1-1/8	21/32
7/8	9	1-5/16	3/4	1-7/16	55/64	1-5/16	49/64
1	8	1-1/2	55/64	1-5/8	63/64	1-1/2	7/8
1-1/8	7	1-11/16	31/32	1-13/16	1-7/64	1-11/16	1
1-1/4	7	1-7/8	1-1/16	2	1-7/32	1-7/8	1-3/32
1-3/8	6	2-1/16	1-11/64	2-3/16	1-11/32	2-1/16	1-13/64
1-1/2	6	2-1/4	1-9/32	2-3/8	1-15/32	2-1/4	1-5/16
1-3/4	5	2-5/8	1-1/2	2-3/4	1-23/36	-	-
2	4-1/2	3	1-23/32	3-1/8	1-31/32	-	-
2-1/4	4-1/2	-	-	3-1/2	2-13/64	-	-
2-1/2	4	-	-	3-7/8	2-29/64	-	-
2-3/4	4	-	-	4-1/4	2-45/64	-	-
3	4	-	-	4-5/8	2-61/64	-	-
3-1/4	4	-	-	5	3-3/16	-	-
3-1/2	4	-	-	5-3/8	3-7/16	-	-
3-3/4	4	-	-	5-3/4	3-11/16	-	-
4	4	-	-	6-1/8	3-15/16	-	-

Nuts to be used on Hot Dip Galvanized bolts are tapped oversize by the following minimum diametral amounts (ASTM A563): We stock DN & 2H structural nuts.

Diameter, in.	In.
7/16 and under	0.016
Over 7/16 to 1	0.021
Over 1	0.031



WASHERS

Galvanized Flat Washer (U.S.S.)



Stainless Steel Flat Washers

Bolt Size	Outside Diameter	Hole Diameter	American Standard Gauge	Approx Lbs. Per M Pcs.	Approx. No. Pcs Per Lb.
1/4	3/4	5/16	16 (1/16)	6.7	149.0
3/8	1	7/16	14 (5/64)	14.9	67.0
1/2	1-3/8	9/16	12 (7/64)	38.5	26.0
5/8	1-3/4	11/16	10 (9/64)	77	13.0
3/4	2	13/16	9 (5/32)	110	9.1
7/8	2-1/4	15/16	8 (11/64)	153	6.5
1	2-1/2	1-1/16	8 (11/64)	188	5.3
1-1/8	2-3/4	1-1/4	8 (11/64)	220	4.5
1-1/4	3	1-3/8	8 (11/64)	260	3.8
1-3/8	3-1/4	1-1/2	7 (3/16)	333	3.0
1-1/2	3-1/2	1-5/8	7 (3/16)	385	2.6
1-5/8	3-3/4	1-3/4	7 (3/16)	448	2.3
1-3/4	4	1-7/8	7 (3/16)	500	2.0
1-7/8	4-1/4	3	7 (3/16)	569	1.8
2	4-1/2	2-1/8	7 (3/16)	630	1.6
2-1/4	4-3/4	2-3/8	5 (7/32)	828	1.2
2-1/2	5	2-5/8	4 (15/64)	961	1.0
2-3/4	5-1/4	2-7/8	3 (1/4)	1100	.9
3	5-1/2	3-1/8	2 (9/32)	1300	.8

Galvanized Dock Washer



Stainless Steel Dock Washers

Bolt Size	Outside Diameter	Hole Diameter	Thick	Approx. Wt. Per CPCS.	Approx. No. Per CWT
5/8	3	11/16	1/4	48.8	205
3/4	3	13/16	1/4	48.1	208
7/8	3	15/16	1/4	48.5	215
1	3-1/4	1-1/16	1/4	54.1	185
1-1/8	3-5/8	1-1/4	3/8	106.0	94
1-1/4	4	1-3/8	1/2	161.0	62

Galvanized OGEE Washer and Stainless Steel Washers



Bolt Size	Outside Diameter	Hole Diameter	Thick	Approx. Wt. Per CPCS.	Approx. No. Per CWT
1/2	2	5/8	1/2	27	370
5/8	2-3/4	3/4	5/8	56	179
3/4	3	7/8	3/4	95	105
7/8	3-1/2	1	7/8	124	81
1	4	1-1/8	1	180	56
1-1/8	4-1/4	1-1/4	1-1/8	240	42
1-1/4	4-1/2	1-3/8	1-1/4	258	39
1-1/2	5-1/4	1-5/8	1-1/2	464	22

WASHERS

Galvanized Square Washers



Bolt Size	Size	Thickness	Approx. wt. Lb. Each
1/2"	2" x 2"	3/16"	.13
5/8"	2" x 2"	3/16"	.13
3/4"	2" x 2"	3/16"	.13
1/2"	3" x 3"	1/4"	.48
5/8"	3" x 3"	1/4"	.48
3/4"	3" x 3"	1/4"	.48
3/8"	4" x 4"	1/4"	.48
1/2"	6" x 6"	1/4"	.48

Galvanized Beveled Washers



Bolt Size	Size	Approx. wt. Lb. Each
1/2"	1-1/4" x 1-1/4"	.30
5/8"	1-1/2" x 1-1/2"	.29
3/4"	1-1/2" x 1-1/2"	.29
7/8"	2" x 2"	.29
1"	2" x 2"	.22
1-1/4"	2" x 2"	.22

Galvanized Lock Washers



Bolt Size	Approx. wt. Lb. Each
3/8"	.01
1/2"	.01
5/8"	.02
3/4"	.04
7/8"	.06
1"	.09
1-1/4"	.10
1-1/2"	.10

WEIGHTS OF GALVANIZED BOLTS WITHOUT NUTS

(Approximate weight of 100 steel bolts in pounds)

Length (inches)	Diameter (inches)								
	3/8	1/2	5/8	3/4	7/8	1	1-1/8	1-1/4	1-1/2
2	7.20	14.1	24.1	37.2	55.4	76.0	103.0	-	-
3	1.03	19.5	32.5	49.3	71.2	95.9	128.0	167.0	258.0
4	1.34	24.9	40.9	61.4	87.7	117.0	155.0	200.0	306.0
5	1.65	30.2	49.2	73.4	104.0	139.0	182.0	234.0	356.0
6	1.96	35.6	57.6	85.5	121.0	160.0	209.0	267.0	406.0
7	2.25	40.7	65.6	97.1	137.0	181.0	235.0	300.0	454.0
8	2.55	46.1	74.0	109.0	153.0	203.0	263.0	333.0	504.0
9	2.85	51.5	82.4	121.0	170.0	224.0	290.0	367.0	554.0
10	3.16	56.9	90.8	133.0	186.0	246.0	317.0	400.0	604.0
11	3.46	62.3	99.2	145.0	202.0	267.0	344.0	434.0	654.0
12	3.76	67.6	108.0	158.0	219.0	288.0	371.0	468.0	704.0
13	-	73.0	116.0	170.0	235.0	310.0	399.0	501.0	754.0
14	-	78.4	124.0	182.0	252.0	331.0	426.0	535.0	804.0
15	-	83.8	133.0	194.0	268.0	353.0	453.0	568.0	854.0
16	-	89.2	141.0	206.0	285.0	374.0	480.0	602.0	904.0
17	-	94.5	149.0	218.0	301.0	396.0	507.0	635.0	954.0
18	-	99.9	158.0	230.0	318.0	417.0	535.0	669.0	1004.0
19	-	105.0	166.0	242.0	334.0	439.0	562.0	702.0	1054.0
20	-	111.0	175.0	254.0	351.0	460.0	589.0	736.0	1104.0
21	-	116.0	183.0	266.0	367.0	482.0	616.0	770.0	1154.0
22	-	121.0	191.0	278.0	384.0	503.0	643.0	803.0	1204.0
23	-	127.0	200.0	290.0	400.0	525.0	671.0	837.0	1254.0
24	-	132.0	208.0	303.0	417.0	546.0	698.0	870.0	1304.0
25	-	-	-	315.0	433.0	568.0	725.0	904.0	1354.0
26	-	-	-	327.0	450.0	589.0	752.0	937.0	1404.0
27	-	-	-	339.0	466.0	611.0	779.0	971.0	1454.0
28	-	-	-	351.0	483.0	632.0	807.0	1005.0	1504.0
29	-	-	-	363.0	499.0	654.0	834.0	1038.0	1554.0
30	-	-	-	375.0	516.0	675.0	861.0	1072.0	1604.0
32	-	-	-	399.0	549.0	718.0	915.0	1139.0	1704.0
34	-	-	-	423.0	582.0	761.0	1023.0	1273.0	1804.0
36	-	-	-	471.0	615.0	847.0	1131.0	1407.0	1904.0

WEIGHTS OF GALVANIZED TIE RODS

(Approximate weight per each)

Length feet	Diameter (inches)					
	1/2	5/8	3/4	1	1-1/4	1-1/2
10	5.1	8.5	12.4	21.9	35.7	50.5
12	6.1	10.1	14.8	26.3	42.8	60.6
15	7.7	12.7	18.5	32.9	53.6	75.8
16	8.2	13.5	19.8	35.0	57.1	80.8
20	10.2	16.9	24.7	43.8	71.4	101.0



Vinyl Sheet Piling

Vinyl sheet piling has been a solution of choice for protecting coastal land from erosion since the mid-1990's. It is a proven product, and millions of feet of shoreline bordering oceans, canals, lakes, streams and ponds have been protected by vinyl sheet piling. It is an attractive, functional product that can add value to any waterfront property.

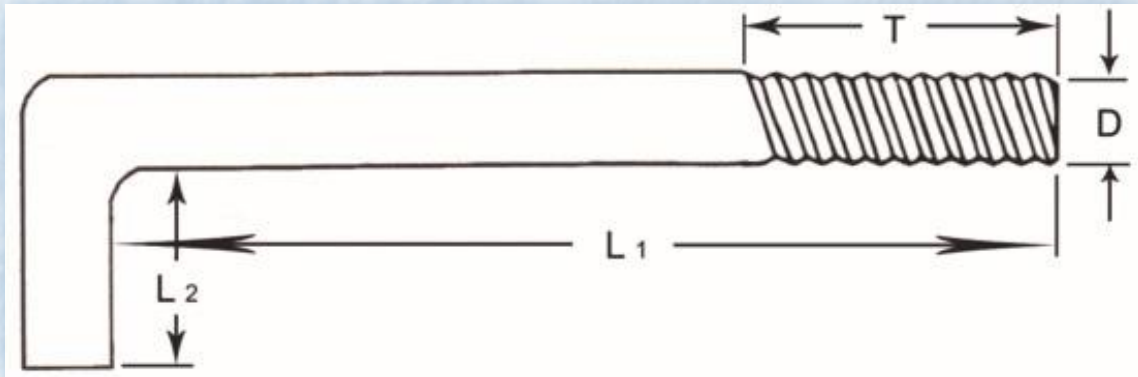


Thicker, Deeper, Stronger

Tidewall vinyl seawalls offer the best value among vinyl seawall suppliers. The structural performance of a seawall is directly tied to the quality and dimensions of each extruded sheet. Tidewall uses only 100% window grade UV stabilized PVC compound throughout the seawall; far better than siding, fences, or pipe grade in terms of UV stability and impact resistance. Tidewall seawalls are deliberately designed to be slightly thicker and slightly deeper than competitive alternatives. This gives added performance and structural strength.



Anchor Bolts



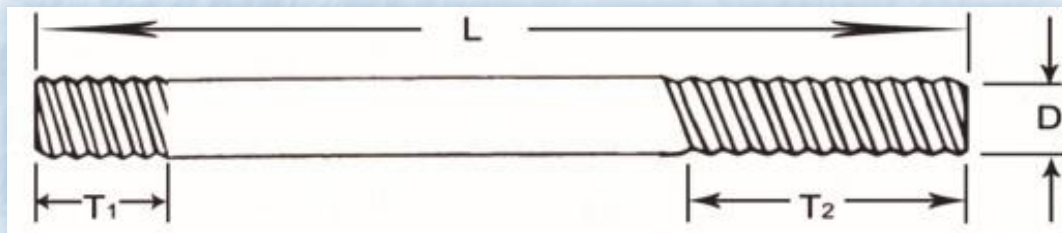
D = Diameter

T = Thread Length

L_1 = Long Leg

L_2 = Short Leg

Studs



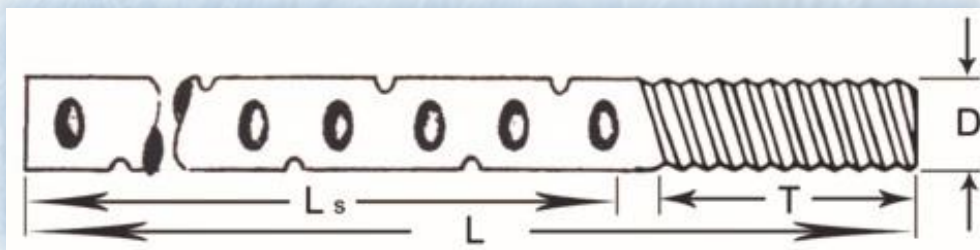
D = Diameter

L = Length

T_1 = Thread Length

T_2 = Thread Length

Swedge Bolts



D = Diameter

T = Thread Length

L = Length

L_s = Length of Swedge



Ultrabond 1 Epoxy Anchoring Adhesive



Ultrabond 1 Epoxy Anchoring Gel is a two component (1:1 ratio), 100% solids, high modulus, structural epoxy gel. It is a solvent free, no odor, high strength, moisture insensitive, non-sag epoxy system.

General Uses:

- Anchoring threaded rods, bolts, rebar dowels and smooth dowels into concrete, grout filled block and unreinforced masonry.
- Seismic anchoring and bracing.
- Grouting dowel bars and tie bars for full-depth concrete pavement repairs.
- Capping paste for crack-injection.

Advantages and Features:

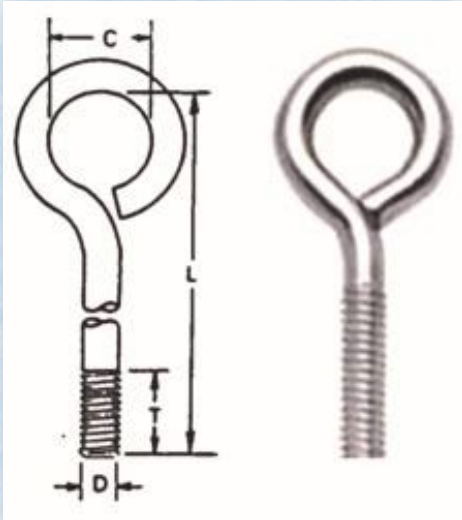
- Exceptional strength.
- Long working time (20 minutes at 75 degrees F).
- Easy to use and can be used with any standard caulking gun.
- Can be re-sealed to save product for later use.

Ultrabond 2 Epoxy Anchoring Adhesive

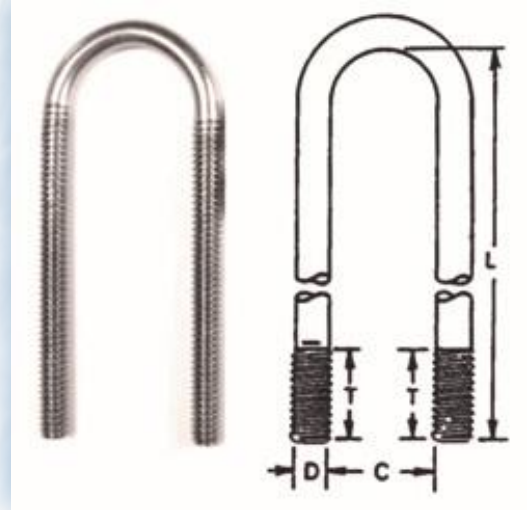


Ultrabond 2 Epoxy Anchoring Gel is a two component (1:1 ratio) 100% solids, high modulus epoxy gel. It is a solvent free, high strength, moisture insensitive, non-sag epoxy system. Formulated for anchoring threaded rods, bolts, rebar and smooth dowels into concrete, grout filled block, and unreinforced masonry. It has been tested in accordance with AC58 and is acceptable for long term tensile loads. It may also be used for short term tensile load anchors, which includes wind and seismic forces.

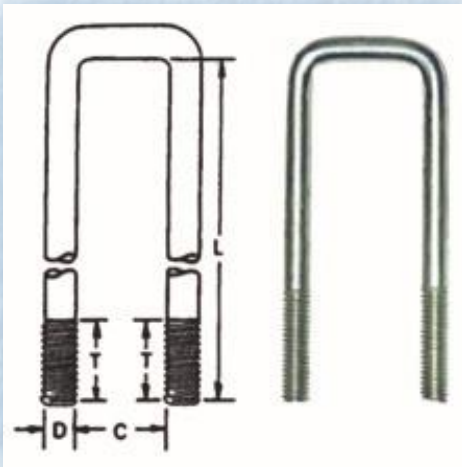
Bent Bolts



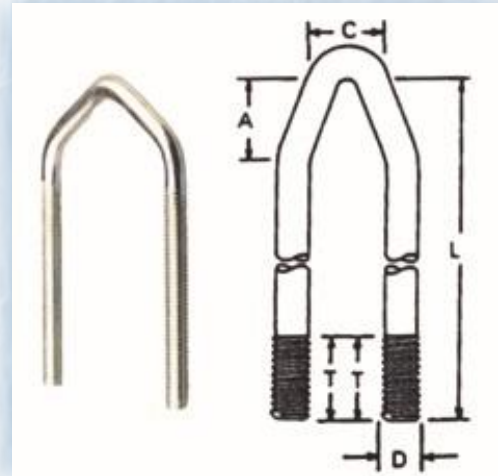
Eye Bolt - Closed
(D x L x C x T)



U-Bolt - Round Bend
(D x L x C x T)



U-Bolt - Square Bend
(D x L x C x T)



U-Bolt - Angle Bend
(D x L x C x A x T)

TIE RODS

F1554 GRADE 55



Plain - Single Unit



Plain - Multiple Unit

Tie rods are Hot Dipped Galvanized to ASTM A-153 unless otherwise requested.

Tie rods should always be ordered with all accessories (nuts, turnbuckles, clevises, coupling nuts) attached at time of manufacture to ensure proper fit.

The over-all length of each tie rod must be specified. When ordering tie rod assemblies requiring turnbuckles or clevises, the individual length of each rod, the gap between the rods, the size and takeup of the accessories must be detailed.

ALL THREAD RODS

PLAIN - GALVANIZED - ZINC - STAINLESS STEEL

**All Rods Can
Be Cut To Size
To Meet
Your Needs!**



**Available Sizes
3/8" to 2" Dia.**

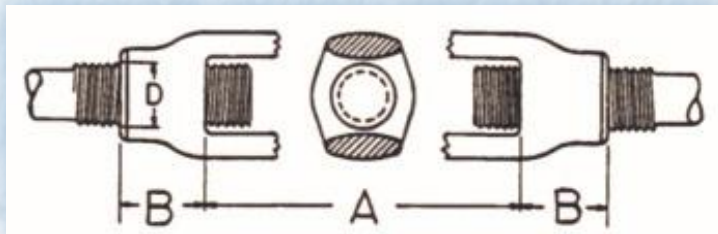
**In Lengths
up to 12 FT.**

JET FILTERS



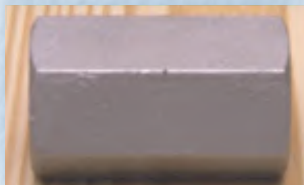
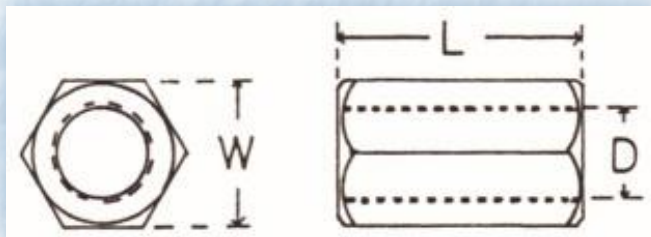
The Jet Filter relieves hydrostatic pressures created by rain water as tidal surge trapped behind erosion control structure such as: Seawalls, Retaining Walls, Bulkheads, Sheet Piling and Bridge abutments.

Turnbuckle Bodies



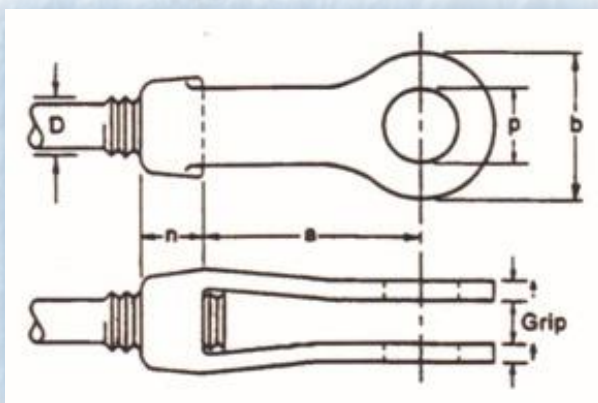
Thread Dia. Inches D		Take-Up Inches A	Grip Inches B
1/2	x	6,9,12	0.75
5/8	x	6,9,12	0.94
3/4	x	6,9,12,18	1.13
7/8	x	6,12,18	1.31
1	x	6,12,18,24	1.50
1-1/8	x	6,12	1.56
1-1/4	x	6,12,18,24	1.56
1-3/8	x	6,12	1.88
1-1/2	x	6,12,18,24	1.88
1-5/8	x	6	2.19
1-3/4	x	6,12,24	2.19
2	x	6,12,24	2.50
2-1/4	x	6	3.38
2-1/2	x	6,12,24	3.75
2-3/4	x	6,24	4.13
3	x	6,12,24	4.50
3-1/4	x	6,9,12	5.25
3-1/2	x	6,9,12	5.25
4	x	6	6.00
4-1/2	x	9	6.75

Coupling Nuts



Thread Dia. Inches D		Length L	W
1/2	x	1-3/4	11/16
5/8	x	2-1/8	13/16
3/4	x	2-1/4	1
7/8	x	2-1/2	1-1/4
1	x	2-3/4	1-3/8
1-1/8	x	3	1-1/2
1-1/4	x	3	1-5/8
1-3/8	x	3-3/8	1-7/8
1-1/2	x	3-1/2	2
1-3/4	x	4	2-3/8
2	x	4-1/2	2-3/4
2-1/2	x	5-1/2	3-1/2
3	x	8	4-1/2
3-1/4	x	9	5
3-1/2	x	10-1/4	5-3/8
3-3/4	x	11	5-3/4
4	x	11-1/4	6-1/8

Clevises



No.	D Max.	P Max.	B	H	A
2	5/8	3/4	1-7/16	5/8	3-7/8
2-1/2	7/8	1-1/2	2-1/2	1-1/8	4
3	1-3/8	1-3/4	3	1-5/16	5
3-1/2	1-1/2	2	3-1/2	1-5/8	6
4	1-3/4	2-1/4	4	1-3/4	6
5	2-1/8	2-1/2	5	2-1/4	7
6	2-1/2	3	6	2-3/4	8
7	3	3-3/4	7	3	9
8	4	4	8	4	10

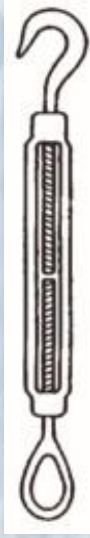


Hardware Turnbuckles

Meets Federal Specification FF-T-791A



Eye & Eye

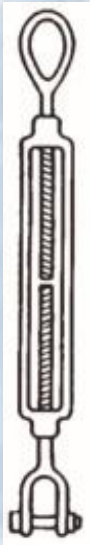


Hook & Eye

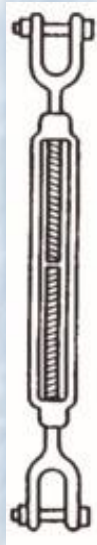
Diameter (A) and Takeup (B) Inches	Average Overall Length (C) in Closed Position Inches	Weight Pounds Each		
		With Eyes or Hooks	Jaw and Eye	Jaw and Jaw
1/4 x 4	8-1/4	.31	.33	.35
5/16 x 4-1/2	9-9/16	.50	.53	.58
3/8 x 6	11-7/8	.79	.86	.93
1/2 x 6	13-5/16	1.42	1.54	1.66
9	16-5/16	1.83	1.95	2.07
12	19-5/16	2.01	2.19	2.37
5/8 x 6	15-1/2	2.61	2.81	3.02
9	18-1/2	2.81	3.01	3.22
12	21-1/2	3.12	3.32	3.53
18	28-1/8	6.00	6.20	6.40
3/4 x 6	17-1/16	3.60	3.87	4.18
9	20-1/8	4.69	4.98	5.27
12	23-1/16	5.07	5.36	5.65
18	29-1-1/16	6.21	6.51	6.81
7/8 x 12	24-5/8	8.10	8.75	9.40
18	30-5/8	9.93	10.60	11.20
1 x 6	20-5/8	8.75	9.15	9.50
12	26-5/8	10.40	11.20	12.10
18	32-5/8	13.20	14.10	14.90
24	38-5/8	15.90	16.80	17.60
1-1/4 x 12	29-7/8	19.00	20.50	22.00
18	35-7/8	23.40	24.90	26.40
24	41-7/8	27.80	29.30	30.90
1-1/2 x 12	32-3/8	26.10	28.20	30.30
18	38-3/8	37.50	39.60	41.80
24	44-3/8	43.10	45.20	47.30
36	58-3/4	52.60	54.80	57.00
1-3/4 x 18	41-3/4	45.00	48.80	52.40
24	47-3/4	52.20	56.00	59.60
2 x 24	51-3/4	89.80	94.60	100.00
2-1/2 x 24	58-1/2	140.00	150.00	161.00
2-3/4 x 24	61-1/2	194.00	200.00	216.00



Hook & Hook



Jaw & Eye



Jaw & Jaw

When Ordering Be Sure to Specify:

- 1st - Diameter of thread.
- 2nd - Length of take-up.
- 3rd - Self colored or galvanized.
- 4th - The type of end fittings desired.

Larger sizes available per request.

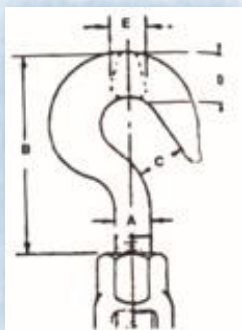
Lock nuts available per request.

Jaw end fittings sized 1/4" through 5/8" have bolts and nuts.

Jaw end fittings sizes 3/4" through 2-3/4" have pin and cotters.

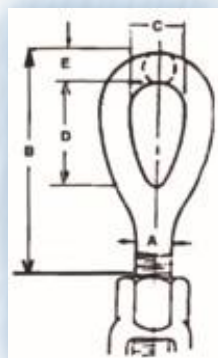
Large jaw sizes available with bolt and nuts upon special request.

Hardware Turnbuckles



Hook

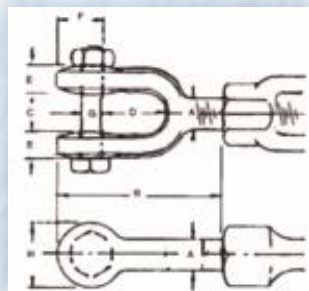
Dimensions in Inches					Rated Load Pounds
A	B	C	D	E	
1/4	1-5/8	7/16	3/8	1/4	400
5/16	1-29/32	1/2	7/16	5/16	700
3/8	2-9/32	9/16	17/32	3/8	1000
1/2	2-27/32	21/32	11/16	1/2	1500
5/8	3-17/32	27/32	27/32	5/8	2250
3/4	4-5/16	31/32	1	3/4	3000
7/8	5	1-1/8	1-3/16	7/8	4000
1	5-11/16	1-1/4	1-3/8	1	5000
1-1/4	6-29/32	1-1/2	1-1/2	1-1/16	5000
1-1/2	8-11/16	1-7/8	1-3/4	1-5/16	7500



Eye

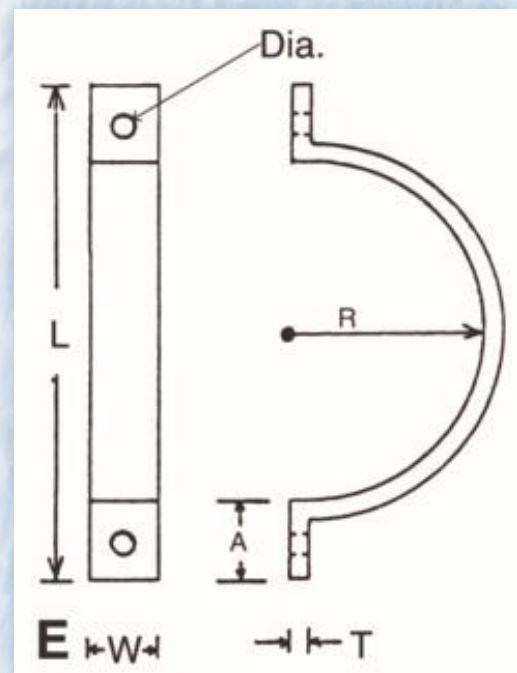
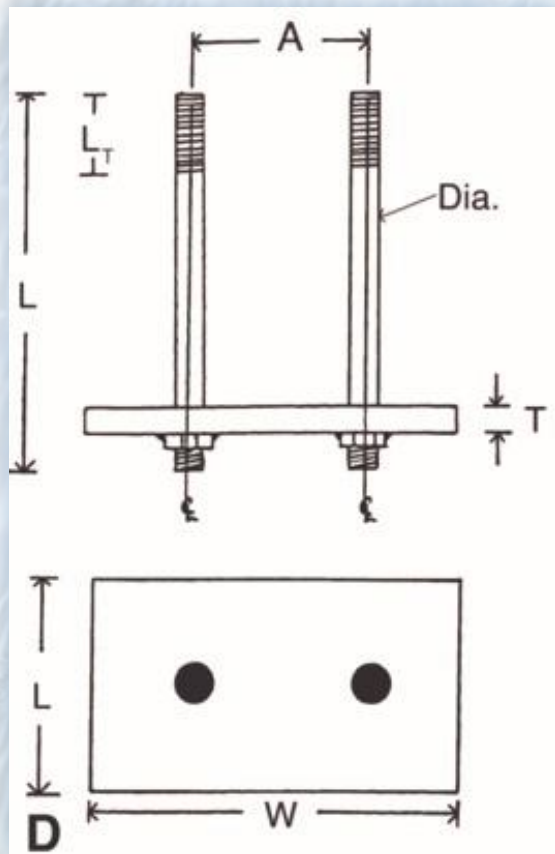
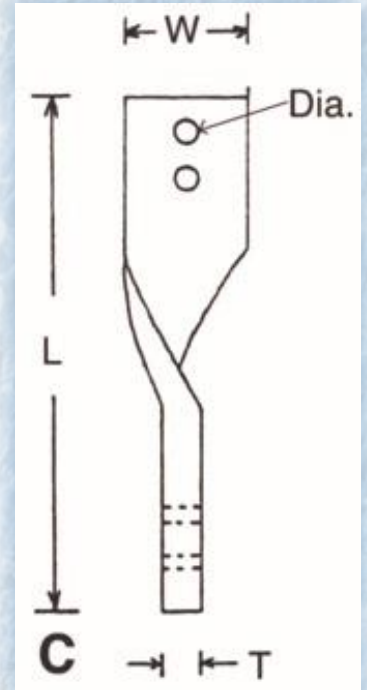
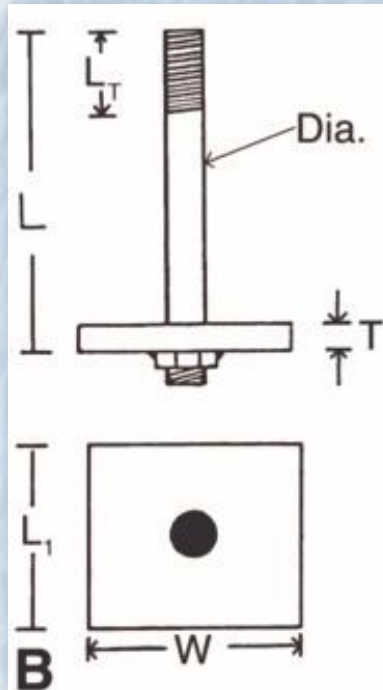
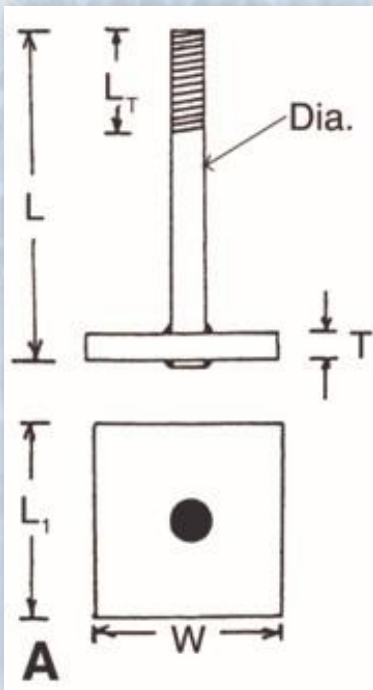
Dimensions in Inches					Rated Load Pounds
A	B	C	D	E	
1/4	1-25/32	11/32	25/32	7/32	500
5/16	2-3/16	7/16	15/16	9/32	800
3/8	2-9/16	17/32	1-1/8	11/32	1200
1/2	3-7/32	23/32	1-7/16	7/16	2200
5/8	3-7/8	7/8	1-3/4	1/2	3500
3/4	4-11/16	1	2-1/8	5/8	5200
7/8	5-1/4	1-1/4	2-3/8	3/4	7200
1	6-3/8	1-7/16	3	7/8	10000
1-1/4	7-3/4	1-13/16	3-9/16	1-1/8	15200
1-1/2	8-5/8	2-1/8	4-1/8	1-1/4	21400
1-3/4	10	2-3/8	4-11/16	1-1/2	28000
2	12-1/8	2-11/16	5-3/4	1-3/4	37000
2-1/2	13-9/16	3-1/8	6-1/2	2	60000
2-3/4	15	3-1/4	7	2-1/4	75000

Hardware Jaw

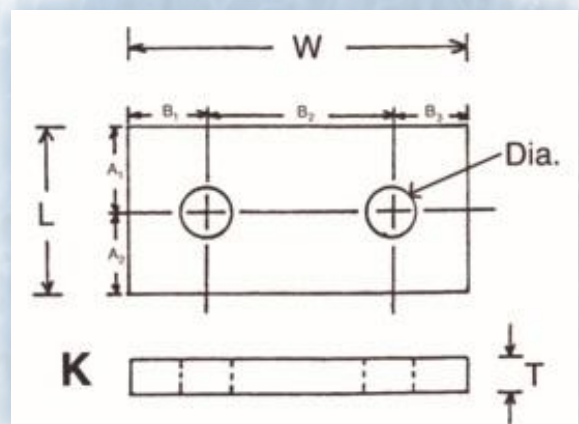
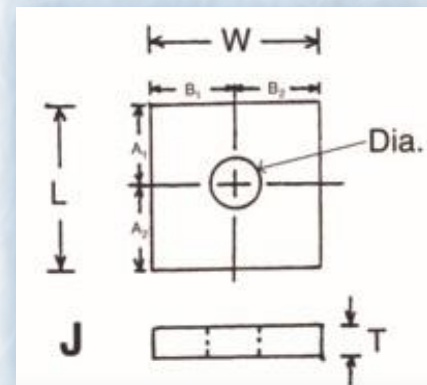
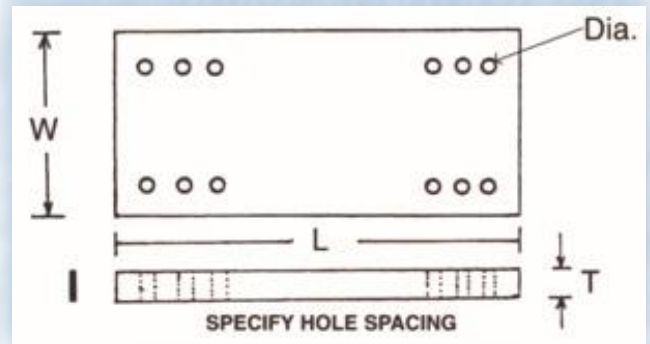
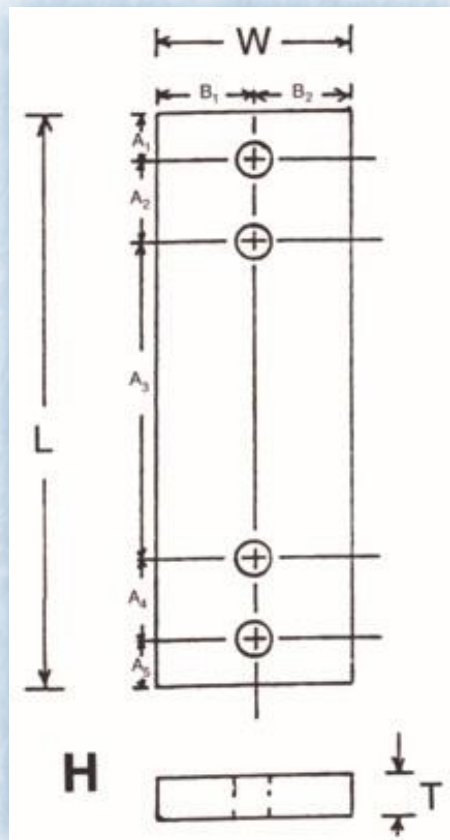
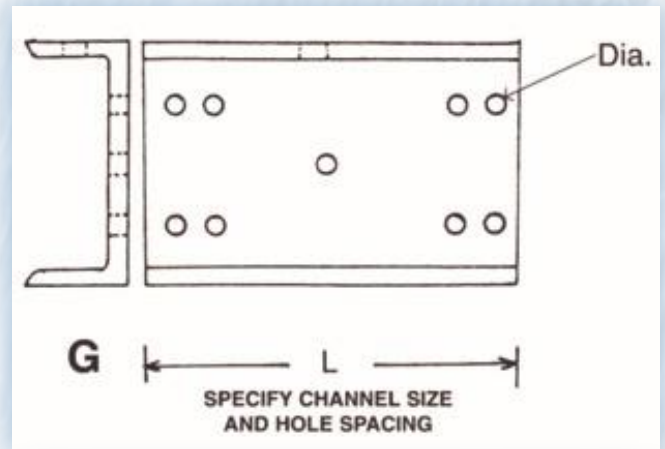
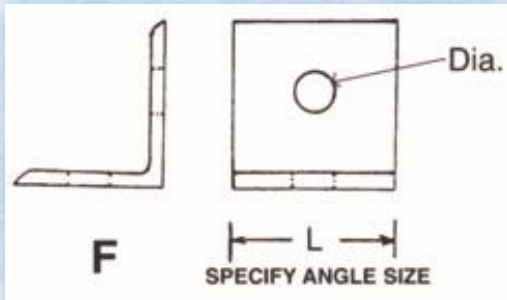


DIMENSIONS IN INCHES								Rated Load Pounds
A	B	C	D	E	F	G	H	
1/4	1-5/8	13/32	5/8	9/32	1/2	1/4	5/8	500
5/16	2	15/32	7/8	9/32	1/2	1/4	11/16	800
3/8	2-3/16	1/2	7/8	5/16	19/32	5/16	13/16	1200
1/2	2-3/4	5/7	1-1/16	13/32	3/4	3/8	1	2200
5/8	3-1/2	3/4	1-5/16	1/2	1-1/32	1/2	1-5/16	3500
3/4	4-1/8	15/16	1-1/2	9/16	1-9/32	5/8	1-5/8	5200
7/8	4-27/32	1-1/8	1-3/4	11/16	1-15/32	3/4	1-7/8	7200
1	5-17/32	1-3/16	2-1/16	25/32	1-21/32	7/8	2-1/8	10000
1-1/4	7-3/16	1-3/4	2-13/16	1	2-3/32	1-1/8	2-5/8	15200
1-1/2	7-7/8	2-1/16	2-13/16	1-1/16	2-15/32	1-3/8	3-1/8	21400
1-3/4	9-3/8	2-1/8	3-3/8	1-1/4	2-29/32	1-5/8	3-1/2	28000
2	10-7/8	2-1/2	3-11/16	1-9/16	3-17/32	2	4-3/16	37000
2-1/2	13-11/16	2-7/8	4-7/16	1-9/16	4-5/8	2-1/4	5-5/8	60000
2-3/4	15	3-1/2	4-3/16	1-5/8	5-3/8	2-3/4	6-1/2	75000

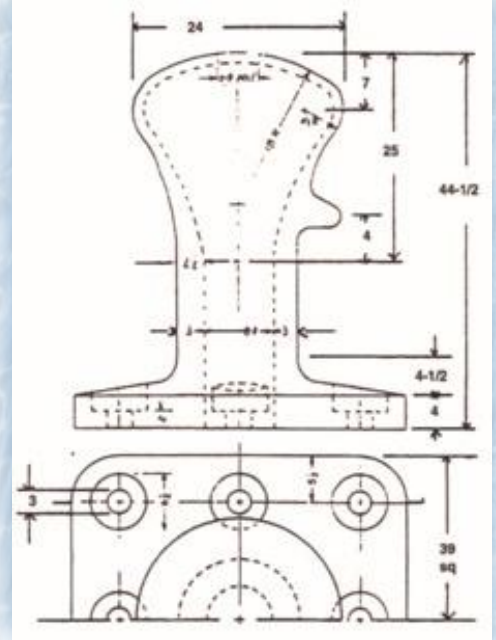
Miscellaneous Steel Fabrications



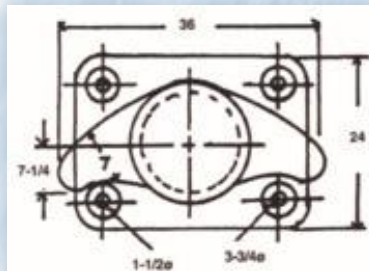
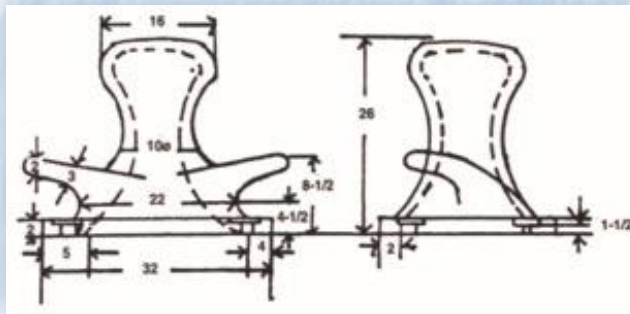
Miscellaneous Steel Fabrications



Bollards

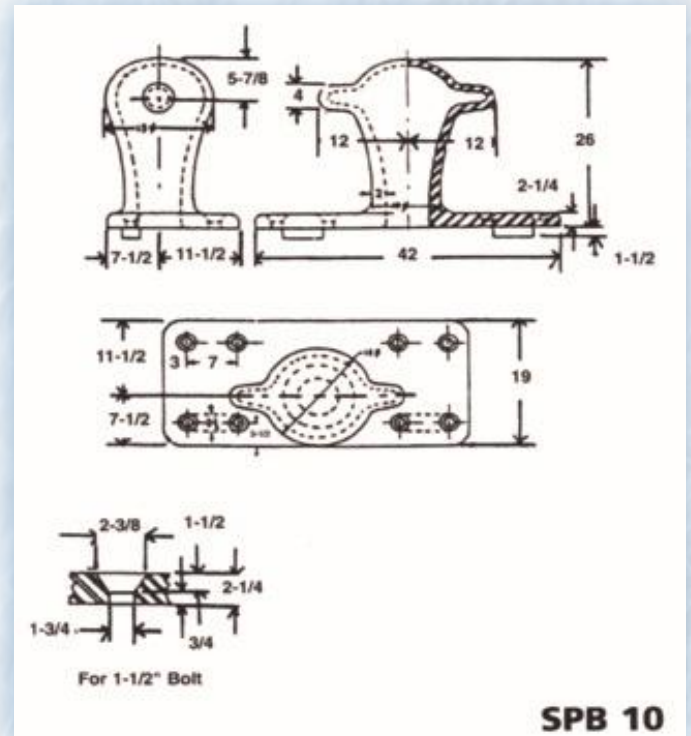
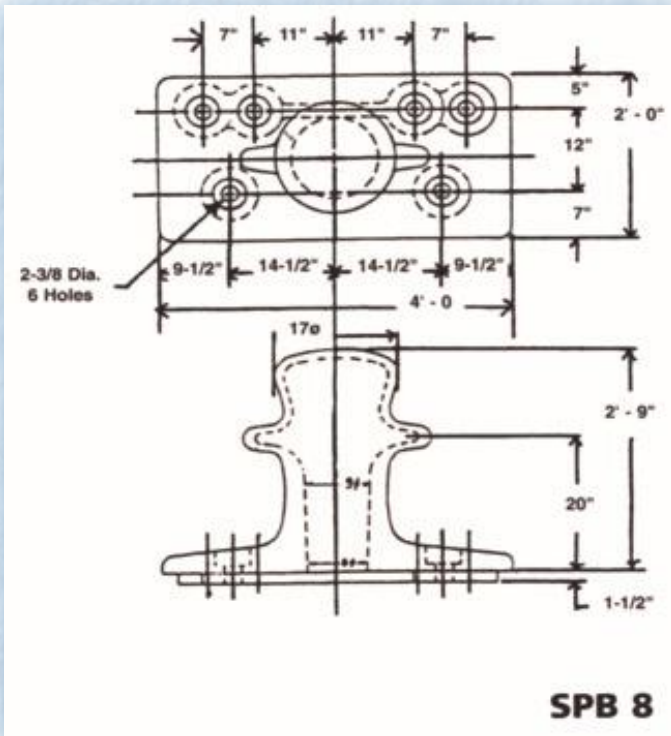
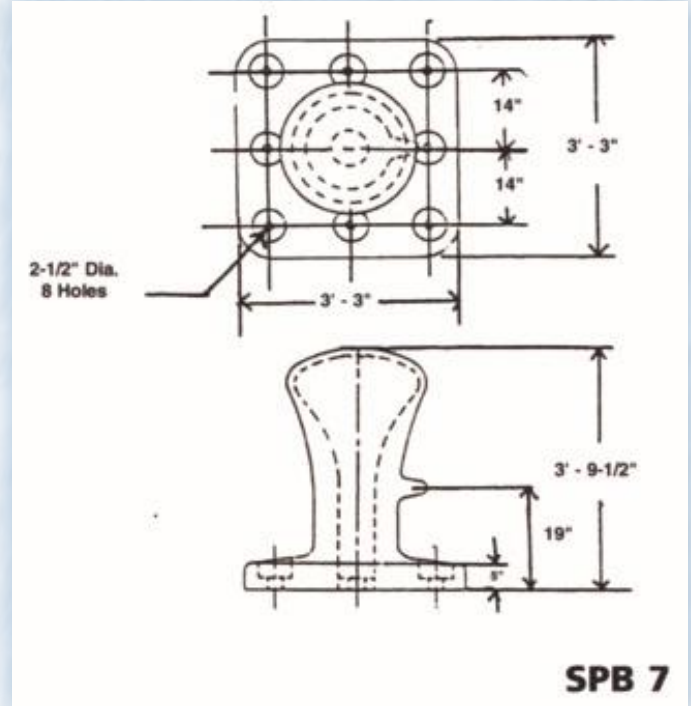
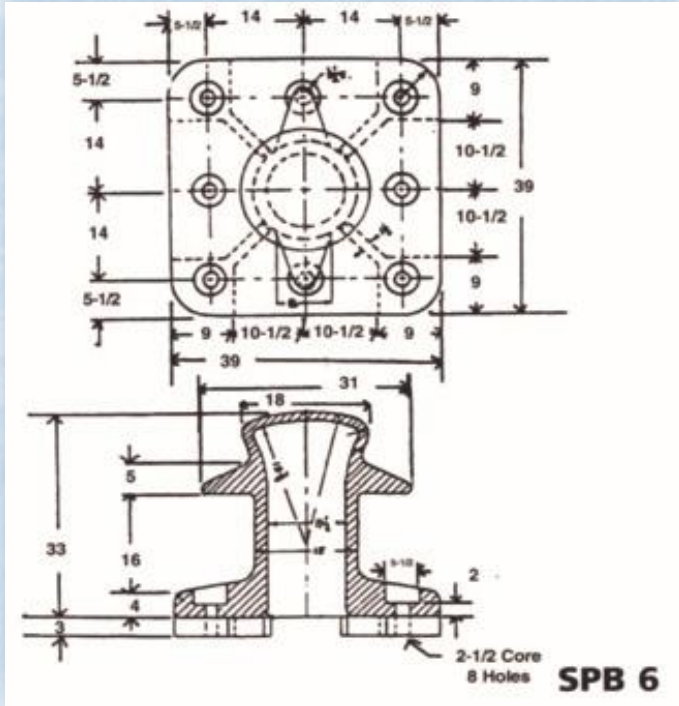


SPB 27

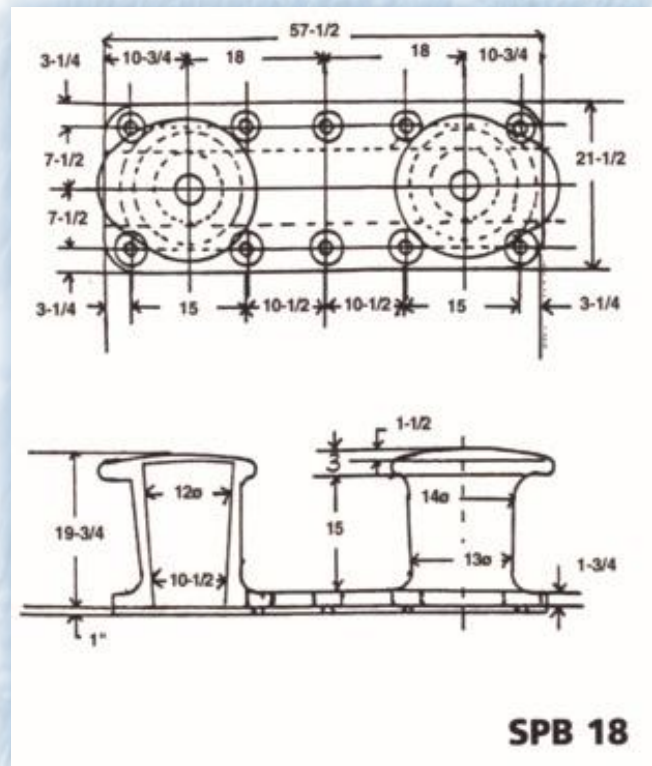
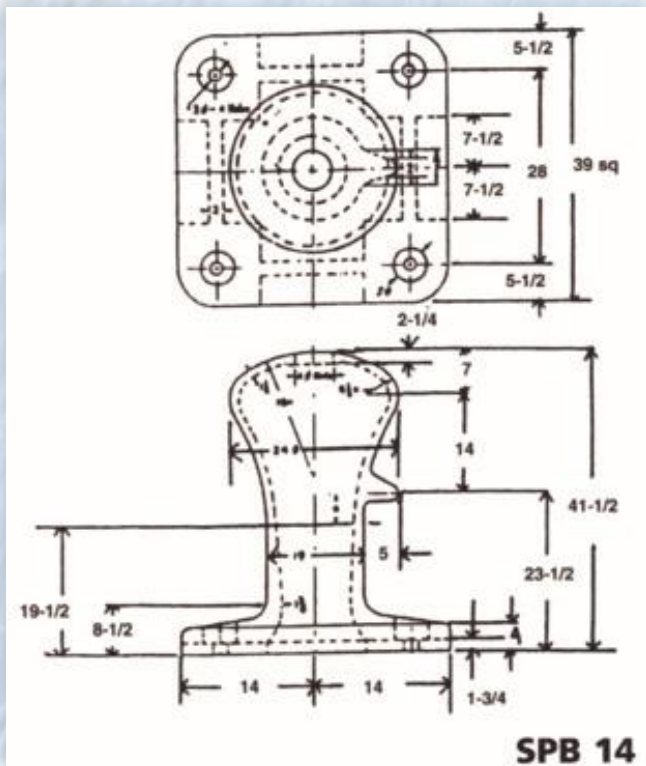
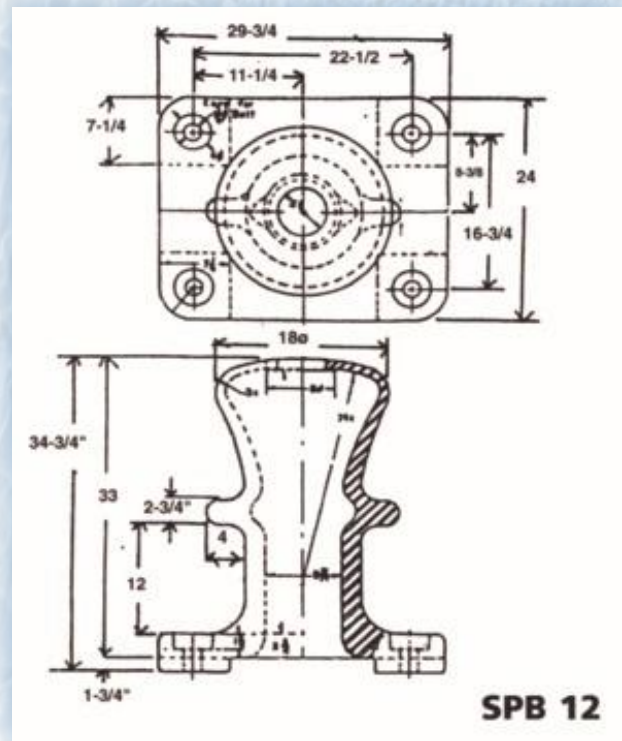
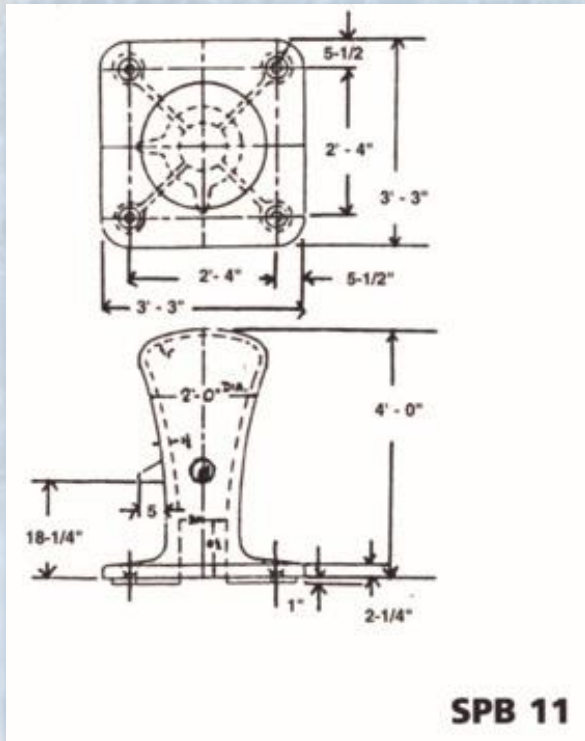


SPB 1

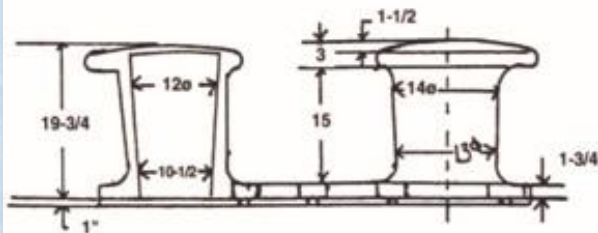
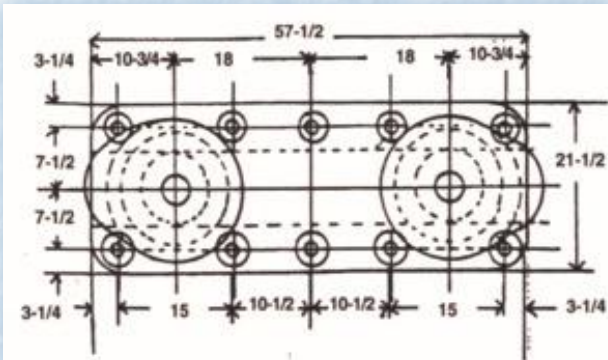
Bollards



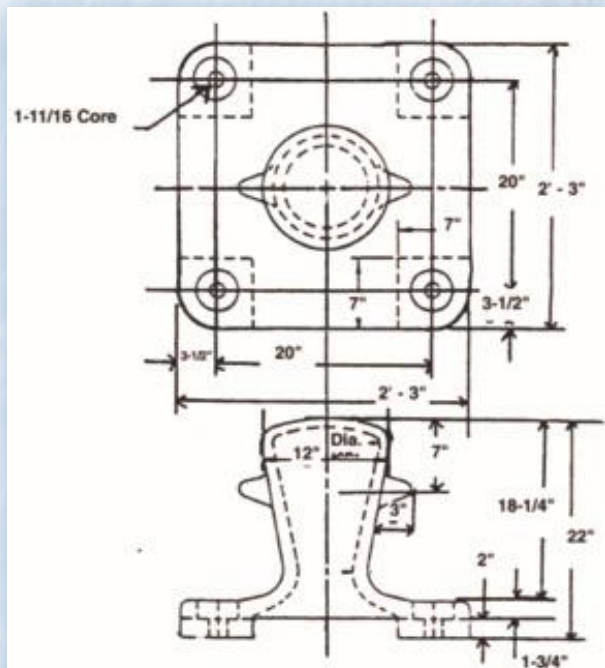
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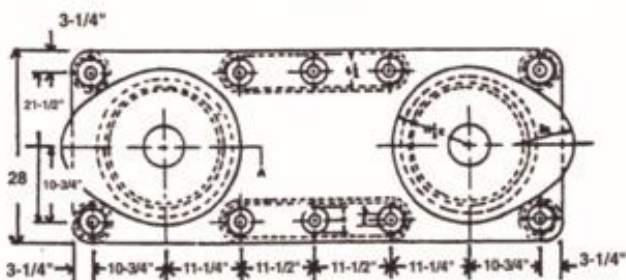
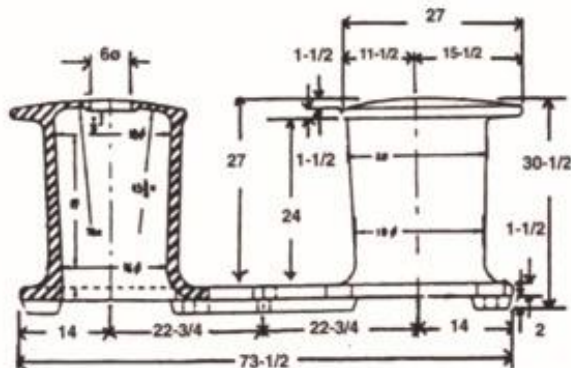
Bollards



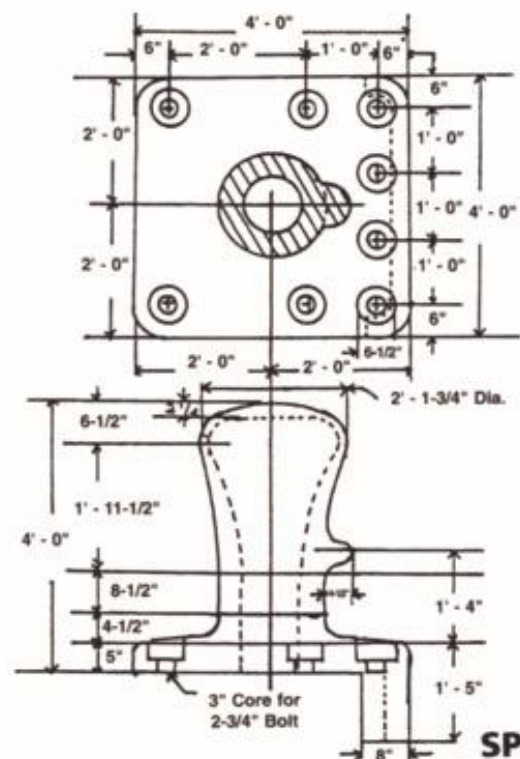
SPB 18A



SPB 19

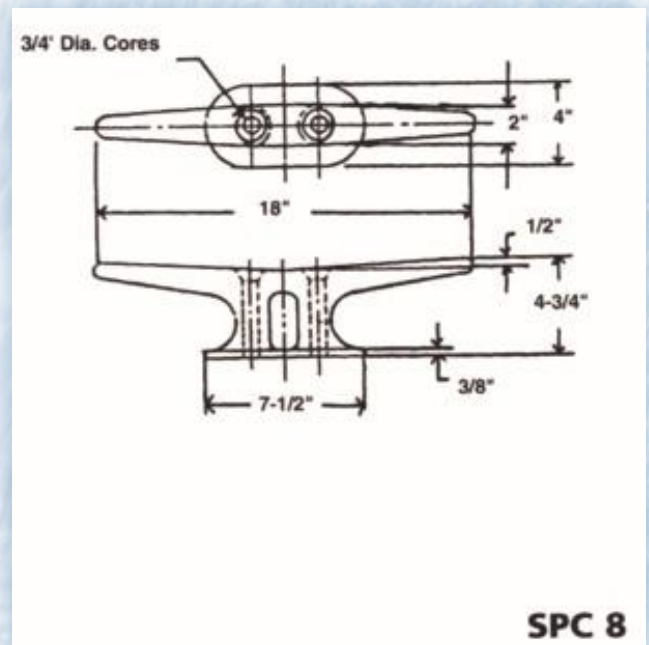
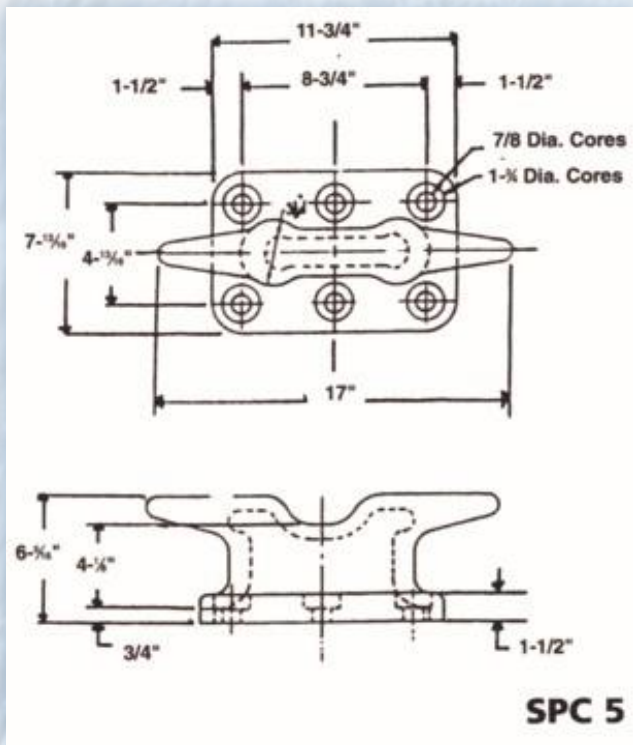
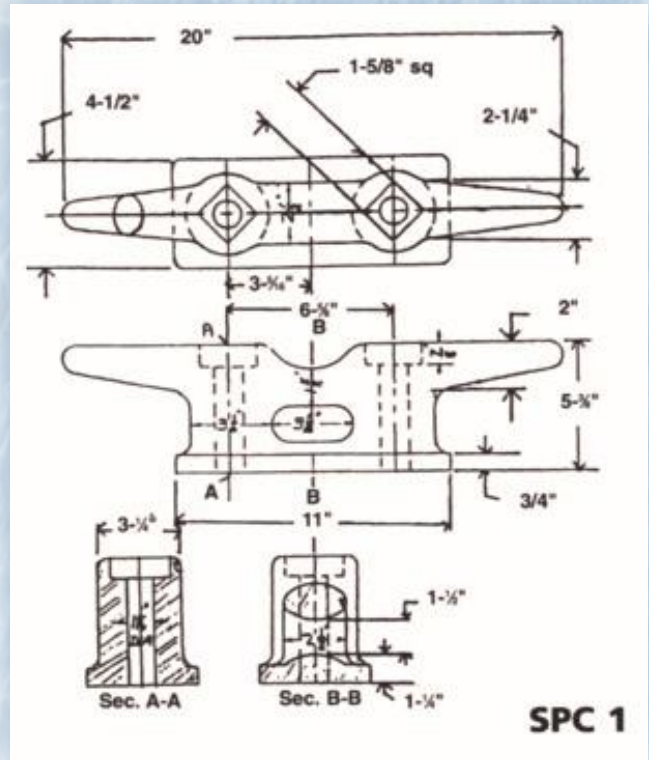


SPB 25

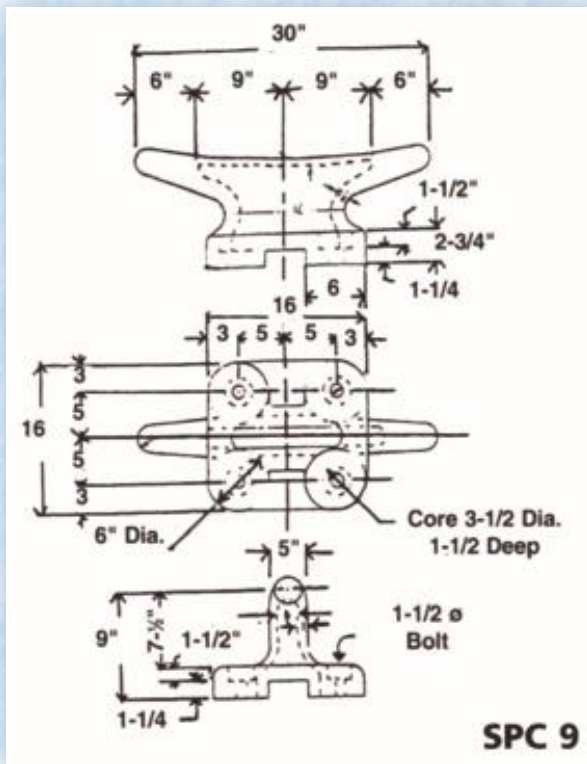


SPB 26

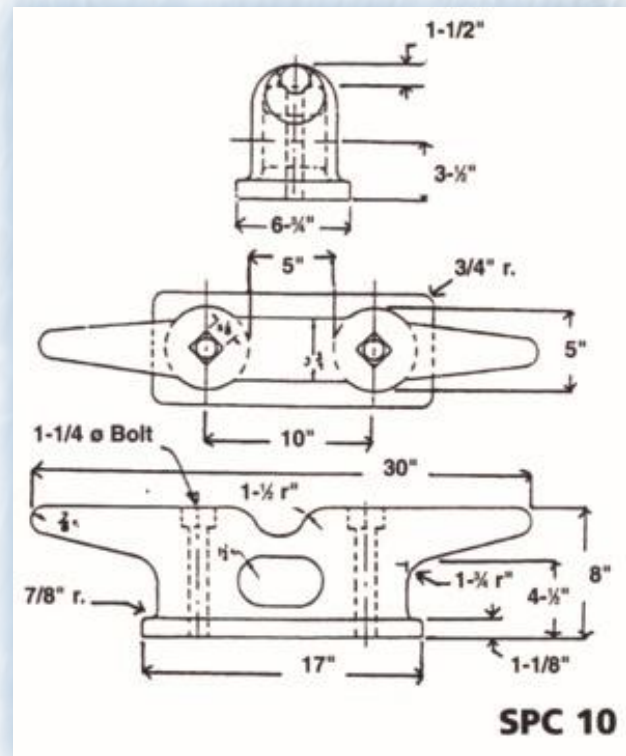
Cleats



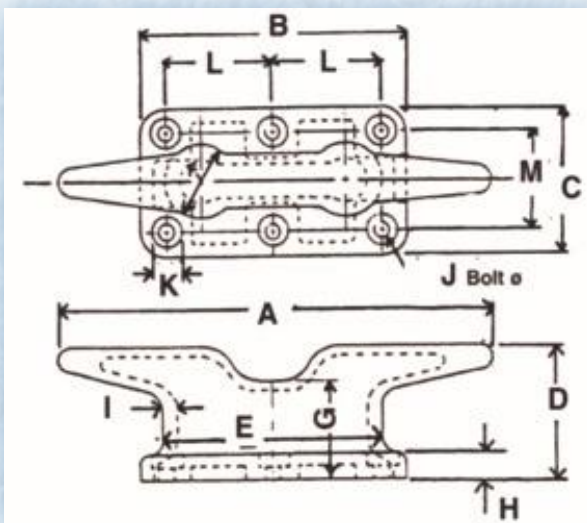
Cleats



SPC 9

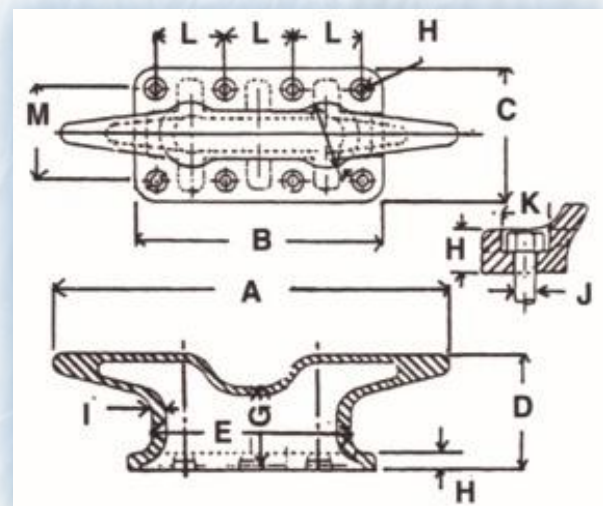


SPC 10



A	B	C	D	E	F	G	H	I	J	K	L	M
16	10-1/2	7-1/2	5	8	2-3/4	3-3/4	1-1/2	7/8	3/4	1-3/4	3-3/4	4-1/2
24	15-1/2	9-1/2	7-1/4	12	4	5-1/4	1-3/4	1-1/8	7/8	2	6	6
30	19	11-1/4	8-7/8	15	5	6-3/8	2	1-1/4	1	2-1/4	7-1/2	7-1/4

SPC 14

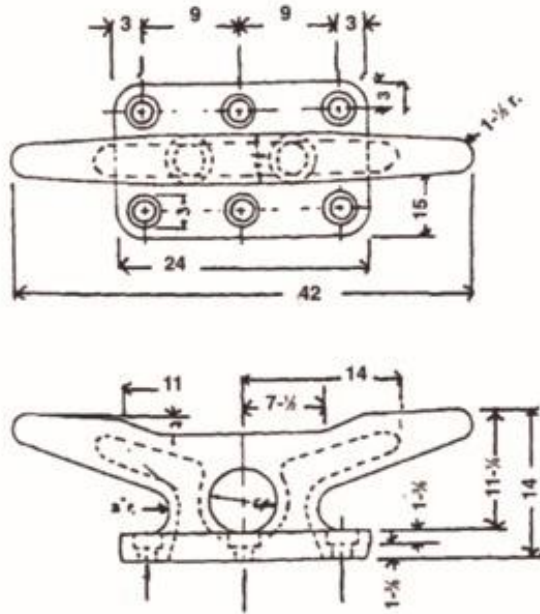


A	B	C	D	E	F	G	H	I	J	K	L	M
36	22-1/2	12-1/4	10-1/2	18	6	7-1/2	2	1-3/8	1	2-1/4	6-1/4	8-1/4
42	26	13-1/4	12-1/8	21	7	8-5/8	2	1-1/2	1	2-1/4	7-1/2	9-1/4
48	29-3/4	15-1/8	13-3/4	24	8	9-3/4	2-1/4	1-5/8	1-1/8	2-5/8	8-1/2	10-5/8

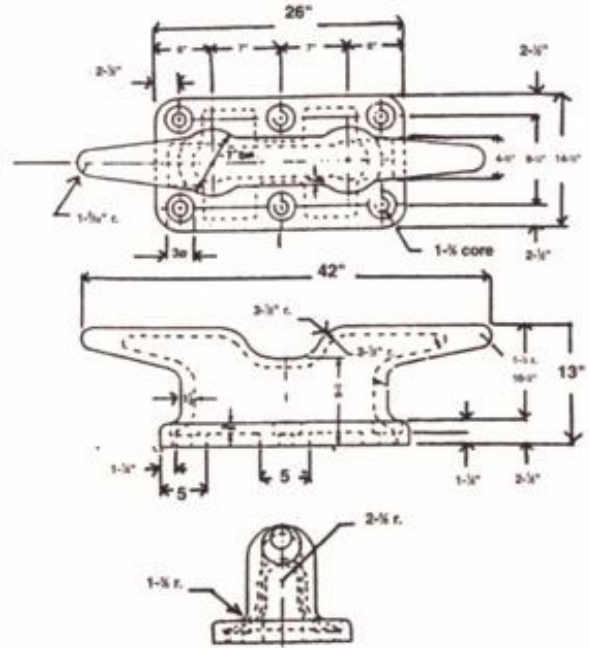
SPC 14

Cleats

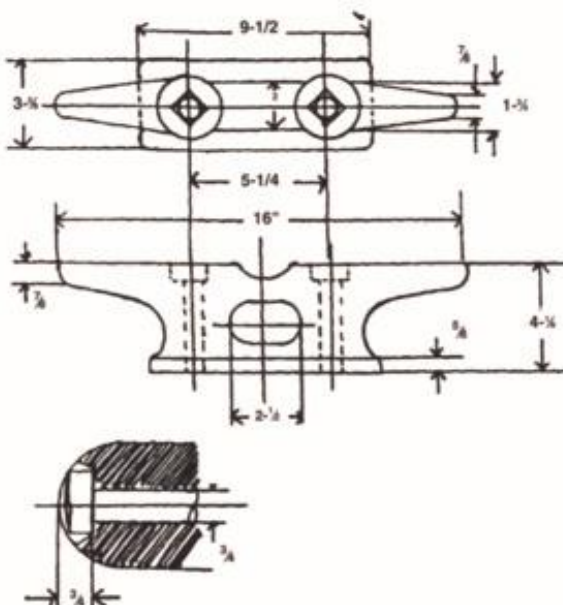
**SPC 17
42" Cleat**



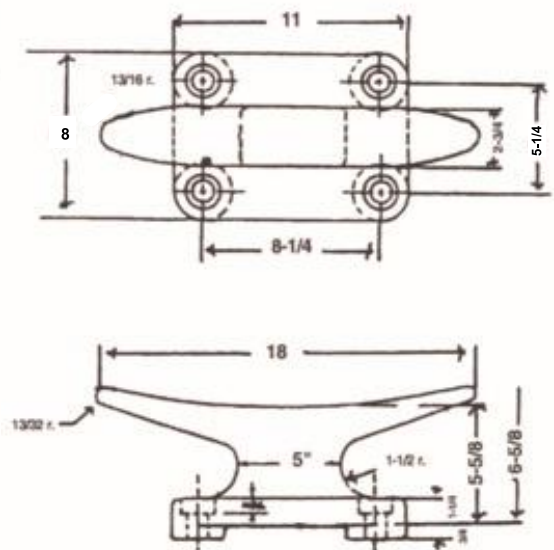
**SPC 25
42" Cleat**



**SPC 20
Heavy Cleat**



**SPC 31
18" Cleat**

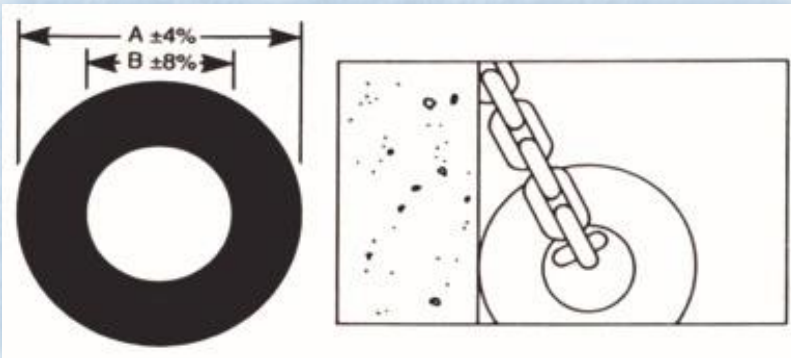


STANDARD CYLINDRICAL FENDER

The inherent lateral flexibility of Cylindrical fenders gives them the widest range of mounting options available. They may be draped, suspended, or strung on chains to provide protection through tidal changes or where substantial vessel draft variations are anticipated. Where straight mounting is desired, a metal bar through the bore will provide the lateral stiffness required. They may also be curved to meet special contours on structural vessels.



STANDARD CYLINDRICAL FENDERS



STANDARD CYLINDRICAL							
O.D.	A	MM	I.D.	B	MM	APPROX. LBS./FT.	APPROX. Kg/M
3"		76	1-3/8"		35	3	4
5"		127	2-1/2"		64	8	11
7"		178	3"		76	16	24
7"		178	3-1/2"		89	15	22
7"		178	5"		127	10	14
8"		203	3-1/2"		89	21	31
8"		203	4"		102	19	29
9"		229	3"		76	29	43
10"		254	5"		127	30	45
12"		305	4"		102	51	76
12"		305	6"		152	43	65
15"		381	5"		127	80	120
15"		381	7-1/2"		191	68	101
18"		457	6"		152	116	172
18"		457	9"		229	98	145
21"		533	10-1/2"		267	133	198
24"		610	12"		305	173	258
27"		686	13-1/2"		343	220	327
28"		711	14"		356	236	351

Contact factory if other sizes required

Contact factory if other sizes required

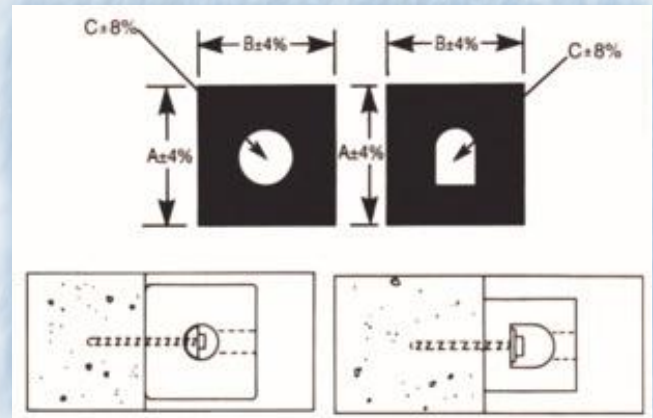
		QUICK REFERENCE CHART															
		LOAD — ENERGY VALUES FOR POPULAR CYLINDRICAL FENDERS															
		L = LOAD IN POUNDS PER FOOT OF FENDER E = ENERGY IN FOOT-POUNDS PER FOOT OF FENDER															
SIZE																	
8 x 4	L			3500	10000	47000											
	E			500	900	3000											
10 x 5	L				4500	13000	70000										
	E				900	1600	5000										
12 x 6	L					6000	22000	70000									
	E					1200	2000	6000									
15 x 7-1/2	L						7000	10000	42000								
	E						1900	2500	4500								
18 x 9	L								8500	17000	45000						
	E								3200	4000	6200						
21 x 10-1/2	L									10000	14000	40000					
	E									3900	5000	6800					
24 x 12	L										4800	15000	28000	70000			
	E										4800	5800	7300	11500			
27 x 13-1/2	L											17000	30000	63000			
	E											7200	9000	12500			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		DEFLECTION IN INCHES															

RECTANGULAR FENDERS

The Rectangular profile is the most rigid of the Longwood rubber fender designs. It may be surface mounted where tidal actions are not a consideration and where berthing angles are low. It may be mounted horizontally or vertically behind timbers to provide extra cushioning where dock loading must be kept low. It can be precurved during extrusion for solid mounting on vessels. This versatility in protecting both structures and vessels is enhanced by a wide range of available sizes.



Height A		Width B		"C" Bore		Weight	
mm	in.	mm	in.	mm	in.	kg/m	lbs./ft.
89	3-1/2"	114	4-1/2"	25	1"	11	8
127	5"	152	6"	64	2-1/2"	19	13
127	5"	165	6-1/2"	64	2-1/2"	21	14
152	6"	254	10"	76	3"	40	27
178	7"	254	10"	76	3"	48	32
203	8"	203	8"	76x76	3"	43	29
203	8"	203	8"	76	3"	43	29
203	8"	254	10"	76	3"	55	37
203	8"	254	10"	76x76	3"	55	37
254	10"	254	10"	102	4"	67	45
254	10"	254	10"	102x102	4"	65	44
254	10"	305	12"	102	4"	82	55
254	10"	305	12"	102x102	4"	80	54
254	10"	305	12"	127	5"	76	51
305	12"	305	12"	102	4"	100	67
305	12"	305	12"	127	5"	95	64
305	12"	305	12"	152x152	6"	85	57
305	12"	305	12"	152	6"	88	59
305	12"	356	14"	152	6"	106	71
356	14"	356	14"	152	6"	128	86
356	14"	356	14"	152x152	6"	125	84
356	14"	356	14"	178x178	7"	116	78
406	16"	406	16"	152	6"	173	116
457	18"	457	18"	254	10"	187	126
508	20"	508	20"	204	8"	266	179



For other sizes contact factory

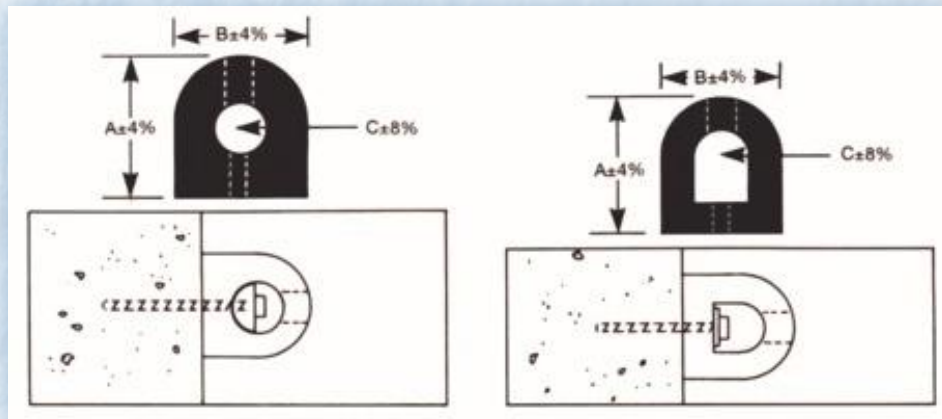
QUICK REFERENCE CHART LOAD — ENERGY VALUES FOR POPULAR RECTANGULAR FENDERS

L = LOAD IN POUNDS PER FOOT OF FENDER
E = ENERGY IN FOOT-POUNDS PER FOOT OF FENDER

SIZE		DEFLECTION IN INCHES									
		1	2	3	4	5	6	7	8	9	10
7 x 10 x 3	L	30000	62000	140000							
	E	2000	5800	13500							
8 x 10 x 3	L	14000	31000	80000							
	E	1000	2800	7000							
8 x 8 x 3	L	14000	23000	50000							
	E	1000	2800	6000							
10 x 10 x 4	L	14000	28000	53000	105000						
	E	1000	2500	5500	12500						
10 x 12 x 4	L		22000	28000	60000	150000					
	E		2500	4700	9000	17500					
12 x 12 x 5	L		22000	28000	47000	85000					
	E		2500	4700	8500	14000					
14 x 14 x 6	L			28000	43000	70000	105000				
	E			4700	8200	13000	20000				
20 x 20 x 8	L			28000	37000	43000	58000	85000			
	E			4700	7500	10700	14500	19500			

D-SHAPED FENDER

Longwood manufactures D-Series fenders with either a cylindrical or a “D” shaped bore to provide for varying mounting requirements. Designed for use on tugs and barges, they offer long term durability for applications where repeated compression cycles are encountered in pushing service. They also offer the excellent physical characteristics needed to handle the high loading which occurs both on initial contact, and throughout the service cycle.



“D” SERIES
Cylindrical Bore

A HEIGHT		B WIDTH		C BORE		APPROX. LBS/FT KG/M	
IN	MM	IN	MM	IN	MM		
5	127	6½	165	2½	64	12	18
6	152	5	127	2½	64	11	17
6	152	6	152	3	76	13	19
6	152	8	203	3	76	17	26
8	203	8	203	3	76	26	38
8	203	10	254	3	76	32	47
10	254	10	254	4	102	39	58
10	254	12	305	4	102	47	70
12	305	12	305	5	127	56	83
14	356	14	356	6	152	75	112
14	356	18	457	Double 3	Double 76	104	155

Standard production lengths available up to 20 ft.
Contact factory if longer lengths are required.

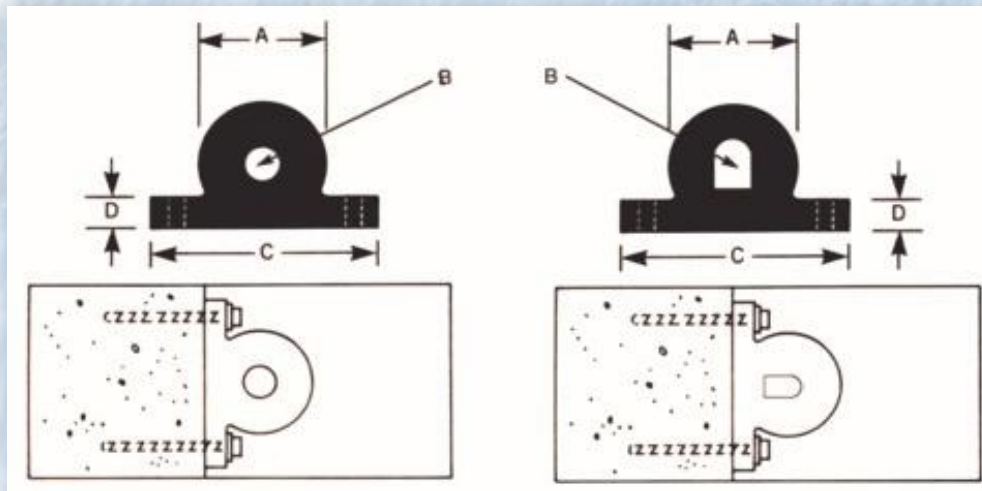
“D” SERIES
“D” Shaped Bore

SIZE		A HEIGHT		B WIDTH		C BORE		APPROX. LBS/FT KG/M	
IN	MM	IN	MM	IN	MM	IN	MM		
3	76	2¼	67	3¼	81	2¼	60x41	2	3
4	102	4	102	4	102	2x2	51x51	5	8
4½	114	3½	98	4½	113	2½x½	75x41	6	9
5	127	5	127	5	127	2	51x51	10	14
6	152	6	152	6	152	3	76x76	12	18
8	203	8	203	8	203	4	102x102	22	33
10	254	10	254	10	254	4	102x102	38	57
12	305	12	305	12	305	6	152x152	49	73
14	356	14	356	14	356	7	178x178	67	100

Standard production lengths available up to 20 ft.
Contact factory if longer lengths are required.

WING TYPE FENDERS

Wing Type fenders are designed for vessel mounting. They combine the impressive energy absorption capabilities of a cylindrical design with the convenience of wing mounting. They are available from 3" to 12" O.D. to tailor the protection to the vessel's size and purpose: from pleasure craft through pilot boats, heavy tugs, barges and ferries.



WING TYPE

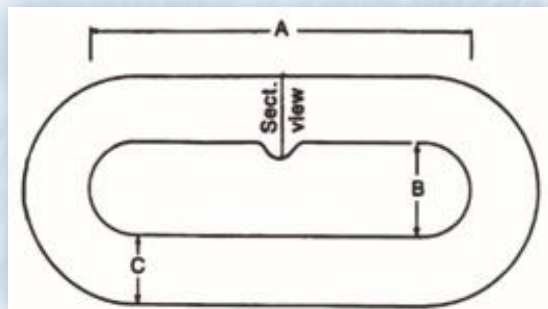
A O.D.		B BORE		C FLANGE BASE WIDTH		D FLANGE THICKNESS		APPROX. LBS/FT KG/M	
IN	MM	IN	MM	IN	MM	IN	MM		
3	76	1	25	6	152	3/4	19	5	7
4	102	2	51	6 1/2	165	1	25	7	10
4	102	1	25	6 1/2	165	1	25	8	12
6	152	2	51	9 1/2	241	1 1/2	38	18	25
6	152	3	76	9	229	1 1/2	38	15	22
6	152	4	102x102	9 1/2	241	1 1/2	38	16.6	24.4
8	203	4	102	12	305	2	51	27	40
10	254	3	76	16	406	2 1/2	64	49	73
10	254	4	102	16	406	2 1/2	64	46	68
12	305	6	152	18	457	3	76	61	91

Standard production lengths available up to 20 ft.
Contact factory if longer lengths are required.

LONG LINK CHAIN

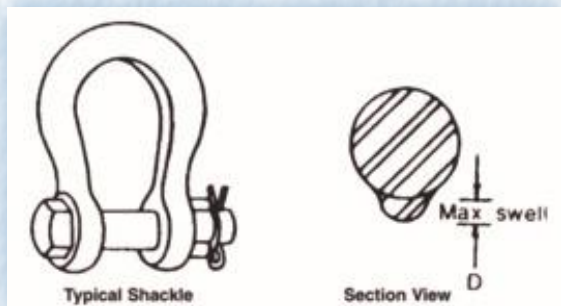
	1/2-inch	5/8-inch	3/4-inch	1-inch
Proof test	15,000*	35,000*	55,000*	100,000*
Av. ult. strength	35,000*	58,000*	105,000*	160,000*
Max. elongation	15%	15%	15%	15%
Brinell hardness	229-277	229-277	331-388	331-388
Links per ft. (per m) nominal	3.2	3.2	3.2	2.9
Wt. per 100 ft. (per m)	205*	320*	446*	814
Max. link width	1.874	2.243	2.700	3.375
A (inside length)	3.75 +.015-0	3.75 +.015-0	3.7500 ±.025	4.125
B (inside length)	.789±.031	.900±.031	1.125±.031	1.375
C (thickness)	.531	.656	.750±.008	1.000
D (max. swell)	.025	.025	-	-

*Strengths and weights in lbs.



Typical link

Shackle



The shackle should be high strength, with a greater ultimate strength than that of the chain being used. We recommend a safety anchor pin shackle with an alloy pin, one size larger than the chain being used. These chain and alloy shackle sections permit the eye of the shackle to pass through the chain's long link; simplifying installation.

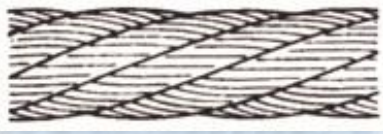
Alloy Steel Anchor Shackles (Bow Pattern)

Screw Pin				
 • Heat Treated • Alloy Pins				
Code No.	Size Diameter	Max. Working Load Limit in Tons	Approx. Weight per 100 in Pounds	Factory Pack
648A	3/8	1-1/4	30	Bulk
649A	7/16	1-3/4	50	Bulk
650A	1/2	2-1/2	75	Bulk
651A	5/8	4	130	Bulk
652A	3/4	6	225	Bulk
653A	7/8	7-1/2	350	Bulk
654A	1	10	500	Bulk
655A	1-1/8	11-1/2	700	Bulk
656A	1-1/4	14	950	Bulk
657A	1-3/8	16	1250	Bulk
657A	1-1/2	20	1720	Bulk
685A	1-5/8	24	2350	Bulk
677A	1-3/4	30	2770	Bulk
658A	2	40	3900	Bulk

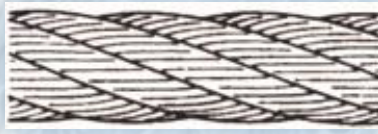
Bolt, Nut and Cotter				
 • Heat Treated • Alloy Pins				
Code No.	Size Diameter	Max. Working Load Limit in Tons	Approx. Weight per 100 in Pounds	Factory Pack
850A	1/2	2-1/2	84	Bulk
851A	5/8	4	175	Bulk
852A	3/4	6	250	Bulk
853A	7/8	7-1/2	400	Bulk
854A	1	10	550	Bulk
855A	1-1/8	11-1/2	750	Bulk
856A	1-1/4	14	1100	Bulk
856A	1-3/8	16	1350	Bulk
857A	1-1/2	20	1850	Bulk
885A	1-5/8	24	2600	Bulk
877A	1-3/4	30	3100	Bulk
858A	2	40	4200	Bulk

Add suffix "G" when ordering galvanized.

Wire Rope: Popular Classifications



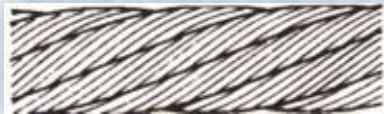
LEFT LAY REGULAR LAY



RIGHT LAY REGULAR LAY



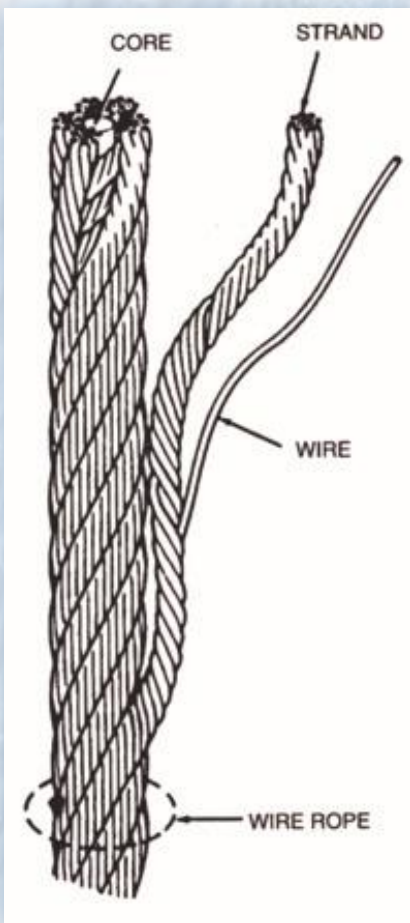
RIGHT LAY LANG LAY



LEFT LAY LANG LAY



ALTERNATE LAY



Based on the Nominal Number of Wires in Each Strand

Classification	Description
6 x 7	Containing 6 strands that are made up of 3 through 14 wires, of which no more than 9 are outside wires.
6 x 19	Containing 6 strands that are made up of 15 through 26 wires, of which no more than 12 are outside wires.
6 x 37	Containing 6 strands that are made up of 27 through 49 wires, of which no more than 18 are outside wires.
6 x 61	Containing 6 strands that are made up of 50 through 74 wires, of which no more than 24 are outside wires.
6 x 91	Containing 6 strands that are made up of 75 through 109 wires, of which no more than 30 are outside wires.
6 x 127	Containing 6 strands that are made up of 110 or more wires, of which no more than 36 are outside wires.
8 x 19	Containing 8 strands that are made up of 15 through 26 wires, of which no more than 12 are outside wires.
19 x 7 and 18 x 7	Containing 19 strands, each strand is made up of 7 wires. It is manufactured by covering an inner rope of 7 x 7 left lang lay construction with 12 strands in right regular lay. (The rotation-resistant property that characterizes this highly specialized construction is a result of the counter torques developed by the two layers.) When the steel wire core strand is replaced by a fiber core, the description becomes 18 x 7.

When a center wire is replaced by a strand, it is considered as a single wire, and the rope classification remains unchanged. There are, of course, many other types of wire rope, but they are useful only in a limited number of applications and, as such, are sold as specialties.

Wire Rope

Suggested Wire Rope For Particular Uses

Preformed or Form-Set construction is used for all ropes shown.

Use	Size (In.)	Construction	Lay	Core	Grade
Clamshell					
Holding & Closing Lines	1/2 - 1-1/4	6 x 25 FW or 6 x 36 WS	RRL	IWRC	EIPS
Boom Hoist Line	1/2 & Up	6 x 25 FW	RRL	IWRC	EIPS
Tag Line	1/4 & 5/16	6 x 36 WS	RRL	FIBER	EIPS
	3/8 & Up	6 x 41 WS	RRL	FIBER	EIPS
Crawler & Truck Cranes					
Hoist Line	1/2 - 1-1/4	6 x 25 FW or 19 x 7 NSNR	RRL	IWRC	EIPS
Boom Hoist Line	All	6 x 25 FW	RRL	IWRC	EIPS
Whip Line	3/8 - 1-1/4	19 X 7 NSNR	RRL	IWRC	EIPS
Cranes & Hoists					
Overhead	1/4 - 7/16	6 x 19 S or 6 x 36 WS	RRL	IWRC	EIPS
	1/2 - 1	6 x 36 WS	RRL	IWRC	EIPS
	1 - 1/8 & Up	6x41 WS	RRL	IWRC	EIPS
Ladle Crane	1/2 - 1	6 x 36 WS	RRL	IWRC	EIPS
	1-1/8 & Up	6x41 WS	RRL	IWRC	EIPS
Dragline					
Hoist Line	Up To 1-1/4	6 x 25 FW or 8 x 25	RLL	IWRC	EIPS
	1-3/8 & Up	6 x 41 WS or 8 x 25, 8 x 36	RLL	IWRC	EIPS
Drag Line	3/4 - 1-1/2	6 x 21 FW or 8 x 25	RLL	IWRC	EIPS
	1-5/8 - 3	6 x 25 FW or 8 x 36	RLL	IWRC	EIPS
	3 & Up	6 x 41 WS or 8 x 36	RLL	IWRC	EIPS
Boom Hoist	1/2 & Up	6 x 25 FW or 8 x 25	RRL	IWRC	EIPS
Shovels					
Hoist Line	Up To 1-1/8	6 x 25 FW or 8 x 25	RLL	IWRC	EIPS
	1-1/4 & Up	6 x 41 WS or 8 x 25	RLL	IWRC	EIPS
Crowd & Retract	3/4 & Up	6 x 41 WS or 8 x 25	RLL	IWRC	EIPS
Boom Hoist	1/2 - 1-1/4	6 x 25 FW or 7 x 25	RRL	IWRC	EIPS
	1-3/8 & Up	6 x 41 WS or 8 x 25	RRL	IWRC	EIPS
Trip Rope	3/8 - 1	6 x 36 WS or 8 x 25	RRL	FIBER	IPS
	1 - & Up	6 x 41 WS or 8 x 25	RRL	FIBER	IPS
Logging Ropes					
Choker	All	6 x 26 WS or 6 x 25 FW	RRL	IWRC	EIPS
Winch Lines	All	6 x 26 WS or 6 X 25 FW	RRL	IWRC	EIPS
Mining					
Slope Rope	All	6x19 S or 6x21 FW	RLL	FIBER	IPS
Shaft Hoist Ropes	All	6 x 19 S or 6 x 25 FW	RLL or RRL	FIBER	IPS
Slusher Rope	All	3 x 19 S or 6 x 19 S	RRL	IWRC	IPS
Mining Machine Rope	All	6 x 36 WS or 6 x 41 WS	RRL	IWRC	EIPS
Marine Ropes					
Towing Hawser	All	6 x 41 WS	RRL	F.C. or IWRC	EIPS
Mooring Lines	All	6 x 24 S or 6 x 41 WS	RRL	F.C. or IWRC	EIPS
Cargo Falls	All	6 x 36 WS	RRL	IWRC	EIPS
Oil Field					
Rotary Drill Lines	3/4 - 1-1/2	6 x 19 S or 6 x 21 S	RRL	IWRC	EIPS
Sand Lines	All	6 x 7	RRL	POLY	IPS
Tubing Lines	All	6 x 26 WS or 19 x 7 NSNR	RRL or LRL	IWRC	EIPS
Cable Tool Line	All	6 x 21 S	LRL	POLY	IPS
Offshore					
Rotary Drill Lines	1 1-3/4	6 x 19 S	RRL	IWRC	EIPS
Riser Tensioner Lines	1-1/4 - 2	6x41 WS	RLL	IWRC	IPS
Guide Lines	1/2 - 1	6 x 25 FW	RRL	IWRC	IPS
Sand Lines		1/2	6 x 7	FIBER	IPS
Pendant Lines	1-1/2 - 3	6 x 25 FW or 6 x 37 WS	RRL	IWRC	EIPS
Crane-Main Hoist	3/8 - 2	6 x 25 FW or 6 x 37 WS	RRL	F.C. or IWRC	IPS or EIPS
Crane-Auxiliary Hoist	3/8 - 2-1/4	19 x 7 NSNR or 36 x 7 NSNP	RRL	IWRC	EIPS
Anchor Lines	1-3/8 - 6	6 x 37 WS through 6 x 91	RRL	IWRC	EIPS
Heavy Lift Slings	1-1/2 - 4	6 x 37 WS	RRL	IWRC	EIPS
Cable Laid Heavy Lift Slings	3-1/2 - 10	7 x 6 x 41	RLL or LLL	IWRC	EIPS

DEFINITION OF ABBREVIATIONS

Grade	Construction	Lay	Core
IPS - Improved Plow Steel	FW - Filler Wire	RRL - Right Regular Lay	IWRC - Wire Rope Core
EIPS - Extra Improved Plow Steel	WS - Warrington Seale	RLL - Right Lang Lay	FC - Filler Core
GIPS - Galvanized Improved Plow Steel	SFW - Seale Filler Wire	LRL - Left Regular Lay	Fiber - Hemp or Poly Core
	NSNR - Non Spin Non Rotating	LLL - Left Lang Lay	Ploy - Polypropylene Core
	W - Warrington		
	S - Seale		

Cordage

Types of Ropes

TWISTED. All Cordage products are available in the standard three-strand twisted construction. Some specialty items of Manila rope are manufactured in a four-strand construction.

BRAIDED. Double-Braid was designed and engineered for advantageous use in the power companies and with the electrical contractors; on commercial fishing vessels; on pleasure crafts and in several industries. The Double-Braid construction is available in 100 percent Nylon, and 100 percent Polyester.

PLAITED. These unique hawsers are manufactured in an eight-strand construction, having four left laid strands and four right laid strands, paired off, laid parallel and woven together. Plaited lines eliminate hidden stresses arising from kinking and hockling since they will not hockle. The very nature of this construction is torque free and offers extreme flexibility wet or dry. Plaited ropes are available in 5" circumference and larger.



Properties Of Ropes	Manila	Nylon	Polyester	Polypropylene
Strength:				
Tenacity of dry fiber (in grams/denier):	5-6.0	9.0	8.5	6.5
Suggested maximum rope working load (percentage of Breaking test):	Varies by diameter size (7%-10%)	Varies by diameter size (9%-12%)	Varies by diameter size (7%-10%)	Varies by diameter size (7%-10%)
Wet strength compared to Dry strength:	up to 120%	85-90%	100%	100%
Rope shock absorption ability:	Poor	Excellent	Good	Very good
Weight:				
Specific gravity of fibers or filaments:	1.20	1.14	1.38	0.91
Ability to float:	No	No	No	Yes
ROPE STRENGTH/WEIGHT RATION (Avg):	1.0	3.0	2.25	2.5
Elongation:				
Rope elongation at suggested maximum working load:	Low	Very high	Moderately low	Moderate
Creep (extension-under sustained load):	Very low	Moderate	Low	High
Water absorption of individual fibers:	High	Moderate	Moderate	Low
Resistance to rot, mildew, deterioration due to marine organisms:	Poor	Excellent	Excellent	Excellent
Chemical Resistance:				
Effect of acids:	Will disintegrate in hot dilute & cold concentrated acids	Decomposed by strong mineral acids; resistant to weak acids	Resistant to most mineral acids; disintegrated by 95% sulfuric acid	Good resistance
Effect of alkalis:	Low resistance	Little or none.	Little effect cold, slowly disintegrated by strong alkalis at boil	High resistance
Effect of organic solvents:	Low resistance; hydrocarbons will remove proactive lubricants on rope	Fair resistance; soluble in some phenotic compounds & in 90% formic acid	Generally unaffected; soluble in some phenolic compounds	Soluble in chlorinated hydrocarbons at 160°F
Degradation:				
Resistance to U.V. in sunlight:	Fair	Good	Excellent	Fair; Black is best
Resistance to aging:	Good, but will lose strength as lubricants dry out	Excellent	Excellent	Excellent
Rope Abrasion Resistance:				
Surface:	Good	Very Good	Best	Good
Internal:	Good	Excellent	Best	Good
Melting Point of Rope:				
Ability of rope to render, or ease out, smoothly over metal while under load:	Excellent	482°F Poor	500°F Good	330°F Very poor

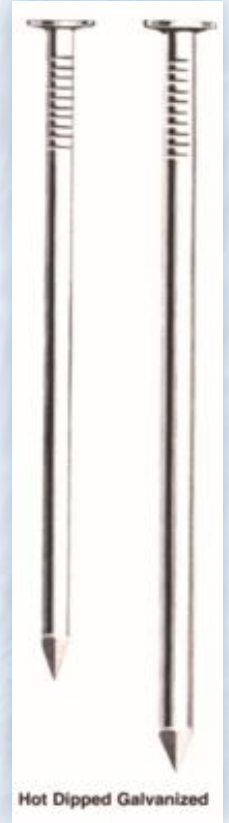
Nails

Hot Dip Galvanized

Galvanized Common Nails



Size	Length	Approx. No. Per lb.
6d	2"	190
8d	2-1/2"	100
10d	3"	70
12d	3-1/4"	50
16d	3-1/2"	45
20d	4"	27
40d	5"	16
60d	6"	10



Galvanized Wire Spike

Hot Dip Galvanized

Length	Gauge	Diameter Of Head	Approx. No. Per Lb.
8"	3/8	3/4	3.8
10"	3/8	3/4	3.0
12"	3/8	3/4	2.6

Hot Dipped Galvanized

**CALL US FOR SOLUTIONS
TO YOUR
FASTENER PROBLEMS**



Everything You Wanted To Know About Nails...

Penny-Inch Nail Equivalents

2d = 1"	12d = 3-1/4"
3d = 1-1/4"	16d = 3-1/2"
4d = 1-1/2"	20d = 4"
5d = 1-3/4"	30d = 4-1/2"
6d = 2"	40d = 5"
7d = 2-1/4"	50d = 5-1/2"
8d = 2-1/2"	60d = 6"
9d = 2-3/4"	70d = 7"
10d = 3"	80d = 8"

Nail Gauge	Decimal Equivalent	Nearest Inch
5-1/2	.220	13/64"
7	.177	11/64"
9	.1483	5/32"
10	.135	9/64"
11	.1205	1/8"
11-1/2	.115	7/64"+
12	.1055	7/64"-
12-1/2	.099	3/32"+
13	.0915	3/32"-
14	.080	5/64"+
14-1/2	.076	5/64"-
16-1/2	.058	1/16"

Origin of "PENNY-WISE" Nail Designations

There are two explanations for the English "penny" system of designating nail lengths. One is that the eight penny, six penny, two penny nails, etc. were so-called originally because one hundred nails cost eightpence, sixpence, twopence, etc. The other theory says that one thousand eight penny nails, for example, weighed eight pounds, one thousand four penny nails weighed four pounds, etc.

The "d" abbreviation for penny (8d for example) is of ancient origin and represents the first letter of the Roman coin denarius.

Nails used for wood-to-wood applications (such as wood siding nails, cedar shingle nails, etc.) are traditionally referred to by the "penny" designation, i.e., 5d or 6d nails, etc. However, nails for non-wood applications, fiber-cement siding nails, metal roofing nails, etc. are primarily referred to by inches, i.e., 1-1/2" or 2" nails, etc.

There is no readily apparent system for correlating the various penny designations. They must be memorized individually.

Hand-Driven Nails For Decking & Trim

Stormguard® Pressure Treated Lumber "P.T.L." Nails

These nails are made from stiffer stock steel so the shanks can be smaller in diameter to help reduce wood splitting without bending. Ring and spiral shanks provide exceptional holding power. Producers of treated lumber and many building codes specify hot-dip galvanized or stainless steel nails because they have a rust-free life expectancy comparable to that of the treated lumber. Maze STORMGUARD® "P.T.L. Nails" are double-dipped in molten zinc.



Mfg. No.	Length	Gauge	Head	Nls/Lb.
Plain Shank				
T445	2"	11	9/32"	137
T447	2-1/2"	11	9/32"	111
T449	3"	10	9/32"	75
T4490	3-1/4"	10	9/32"	69
T4491	3-1/2"	9	5/16"	54
T4492	4"	7	3/8"	33
T4493	4-1/2"	7	3/8"	29
T4494	5"	5-1/2	15/32"	22
T4496	6"	5-1/2	15/32"	18



Lifetime Warranty!

Mfg. No.	Length	Gauge	Head	Nls/Lb.
Ring Shank				
T445-A	2"	11	9/32"	137
T447-A	2-1/2"	11	9/32"	111
T449-A	3"	10	9/32"	75
T4490-A	3-1/4"	10	9/32"	69
T4491-A	3-1/2"	9	5/16"	54
T4492-A	4"	7	3/8"	33
T4493-A	4-1/2"	7	3/8"	29
T4494-A	5"	5-1/2	15/32"	22
T4496-A	6"	5-1/2	15/32"	18



Lifetime Warranty!

Mfg. No.	Length	Gauge	Head	Nls/Lb.
Spiral Shank				
T445-S	2"	11	9/32"	137
T447-S	2-1/2"	11	9/32"	111
T449-S	3"	10	9/32"	75
T4490-S	3-1/4"	10	9/32"	69
T4491-S	3-1/2"	9	5/16"	54
T4492-S	4"	7	3/8"	33
T4493-S	4-1/2"	7	3/8"	29
T4494-S	5"	5-1/2	15/32"	22
T4496-S	6"	5-1/2	15/32"	18

• Small Flat Head • Annular Ring Thread



Penny Size	Length	Gauge	Shank Dia.	Head Dia.	Approx. Count/Lb.
8d	2-1/2"	12	.109	7/32	145
10d	3"	12	.109	7/32	120
12d	3-1/4"	12	.109	7/32	110
16d	3-1/2"	11	.120	1/4	88



Roofing Nails (Slatting Nails)

Copper or 304 Stainless Steel

- Large Flat Head
- Smooth or Annular Ring Shank
- Diamond Point



Length	Gauge	Shank Dia.	Head Dia.	Copper Approx. Count/Lb.	304 Stainless Approx. Count/Lb.
3/4	12	.109	21/64	360	5/16 380
1	12	.109	21/64	288	5/16 348
1-1/4	12	.109	21/64	236	5/16 255
1-1/2	12	.109	21/64	202	5/16 218
1-3/4	12	.109	21/64	176	5/16 189
2	12	.109	21/64	156	5/16 170
3/4	11	.120	3/8	302	11/32 323
1	11	.120	3/8	229	11/32 244
1-1/4	11	.120	3/8	187	11/32 199
1-1/2	11	.120	3/8	155	11/32 170
1-3/4	11	.120	3/8	139	11/32 149
2	11	.120	3/8	124	11/32 136
1	10	.134	7/16	187	3/8 212
1-1/4	10	.134	7/16	147	3/8 166
1-1/2	10	.134	7/16	123	3/8 139
1-3/4	10	.134	7/16	112	3/8 126
2	10	.134	7/16	93	3/8 105
2-1/2	10	.134	7/16	81	3/8 91
3	10	.134	7/16	67	3/8 78

SIMPSON
Strong-Tie

Steel "Un-Commons" 304 Stainless Steel or 316 Stainless Steel

- Smooth Shank or Threaded
- Smooth or Checkered Flat Head
- Diamond Point



Penny Size	Length	Gauge	Shank Dia.	Head Dia.	Approx. Count/Lb.
2d	1	15	.072	3/16	807
3d	1-1/4	14	.083	7/32	473
4d	1-1/2	12	.109	1/4	228
5d	1-3/4	12	.109	1/4	193
6d	2	11	.120	17/64	144
7d	2-1/4	11	.120	17/64	133
8d	2-1/2	10	.134	9/32	94
10d	3	9	.148	5/16	67
12d	3-1/4	9	.148	5/16	60
16d	3-1/2	8	.165	11/32	44
20d	4	6	.203	7/16	25
30d	4-1/2	6	.203	7/16	22
40d	5	6	.203	7/16	19
60d	6	4	.238	15/32	12



Joist Hanger Nails

**304 Stainless Steel or
316 Stainless Steel**



Length	Gauge	Shank Dia.	Head Dia.	Approx. Count/Lb.
1-1/2	10	.134	5/16	147
1-1/2	9	.148	5/16	126
2-1/2	10	.134	5/16	94
3	9	.148	5/16	67
3-1/2	8	.165	3/8	44

Beam Nails

**304 or 316 Stainless Steel
or Bronze**

- Smooth Flat Head • Diamond Point
- Annular Ring or Screw Shank



Penny Size	Length	Gauge	Shank Dia.	Head Dia.	Approx. Count/Lb.	
					Stainless	Silicon Bronze
6d	2	12	.109	17/64	175	161
8d	2-1/2	11	.120	9/32	115	104
10d	3	10	.134	5/16	79	71
12d	3-1/4	10	.134	5/16	72	65
16d	3-1/2	9	.148	5/16	56	48
20d	4	8	.165	3/8	40	36
30d	4-1/2	8	.165	3/8	35	33
40d	5	8	.165	3/8	31	29
40d	5	6	.203	7/16	19	18
60d	6	6	.203	7/16	17	15
60d	6	4	.238	15/32	12	11
70d	7	4	.238	15/32	10	9

- Slightly lighter gauge than our "Un-Commons", Post & Beam Nails are easily driven with a minimum of splitting.
- Favored for cooling tower construction, repair & upgrade. These nails are ideal for either fir or redwood jobs.
- Use longer lengths for framing jobs using pressure treated structural members
- Annular Ring thread for best withdrawal resistance.
- Screw Shank for shear loading and end grain work.



Nails For Marine Service

**304 Stainless or 316 Stainless
Steel
Commercial or Silicon Bronze,
Monel**

- Large Flat Head
- Annular Ring Thread
- Diamond Point



Length	Gauge	Shank Dia.	Head Dia.	Approx. Count/Lb.	
				Stainless	Copper Alloy
3/4	15	.072	3/16	1050	913
3/4	14	.083	7/32	757	664
7/8	14	.083	7/32	657	617
1	15	.072	3/16	807	689
1	14	.083	7/32	622	536
1	12	.109	17/64	364	303
1-1/4	14	.083	7/32	473	424
1-1/4	13	.095	9/32	357	324
1-1/4	12	.109	17/64	272	245
1-1/2	14	.083	7/32	413	374
1-1/2	12	.109	17/64	228	204
1-1/2	10	.134	3/8	147	132
1-3/4	12	.109	17/64	193	179
1-3/4	10	.134	3/8	130	118
2	12	.109	17/64	175	161
2	10	.134	3/8	114	104
2	8	.165	7/16	75	65
2-1/2	12	.109	17/64	138	128
2-1/2	10	.134	3/8	94	83
2-1/2	8	.165	7/16	62	54
3	10	.134	3/8	79	71
3	9	.148	3/8	67	58
3	8	.165	7/16	51	45
3	6	.203	1/2	34	31
3-1/4	9	.148	3/8	60	52
3-1/4	8	.165	7/16	48	43
3-1/4	6	.203	1/2	31	27
3-1/2	8	.165	7/16	44	40
3-1/2	6	.203	1/2	29	26
4	6	.203	1/2	25	23
4	4	.238	9/16	18	17
4-1/2	6	.203	1/2	22	20
4-1/2	4	.238	9/16	16	15
5	6	.203	1/2	19	18
5	4	.238	9/16	15	14
6	4	.238	9/16	12	11

- Large bearing surface under heads holds planking securely to framing members on new construction and re-nailing projects.
- Annular Ring "Barbed" Threads provide maximum holding power and resistance to nail head popping.
- Specify Type 316 Stainless Steel to minimize discoloration of heads and paint bleed-through.
- Silicon Bronze offers best resistance to stress-corrosion cracking under heads in salt water service.

SIMPSON
Strong-Tie

Collated Nails...
Please call for information on other styles.

20-22° Plastic Strip, Full Round Head, Screw-Shank Nails

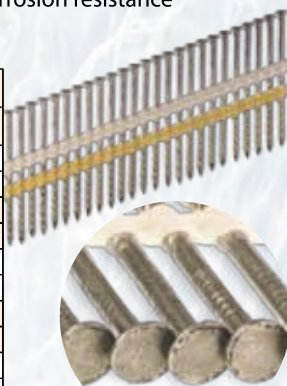
FEATURES:

- 20-22° collation angle
- Smooth head
- Screw shank increases pull-out resistance to provide a secure attachment
- Shanks are coated to increase pull-out resistance
- Choose type 316 for seaside applications and superior corrosion resistance

Types 304 and 316 Stainless Steel

Penny Size	Length (in.)	Shank Diameter (in.)	Head Diameter (in.)	Carton Quantity	Model No.	
					Type 304	Type 316
6d	2	0.113	5/32	5000	S12S200CNB	T12S200CNB
6d	2	0.113	5/32	1000	S12S200CNJ	T12S200CNJ
8d	2½	0.113	5/32	4000	S12S250CNB	T12S250CNB
8d	2½	0.113	5/32	1000	S12S250CNJ	T12S250CNJ
10d	3	0.120	5/32	4000	S11S300CNB	T11S300CNB
10d	3	0.120	5/32	1000	S11S300CNJ	T11S300CNJ
12d	3¼	0.120	5/32	4000	S11S325CNB	T11S325CNB
12d	3¼	0.120	5/32	1000	S11S325CNJ	T11S325CNJ
16d	3½	0.134	5/32	4000	S10S350CNB	T10S350CNB*
16d	3½	0.134	5/32	1000	S10S350CNJ	T10S350CNJ*

* These nails are special-order, non-stock items and are subject to minimum order quantities and longer lead times. Call Simpson Strong-Tie for details.



20-22° Plastic Strip, Casing Head, Ring-Shank Nails

Available in 5 colors

FEATURES:

- 20-22° collation angle
- Countersunk casing head
- Durable painted finish helps heads blend with decking material
- Checker pattern on heads blends with the wood grain
- Annular ring shank increases pull-out resistance to provide a secure attachment

Type 304 Stainless Steel

Penny Size	Length (in.)	Shank Diameter (in.)	Head Diameter (in.)	Color	Carton Quantity	Model No.
8d	2½	0.120	¼	None	1000	S11A237KDJ
8d	2½	0.120	¼	Brown	1000	S11A237KJB
8d	2½	0.120	¼	Gray	1000	S11A237KJG
8d	2½	0.120	¼	Redwood	1000	S11A237KJR
8d	2½	0.120	¼	Sienna	1000	S11A237KJS
8d	2½	0.120	¼	Tan	1000	S11A237KJT
12d	3¼	0.134	¼	None	1000	S10A325KDJ
12d	3¼	0.134	¼	Brown	1000	S10A325KJB
12d	3¼	0.134	¼	Gray	1000	S10A325KJG
12d	3¼	0.134	¼	Redwood	1000	S10A325KJR
12d	3¼	0.134	¼	Sienna	1000	S10A325KJS
12d	3¼	0.134	¼	Tan	1000	S10A325KJT



CLEVELAND

Spike Grid Timber Connector



Single Curve
SPSC



Circular
SPC



Flat
SPF

Spike Grids are used primarily in pole construction, docks, piling, wharves, and railroad and highway bridges or trestles. Flat and circular grids are used between sawn timbers, while single curve grids are used between round piles or poles and sawn members.

Manufactured from malleable iron in accordance with current ASTM Specification A-47, Grade 32510.

Spike Grids are available in 3 types: flat, single curve, and circular. Single curve fits between one rounded and one flat member. Circular fits between two flat or curved members. Flat fits between two flat members. Also available galvanized to ASTM A-153.

Install with grid applicator or hydraulically, cannot be installed by tightening standard nut.

Type	Size	Depth	Bolt Hole Dia.	Bolt Dia. (max)	Lumber Min. Dimensions	
					Grid in One Face	Grid in Both Face
Flat	4-1/8" x 4-1/8"	1"	1.06	1"	1-5/8" x 5-1/2"	2-5/8" x 5-1/2"
Single Curve	4-1/8" x 4-1/8"	1.38"	1.06	1"	1-5/8" x 5-1/2"	-
Circular	3-1/4" dia.	1.20"	1.33	1"	1-5/8" x 5-1/2"	2-5/8" x 5-1/2"



Stainless Steel Deck Screws



Square Drive

10 x 2-1/2"

10 x 4-1/2"

10 x 3-1/2"

12 x 3-1/2"



Torx Drive

8 x 2"

12 x 4-1/2"

8 x 2-1/2"

12 x 5"

8 x 3"

12 x 5-1/2"

10 x 2-1/2"

12 x 6"

10 x 3"

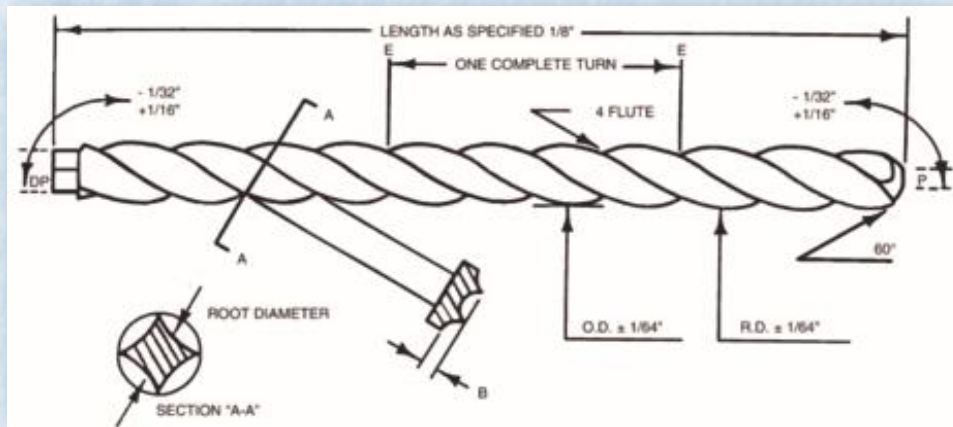
10 x 3-1/2"

10 x 4"

CALL US FOR ALL YOUR STAINLESS STEEL SCREW NEEDS

Square Spiral Dowel

LIMITED AVAILABILITY



DRIVE INTO PRE-DRILLED HOLES
IDEAL FOR HEAVY TIMBER DECK CONSTRUCTION

Nominal Size	Outside Diameter	Root Diameter	Takeup For 360° Turn	Point Diameter
1/2	.500	.375	2-1/2"	3/16"
5/8	.687	.500	3-1/4"	5/16"
3/4	.781	.562	4"	11/32"

Features

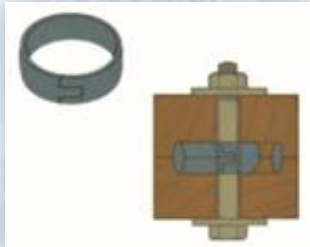
- Rotates under the pressure of mechanical or manual driving
- Flutes thread themselves into the wood
- Dowels lock timbers together and prevents separation
- Separation forces cause rotational holding power in opposite directions
- The greater the forces, the tighter the dowels hold
- Prevents deck boards from uplifting from stringers



Hot Dip Galvanized Shear Plates and Timber Rings available in galvanized coating to ASTM A153.

Timber Rings

Cleveland timber rings are used in the assembly of clear span roof trusses. Rings are placed in pre-cut grooves to spread the load and avoid crushing the wood. Joint is completed with a bolt and square washer. The 2-1/2" ring is used in normal 2" lumber and the 4" ring is used in normal 3" lumber. Timber rings are used in residential, farm building and heavier construction. When 4" rings are used in 2" normal lumber, with rings in both faces, the allowable load is reduced approximately 20%.



TR2.5 (2-1/2")



TR4 (4")



Inside Diameter	Steel Size	Bolt Size	Minimum Lumber Sizes	
			Ring 1 Side	Rings in Both Sides
2-1/2"	3/4" x 5/32"	1/2"	1" x 3-1/2"	1-1/2" x 3-1/2"
4"	1" x 3/16"	3/4"	1" x 5-1/2"	1-1/2" x 5-1/2"

Includes pilot and blades.

Shear Plates

Shear plates are set in pre-cut daps in wood timbers, flush with the face of the wood. The sheer plate spreads the load and reduces the number of bolts required. Made of malleable Iron to ASTM Specification A-47, Grade 325.10. Shear plates may be secured with nails for security in handling and transit.

Shear plates are used in connections between wood and steel, such as steel tie plates, arch shoes and truss heel joints.

Also used in demountable joints in scaffolding, bleacher seats, and other knockdown wood structures.

Mfg. No.	Outside Diameter	Bolt Size
SP2-6	2-5/8"	3/4"
SP4	4"	3/4"
SP4S	4"	7/8"



GROOVING TOOLS

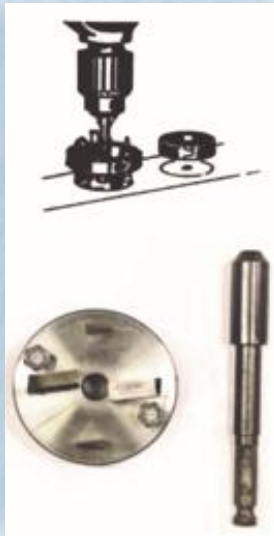
Used to cut grooves for Timber Rings, high speed steel blades, depth gauge and pilot to fit in bolt hole. May be used in 3/4" portable drill or drill press. Blades may be resharpened per instructions packed with tool.

Mfg. No.	Drilled Ring Size	Hole Size
TOOL 301	TR2.5	9/16" dia.
TOOL 302	TR4	13/16" dia.

Includes pilot and blades.

Extra Blades - Pilots

Blade 301, set of 4 for Tool 301
 Blade 302, set of 6 for Tool 302
 PILOT 562 9/16" Pilot for 1/2" bolt
 PILOT 813 13/16" Pilot for 3/4" bolt
 PILOT 938 15/16" Pilot for 7/8" bolt



DAPPING TOOLS

Tools are designed with several blades and cutters to produce a dap of the same shape as the shear plate. Insert the pilot in a predrilled hole or a drill bit may be used to drill and dap.

Mfg. No.	Shear Plate	Drilled Hole Size
TOOL 303	SP2.6	13/16" dia.
TOOL 304	SP4	13/16" dia.
TOOL 304S	SP4S	15/16" dia.

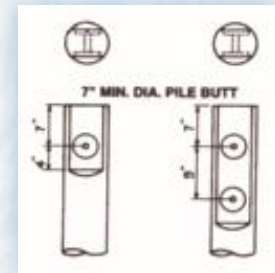
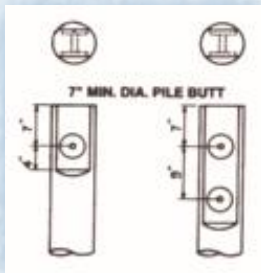
Includes pilot and blades.

Extra Blades - Pilots

PILOT 813 13/16" Pilot for 3/4" bolt
 PILOT 938 15/16" Pilot for 7/8" bolt
 Blade 303, set of 4 for Tool 303
 Blade 304, set of 5 for Tool 304



Shear Plate Design Suggestions



Uplift

Shear Plate Design Loads (7/80 Bolt)

2 Shear Plates	4 Shear Plates (Vertical)	4 Shear Plates (Transverse)	8 Shear Plates
Group "B" Wet Use 7,716 lbs.	Group "B" Wet Use 15,432 lbs.	Group "B" Wet Use 15,432 lbs.	Group "B" Wet Use 30,864 lbs.
Group "C" Wet Use 6,430 lbs.	Group "C" Wet Use 12,860 lbs.	Group "C" Wet Use 12,860 lbs.	Group "C" Wet Use 25,720 lbs.
Group "B" Dry Use 9,214 lbs.	Group "B" Dry Use 18,428 lbs.	Group "B" Dry Use 18,428 lbs.	Group "B" Dry Use 36,856 lbs.
Group "C" Dry Use 7,678 lbs.	Group "C" Dry Use 15,356 lbs.	Group "C" Dry Use 15,356 lbs.	Group "C" Dry Use 30,712 lbs.

DESIGN NOTES:

1. Tabular values are intended as a guide, and should be checked by the design engineer for conformance with current edition of N.D.S.*
2. A 33-1/3% Duration of Load increase is included.
3. Typical Group "B" species include Douglas Fir-Larch and Southern Yellow Pine.
4. Typical Group "C" species include Hem-Fir and Spruce-Pine-Fir.
5. Applicable load adjustment factors are : Load Duration, Wet Service, Temperature, Group Action, Geometry, Penetration and Metal Side Plates.
6. Shear plates are 4" diameter, SP4S.
7. Slab cuts should be parallel, plumb, and a minimum of 5-1/2" in width.
8. Shear plate daps to be made with tool 304S.

*"National Design Specification for Wood Construction" published by American Forest & Paper Association, Washington, D.C.

Straps & Ties

H/TSP Seismic & Hurricane Ties

SIMPSON
Strong-Tie

The Hurricane Tie series features various configurations of wind and seismic ties for trusses and rafters.

The TSP stud plate tie has now been tested in the top-plate-to-rafter connection.

The H2A features an improved design and higher uplift loads to replace the H2. The H10A has a similar design as the H10 but offers higher uplift capacity. The H10S provides a high capacity connection from truss/rafter to stud.

The H2.5T's truncated design was developed to accommodate trusses with 2x4 bottom chords. The easy to install, five nail pattern is stronger and gets better uplift loads than our popular H2.5 hurricane tie. H1, H10, H10S, H10-2, H11Z and H14 have also been rated for download to provide additional bearing capacity

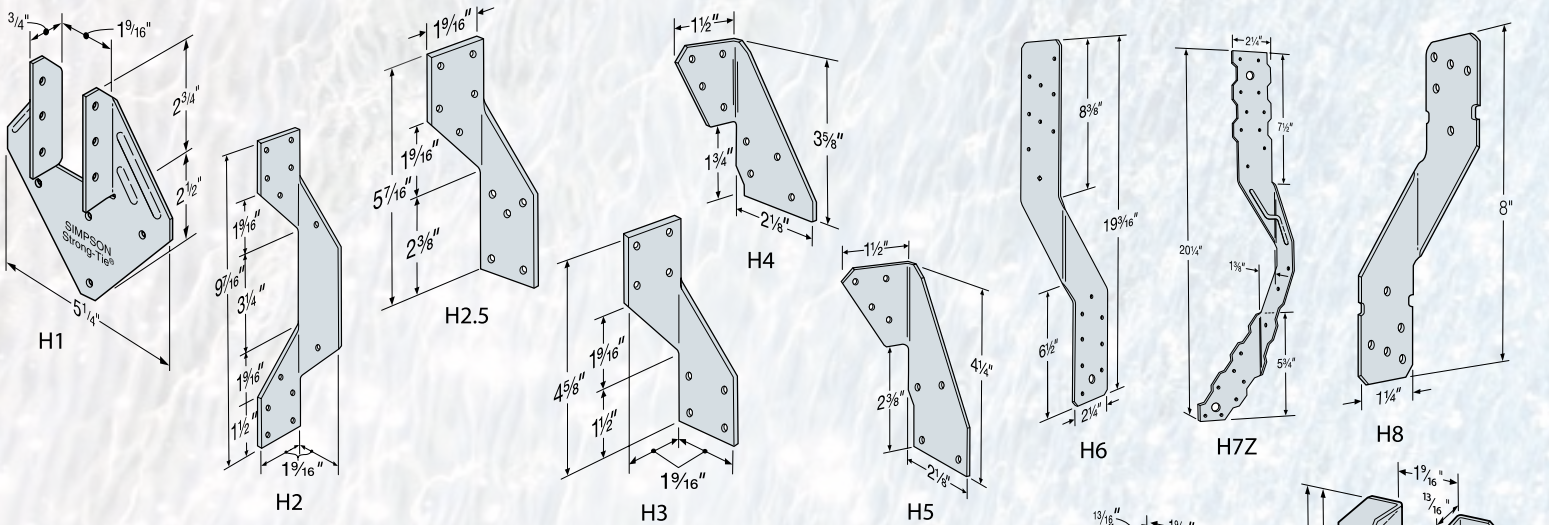
between the truss and wall.

MATERIAL: See table.

FINISH: Galvanized, H7Z and H11Z—ZMAXcoating. Some models available in stainless steel or ZMAX; see Corrosion Information, page 18-19.

INSTALLATION: • Use all specified fasteners. See General Notes.

- H1 can be installed with flanges facing inwards (reverse of H1 drawing number 1)
- H2.5, H2.5T, H3, H4, H5 and H6 ties are only shipped in equal quantities of rights and lefts. (Rights shown.)
- Hurricane Ties do not replace solid blocking.
- Do not drive nails through the truss plate on the opposite side of single-ply trusses, which could force the plate off the truss.

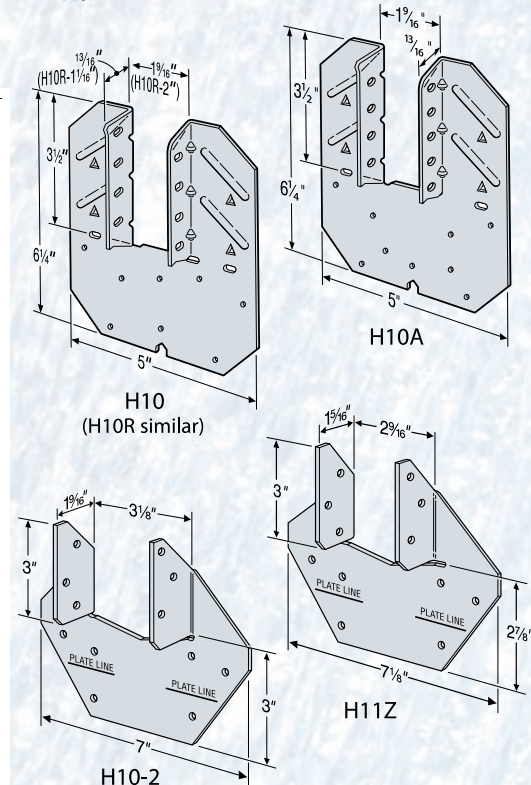


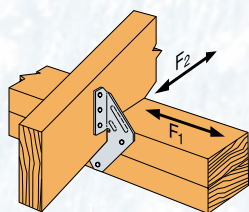
These products are available with additional corrosion protection. Additional products on this page may also be available with this option, check with Simpson Strong-Tie for details. These products are approved for installation with the Strong-Drive SD Structural Connector screw. See page 30 for the correct substitution and SD screw size.

Model No.	Ga	Fasteners			DF/SP Allowable Loads			Uplift Load with 8dx1 1/2 Nails (160)	SPF/HF Allowable Loads			Uplift Load with 8dx1 1/2 Nails (160)	Code Ref.
		To Rafters/Truss	To Plates	To Studs	Uplift	Lateral	F ₂		Uplift	Lateral	F ₂		
					(160)	(160)			(160)	(160)			
H1	18	6-8dx1 1/2	4-8d	—	585	485	165	455	400	415	140	370	I17, L6, F16
H2	18	5-8d	—	5-8d	335	—	—	335	230	—	—	230	—
H2A	18	5-8dx1 1/2	2-8dx1 1/2	5-8dx1 1/2	575	130	55	495	130	55	—	—	IP1, L18, F25
H2.5	18	5-8d	5-8d	—	415	150	150	415	365	130	130	365	I17, L6, F16
H2.5A	18	5-8d	5-8d	—	600	110	110	480	535	110	110	480	I17, F16
H2.5T	18	5-8d	5-8d	—	545	135	145	425	545	135	145	425	IP1, L18, F25
H3	18	4-8d	4-8d	—	455	125	160	415	320	105	140	290	—
H4	20	4-8d	4-8d	—	360	165	160	360	235	140	135	235	I17, L6, F16
H5	18	4-8d	4-8d	—	455	115	200	455	265	100	170	265	—
H6	16	—	8-8d	8-8d	950	—	—	—	820	—	—	—	I17, F16
H7Z	16	4-8d	2-8d	8-8d	985	400	—	—	845	345	—	—	I17, F16
H8	18	5-10dx1 1/2	5-10dx1 1/2	—	745	75	—	630	565	75	—	510	F26
H10	18	8-8dx1 1/2	8-8dx1 1/2	—	995	590	275	—	850	505	235	—	I17, F16
H10A	18	9-10dx1 1/2	9-10dx1 1/2	—	1140	590	285	—	1015	505	285	—	I17, L18, F25
H10S ¹⁰	18	8-8dx1 1/2	8-8dx1 1/2	8-8d	1010	660	215	550	870	570	185	475	IP1, L18, F25
H10-2	18	6-10d	6-10d	—	760	455	395	—	655	390	340	—	I17, F16
H11Z	18	6-16dx2 1/2	6-16dx2 1/2	—	830	525	760	—	715	450	655	—	170
H14	18	12-8dx1 1/2	13-8d	—	1350	515	265	—	1050	480	245	—	IP1, L18, F25
		12-8dx1 1/2	15-8d	—	1350	515	265	—	1050	480	245	—	—
TSP	16	9-10dx1 1/2	6-10dx1 1/2	—	740	310	190	—	635	265	160	—	170
		9-10dx1 1/2	6-10d	—	890	310	190	—	765	265	160	—	—

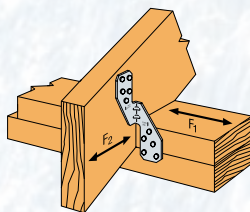
1. Loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
2. Allowable loads are for one anchor. A minimum rafter thickness of 2 1/2" must be used when framing anchors are installed on each side of the joist and on the same side of the plate (exception: connectors installed such that nails on opposite sides don't interfere).
3. Allowable DF/SP uplift load for stud to bottom plate installation (see detail 15) is 400 lbs. (H2.5); 390 lbs. (H2.5A); 360 lbs. (H4) and 310 lbs. (H8). For SPF/HF values multiply these values by 0.86.
4. Allowable loads in the direction are not intended to replace diaphragm boundary members or prevent cross grain bending of the truss or rafter members.
5. When cross-grain bending or cross-grain tension cannot be avoided in the members, mechanical reinforcement to resist such forces may be considered.

6. Hurricane Ties are shown installed on the outside of the wall for clarity and assume a minimum overhang of 3/8" installation on the inside of the wall is acceptable (see General Instructions for the Installer notes on page 22). For uplift Continuous Load Path, connections in the same area (i.e. truss to plate connector and plate to stud connector) must be on same side of the wall.
7. Southern Pine allowable uplift loads for H10A = 1340 lbs. and for H14 = 1465 lbs.
8. Refer to technical bulletin T-HTIEBEARING for H1, H10, H10S, H10-2, H11Z, H14 allowable bearing enhancement loads (see page 214 for details).
9. H10S can have the stud offset a maximum of 1" from rafter center to center for a reduced uplift of 890 lbs. (DF/SP), and 765 lbs. (SPF).
10. H10S nails to plates are optional for uplift but required for lateral loads.
11. NAILS: 16dx2 1/2 = 0.162" dia. x 2 1/2" long, 10d = 0.148" dia. x 3" long, 10dx1 1/2 = 0.148" dia. x 1 1/2" long, 8d = 0.131" dia. x 2 1/2" long, 8dx1 1/2 = 0.131" dia. x 1 1/2" long. See page 24-25 for other nail sizes and information.

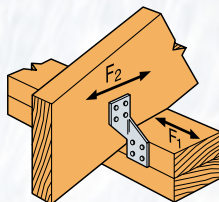




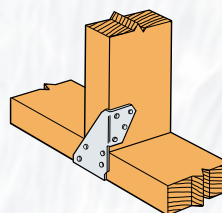
H1 Installation



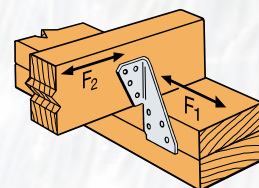
H 2.5 Installation
Nails into both top plates



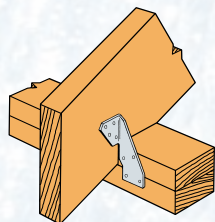
H 3 Installation
Nails into upper top plate



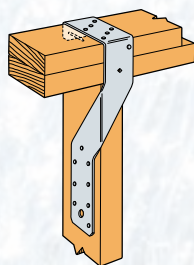
H4 Installation



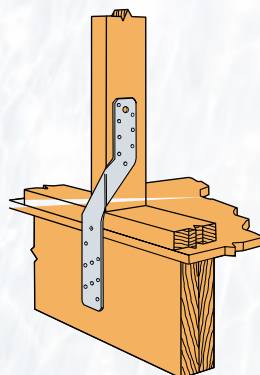
H4 Installation
Nails into upper top plate



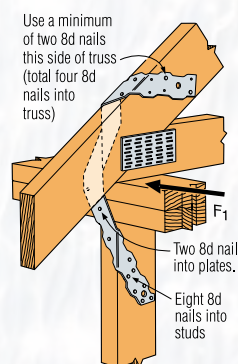
H5 Installation
Nails into both top plates



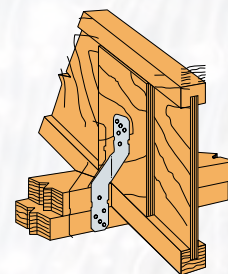
H6 Installation
Stud to Top Plate



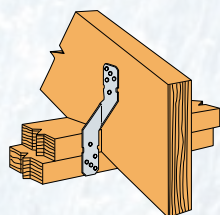
H6 Installation
Stud to Band Joist



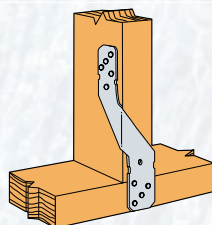
H7Z Installation



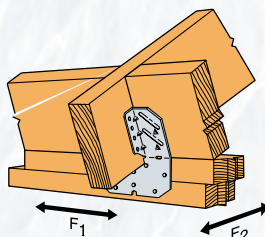
H8 Attaching
I-joist to double
top plates



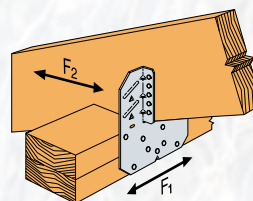
H8 Attaching
Rafter to double
top plates



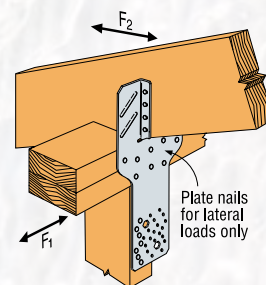
H8 Attaching
Stud Toe



H10 Installation



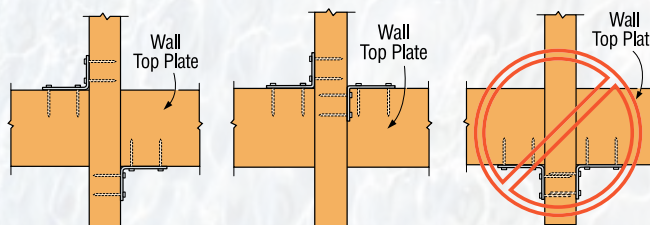
H10A Installation



H10S Installation
with Stud Offset

Hurricane Tie Installation to Achieve Twice the Load (Top View)

Install diagonally across from each other for minimum 1-1/2" truss



Products can be on the same side of the wall provided they are configured as shown

Nailing into both sides of a single ply 2x truss may cause the wood to split

Power Drill Auger Bits Power Pole Auger Bits



- Hollow center twist design for fast, continuous flow of chips
- Single-spur design bores smooth, clean holes for installing bolts and pins
- For boring creosoted poles and construction timbers and multiple timber applications
- Full length heat treatment strengthens twist where greatest strain occurs
- 5" shank has 1-3/4" of 1/2" round and 1-3/4" of 7/16" hex - cut off hex section and use 1/2" round shank if job requires
- Medium-fast screw pitch

Diameter	Hex Shank Size	17" OL* 12" Twist Bulk Stock No.	23" OL* 18" Twist Bulk Stock No.	29" OL 24" Twist Bulk Stock No.
9/16"	7/16"	46809	46909	47009
5/8"	7/16"	46810	46910	47010
11/16"	7/16"	46811	46911	47011
3/4"	7/16"	46812	46912	47012
13/16"	7/16"	46813	46913	47013
7/8"	7/16"	-	46914	47014
15/16"	7/16"	-	46915	47015
1"	7/16"	-	-	47016
1-1/16"	7/16"	-	-	47017

18" Auger Bit Extensions

• Hex key included	43805	
• Six flats on shank		
• Heavy-duty double set screw type	43907	

Irwin Self-Feed Wood Bits



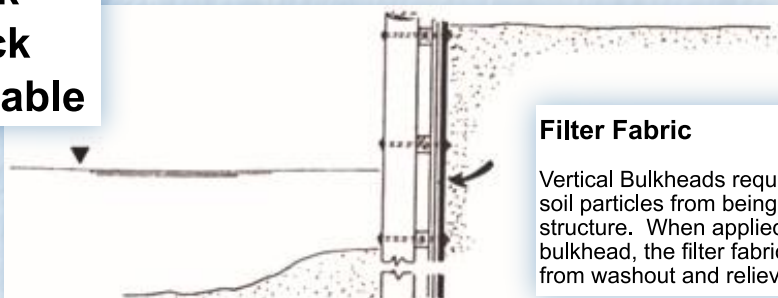
- Drill large diameter holes in wood for pipe, conduit and other applications
- Effortless cutting, even in gummy wood
- Each bit is packaged with one hex key and two feed screws

Diameter	Hex Size	Boxed Stock No.
1"	7/16"	43016
1-1/8"	7/16"	43018
1-1/4"	7/16"	43020
1-3/8"	7/16"	43022
1-1/2"	7/16"	43024
1-3/4"	7/16"	43028
2"	7/16"	43032
2-1/8"	7/16"	43034
2-1/4"	7/16"	43036
2-9/16"	7/16"	43041
3"	7/16"	43047
3-5/8"	7/16"	43058
4-5/8"	7/16"	43074

Filter Fabric

For Timber Bulkhead

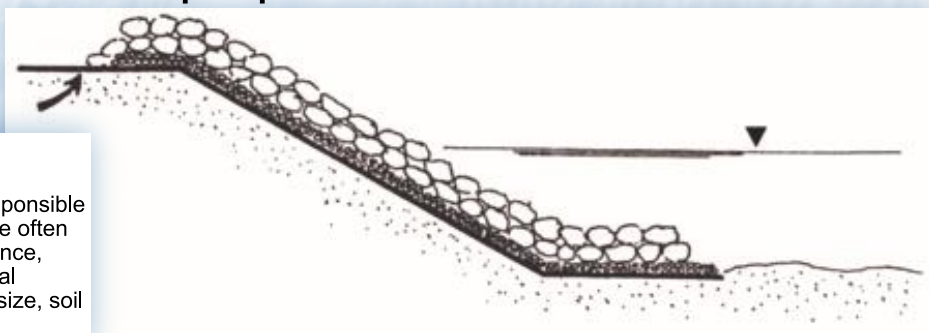
**6' X 100' In Stock
12' X 100' In Stock
Custom Sizes Available**



Filter Fabric

Vertical Bulkheads require Filter Fabric to eliminate soil particles from being siphoned back through the structure. When applied to the interior wall of a bulkhead, the filter fabric maintains the inland backfill from washout and relieves hydrostatic pressure.

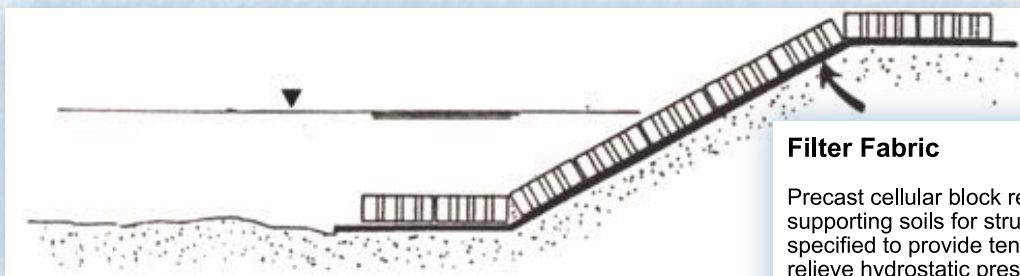
Rip-Rap



Filter Fabric

Beneath stone revetments, Filter Fabrics are responsible for protecting the stone units from sinking into the often unstable subsoils. Usually high puncture resistance, tensile strength and filtering efficiency are of critical importance and will vary depending upon stone size, soil characteristics and anticipated wave attack.

Precast Block Revetment



Filter Fabric

Precast cellular block revetments depend upon supporting soils for structural integrity. Filter Fabric is specified to provide tensile strength to these soils, relieve hydrostatic pressure and eliminate the requirements for bedding stone.

Silt Fence with Stakes

**2' In Stock
3' In Stock**

A temporary fabric barrier installed around construction sites to intercept and detain sediments, preventing damage to the adjacent property or waterway.



YETI COOLERS

Wildly Stronger! Keeps Ice Longer!

- Rotomolded Construction
- T-Rex Lid Latches
- Double Haul Handles
- Vortex Drain System
- Barefoot Non-Slip Feet



YETI Hopper

Is a personal portable, anything but soft-sided cooler. Easily transports 12 to 18 cans of your favorite drinks. With sturdy handles or carrying strap it's a breeze to take with you. Unlike other soft-sided coolers, it's puncture-resistant, leakproof and sports an anti-microbial liner that resists mildew.

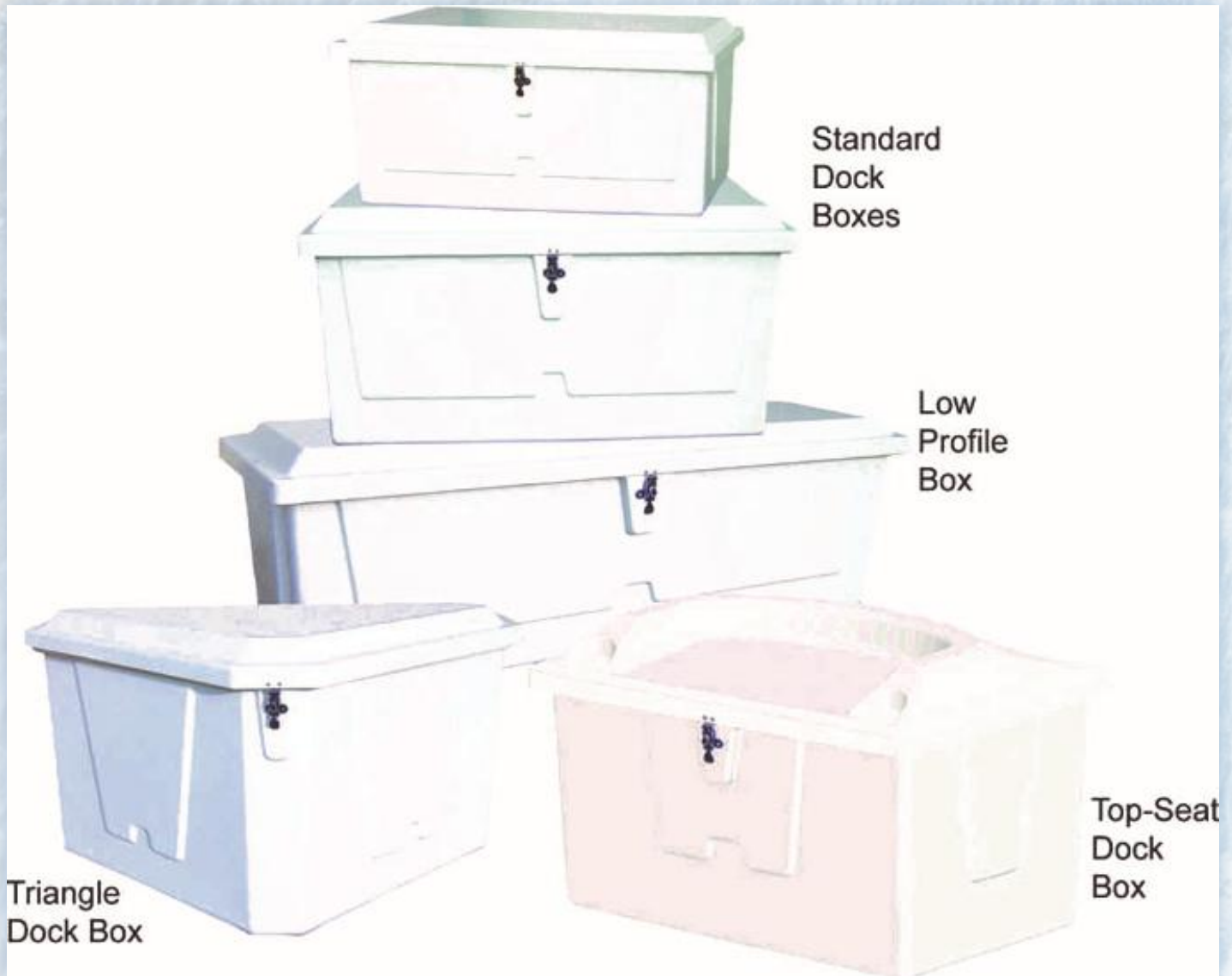


Corner Chock Set



20oz. Rambler

Taylor Made Dock Boxes



Features

Base Wall Thickness: (average corner) .231

Base Wall Thickness: (average side) .166

Cover Wall Thickness: (average corner) .180

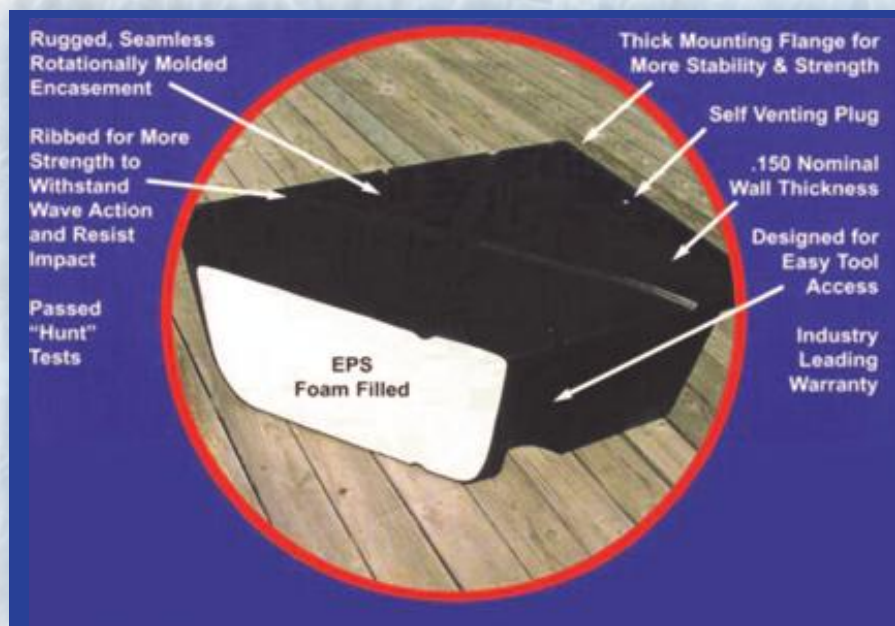
Cover Wall Thickness: (average side) .158

Open Cover Stability: Gas Shocks standard on all models

Interior Appearance: Smooth Easy to Clean

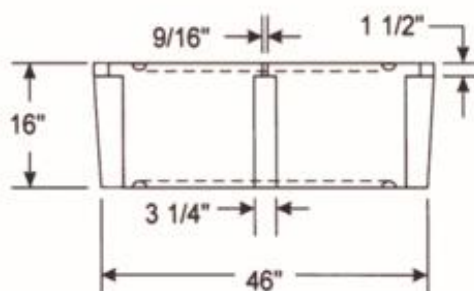
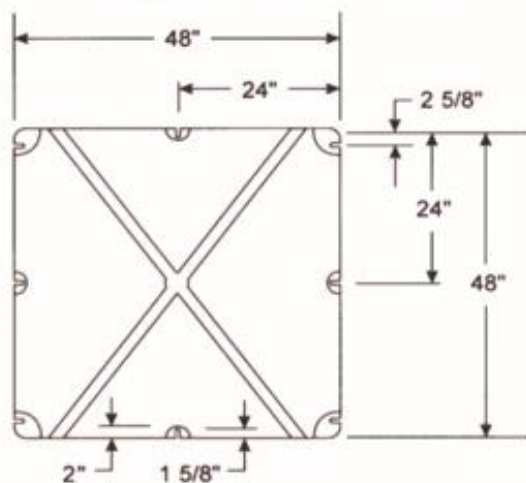
Lid Strength: Solid Balsa Wood Core

DOCK FLOATS

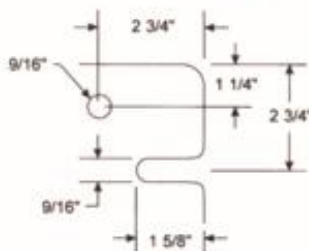


Typical PermaFloat Configuration

(This drawing is for a 48" x 48" x 16" drum)



Corner Detail



Specifications

SIZE	CU. FT.	WT. (LBS)	BUOYANCY (LBS)
24" x 48" x 12"	8.0	30	450
24" x 48" x 16"	10.7	36	604
24" x 48" x 20"	13.3	41	759
36" x 48" x 12"	12.0	41	679
36" x 48" x 16"	16.0	49	911
36" x 48" x 20"	20.0	57	1143
36" x 72" x 16"	24.0	67	1373
36" x 72" x 20"	38.0	84	1716
48" x 48" x 12"	16.0	52	908
48" x 48" x 16"	21.3	63	1217
48" x 48" x 20"	26.6	74	1526
48" x 72" x 12"	24.0	78	1362
48" x 72" x 16"	32.0	92	1828
48" x 72" x 20"	40.0	105	2295
48" x 96" x 12"	32.0	104	1816
48" x 96" x 16"	42.7	122	2278
48" x 96" x 20"	53.3	143	3057

Features

- Rugged, Seamless, Rotationally Molded Encasement
- Expanded Polystyrene (EPS) Foam Filled
- Ten (10) Year Warranty
- Molded Mounting Slots and Pilot Holes
- Maintenance Free
- .150 Nominal Wall Thickness
- Resists Saltwater, Oil, Gas and Marine Life
- Installs Quickly to Wood, Steel or Aluminum Frames
- Threaded Vent Plug
- Meets Corps of Engineers Regulation #36CFR Part 27
- Reflective "FLASH DOT" Takes the Guess Work Out of Night Docking!

Materials

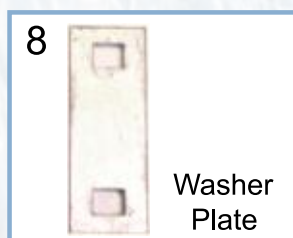
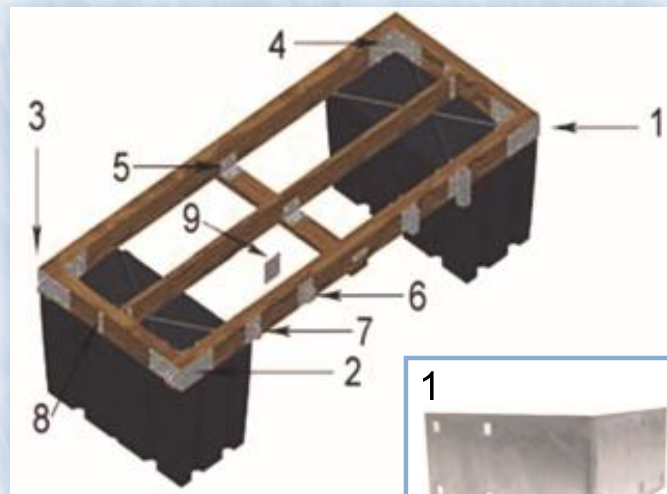
- Virgin Grade Polyethylene Resin with UV Inhibitors
- Virgin Expanded Polystyrene (EPS)



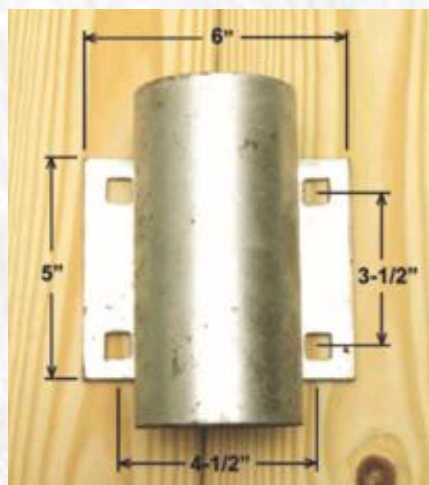
Ride-On PWC Lifts PERMAPORT



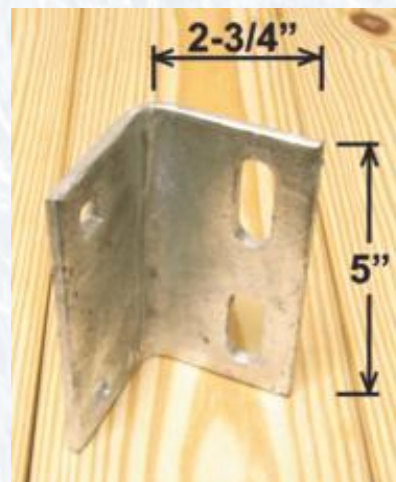
DOCK HARDWARE



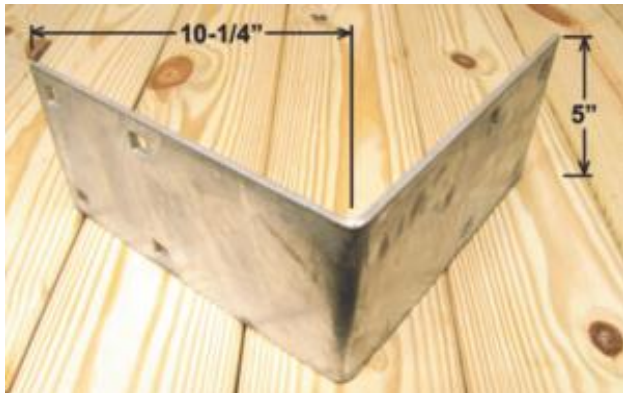
3" Pipe Holder



Cleat Angle



1 Outside Corner End 7 lbs



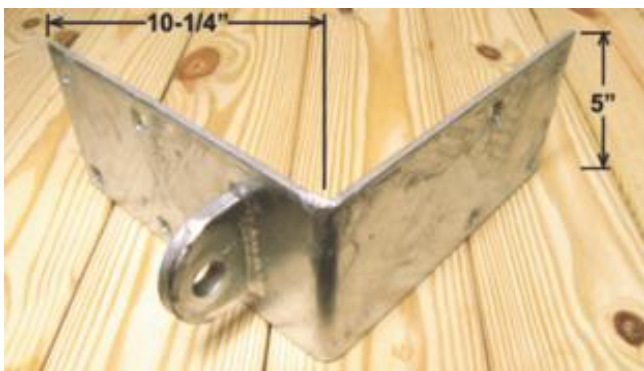
**Thickness 1/4"
Hole Spacing 3-1/2"
9/16" Square Holes**

2 Outside Corner Female 8.5 lbs



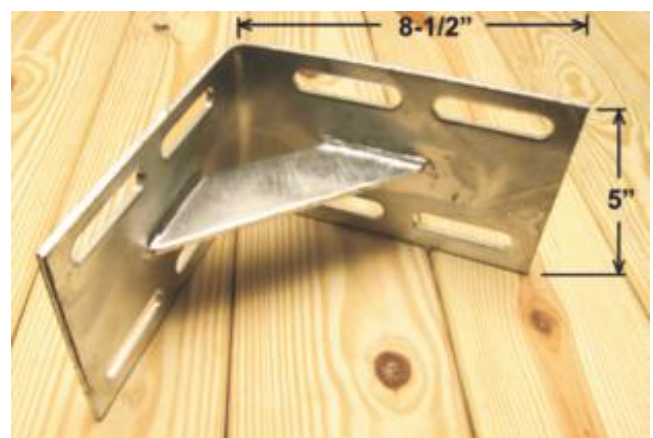
**Thickness 1/4"
Hole Spacing 3-1/2"
9/16" Square Holes
13/16" Connection Holes**

3 Outside Corner Male 8 lbs



**Thickness 1/4"
Hole Spacing 3-1/2"
9/16" Square Holes
13/16" Connection Hole**

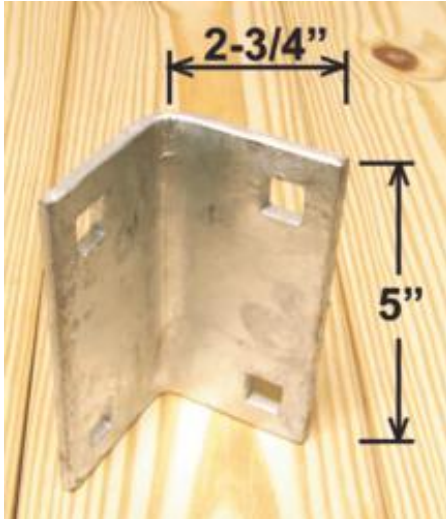
4 Inside Corner 6 lbs



**Thickness 1/4"
Hole Spacing 3-1/2" Center to Center
9/16" Slotted Holes**

5 Angle

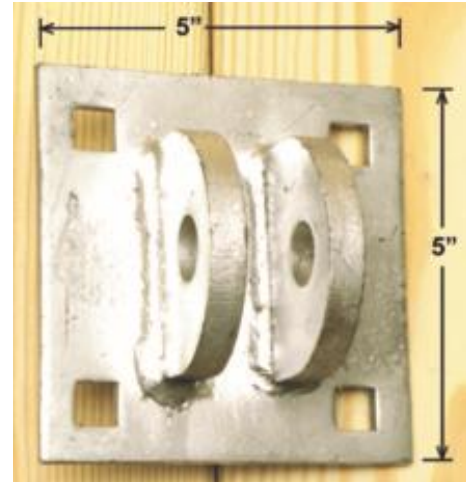
1.75 lbs



Thickness 1/4"
Hole Spacing 3-1/2"
9/16" Square Holes

6 Single "T" Female

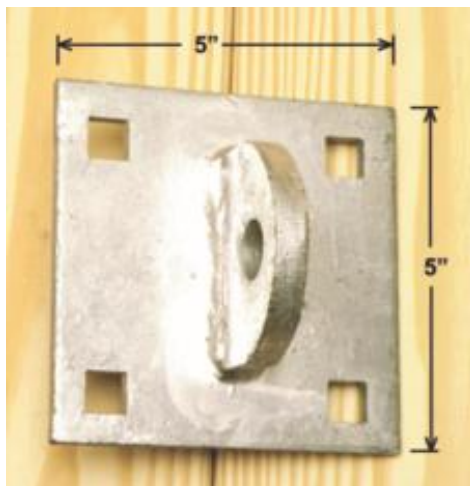
3.5 lbs



Thickness 1/4"
Hole Spacing 3-1/2"
9/16" Square Holes
13/16" Connection Holes

7 Single "T" Male

3 lbs



Thickness 1/4"
Hole Spacing 3-1/2"
9/16" Square Holes
13/16" Connection Hole

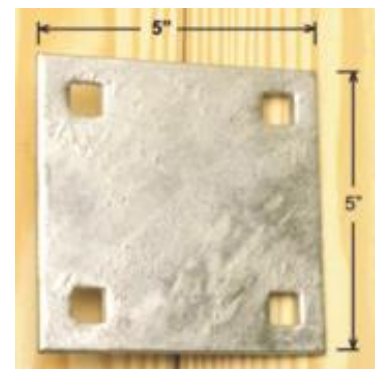
8 Washer Plate

0.44 lbs.



9 Back-Up Plate

1.75 lbs



Thickness 1/4"
Hole Spacing 3-1/2"
9/16" Square Holes

Cleats - Roller Plate & Roller

Ship Cleats SPC 190



Galvanized Gray Iron

Length Inches	Size of Base Inches	Holes for Diameter Bolts/Inches	Weight Each Pounds
8	4-1/8 x 2-3/8	7-1/6	3-1/4
10	5-5/8 x 2 1/2	1/2	5-1/2
12	6-7/8 x 3	5/8	10
15	2-1/4 x 3-1/2	5/8	13-1/4
18	7-3/4 x 4	3/4	20-1/2
24	13 x 4-1/2	7/8	34

Light Duty Cleats Boat Cleats SPC 192



Galvanized Iron or Bronze
Also available in Aluminum
Open Base

Length Inches	Galv. Wt. lbs. Each	Bolt Size
6	.38	1/4"
8	1.00	5/16"
10	2.12	3/8"
12	3.56	3/8"
14	5.88	1/2"
18	6.78	5/8"

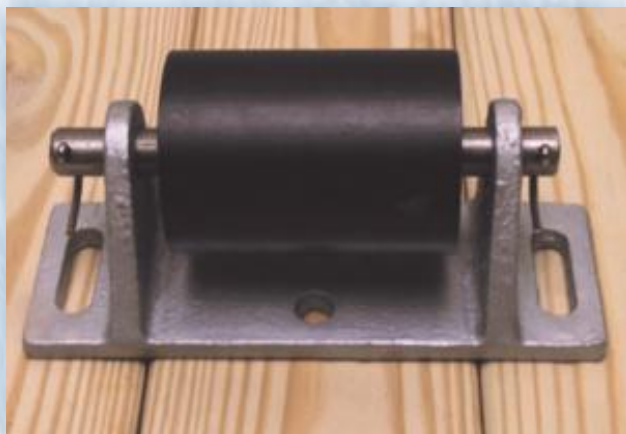
Aluminum S Cleats



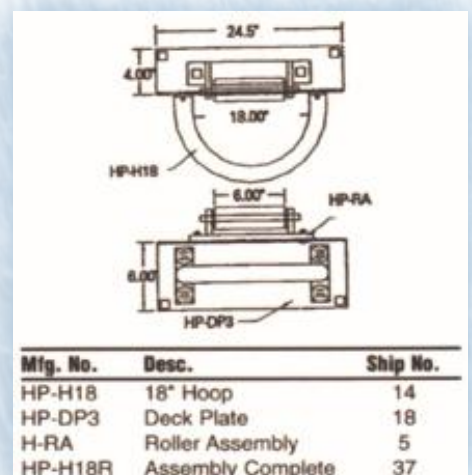
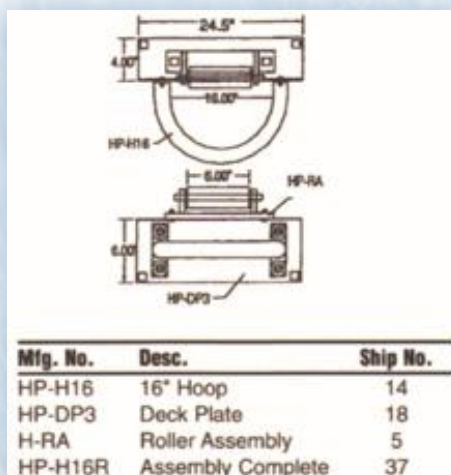
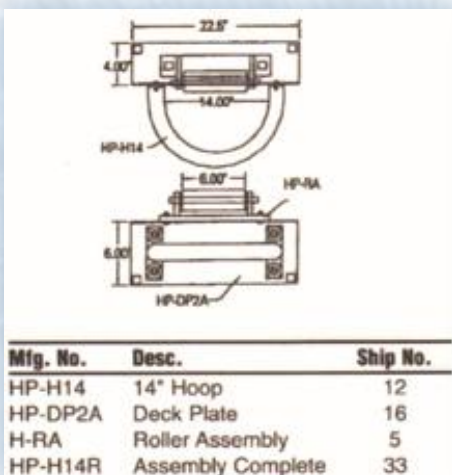
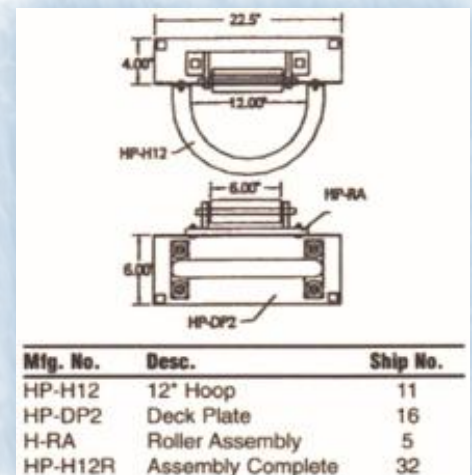
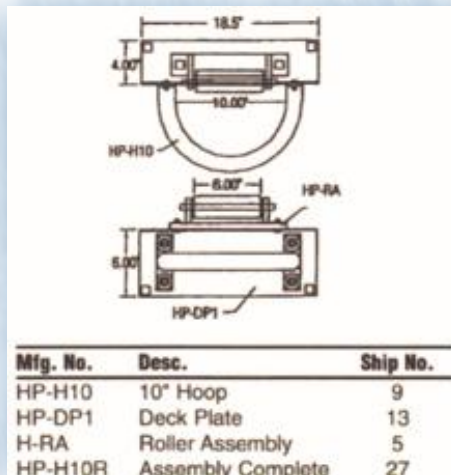
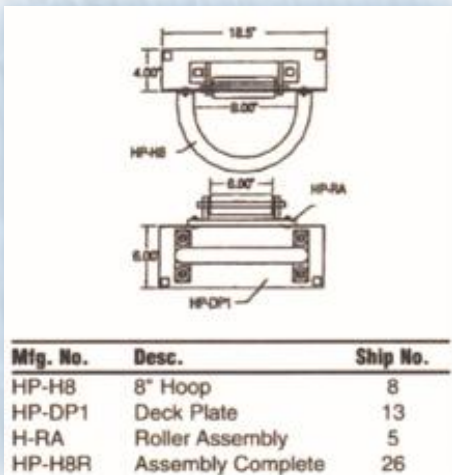
Available in 10" & 12" Lengths



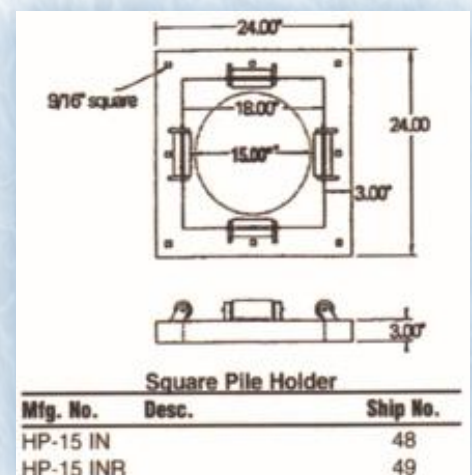
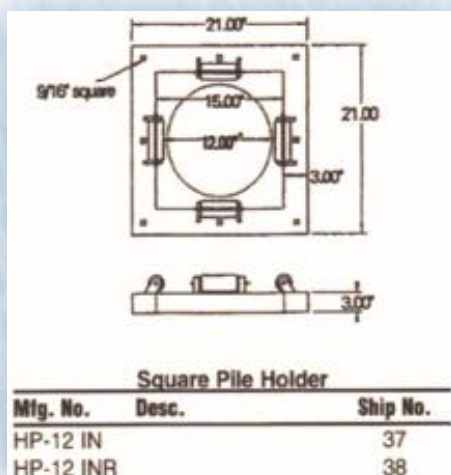
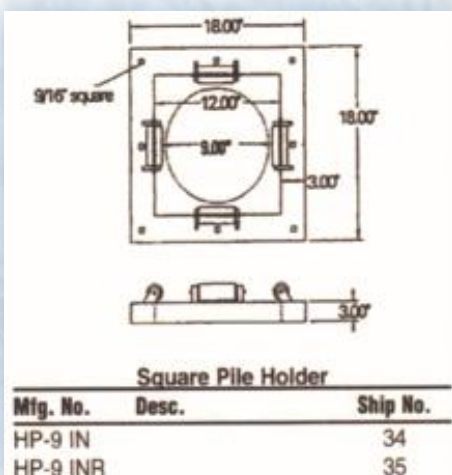
611 Roller Plate & Roller



Hoop Pile Holders & Pile Guides



The internal square pile holders are made from 3" x 3" x 1/4" angle and have four 6" roller included.
The pile holder is hot dipped galvanized after fabrication. The "R" denotes 1 side removable.



Ladders



Constructed from marine grade aluminum 1-1/4" I.D. 6063 aluminum pipe. Welded for strength - extruded aluminum channels are serrated to produce a non-skid surface with no sharp edges.

Use as either a dock or seawall ladder.

Standard ladder sizes are 3, 4, 5, 6 and 7 step models.

Large inventory on hand.
Custom sizes and heavy duty (1-1/2" I.D. aluminum pipe) ladders upon request.

Lift Ladders



250 lbs. capacity.
Distance from dock to bottom rung - (2') retracted (5') extended (2' retracted 7' extended for 7 rung model).

6063 marine grade alloy to resist corrosion.

All welded construction.
Interior hand rail spacing - 17"
Custom lengths available

Standard Dockside Electrical Pillars



Standard Features:

Dimensions: 8" x 8" x 41" (Height) Casing.
Maximum 4 receptacles (8 poles).
Extruded aluminum 6063 with 3/16" wall thickness.

All Stainless steel features and hinges.
Isolation plate to separate water, telephone, and TV from "electrical".
Completely waterproof.

Each receptacle protected by a thermal magnet circuit breaker. Marine grade electrical receptacles are available in 20 amp duplex GFI and 20, 30, and 50 amp twist-lock 200 amp single and three phase - pin and sleeve.

Electrical distribution block - direct feed - maximum wire size 20.

25 year unconditional warranty on structural integrity of casing.

Piling Caps



- Protects pilings from internal rot.
- Black and White polyethylene caps.
- Shapes: Flat Round, Cone Round, Cone Square, and Square Flat.
- Available in 1/2" Increments

Also Available:
Copper Disks (.021 anneal copper)

Solar Deck Lights



Super Bright White L.E.D. Lights

High Capacity Batteries

Use For:

Docks - Decks - Marinas
Stairways - Pathways -
Swim Rafts



THRUFLOW INTERLOCKING PANELS

Easy to assemble and with no maintenance required, ThruFlow is designed to be the finished walkway for a dock or any out-door flooring structure.

Advantages

- ❖ Easy to Assemble
- ❖ No Fabrication
- ❖ No Maintenance
- ❖ UV Protection
- ❖ Pre-drilled Applications
- ❖ 400 lb. per sq. ft. live load
- ❖ 360 Degree Durable Knurled Non-Skid Surface
- ❖ Strong, Durable and Lightweight
- ❖ Made of Fibre-Glass Reinforced Polypropylene
- ❖ Allows Light to Penetrate Walking Surface
- ❖ Available in 3', 4' and 5' Panels
- ❖ Interlocking Tabs for Easy Installation
- ❖ 12 Year Residential Warranty
- ❖ NEW! 4' X 4' Panels



ThruFlow is designed to be the finished walkway for dock, patio, or any outside or inside flooring structure. It is also designed to be used in conjunction with metal, wood, aluminum or similar structures.

Available In:

Cream

Light Gray

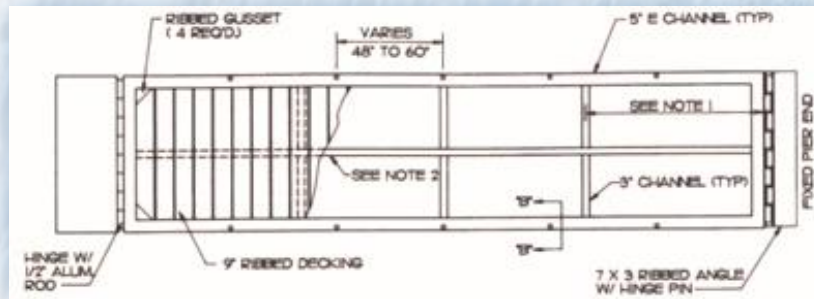
Maple



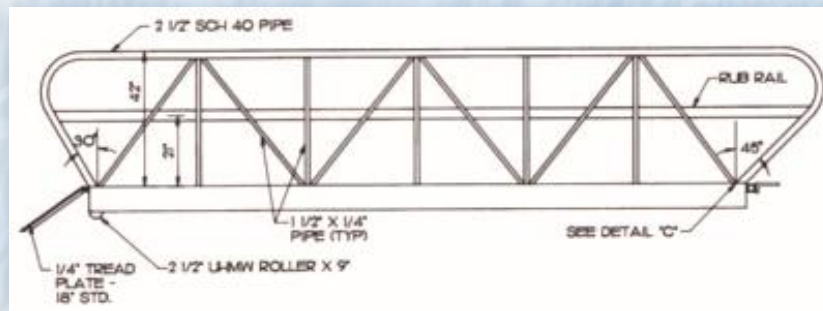
Aluminum Gangways



Construction Details



Plan View



Available Sizes

3' Wide Gangways

3' X 9'	3' X 22'	3' X 35'
3' X 12'	3' X 24'	3' X 38'
3' X 15'	3' X 26'	3' X 41'
3' X 16'	3' X 29'	3' X 44'
3' X 18'	3' X 30'	3' X 45'
3' X 21'	3' X 32'	

4' Wide Gangways

4' X 9'	4' X 22'	4' X 35'
4' X 12'	4' X 24'	4' X 38'
4' X 15'	4' X 26'	4' X 41'
4' X 16'	4' X 29'	4' X 44'
4' X 18'	4' X 30'	4' X 45'
4' X 21'	4' X 32'	



DOCK PROTECTION

Traditional vinyl profiles are solidly molded from vinyl especially formulated for softness and durability. Each piece installs easily to edges of docks, piers or floats with screws or nails.

Side Gard -



White #46030
Black #46018

Dock Corner



#3450007

P-Shape Edge



Small #46031 White
Large #46032 Black
Small #46020 White
Large #46019 Black

Dock & Post Bumper



Corner Bumper



#CB.20

Dock & Post Bumper



Several sizes of Dock & Post Bumpers available. Call for information.



Regulatory Buoys, Channel Markers and River Buoys



Stock No.	Description	Overall Height	Max Diameter	Buoyancy (lbs)
#950280	Red Nun	48"	24"	235
#905029	Green Can	48"	24"	235
#950300	Danger Can	48"	24"	235

Three-year flotation warranty on all hard-skin buoys.

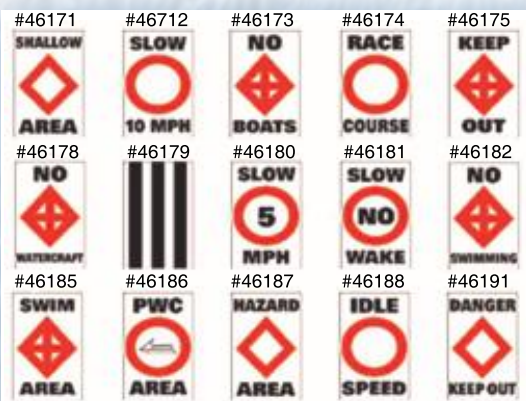


Sur-Mark and Sur-Mark II regulatory buoys are molded from tough UV protected polyethylene. One-piece seamless construction, internal concrete ballast, recessed galvanized eye: both styles stand upright for storage.

Color labels (sold separately) fit both styles.

Stock No.	Style	Large Ht. Col. Dia.	Buoyancy Ring Dia. (lbs)	Visible Ht. Above Waterline
#46103	Sur-Mark II	61" 9"	----- 40	39"
#46104	Sur-Mark	49" 10"	18" 15	37"
#950400	Green Sur-Mark	49" 10"	18" 40	39"
#950410	Red Sur-Mark	49" 10"	18" 40	39"

Buoys include orange marking tape. Label sold separately.



Buoy Labels

- ❖ Fade resistant, self-adhesive vinyl marker labels.
- ❖ Brightly colored for high visibility.
- ❖ Two labels required per buoy (sold in pairs).
- ❖ Each label is 13" wide x 24" long to fit either Sur-Mark or Sur-Mark II buoys.
- ❖ All labels are warranted for 5 years against weathering or fading.

JIM-BUOY

Mooring Buoys

Two Distinctive Lines - Latest Design Features

#1 Mooring System

Moore to the Top
 Ring Safely.
 Ring locks in
 Star Plate
 assembly and stays
 upright for easy tie out.



Premium Mark V
 Rock Hard Shell
 The CJ-37 space aged
 outer shell is almost
 indestructible - resists
 the hardest blows,
 acids and weather
 extremes.



Premium Mark V

The Premium Mark V utilizes one of the toughest plastic available today...CJ-37. This fantastic plastic provides a ROCK HARD outer shell of a nominal 1/8" thickness that is absolutely seamless and almost indestructible!

The core is 3 lb. high density polyurethane foam. All eye bolts are permanently bonded inside the buoy during the molding cycle, thus preventing wear and eventual loss of flotation.

Premium Mark V Selection Chart

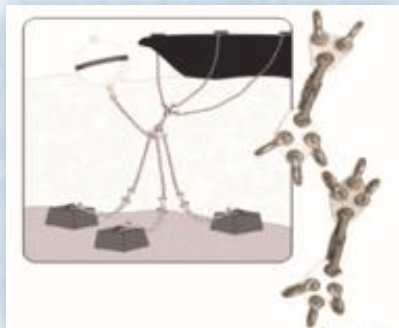
MFg. No.	Diam.	Swivel & Eye	Buoyancy (= or -5%)	Pack	Ship wt.
4400	12"	1/2"	22 lbs.	4	26 lbs.
4401	15"	1/2"	46 lbs.	4	42 lbs.
4402	18"	1/2"	90 lbs.	1	14 lbs.
4403-T	24"	2" tube	196 lbs.	1	24 lbs.
4404	30"	5/8"	400 lbs.	1	47 lbs.

Deluxe Series Mooring Buoys

The high density foam assures durability. All hardware is hot-dipped galvanized medium carbon steel. Eye bolts are molded into buoy resulting in no loss of flotation. Rubber bumpers give added protection in contact, (not available on models #420 and #421). All buoys are coated with CL-19, and exterior coating that resists extreme weathering, most chemicals and fuels.



Mooring Buoy Recommended Installation



Important: For proper installation length of anchor chain or cable is of critical importance. High tide plus 6 feet for each 5 feet of depth. Always use equal metal in contact to prevent excessive abrasion. Always use swivel to prevent fouling of anchor line.

A strikingly beautiful deep water buoy extending 12 feet above the water line for maximum visibility. 8" x 18". Utilizes the 22" x 44" "Fatboy" jumbo buoy, 2 piece fiberglass flag pole collapses for convenient storage. 1 per double carton shipping weight 21 lbs.



Super Gard™ Inflatable Vinyl Fenders



Double molded
black ends
for added
strength



Rubber football needle
valve for easy inflation
and long life.

Eye hole accepts
rope size up to 5/8"

Taylor Made Products has incorporated the latest in technology, design innovation, and attention to detail to bring you the finest looking, top performing protection for your dollar. Super Gard™ fenders are in a class of their own. Made from the highest quality marine grade vinyl, Super Gards™ feature a High gloss finish and double molded black ends for extra strength where you need it the most. Seamless one-piece construction with ribbed sides minimizes roll, and a molded-in valve ensures easy inflation and long life.



Fender Size	Case Qty.
5-1/2" x 20"	6
6-1/2" x 22"	6
8-1/2" x 26"	4
10-1/2" x 30"	2

White Stock No.	Blue Stock No.	Black Stock No.	Teal Stock No.	Cranberry Stock No.	Hunter Green Stock No.	Blue Stock No.	Red Stock No.	Sand Stock No.	Yellow Stock No.	D x L Size	Boat Size
950520	951520	952520	959520	953520	954520	957520	955520	960520	958520	5-1/2" x 20"	15' to 20'
950622	951622	952622	959622	953622	954622	957622	955622	960622	958622	6-1/2" x 22"	20' to 25'
950824	951824	952824	959824	953824	954824	957824	955824	960824	958824	8-1/2" x 26"	25' to 35'
950128	951128	952128	959128	953128	954128	957128	955128	960128	958128	10-1/2" x 30"	35' to 50'

Recommended inflation is 2 psi.

* The most accurate way to select the right fender for your boat is to survey your docking area to find out what fender is in use for the same size and weight as your boat, in terms of fender dimensions and quantities, and use that as a guideline.

The Guarantee of a Lifetime!
 Against Splitting or Bursting ... If it fails we'll replace it!

ASTM Standards

A-27	Steel Casting, Carbon, For General Application - Standard Specifications for Cast Steel Bollards and Cleats
A36	Structural Steel
A47	Malleable Iron Castings
A53	Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
A120	Pipe, Steel Black and Hot-Dipped, Zinc-Coated (Galvanized) Welded and Seamless, for Ordinary Uses
A123	Zinc (Hot-Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strip
A153	Zinc Coating (Hot-Dipped) on Iron and Steel Hardware
A164	Electrodeposited Coatings of Zinc on Steel Bolting Materials for High-Temperature Service
A165	Electrodeposited Coatings of Cadmium on Steel
A193	Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service
A194	Carbon and Alloy Steel Nuts for Bolts for High-Pressure and High-Temperature Service
A240	Heat-Resisting Chromium and Chromium-Nickel, Stainless Steel Plate, Sheet, and Strip for Fusion-Welded Unfired Pressure Vessels
A242	High-Strength Low-Alloy Structural Steel
A307	Carbon Steel Externally Threaded Standard Fasteners
A325	High-Strength Bolts for Structural Steel Joints
A328	Steel Sheet Piling
A354	Quenched and Tempered Alloy Steel Bolts, Studs, and Other Externally Threaded Fasteners
A394	Galvanized Steel Transmission Tower Bolts
A441	High-Strength Low-Alloy Structural Manganese Vanadium Steel
A449	Quenched and Tempered Steel Bolts and Studs
A479	Stainless and Heat Resisting Steel Wire, Bars and Shapes for use in Boilers and Other Pressure Vessels
A489	Carbon Steel Eyebolts
A490	Quenched and Tempered Alloy Steel Bolts for Structural Steel Joints
A563	Carbon and Alloy Steel Nuts
A572	High-Strength Low-Alloy Columbium-Vanadium Steels of Structural Quality
A588	High-Strength Low-Alloy Structural Steel with 50,000 psi Minimum Yield point to 4 in. Thick
A668	Steel Forgings, Carbon and Alloy, For General Industrial Use
A690	High-Strength Low-Alloy Steel H-Piles and Sheet Piling for Use in Marine Environments
A722	Uncoated High-Strength Steel Bar for Prestressing Concrete
F844	Washers, Steel, Plain (Flat), Unhardened For General Use



CONSTRUCTION DEFINITIONS

CONTRACTOR:

A gambler who never gets to shuffle, cut or deal.

BID OPENING:

A poker game in which the losing hand wins.

BID:

A wild guess carried out to two decimal places.

LOW BIDDER:

A contractor who is wondering what he left out.

ENGINEER'S ESTIMATE:

The cost of construction in heaven.

PROJECT MANAGER:

The conductor of an orchestra in which every musician is in a different union.

CRITICAL PATH METHOD:

A management technique for losing your shirt under perfect control.

STRIKE:

An effort to increase egg production by strangling the chicken.

DELAYED PAYMENT:

A tourniquet applied at the pockets.

COMPLETION DATE:

The point at which liquidated damages begin.

LIQUIDATED DAMAGES:

A penalty for failing to achieve the impossible.

AUDITOR:

People who go in after the war is lost and bayonet the wounded.

LAWYER:

People who go in after the auditors and strip the bodies.



**Manufacturers and
Distributors of
Marine Construction Products
1-800-446-8056**

seaport-marine.com

**P.O. BOX 3108
CHESAPEAKE, VA
23327**

