



Submarine Cable Working Gear

BD Marine Ltd
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BD Marine Ltd. Reg. in England No. 1179406



Approved manufacturer
www.lr.org Recognised Proving Establishment

Cert No: MD00/4104/0001/8



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BD Marine Ltd have operated in the marine environment for forty years developing a worldwide customer base through our experience in engineering, fabrication, machining & manufacture of marine equipment.

In 2007, BD Marine Ltd purchased George Downer & Sons – world renowned for lifting gear & anchoring/mooring equipment design, manufacturing and testing.

We retained all skilled personnel, designs & patterns enabling us to offer a complete submarine cable working gear solution - as developed by GD&S in conjunction with BT Marine.

As a Lloyds Register approved & listed proving establishment, customers can have absolute confidence in the equipment we manufacture.

All components are manufactured in-house utilising high grade steels & are supplied painted & tested / certificated with our UKAS / Lloyds Register certificated test machines.

We understand the need for high quality cable working gear to deploy in subsea environments and pride ourselves on quality of components & competitive pricing & lead times.

In addition to our cable working gear, we offer a complete lifting gear catalogue & can supply Gunnebo, Van-Beest, Crosby, Fram, Yoke etc. components as required.

Testing & calibration of load cells to 300 Tonnes & chain cable fitting manufacture are also carried out in-house.

This catalogue displays all standard equipment, but we also offer a bespoke design & manufacture service to cater for specific customer requirements.

Full price list available on request

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Recognised Proving
Establishment



Certificate No : MD00/4104/0001/8

**BD MARINE Ltd.
BDM House,
Crosshouse Road,
Southampton,
SO14 5GZ
United Kingdom**

has been accepted in accordance with the requirements of Lloyd's Register as a

Recognized Proving Establishment for Anchoring and Mooring Equipment

This is subject to compliance with the Rules for the Manufacture, Testing and Certification of Materials.

Lloyd's Register is to be notified of any change that may affect the validity of this Certificate.

This Certificate is issued to the above firm and is valid until the date given below.

**Valid Until : 11 December 2015
Date of Issue : 17 December 2012**

Gavin Young
Metallurgical Specialist to Lloyd's Register EMEA
A subsidiary of the Lloyd's Register Group Limited

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

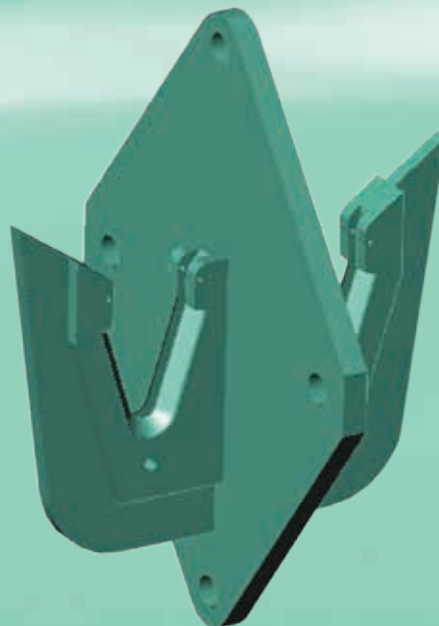
**Lloyd's
Register**

1	Flatfish and Flatfish Accessories	1
2	Giffords and Jamming Grapnels	2
3	Rennies	3
4	Sandpoint and Spearpoint Grapnels	4
5	Sliding Prongs	5
6	Son of Sammy	6
7	Detrencher Grapnels	7
8	Cutting Hooks	8
9	Sheave Blocks	9
10	Mushroom Anchors, Danforth and Kedge Anchors	10
11	Repeater Trolley	11
12	Rope Sockets and Grapnel Ropes	12
13	Thimbles and Links	13
14	Taper Roller Bearing Combination Swivels	14
15	Egg Links and Master Links	15
16	Tapered Chain Stoppers and Buoy Rider Chains	16
17	BTL Stopper	17
18	Shackles	18



SG Flatfish (Long Prong) shown with Blade/Glove

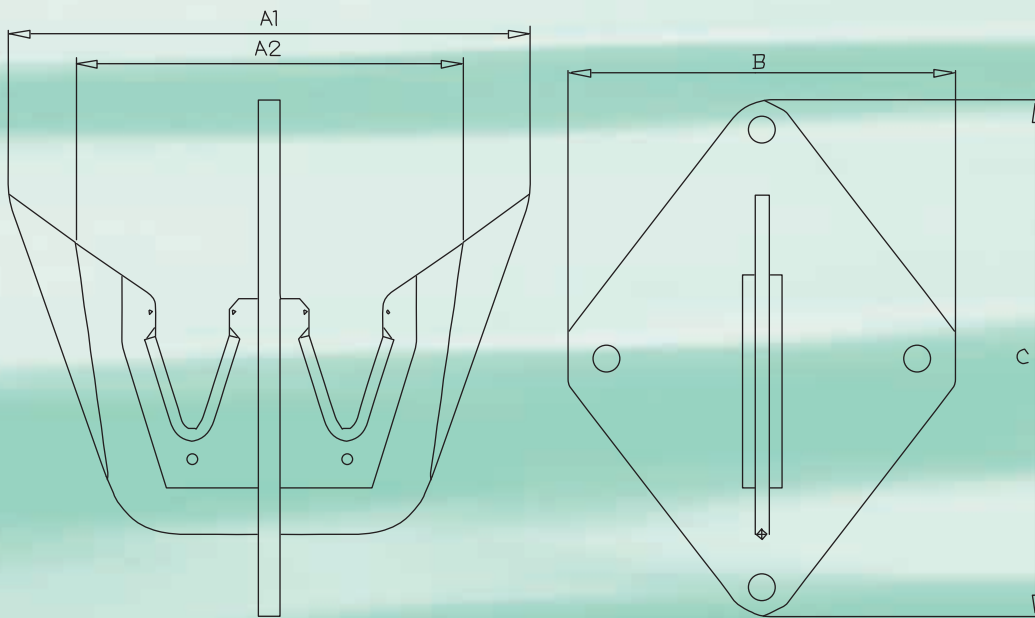
(Blades and Gloves sold separately)

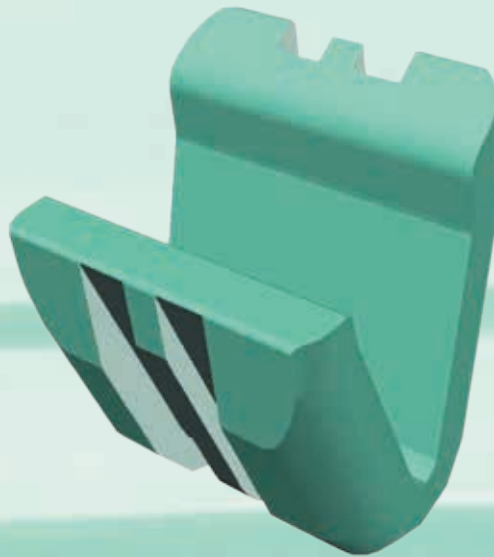


SG Flatfish (Short Prong)

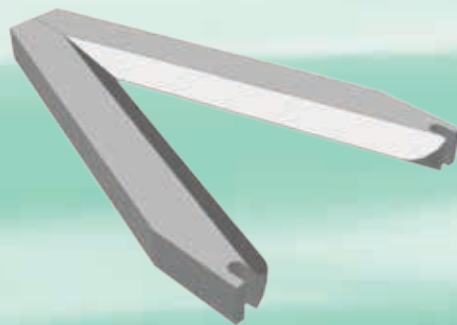
SG Flatfish

	Part No.	A1 (mm)	A2 (mm)	B (mm)	C (mm)
SG Flatfish (Long Prong)	BDMSGFLP1	1010	-	750	1000
SG Flatfish (Short Prong)	BDMSGFLP1	-	750	750	1000

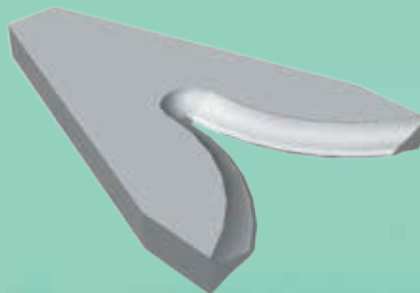




Glove for SG Flatfish
(Available for both 1" and 1.47" DIA cable)



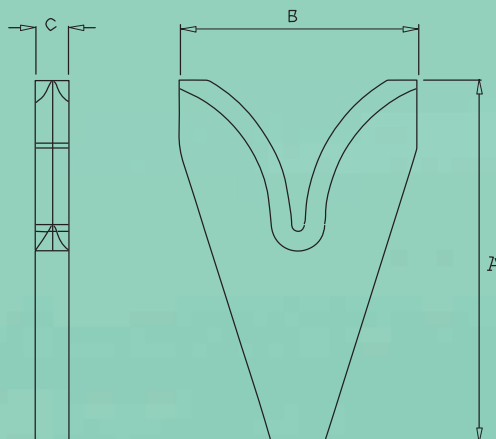
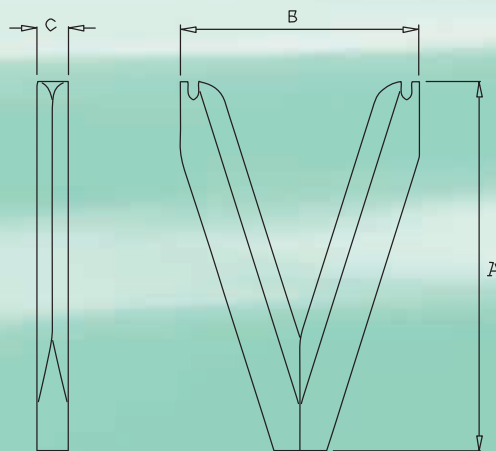
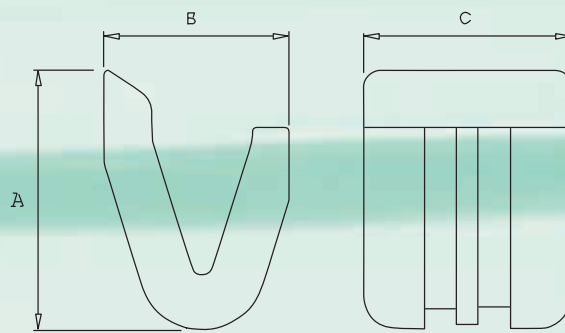
Armoured Blade for SG Flatfish/Cutting Hook



Lightweight Blade for SG Flatfish/Cutting Hook

SG Flatfish Accessories

	Part No.	A (mm)	B (mm)	C (mm)
SG Glove (Small)	BDMSGG1	300	195	180
SG Glove (Large)	BDMSGG2	400	215	240
SG Armoured Blade	BDMSGSB1	278	180	25
SG Lightweight Blade	BDMSGCB1	270	180	25





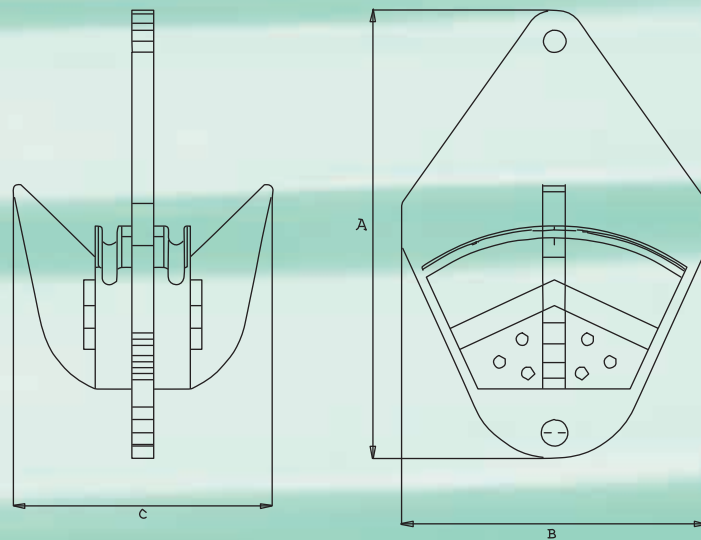
Short Prong BPO Flatfish with Removable Cast Holding Prongs
(Available for both 1" and 1.47" DIA cable)



Short Prong BPO Flatfish with Removable Cast Cutting Prongs
(BPO Blades sold separately)

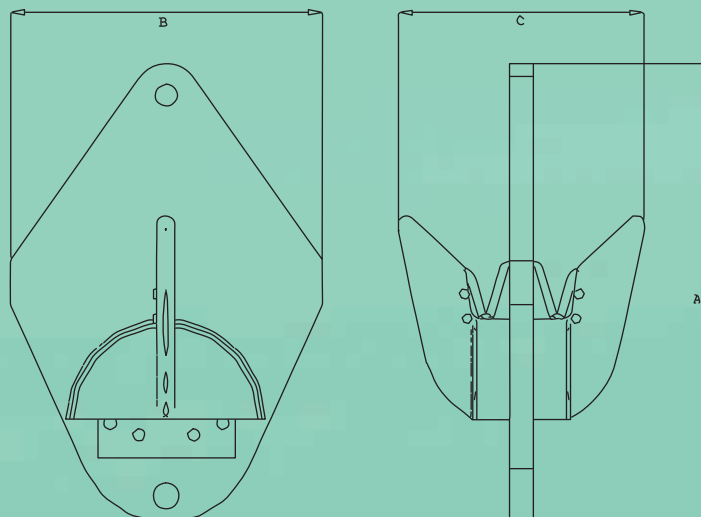
BPO Flatfish (Holding Prongs)

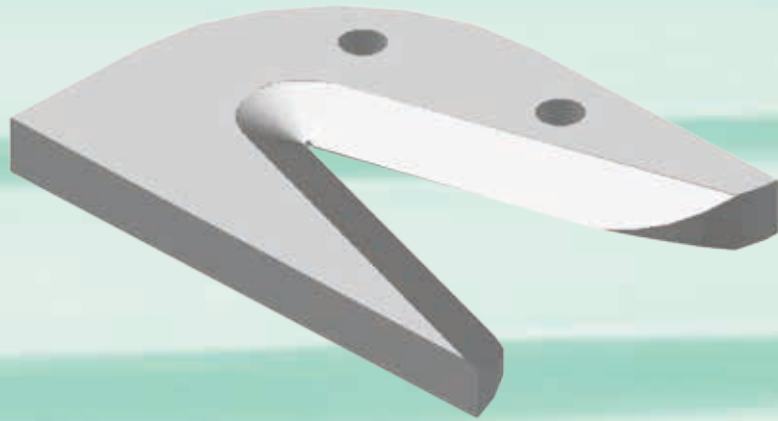
	Part No.	A (mm)	B (mm)	C (mm)
BPO Flatfish Short Prong (1" cable)	BDMBPOHSP1	1000	685	550
BPO Flatfish Short Prong (1.47" cable)	BDMBPOHSP2	1000	685	550
BPO Flatfish Long Prong (1" cable)	BDMBPOHLP1	1000	685	1050
BPO Flatfish Long Prong (1.47" cable)	BDMBPOHLP2	1000	685	1050



BPO Flatfish (Cutting Prongs)

	Part No.	A (mm)	B (mm)	C (mm)
BPO Flatfish Short Prong	BDMBPOCSP1	1000	685	550
BPO Flatfish Long Prong	BDMBPOCLP1	1000	685	1050





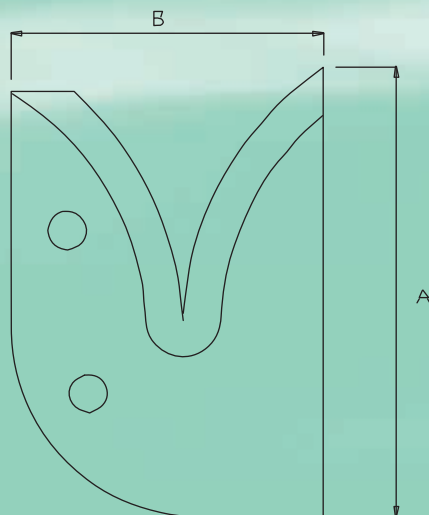
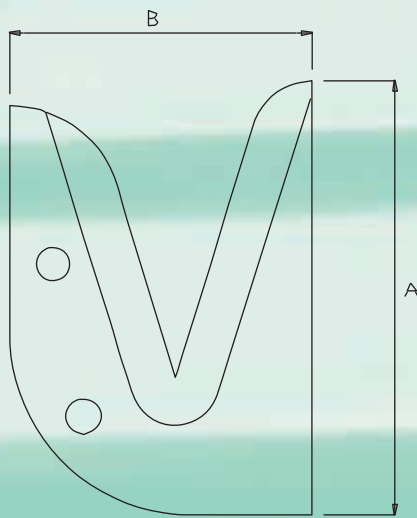
Armoured Blade for BPO Flatfish/BPO Cutting Hook



Lightweight Blade for BPO Flatfish/BPO Cutting Hook

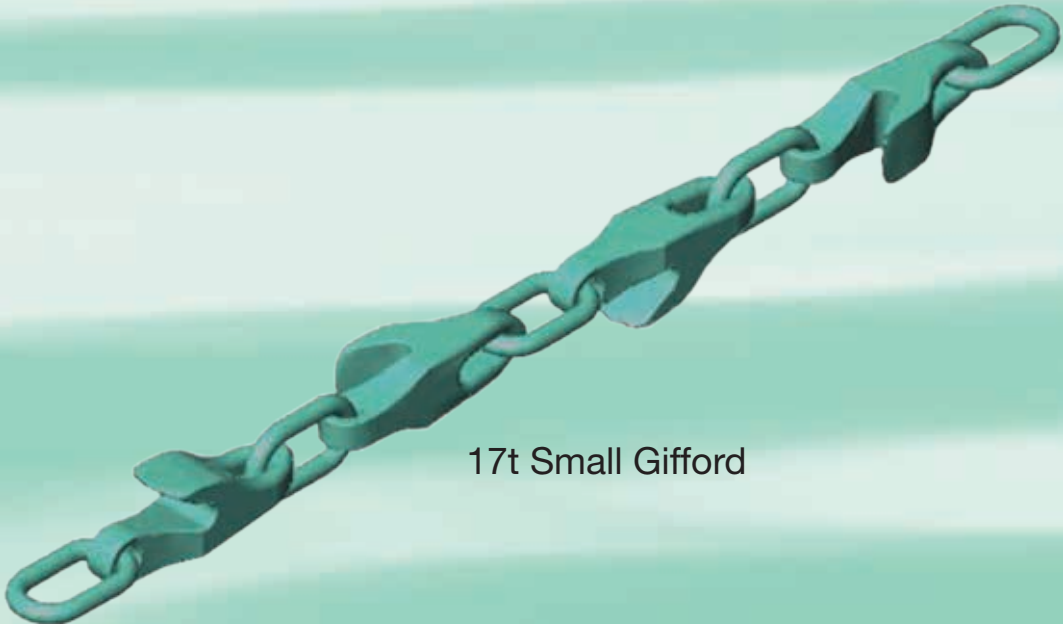
BPO Flatfish Accessories

	Part No.	A (mm)	B (mm)
BPO Armoured Blade	BDMBPOSB1	181	126
BPO Lightweight Blade	BDMBPOCB1	171	126

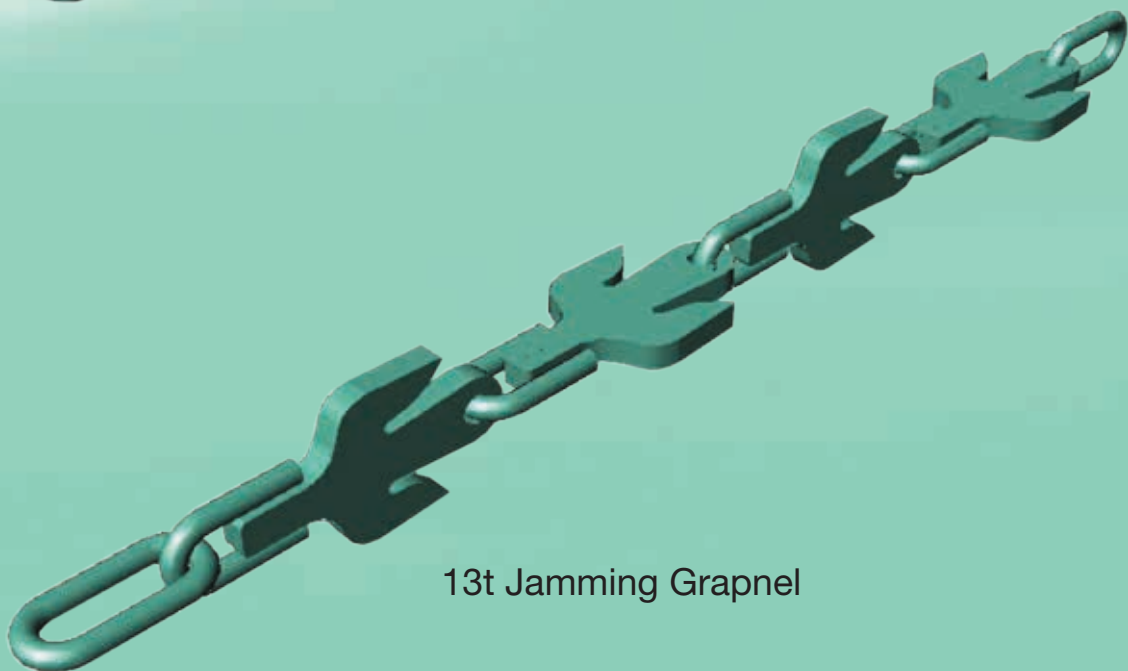




13t SG Gifford



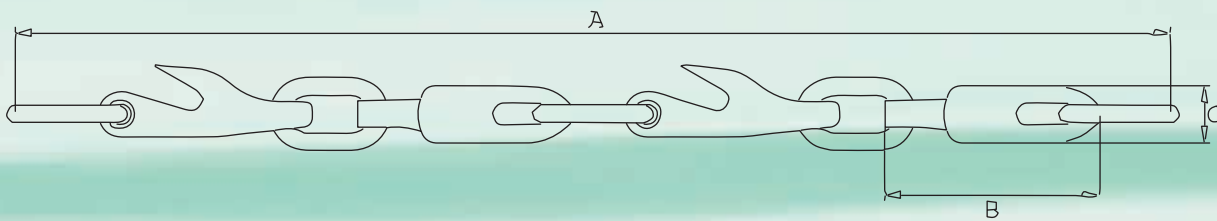
17t Small Gifford



13t Jamming Grapnel

Giffords

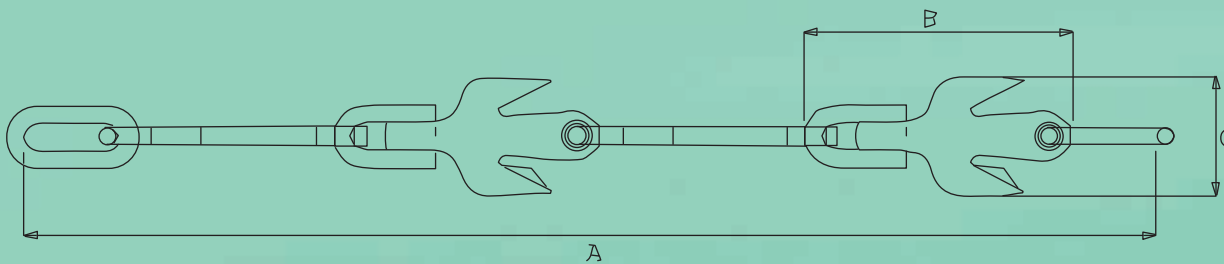
	Part No.	A (mm)	B (mm)	C (mm)
9t Gifford	BDMSG9	2050	414	130
13t SG Gifford	BDMSG13	3005	614	177
17t Small Gifford	BDMSG17	2380	450	120

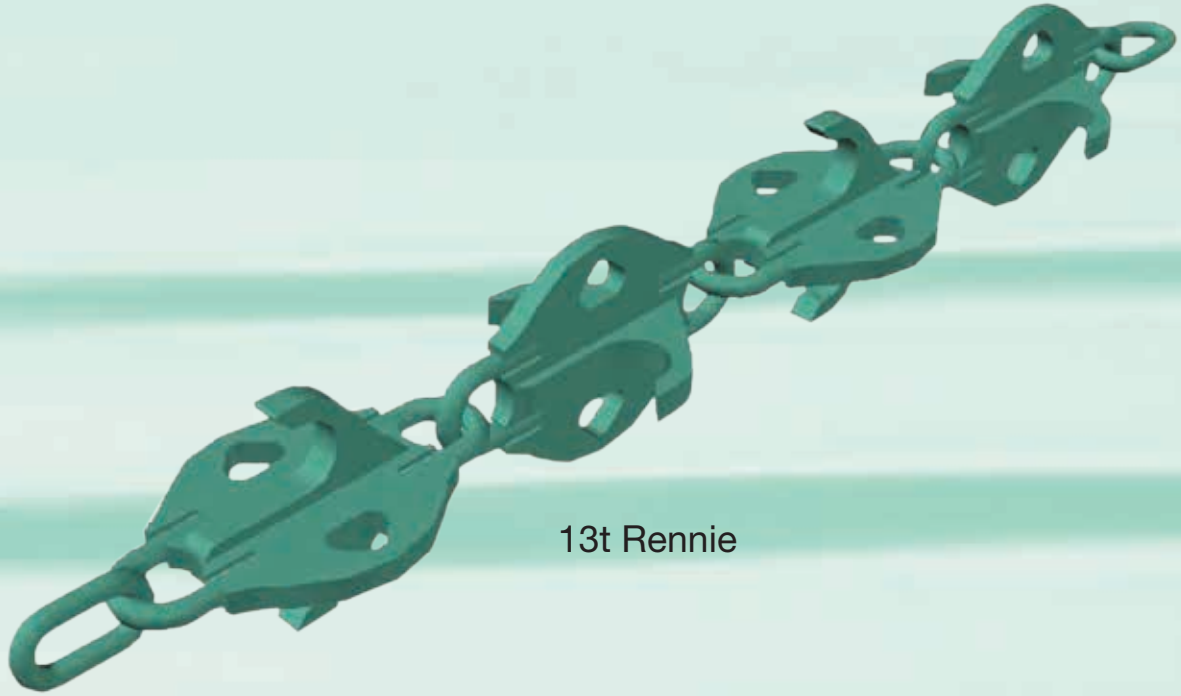


Cutting Giffords available.

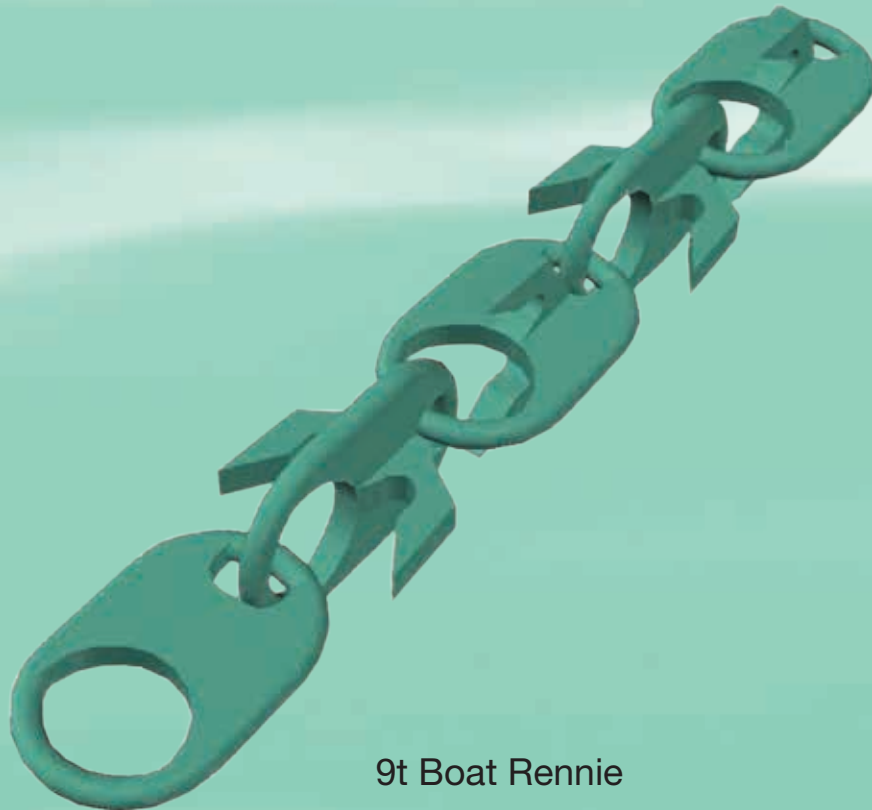
Jamming Grapnel

	Part No.	A (mm)	B (mm)	C (mm)
13t Jamming Grapnel	BDMJ1	2240	530	235





13t Rennie

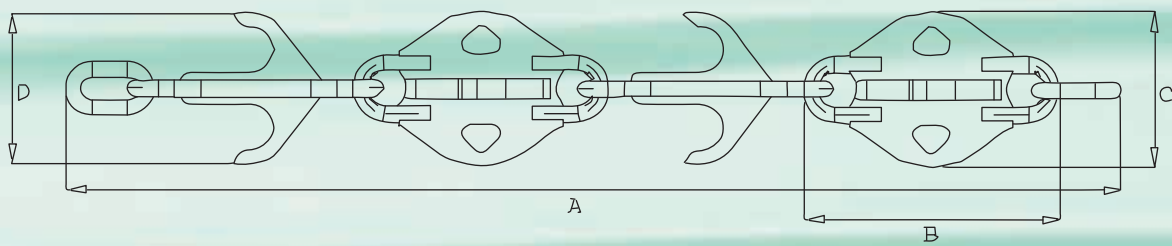


9t Boat Rennie

13t Rennie

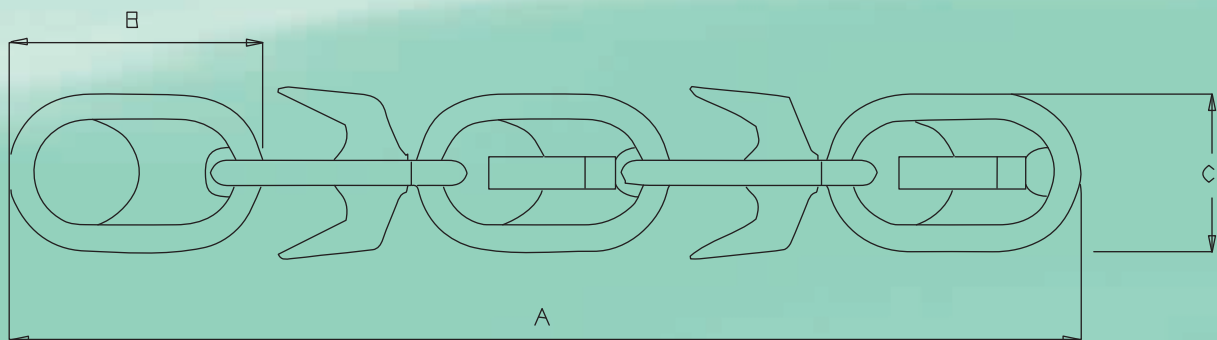
	Part No.	A (mm)	B (mm)	C (mm)	D (mm)
13t Rennie	BDMR13	2706	660	400	428

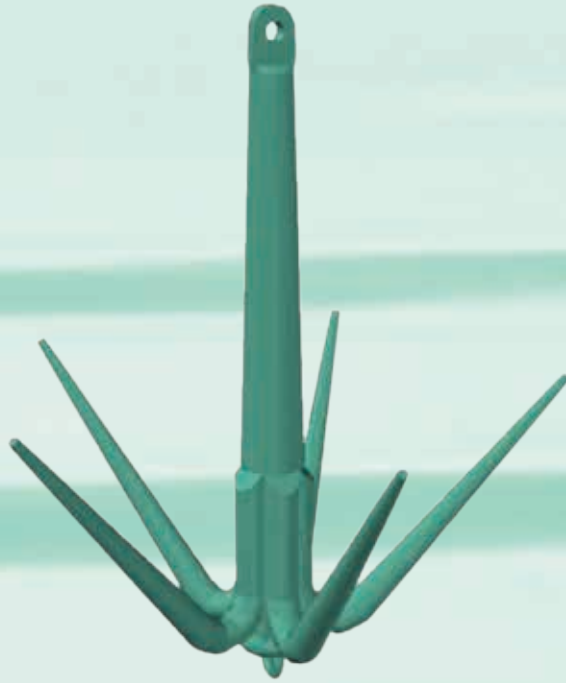
4



9t Boat Rennie

	Part No.	A (mm)	B (mm)	C (mm)
9t Boat Rennie	BDMR9	1670	398	245





Sandpoint Grapnel

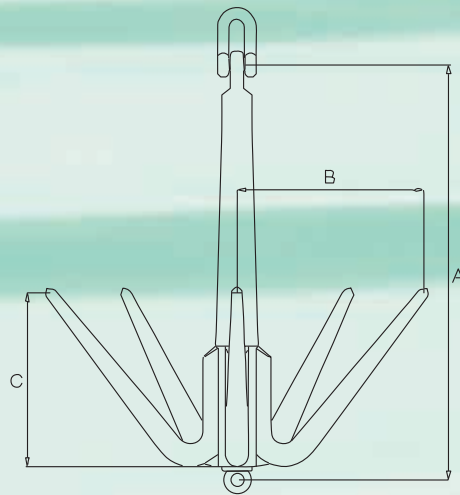


Spearpoint Grapnel

Sandpoint Grapnel

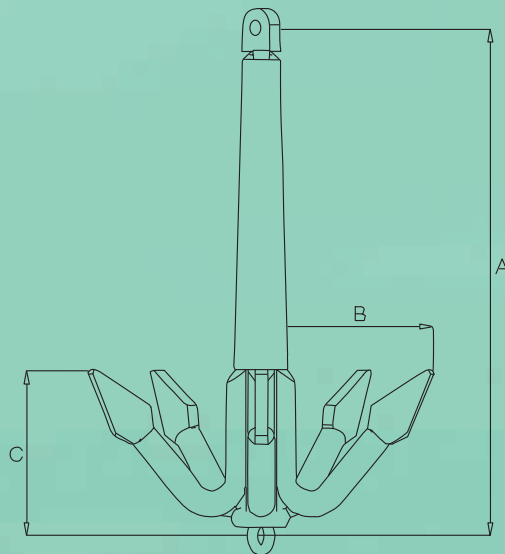
	Part No.	A (mm)	B (mm)	C (mm)
65kg	BDMSAG65	1065	285	265
100kg	BDMSAG100	950	385	330
180kg	BDMSAG180	1220	510	470
250kg	BDMSAG250	1550	560	550

5



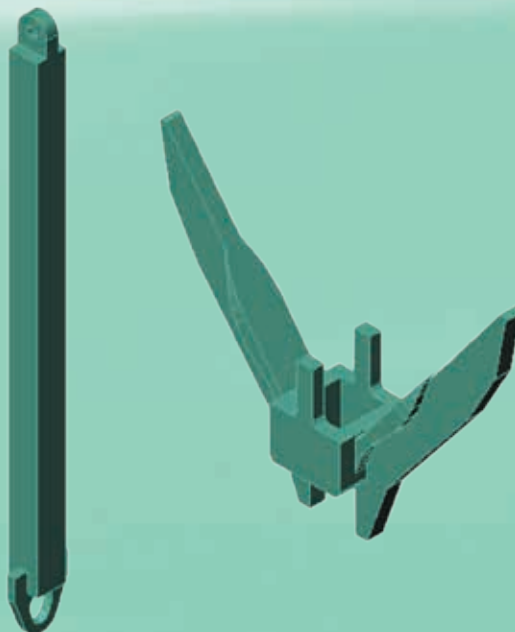
Spearpoint Grapnel

	Part No.	A (mm)	B (mm)	C (mm)
65kg	BDMSPG65	900	360	280
100kg	BDMSPG100	900	385	300
180kg	BDMSPG180	1220	410	320
250kg	BDMSPG250	1550	450	375





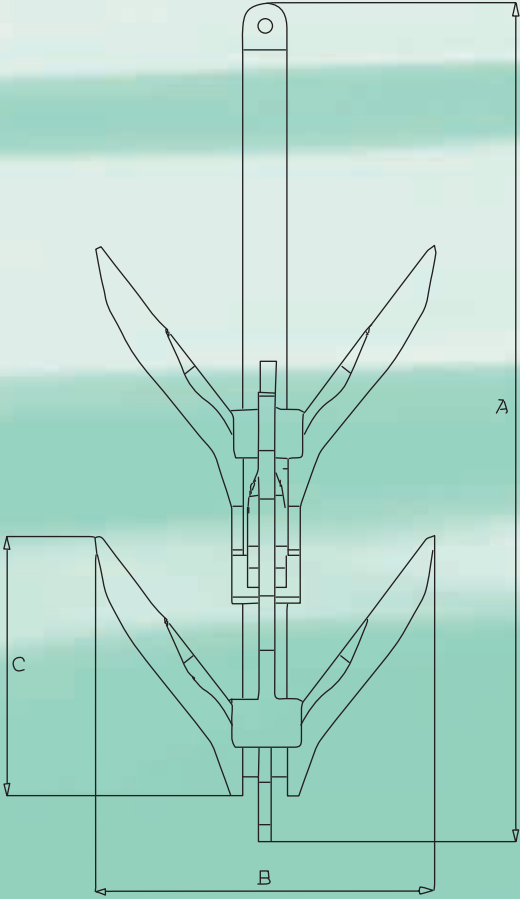
Sliding Prongs
(Type A shown)



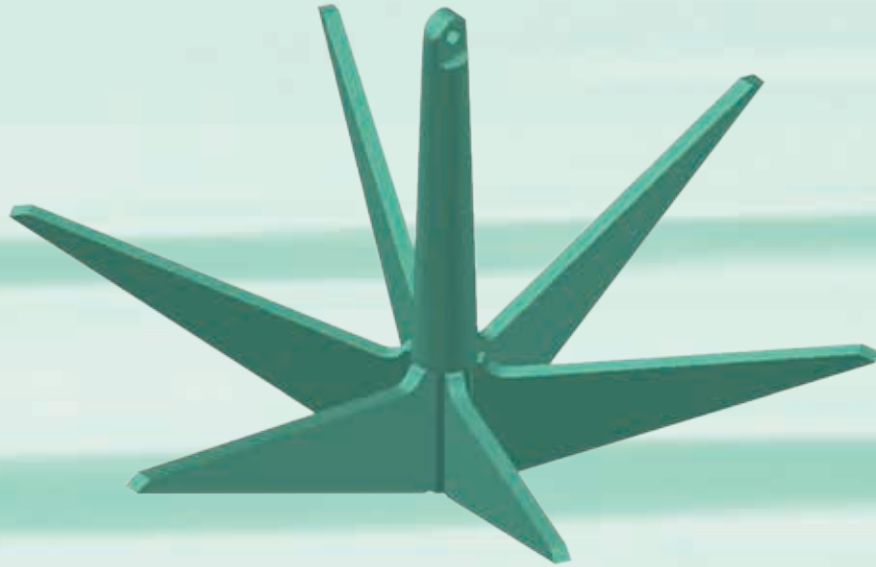
Spare Shank/Cast Prongs
(Sold separately)

Sliding Prongs

	Part No.	A (mm)	B (mm)	C (mm)
Type A (4 Prongs)	BDMSPA4	1730	400	350
Type B (3 Prongs)	BDMSPB3	1730	700	550
Type C (2 Prongs)	BDMSPC2	1730	1000	880



6



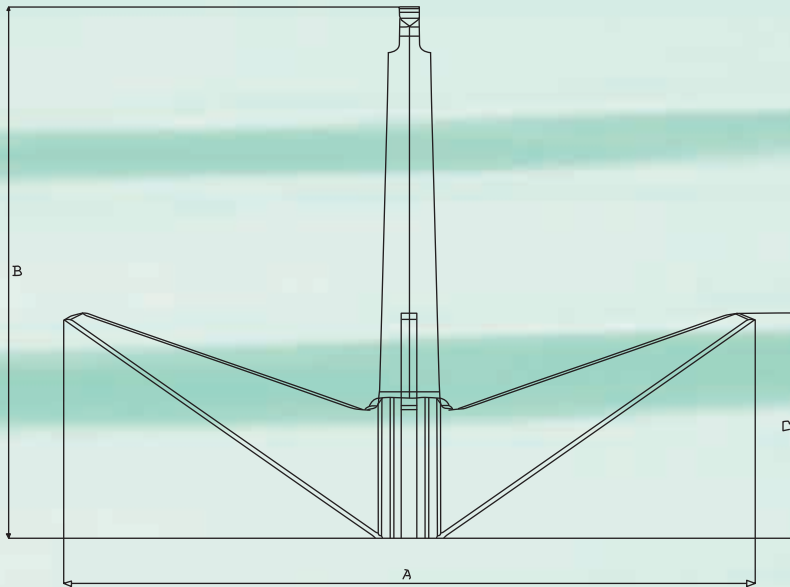
Son of Sammy (Fixed)



Son of Sammy (Folding)

Son of Sammy (Fixed)

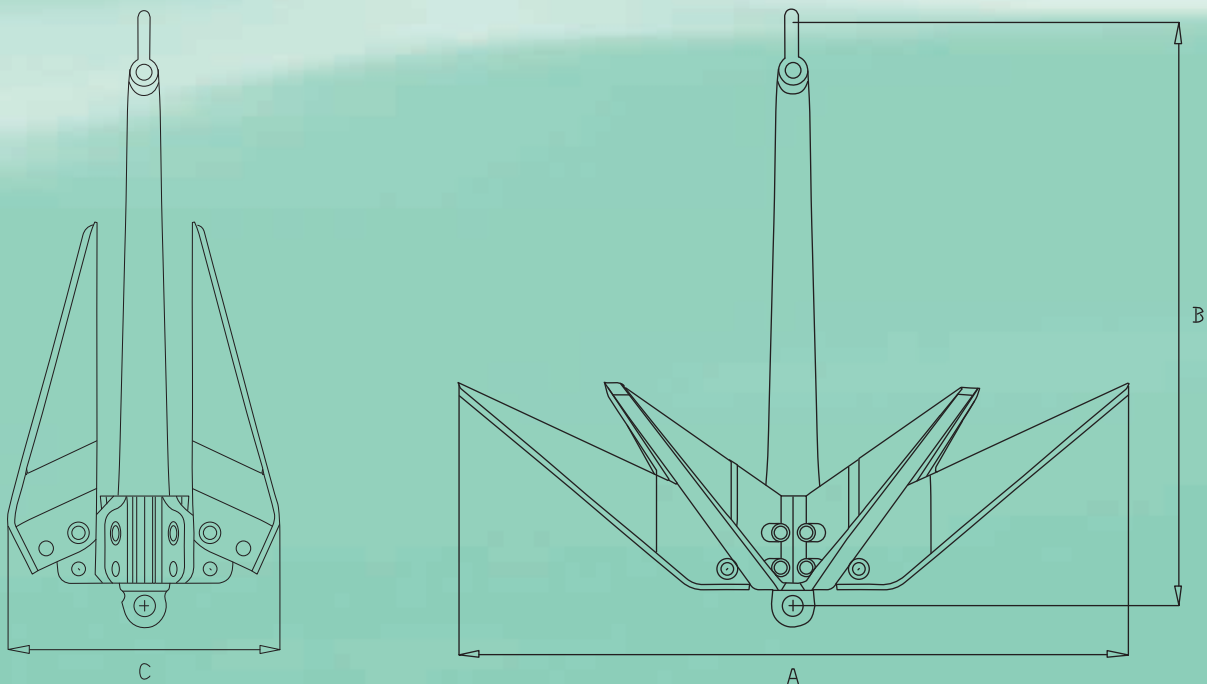
	Part No.	A (mm)	B (mm)	C (mm)
Son of Sammy (Fixed)	BDMSOS1	2213	1700	720



7

Son of Sammy (Folding)

	Part No.	A (mm)	B (mm)	C (mm)
Son of Sammy (Folding)	BDMSOS2	2300	2020	950



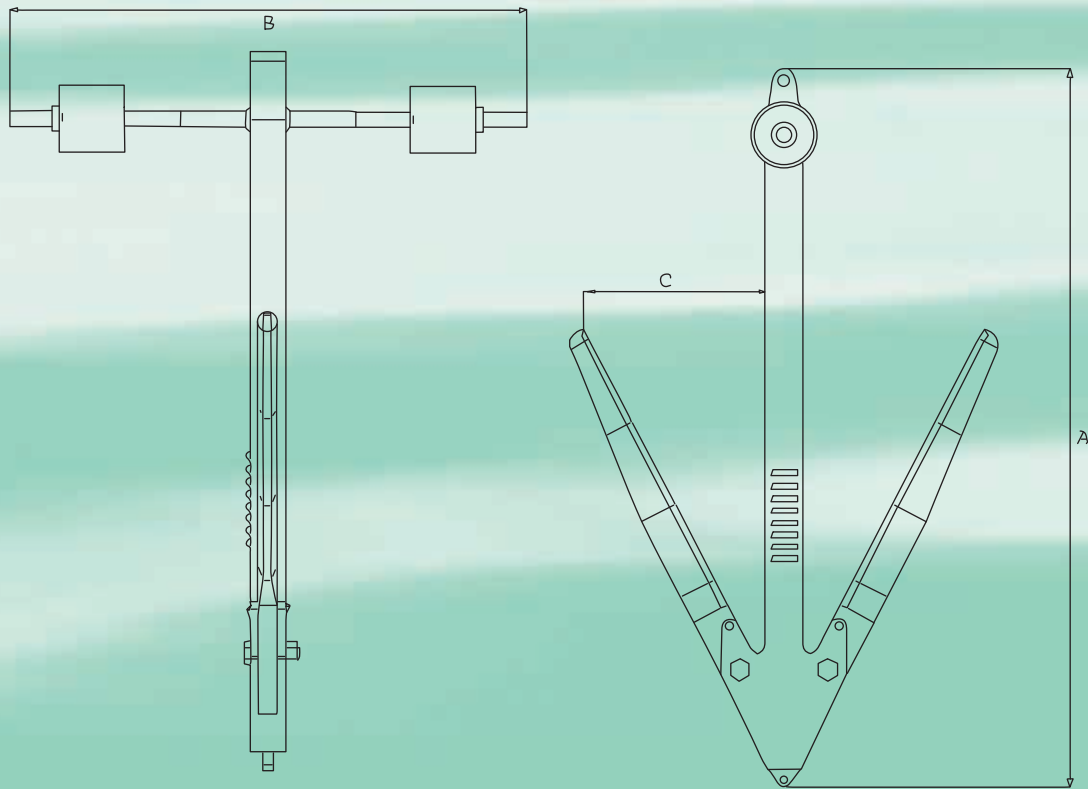


7

Detrencher Grapnel
(Spare flukes/pins available)

Detrencher Grapnel

	Part No.	A (mm)	B (mm)	C (mm)
Penetration Depth 1	BDMD1	2835	1830	670
Penetration Depth 2	BDMD2	2835	1830	1007
Penetration Depth 3	BDMD3	3835	3600	1500





7.5t BPO Cutting Hook
(BPO Blades sold separately)



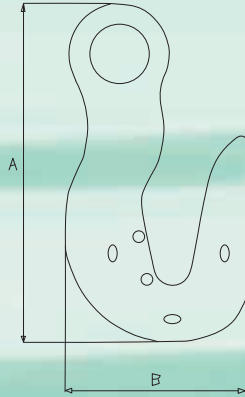
5t SG Cutting Hook
(SG Blades sold separately)



Long Line Cutting Hook
(Spare cutting blades sold separately)
Non Rotating Wire Rope Available

7.5t BPO Cutting Hook

	Part No.	A (mm)	B (mm)
7.5t BPO Cutting Hook	BDMCH3	510	275



5t SG Cutting Hook

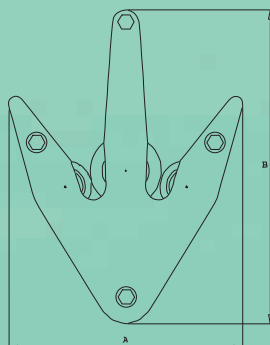
	Part No.	A (mm)	B (mm)
5t SG Cutting Hook	BDMR9	1352	398

9



Long Line Cutting Hook

	Part No.	A (mm)	B (mm)
Long Line Cutting Hook	BDMCH1	393	527





9

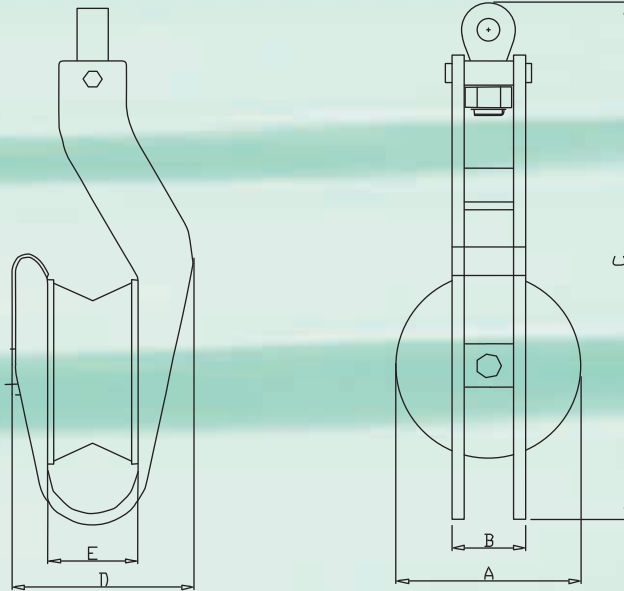
Under Running Sheave



Wide Sheave Block

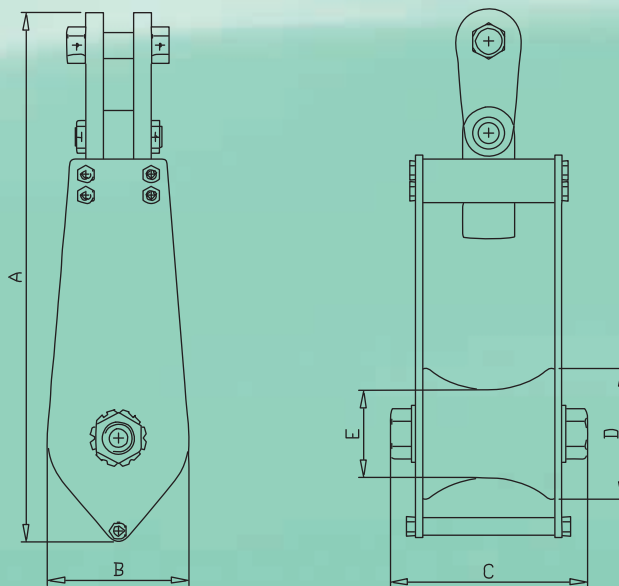
Under Running Sheave

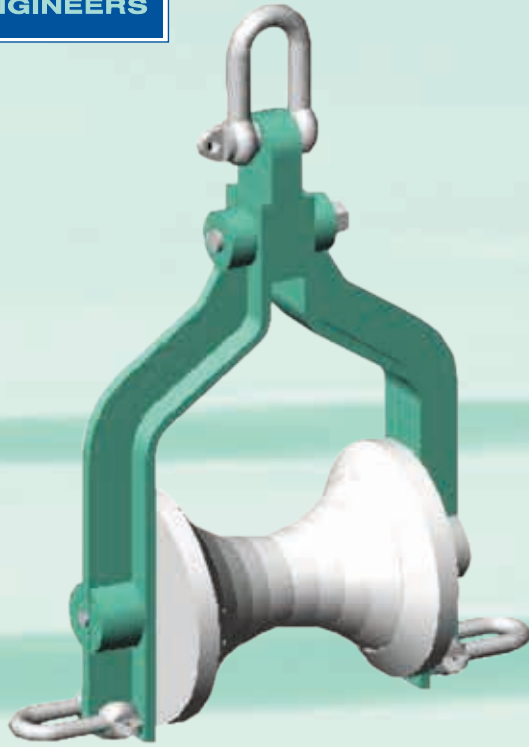
	Part No.	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
Under Running Sheave WLL 5t	BDMS1	300	120	840	295	145



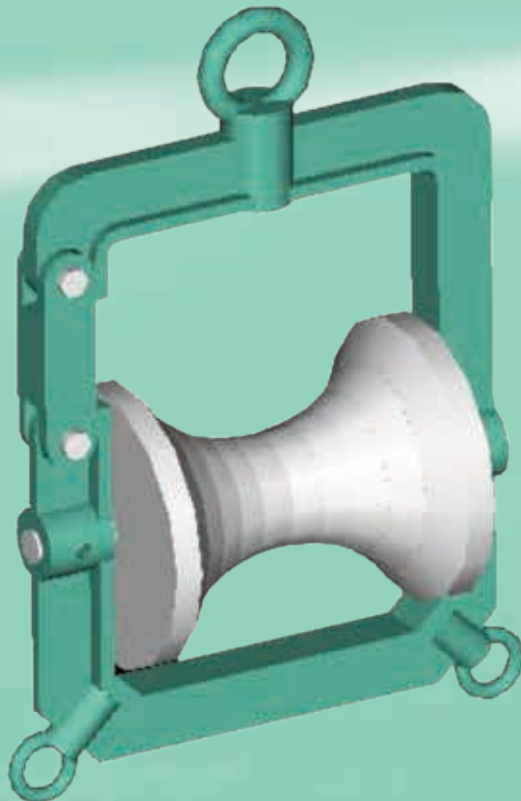
Wide Sheave Block

	Part No.	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
Wide Sheave Block WLL 10t	BDMS2	1215	325	450	300	200





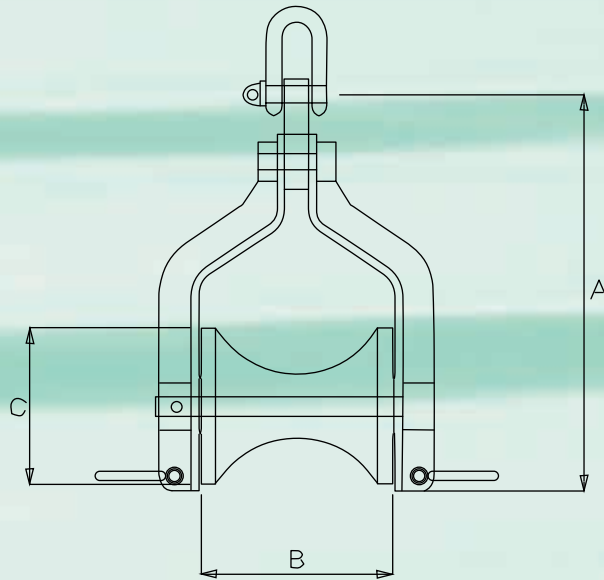
Swing Cable Sheave



Cable Sheave Block

Swing Cable Sheave

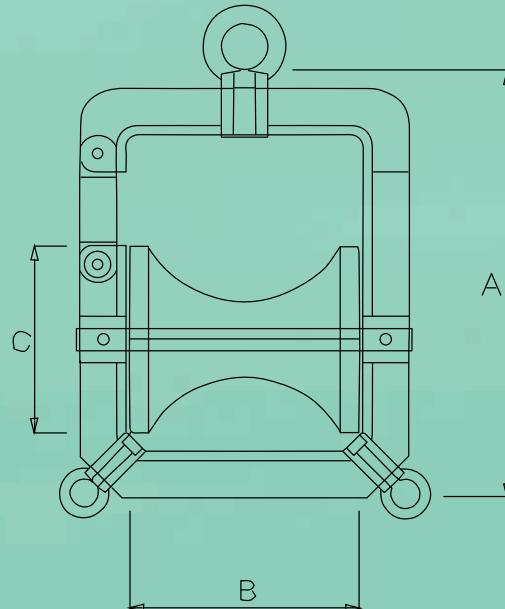
	Part No.	A (mm)	B (mm)	C (mm)
Swing Cable Sheave SWL 1t	BDMS3	505	250	200



10

Cable Sheave Block

	Part No.	A (mm)	B (mm)	C (mm)
Cable Sheave Block SWL 0.8t	BDMS4	460	160	200
Cable Sheave Block SWL 1t	BDMS5	520	243	200



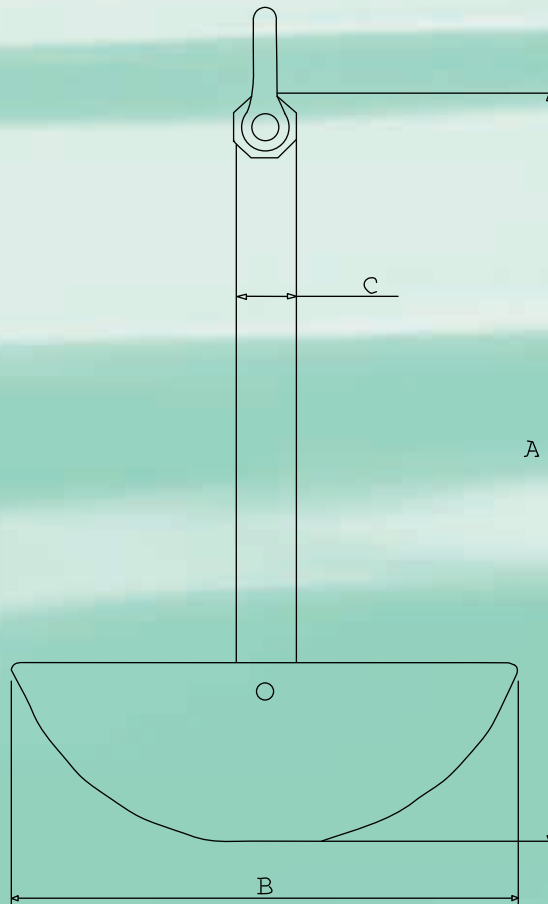
10



Mushroom Anchor

Mushroom Anchors

Weight	Part No.	A (mm)	B (mm)	C (mm)
50kg / 100lb	BDMMA50	1000	490	38
100kg / 200lb	BDMMA100	1150	625	45
150kg / 300lb	BDMMA150	1200	664	50
200kg / 400lb	BDMMA200	1250	715	50
250kg / 500lb	BDMMA250	1350	780	50
500kg / 1000lb	BDMMA500	1490	870	65





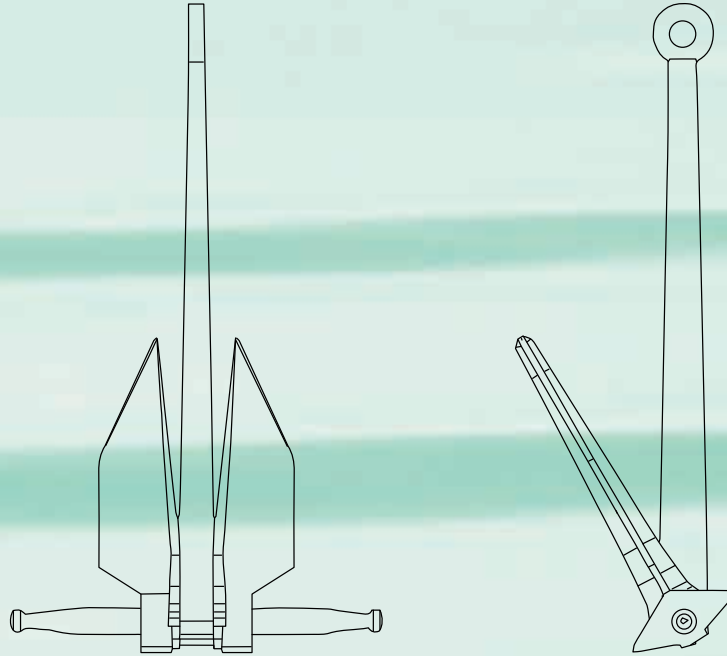
Danforth Anchor



Kedge Anchor

Danforth Anchor

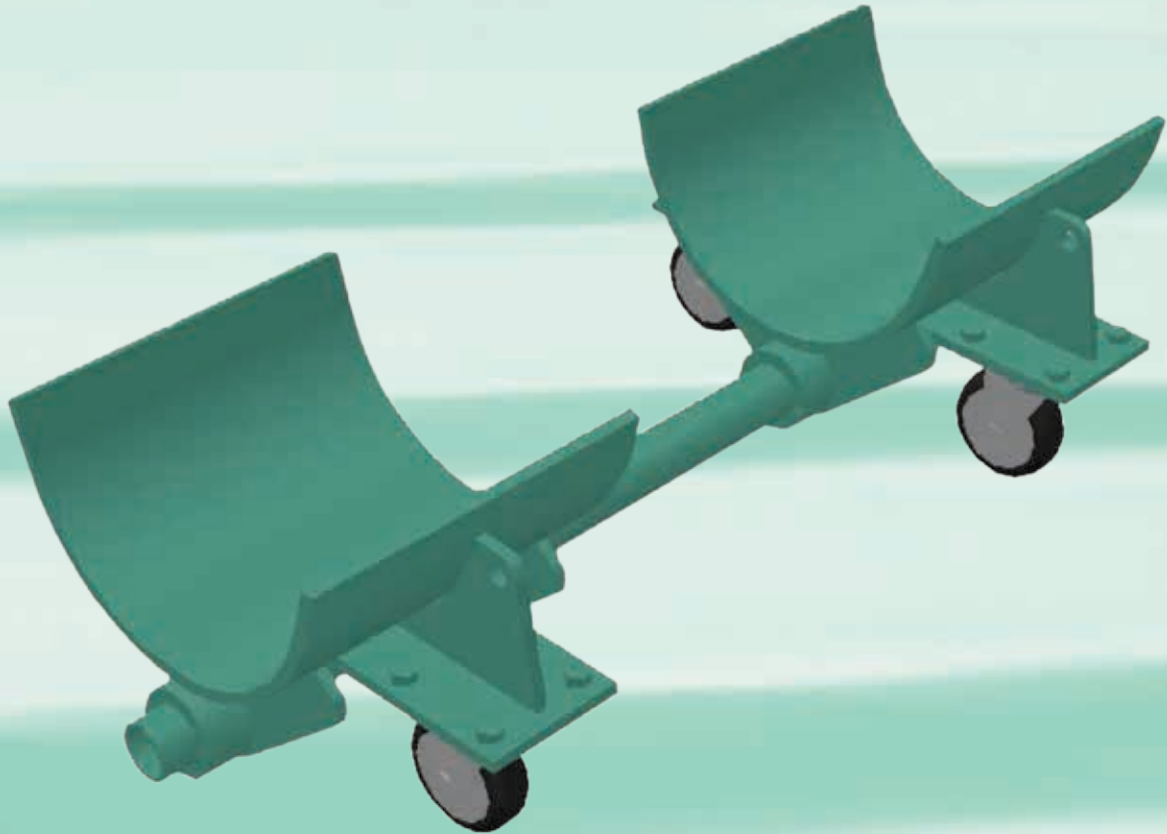
Various sizes available on request.



Kedge Anchor

Various sizes available on request.

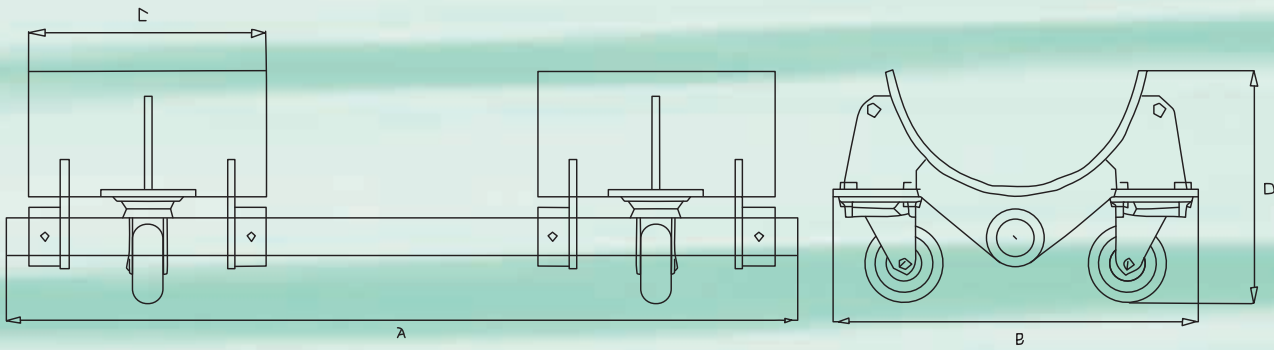




Repeater Trolley

Repeater Trolley

	Part No.	A (mm)	B (mm)	C (mm)	D (mm)
Repeater Trolley	BDMRT1	1000	461	300	295





12

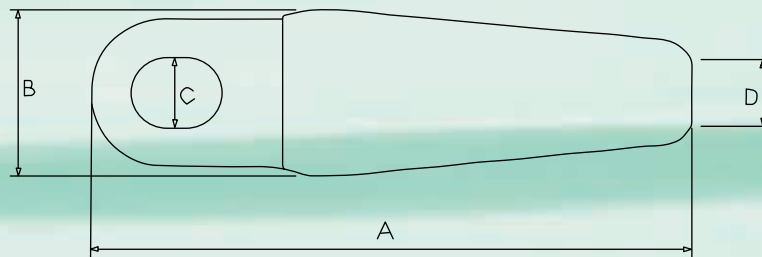
Deep-sea Combination Rope Socket

Assembly Resin Kits

	Part No.	Size
Resin Kit	BDMRK500	500cc
Resin Kit	BDMRK750	750cc
Resin Kit	BDMRK1000	1000cc

Rope Sockets

	Part No.	A (mm)	B (mm)	C (mm)	D (mm)
26mm Deep-sea Combination Rope (Fixed)	BDMRS1	211	114	28	30
3x6 (41mm) (Swivel)	BDMRS2	436	105	46	47
3x6 (41mm) (Fixed)	BDMRS3	380	105	46	47
44mm Deep-sea Combination Rope (Fixed)	BDMRS4	380	114	46	50
7x7x3 (50mm) (Swivel)	BDMRS5	437	115	48	54
7x7x3 (50mm) (Fixed)	BDMRS6	415	115	48	54



Cable Laid Buoy and Grapnel Ropes

Rope designed to meet the special demands of the cable laying vessels and marine environments in which they operate. The ropes offer the combined strength of steel with superior corrosion resistance through galvanized wires/strands oversheathed with PVC and the handling benefits of natural fibre.

A range of constructions are available: colour

Construction	Diameter (mm)	Min. Breaking Load (Tonnes f)	Weight (Kg/m)	
			Air	Water
4x3	32	14.2	1.05	0.41
6x3	41	21.3	1.68	0.72

High strength rope with the traditional handling characteristics, in a smaller package.

Construction	Diameter (mm)	Min. Breaking Load (Tonnes f)	Weight (Kg/m)	
			Air	Water
3x7x7	50	50	3.2	1.8
3x4x7	41	28.4	1.99	1.06
3x4x7wc	41	32.5	2.37	1.36

Key properties of grapnel ropes.

Benefits - lower effective weight in water compared to steel rope.

3 strand construction offers superior torque stability compared with 6 strand construction aids recoiling. Manila fibre offers high frictional grip without heat degradation of man-made fibre when operating with winches, rollers and bollards etc. All ropes can be supplied with either thimbles/links or sockets.



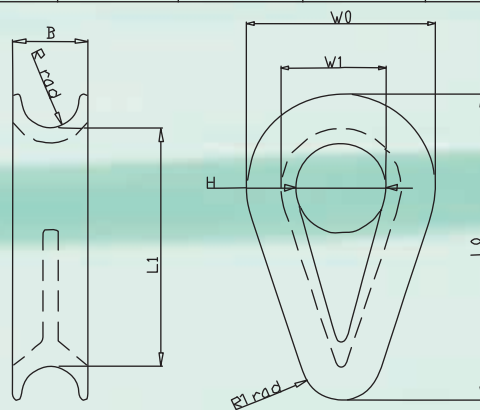
Cast Thimble and Link

13

BD Marine Ltd Cast Thimbles are the result of a development programme to produce a low weight alloy steel thimble and link assembly for high strength fibre and compound ropes, having great strength with deep protecting grooves, whilst providing easy passage through fairleads and linear winches. All thimble and link assemblies are proof tested to twice the safe working load. We can manufacture 'specials' to meet your particular unique requirements.

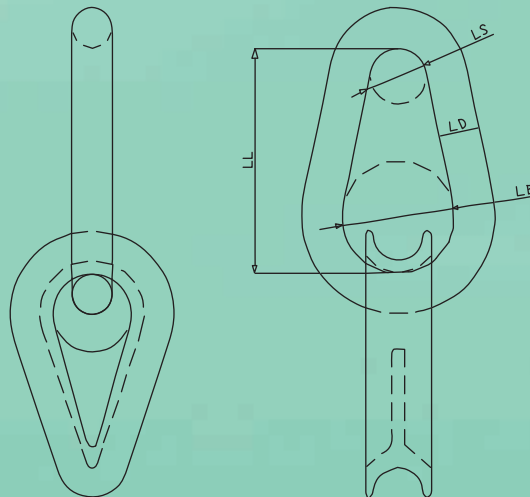
Cast Steel Thimbles (BD Marine Pattern)

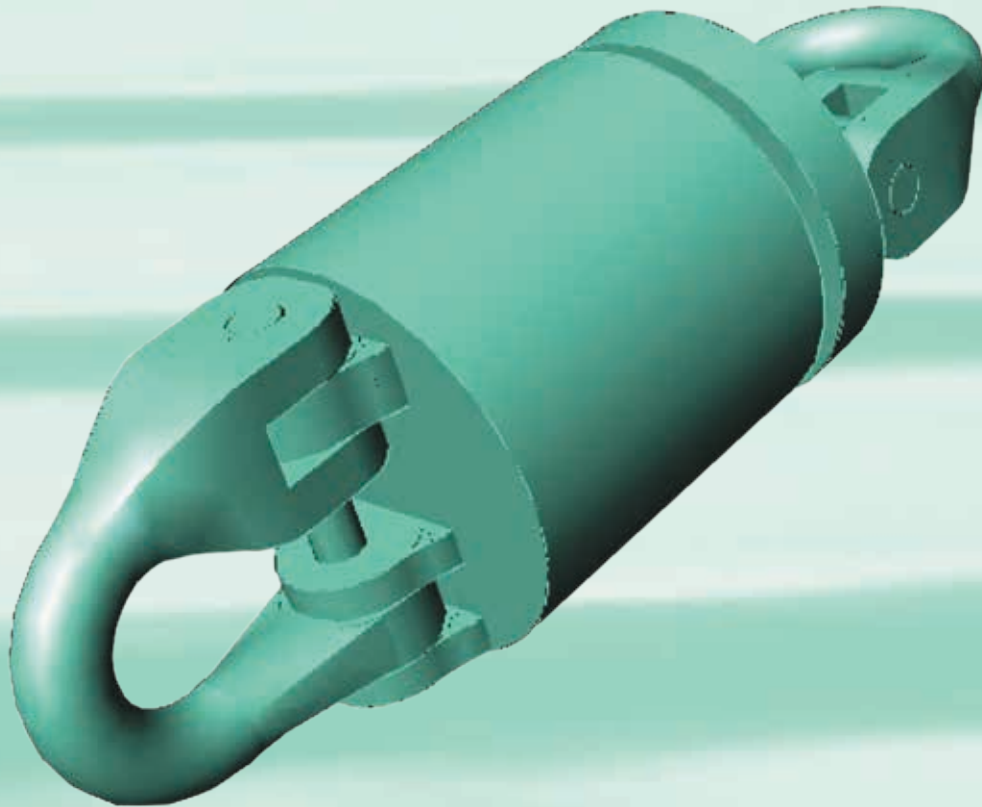
Size	Part No.	R rad	L1	L0	W1	W0	B	H	R1 rad
32	BDMT32	18	145	184	72	112	48	52	25
36	BDMT36	20	162	208	80	125	53	58	27
40	BDMT40	22	179	230	90	140	58	66	31
44	BDMT44	24	195	250	100	155	62	74	34
48	BDMT48	26	212	272	108	168	68	80	37
54	BDMT54	29	237	305	120	188	74	90	40



Cast Steel Thimbles with Links (BD Marine Pattern)

S.W.L	Part No.	LL	LB	LS	LD	Fits Thimble Size					
10t	BDMTL10	140	70	35	28	32	36	40			
15t	BDMTL15	160	80	40	30		36	40	44		
15t	BDMTL151	180	90	45	32			40	44	48	54
20t	BDMTL20	200	100	55	36				44	48	54





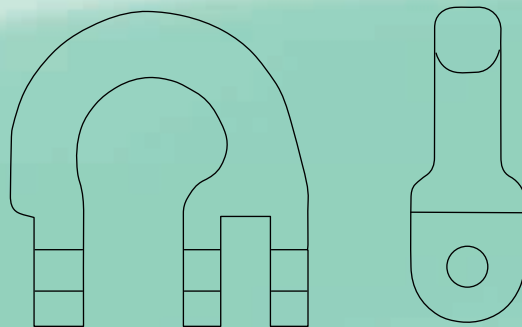
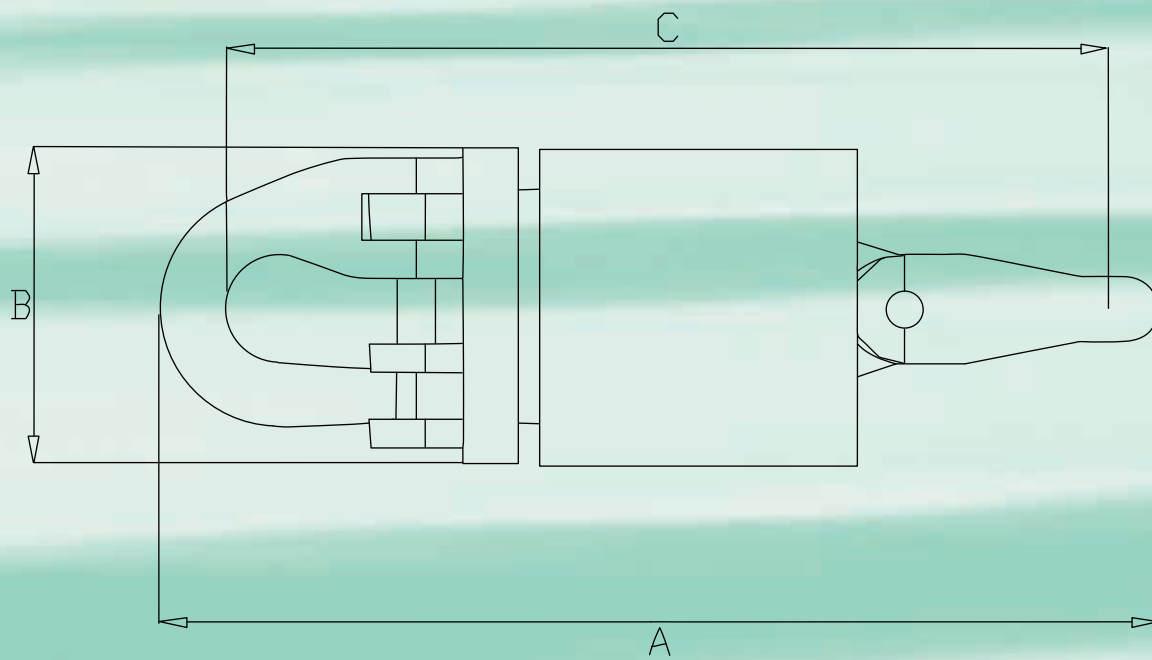
Swivel

(Spare G-Link connectors and locking pin sets available separately)

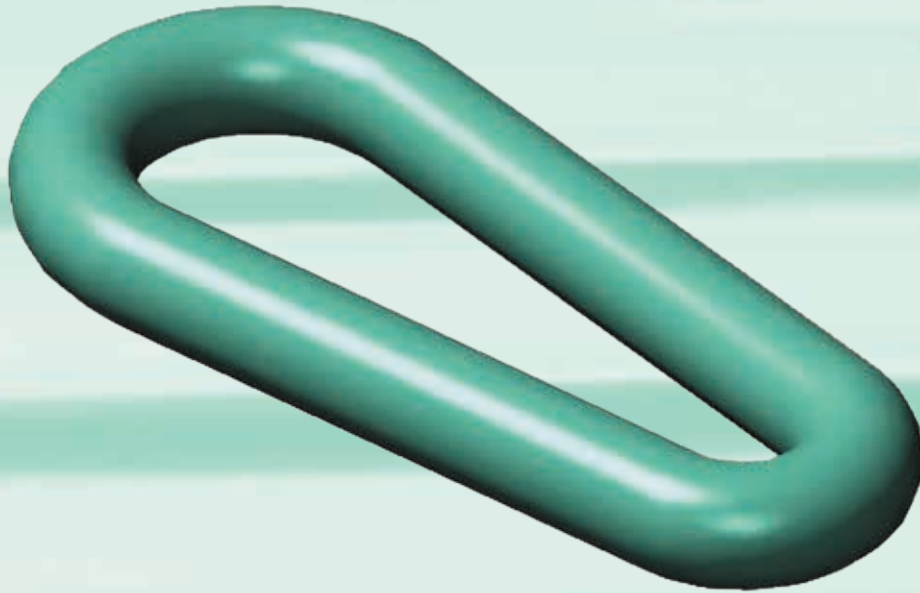
We have developed alloy steel swivels with chain type end connectors. These swivels are half the size of standard swivels enabling them to pass over sheaves and winch drums and through cable engines with ease.

Taper Roller Bearing Combination Swivels

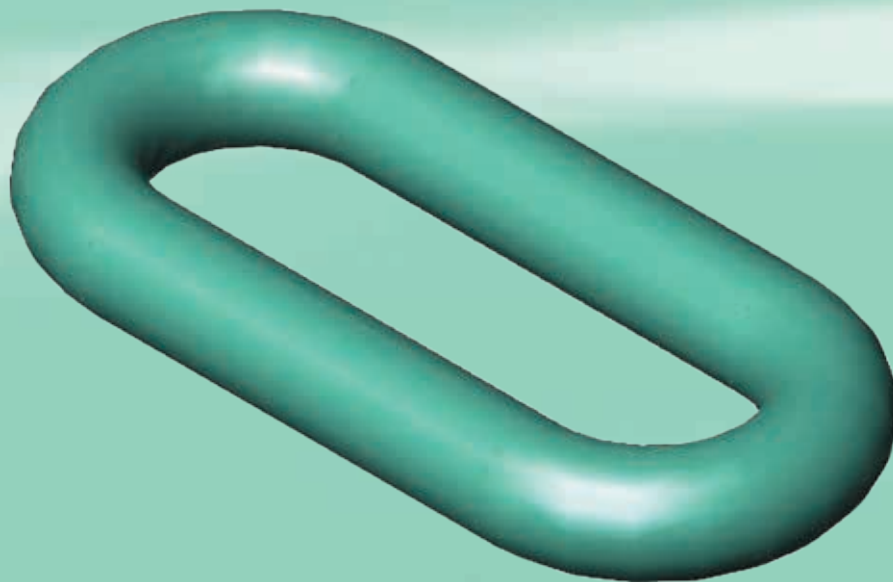
WLL	Part No.	A (mm)	B (mm)	C (mm)
25t	BDMS25	550	175	485
35t	BDMS35	620	205	525



G-Link connectors and locking pin sets available separately.



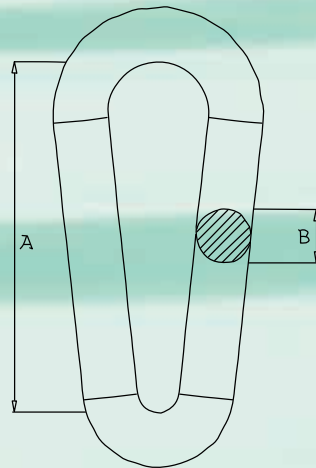
Egg Link



10t Master Link

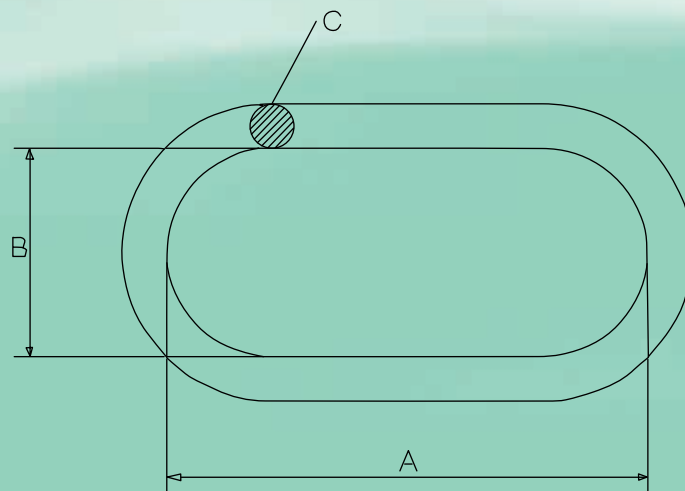
Egg Links

SWL	Part No.	A (mm)	B (mm)
10t	BDMEL9	140	28
15t	BDMEL15A	160	30
15t	BDMEL15B	180	32
20t	BDMEL20	200	36

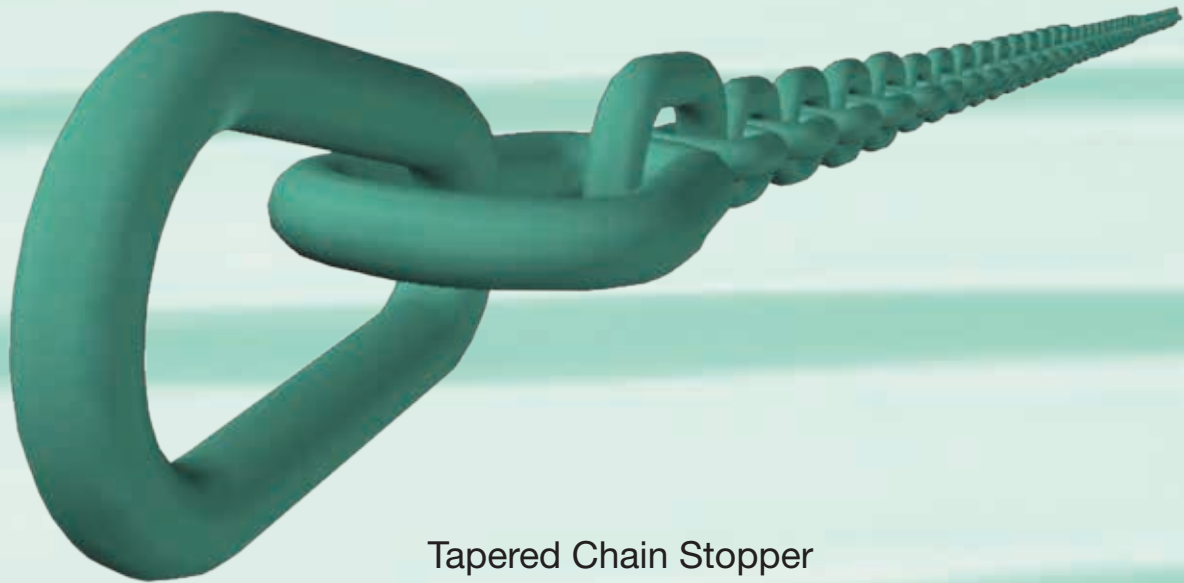


10t Masterlinks (Developed for Acoustic Releaser)

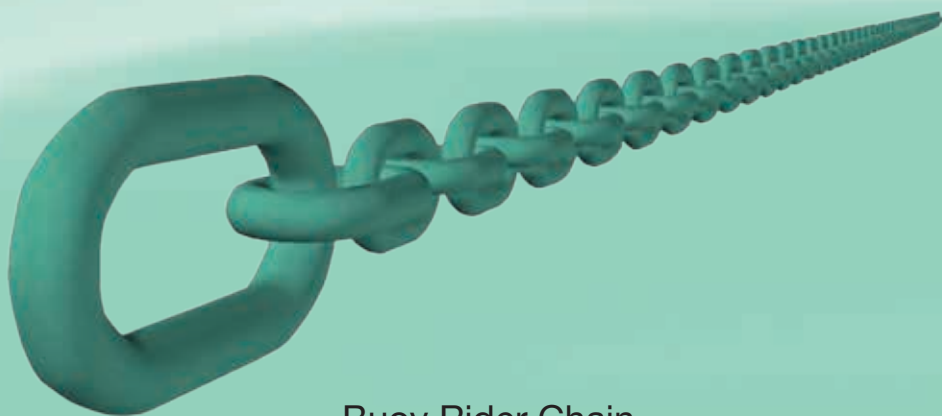
SWL	Part No.	A (mm)	B (mm)	C (mm)
10t	BDMML10	300	130	28



Full range of standard masterlinks in the lifting catalogue.
Specials developed on request.



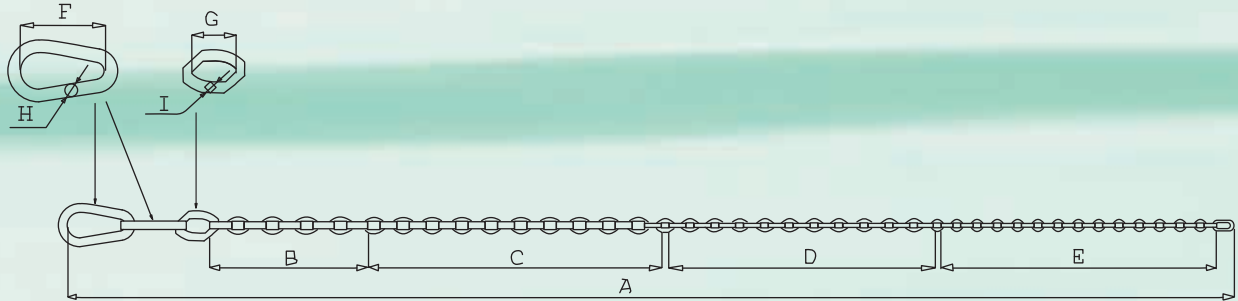
Tapered Chain Stopper
(Grade 80)



Buoy Rider Chain
(Grade 80)

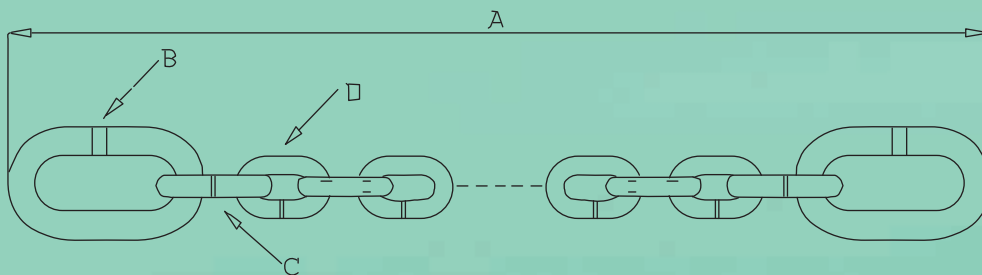
Tapered Chain Stoppers

WLL	Part No.	A (m)	B (Ø)	C (Ø)	D (Ø)	E (Ø)	F (mm)	G (mm)	H (mm)	I (mm)
12t	BDMTCS1	4.8	22mm	19mm	16mm	13mm	220	120	35	27
12t	BDMTCS2	9	22mm	19mm	16mm	-	220	120	35	27
12t	BDMTCS3	6	22mm	19mm	16mm	-	220	120	35	27
7.5t	BDMTCS4	3.7	16mm	13mm	10mm	7mm	220	120	35	27
7.5t	BDMTCS5	10	19mm	16mm	13mm	-	220	120	35	27
7.5t	BDMTCS6	9	19mm	16mm	13mm	-	220	120	35	27
7.5t	BDMTCS7	8	19mm	16mm <td 13mm	-	220	120	35	27	
7.5t	BDMTCS8	6	19mm	16mm	13mm	-	220	120	35	27



Buoy Rider Chain

Part No.	A (m)	B (Ø)	C (Ø)	D (Ø)
BDMBRC1	6	25mm	19mm	19mm
BDMBRC2	4	25mm	19mm	19mm
BDMBRC3	5	25mm	19mm	16mm
BDMBRC4	4	25mm	19mm	16mm
BDMBRC5	3	25mm	19mm	16mm
BDMBRC6	4	25mm	19mm	13mm
BDMBRC7	3	25mm	19mm	13mm
BDMBRC8	2	25mm	19mm	13mm



Grade 80 chains with fully welded end links available on request.



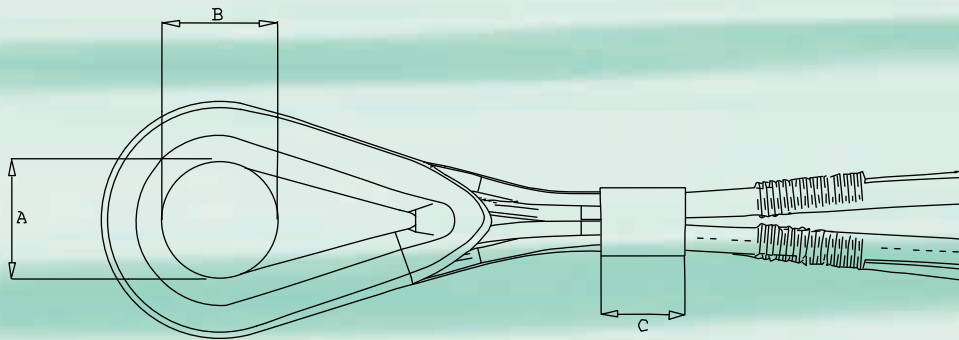
BTL Stopper

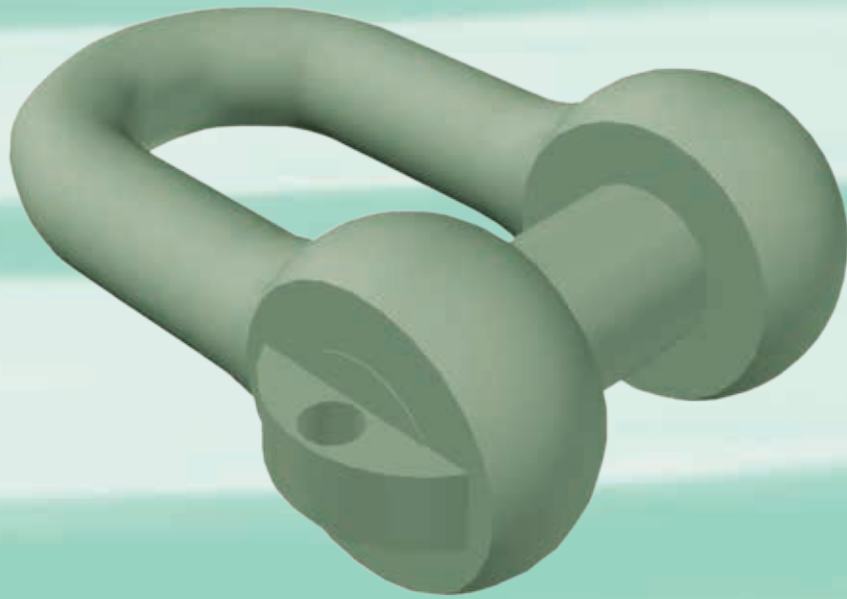
(8mm 6x19 FC Galv. wire rope available)

- 2 Wires 6000mm
- 2 Wires 8000mm
- 2 Wires 10000mm

BTL Stopper

	WLL	Part No.	A (mm)	B (mm)	C (mm)
BTL Stopper	7t	BDMBTL1	70	75	50



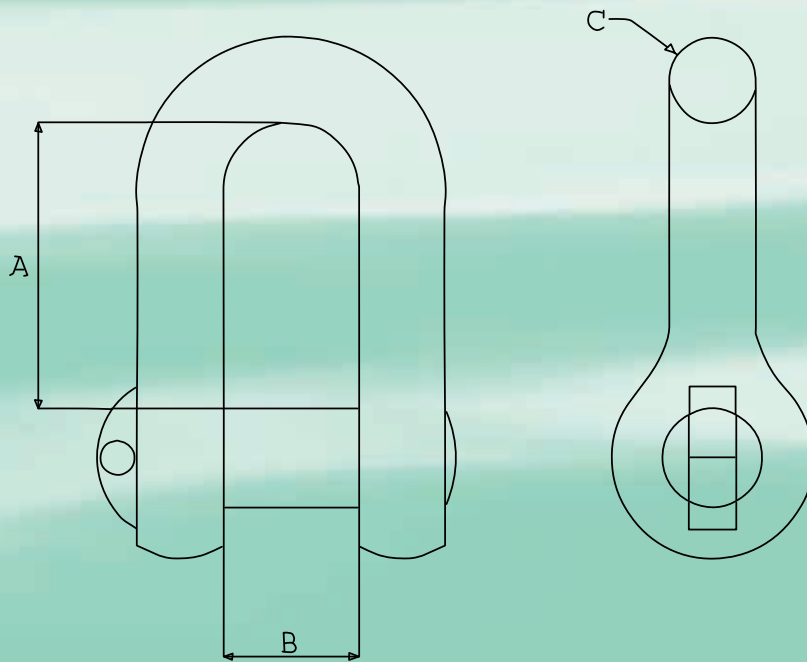


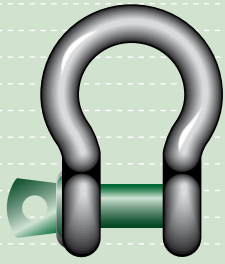
Chisel Head Shackle

Chisel Head Shackles

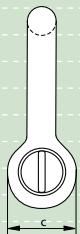
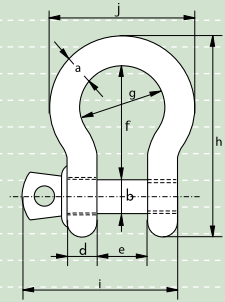
SWL	Part No.	A (mm)	B (mm)	C (Ø)
6.5t	BDMCH65	73	35	22mm
9.5t	BDMCH9.5	90	47	29mm
13.5t	BDMCH135	115	57	35mm
17t	BDMCH17	127	60	38mm

Specials manufactured on request.





G-4161



Green Pin® Standard Shackles

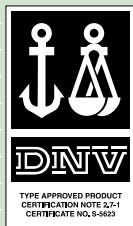
bow shackles with screw collar pin

- **Material** : bow and pin high tensile steel, Grade 6, quenched and tempered
- **Safety Factor** : MBL equals 6 x WLL
- **Standard** : EN 13889 and
meets performance requirements of US Fed. Spec. RR-C-271 Type IVA Class 2, Grade A
- **Finish** : hot dipped galvanized
- **Temperature Range** : -20°C up to +200°C
- **Certification** : at no extra charges this product can be supplied with a works certificate, material certificate, manufacturer test certificate, EC Declaration of Conformity and all shackles starting from 2 t can be supplied with DNV 2.7-1 certificate.

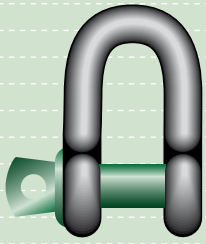
working load limit	diameter bow	diameter pin	diameter eye	width eye	width inside	length inside	width bow	length	length bolt	width	weight each
t	a	b	c	d	e	f	g	h	i	j	kg
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
0.33	5	6	12	5	9.5	22	16	36	29.5	26	0.02
0.5	7	8	16.5	7	12	29	20	48.5	38	34	0.05
0.75	9	10	20	9	13.5	32	22	56	46.5	40	0.1
1	10	11	22.5	10	17	36.5	26	63.5	54	46	0.14
1.5	11	13	26.5	11	19	43	29	74	59.5	51	0.19
2	13.5	16	34	13	22	51	32	89	73	58	0.36
3.25	16	19	40	16	27	64	43	110	89	75	0.63
4.75	19	22	46	19	31	76	51	129	103	89	1.01
6.5	22	25	52	22	36	83	58	144	119	102	1.5
8.5	25	28	59	25	43	95	68	164	137	118	2.21
9.5	28	32	66	28	47	108	75	185	153	131	3.16
12	32	35	72	32	51	115	83	201	170	147	4.31
13.5	35	38	80	35	57	133	92	227	186	162	5.55
17	38	42	88	38	60	146	99	249	203	175	7.43
25	45	50	103	45	74	178	126	300	243	216	12.84
35	50	57	111	50	83	197	138	331	272	238	18.15
42.5	57	65	130	57	95	222	160	377	310	274	26.29
55	65	70	145	65	105	260	180	433	344	310	37.6

In inch

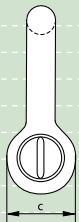
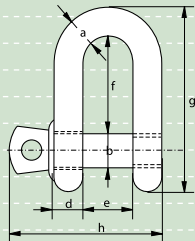
working load limit	diameter bow	diameter pin	diameter eye	width eye	width inside	length inside	width bow	length	length bolt	width	weight each
t	a	b	c	d	e	f	g	h	i	j	lbs
	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch	
0.33	3/16	1/4	1/2	3/16	3/8	7/8	5/8	1 13/32	1 5/32	1 1/32	0.05
0.5	1/4	5/16	21/32	9/32	15/32	1 5/32	25/32	1 29/32	1 1/2	1 11/32	0.11
0.75	5/16	3/8	25/32	11/32	17/32	1 1/4	7/8	2 7/32	1 27/32	1 9/16	0.22
1	3/8	7/16	7/8	13/32	21/32	1 7/16	1 1/32	2 1/2	2 1/8	1 13/16	0.3
1.5	7/16	1/2	1 1/32	7/16	3/4	1 11/16	1 5/32	2 29/32	2 11/32	2	0.42
2	1/2	5/8	1 11/32	1/2	7/8	2	1 1/4	3 1/2	2 7/8	2 9/32	0.79
3.25	5/8	3/4	1 9/16	5/8	1 1/16	2 17/32	1 11/16	4 11/32	3 1/2	2 15/16	1.38
4.75	3/4	7/8	1 13/16	3/4	1 7/32	3	2	5 3/32	4 1/16	3 1/2	2.22
6.5	7/8	1	2 1/16	7/8	1 13/32	3 9/32	2 9/32	5 21/32	4 11/16	4 1/32	3.31
8.5	1	1 1/8	2 5/16	31/32	1 11/16	3 3/4	2 11/16	6 15/32	5 13/32	4 21/32	4.86
9.5	1 1/8	1 1/4	2 19/32	1 3/32	1 27/32	4 1/4	2 15/16	7 9/32	6 1/32	5 5/32	6.97
12	1 1/4	1 3/8	2 27/32	1 1/4	2	4 17/32	3 9/32	7 29/32	6 11/16	5 25/32	9.49
13.5	1 3/8	1 1/2	3 5/32	1 3/8	2 1/4	5 1/4	3 5/8	8 15/16	7 5/16	6 3/8	12.24
17	1 1/2	1 5/8	3 15/32	1 1/2	2 3/8	5 3/4	3 29/32	9 13/16	8	6 7/8	16.37
25	1 3/4	2	4 1/16	1 25/32	2 29/32	7	4 31/32	11 13/16	9 9/16	8 1/2	28.31
35	2	2 1/4	4 3/8	1 31/32	3 9/32	7 3/4	5 7/16	13 1/32	10 23/32	9 3/8	40.01
42.5	2 1/4	2 9/16	5 1/8	2 1/4	3 3/4	8 3/4	6 5/16	14 27/32	12 7/32	10 25/32	57.96
55	2 1/2	2 3/4	5 23/32	2 9/16	4 1/8	10 1/4	7 3/32	17 1/16	13 17/32	12 7/32	82.89



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G-4151



Green Pin® Standard Shackles

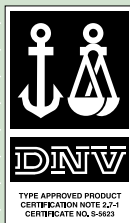
dee shackles with screw collar pin

- **Material** : bow and pin high tensile steel, Grade 6, quenched and tempered
- **Safety Factor** : MBL equals 6 x WLL
- **Standard** : EN 13889 and meets performance requirements of US Fed. Spec. RR-C-271 Type IVB Class 2, Grade A
- **Finish** : hot dipped galvanized
- **Temperature Range** : -20 °C up to +200 °C
- **Certification** : at no extra charges this product can be supplied with a works certificate, material certificate, manufacturer test certificate, EC Declaration of Conformity and all shackles starting from 2 t can be supplied with DNV 2.7-1 certificate.

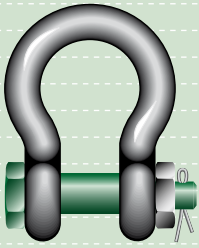
working load limit	diameter bow	diameter pin	diameter eye	width eye	width inside	length inside	length	length bolt	weight each
t	a	b	c	d	e	f	g	h	kg
	mm	mm	mm	mm	mm	mm	mm	mm	
0.33	5	6	12	5	9.5	19	33	29.5	0.02
0.5	7	8	16.5	7	12	22	41.5	38	0.05
0.75	9	10	20	9	13.5	26	50	46.5	0.09
1	10	11	22.5	10	17	32	59	54	0.14
1.5	11	13	26.5	11	19	37	68	59.5	0.19
2	13.5	16	34	13	22	43	81	73	0.32
3.25	16	19	40	16	27	51	97	89	0.54
4.75	19	22	46	19	31	59	112	103	0.87
6.5	22	25	52	22	36	73	134	119	1.34
8.5	25	28	59	25	43	85	154	137	2.08
9.5	28	32	66	28	47	90	167	153	2.77
12	32	35	72	32	51	94	180	170	3.72
13.5	35	38	80	35	57	115	209	186	5.14
17	38	42	88	38	60	127	230	203	6.85
25	45	50	103	45	74	149	271	243	11.45
35	50	57	111	50	83	171	305	272	16.86
42.5	57	65	130	57	95	190	345	310	24.61
55	65	70	145	65	105	203	376	344	32.65

In inch

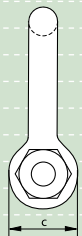
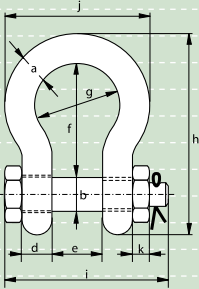
working load limit	diameter bow	diameter pin	diameter eye	width eye	width inside	length inside	length	length bolt	weight each
t	a	b	c	d	e	f	g	h	lbs
	inch	inch	inch	inch	inch	inch	inch	inch	
0.33	3/16	1/4	15/32	3/16	3/8	3/4	1 5/16	1 5/32	0.04
0.5	1/4	5/16	21/32	9/32	15/32	7/8	1 5/8	1 1/2	0.11
0.75	5/16	3/8	25/32	11/32	17/32	1 1/32	1 31/32	1 27/32	0.2
1	3/8	7/16	7/8	13/32	21/32	1 1/4	2 5/16	2 1/8	0.3
1.5	7/16	1/2	1 1/32	7/16	3/4	1 15/32	2 11/16	2 11/32	0.42
2	1/2	5/8	1 11/32	1/2	7/8	1 11/16	3 3/16	2 7/8	0.7
3.25	5/8	3/4	1 9/16	5/8	1 1/16	2	3 13/16	3 1/2	1.19
4.75	3/4	7/8	1 13/16	3/4	1 7/32	2 5/16	4 12/32	4 1/16	1.92
6.5	7/8	1	2 1/16	7/8	1 13/32	2 7/8	5 9/32	4 11/16	2.95
8.5	1	1 1/8	2 5/16	31/32	1 11/16	3 11/32	6 1/16	5 13/32	4.59
9.5	1 1/8	1 1/4	2 19/32	1 3/32	1 27/32	3 17/32	6 9/16	6 1/32	6.1
12	1 1/4	1 3/8	2 27/32	1 1/4	2	3 11/16	7 3/32	6 11/16	8.2
13.5	1 3/8	1 1/2	3 5/32	1 3/8	2 1/4	4 17/32	8 7/32	7 5/16	11.33
17	1 1/2	1 5/8	3 15/32	1 1/2	2 3/8	5	9 1/16	8	15.1
25	1 3/4	2	4 1/16	1 25/32	2 29/32	5 7/8	10 21/32	9 9/16	25.23
35	2	2 1/4	4 3/8	1 31/32	3 9/32	6 23/32	12	10 23/32	37.17
42.5	2 1/4	2 9/16	5 1/8	2 1/4	3 3/4	7 15/32	13 19/32	12 7/32	54.26
55	2 1/2	2 3/4	5 23/32	2 9/16	4 1/8	8	14 13/16	13 17/32	71.98



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G-4163



Green Pin® Standard Shackles

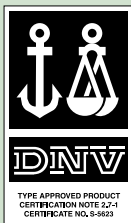
bow shackles with safety bolt

- **Material** : bow and pin high tensile steel, Grade 6, quenched and tempered
- **Safety Factor** : MBL equals 6 x WLL
- **Standard** : EN 13889 and
meets performance requirements of US Fed. Spec. RR-C-271 Type IVA Class 3, Grade A
- **Finish** : hot dipped galvanized
- **Temperature Range** : -20°C up to +200°C
- **Certification** : at no extra charges this product can be supplied with a works certificate, material certificate, manufacturer test certificate, EC Declaration of Conformity and all shackles starting from 2 t can be supplied with DNV 2.7-1 certificate.

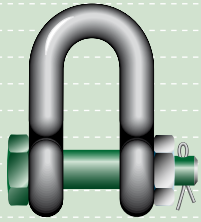
working load limit	diameter bow	diameter pin	diameter eye	width eye	width inside	length inside	width bow	length	length bolt	width	thickness nut	weight each
t	a	b	c	d	e	f	g	h	i	j	k	kg
0.5	7	8	16.5	7	12	29	20	48.5	42	34	4	0.06
0.75	9	10	20	9	13.5	32	22	56	50	40	5	0.11
1	10	11	22.5	10	17	36.5	26	63.5	60	46	8	0.16
1.5	11	13	26.5	11	19	43	29	74	67	51	11	0.22
2	13.5	16	34	13	22	51	32	89	82	58	13	0.42
3.25	16	19	40	16	27	64	43	110	98	75	17	0.74
4.75	19	22	46	19	31	76	51	129	114	89	19	1.18
6.5	22	25	52	22	36	83	58	144	130	102	22	1.77
8.5	25	28	59	25	43	95	68	164	150	118	25	2.58
9.5	28	32	66	28	47	108	75	185	166	131	27	3.66
12	32	35	72	32	51	115	83	201	178	147	30	4.91
13.5	35	38	80	35	57	133	92	227	197	162	33	6.54
17	38	42	88	38	60	146	99	249	202	175	19	8.19
25	45	50	103	45	74	178	126	300	249	216	23	14.22
35	50	57	111	50	83	197	138	331	269	238	26	19.85
42.5	57	65	130	57	95	222	160	377	301	274	29	28.33
55	65	70	145	65	105	260	180	433	330	310	32	39.59
85	75	83	162	73	127	329	190	527	380	340	39	62

In inch

working load limit	diameter bow	diameter pin	diameter eye	width eye	width inside	length inside	width bow	length	length bolt	width	thickness nut	weight each
t	a	b	c	d	e	f	g	h	i	j	k	lbs
0.5	1/4	5/16	21/32	9/32	15/32	1 5/32	25/32	1 29/32	1 21/32	1 11/32	5/32	0.13
0.75	3/16	3/8	25/32	11/32	17/32	1 1/4	7/8	2 7/32	1 31/32	1 9/16	3/16	0.25
1	3/8	7/16	7/8	13/32	21/32	1 7/16	1 1/32	2 1/2	2 3/8	1 13/16	5/16	0.34
1.5	7/16	1/2	1 1/32	7/16	3/4	1 11/16	1 5/32	2 29/32	2 5/8	2	7/16	0.48
2	1/2	5/8	1 11/32	1/2	7/8	2	1 1/4	3 1/2	3 7/32	2 9/32	1/2	0.92
3.25	5/8	3/4	1 9/16	5/8	1 1/16	2 17/32	1 11/16	4 11/32	3 27/32	2 15/16	21/32	1.62
4.75	3/4	7/8	1 13/16	3/4	1 7/32	3	2	5 3/32	4 1/2	3 1/2	3/4	2.59
6.5	7/8	1	2 1/16	7/8	1 13/32	3 9/32	2 9/32	5 21/32	5 1/8	4 1/32	7/8	3.9
8.5	1	1 1/8	2 5/16	31/32	1 11/16	3 3/4	2 11/16	6 15/32	5 29/32	4 21/32	31/32	5.69
9.5	1 1/8	1 1/4	2 19/32	1 3/32	1 27/32	4 1/4	2 15/16	7 9/32	6 17/32	5 5/32	1 1/16	8.06
12	1 1/4	1 3/8	2 27/32	1 1/4	2	4 17/32	3 9/32	7 29/32	7	5 25/32	1 3/16	10.81
13.5	1 3/8	1 1/2	3 5/32	1 3/8	2 1/4	5 1/4	3 5/8	8 15/16	7 3/4	6 3/8	1 5/16	14.42
17	1 1/2	1 5/8	3 15/32	1 1/2	2 3/8	5 3/4	3 29/32	9 13/16	7 15/16	6 7/8	3/4	18.06
25	1 3/4	2	4 1/16	1 25/32	2 29/32	7	4 31/32	11 13/16	9 13/16	8 1/2	29/32	31.34
35	2	2 1/4	4 3/8	1 31/32	3 9/32	7 3/4	5 7/16	13 1/32	10 19/32	9 3/8	1 1/32	43.77
42.5	2 1/4	2 9/16	5 1/8	2 1/4	3 3/4	8 3/4	6 5/16	14 27/32	11 27/32	10 23/32	1 5/32	62.46
55	2 1/2	2 3/4	5 23/32	2 9/16	4 1/8	10 1/4	7 3/32	17 1/16	13	12 7/32	1 1/4	87.27
85	3	3 1/4	6 3/8	2 7/8	5	12 15/16	7 15/32	20 3/4	14 31/32	13 3/8	1 17/32	136.69



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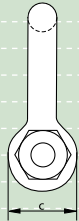
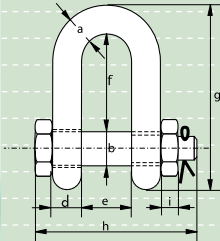


G-4153

Green Pin® Standard Shackles

dee shackles with safety bolt

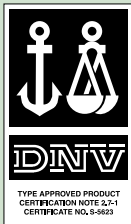
- **Material** : bow and pin high tensile steel, Grade 6, quenched and tempered
- **Safety Factor** : MBL equals 6 x WLL
- **Standard** : EN 13889 and
meets performance requirements of US Fed. Spec. RR-C-271 Type IVB Class 3, Grade A
- **Finish** : hot dipped galvanized
- **Temperature Range** : -20 °C up to +200 °C
- **Certification** : at no extra charges this product can be supplied with a works certificate, material certificate, manufacturer test certificate, EC Declaration of Conformity and all shackles starting from 2 t can be supplied with DNV 2.7-1 certificate.



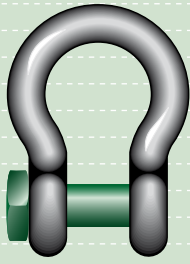
working load limit	diameter bow	diameter pin	diameter eye	width eye	width inside	length inside	length inside	length bolt	thickness nut	weight each
t	a	b	c	d	e	f	g	h	i	kg
2	13.5	16	34	13	22	43	81	82	13	0.39
3.25	16	19	40	16	27	51	97	98	17	0.67
4.75	19	22	46	19	31	59	112	114	19	1.08
6.5	22	25	52	22	36	73	134	130	22	1.66
8.5	25	28	59	25	43	85	154	150	25	2.46
9.5	28	32	66	28	47	90	167	166	27	3.4
12	32	35	72	32	51	94	180	178	30	4.51
13.5	35	38	80	35	57	115	209	197	33	6.1
17	38	42	88	38	60	127	230	202	19	7.63
25	45	50	103	45	74	149	271	249	23	13.25
35	50	57	111	50	83	171	305	269	26	18.53
42.5	57	65	130	57	95	190	345	301	29	25.94
55	65	70	145	65	105	203	376	330	32	35.33
85	75	83	162	73	127	229	427	380	39	52.97

In inch

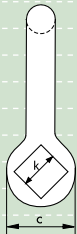
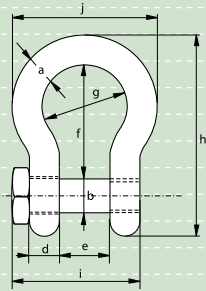
working load limit	diameter bow	diameter pin	diameter eye	width eye	width inside	length inside	length inside	length bolt	thickness nut	weight each
t	a	b	c	d	e	f	g	h	i	lbs
2	1/2	5/8	1 11/32	1/2	7/8	1 11/16	3 3/16	3 7/32	1/2	0.85
3.25	5/8	3/4	1 9/16	5/8	1 1/16	2	3 13/16	3 27/32	21/32	1.48
4.75	3/4	7/8	1 13/16	3/4	1 7/32	2 5/16	4 13/32	4 1/2	3/4	2.39
6.5	7/8	1	2 1/16	7/8	1 13/32	2 7/8	5 9/32	5 1/8	7/8	3.66
8.5	1	1 1/8	2 5/16	31/32	1 11/16	3 11/32	6 1/16	5 29/32	31/32	5.42
9.5	1 1/8	1 1/4	2 19/32	1 3/32	1 27/32	3 17/32	6 9/16	6 17/32	1 1/16	7.5
12	1 1/4	1 3/8	2 27/32	1 1/4	2	3 11/16	7 3/32	7	1 3/16	9.95
13.5	1 3/8	1 1/2	3 5/32	1 3/8	2 1/4	4 17/32	8 7/32	7 3/4	1 5/16	13.45
17	1 1/2	1 5/8	3 15/32	1 1/2	2 3/8	5	9 1/16	7 15/16	3/4	16.82
25	1 3/4	2	4 1/16	1 25/32	2 29/32	5 7/8	10 21/32	9 13/16	29/32	29.21
35	2	2 1/4	4 3/8	1 31/32	3 9/32	6 23/32	12	10 19/32	1 1/32	40.86
42.5	2 1/4	2 9/16	5 1/8	2 1/4	3 3/4	7 15/32	13 19/32	11 27/32	1 5/32	57.19
55	2 1/2	2 3/4	5 23/32	2 9/16	4 1/8	8	14 13/16	13	1 1/4	77.89
85	3	3 1/4	6 3/8	2 7/8	5	9 1/32	16 13/16	14 31/32	1 17/32	116.77



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G-4164



Green Pin® Trawling Shackles

bow shackles with square headed screw pin

- **Material** : bow and pin high tensile steel, Grade 6, quenched and tempered
- **Safety Factor** : MBL equals 6 x WLL
- **Standard** : meets performance requirements of US Fed. Spec. RR-C-271, Grade A
- **Finish** : hot dipped galvanized
- **Certification** : at no extra charges this product can be supplied with a works certificate, material certificate, manufacturer test certificate and/or EC Declaration of Conformity

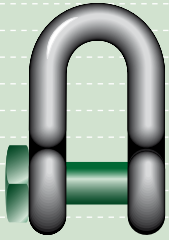
working load limit	diameter bow	diameter pin	diameter eye	width eye	width inside	length inside	width bow	length bow	length bolt	width bolt	width bolt head	weight each
t	a	b	c	d	e	f	g	h	i	j	k	kg
2	13.5	16	34	13	22	51	32	89	57.5	58	22	0.34
3.25	16	19	40	16	27	64	43	110	71	75	27	0.63
4.75	19	22	46	19	31	76	51	129	82	89	32	1
6.5	22	25	52	22	36	83	58	144	93	102	32	1.44
8.5	25	28	59	25	43	95	68	164	108	118	36	2.21
9.5	28	32	66	28	47	108	75	185	120	131	41	3.18
12	32	35	72	32	51	115	83	201	137	147	50	4.32
13.5	35	40	80	35	57	133	92	227	149	162	50	5.67
17	38	42	88	38	60	146	99	249	164	175	60	7.36
25	45	50	103	45	74	178	126	300	192	216	60	12.38

In inch

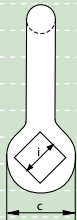
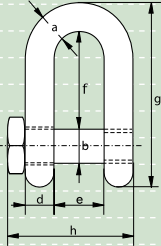
working load limit	diameter bow	diameter pin	diameter eye	width eye	width inside	length inside	width bow	length bow	length bolt	width bolt	width bolt head	weight each
t	a	b	c	d	e	f	g	h	i	j	k	lbs
2	1/2	5/8	1 11/32	1/2	7/8	2	1 1/4	3 1/2	2 1/4	2 9/32	7/8	0.75
3.25	5/8	3/4	1 9/16	5/8	1 1/16	2 17/32	1 11/16	4 11/32	2 25/32	2 15/16	1 1/16	1.39
4.75	3/4	7/8	1 13/16	3/4	1 7/32	3	2	5 3/32	3 7/32	3 1/2	1 1/4	2.21
6.5	7/8	1	2 1/16	7/8	1 13/32	3 9/32	2 9/32	5 21/32	3 21/32	4 1/32	1 1/4	3.17
8.5	1	1 1/8	2 5/16	31/32	1 11/16	3 3/4	2 11/16	6 15/32	4 1/4	4 21/32	1 13/32	4.86
9.5	1 1/8	1 1/4	2 19/32	1 3/32	1 27/32	4 1/4	2 15/16	7 9/32	4 23/32	5 5/32	1 5/8	7.01
12	1 1/4	1 3/8	2 27/32	1 1/4	2	4 17/32	3 9/32	7 29/32	5 13/32	5 25/32	1 31/32	9.52
13.5	1 3/8	1 1/2	3 5/32	1 3/8	2 1/4	5 1/4	3 5/8	8 15/16	5 7/8	6 3/8	1 31/32	12.49
17	1 1/2	1 5/8	3 15/32	1 1/2	2 3/8	5 3/4	3 29/32	9 13/16	6 15/32	6 7/8	2 3/8	16.23
25	1 3/4	2	4 1/16	1 25/32	2 29/32	7	4 31/32	11 15/16	7 9/16	8 1/2	2 3/8	27.29



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G-4154



Green Pin® Trawling Shackles

dee shackles with square headed screw pin

- **Material** : bow and pin high tensile steel, Grade 6, quenched and tempered
- **Safety Factor** : MBL equals 6 x WLL
- **Standard** : meets performance requirements of US Fed. Spec. RR-C-271, Grade A
- **Finish** : hot dipped galvanized
- **Certification** : at no extra charges this product can be supplied with a works certificate, material certificate, manufacturer test certificate and/or EC Declaration of Conformity

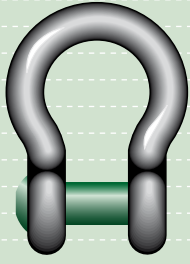
working load limit	diameter bow	diameter pin	diameter eye	width eye	width inside	length inside	length	length bolt	width bolt head	weight each
t	a	b	c	d	e	f	g	h	i	kg
2	13.5	16	34	13	22	43	81	57.5	22	0.32
3.25	16	19	40	16	27	51	97	71	27	0.58
4.75	19	22	46	19	31	59	112	82	32	0.92
6.5	22	25	52	22	36	73	134	93	32	1.33
8.5	25	28	59	25	43	85	154	108	36	2.03
9.5	28	32	66	28	47	90	167	120	41	2.88
12	32	35	72	32	51	94	180	137	50	3.96
13.5	35	38	80	35	57	115	209	149	50	5.24
17	38	42	88	38	60	127	230	164	60	6.8
25	45	50	103	45	74	149	271	192	60	11.22

In inch

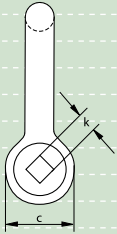
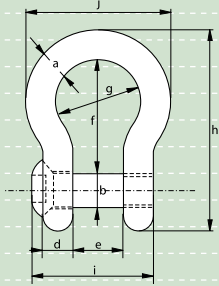
working load limit	diameter bow	diameter pin	diameter eye	width eye	width inside	length inside	length	length bolt	width bolt head	weight each
t	a	b	c	d	e	f	g	h	i	lbs
2	1/2	5/8	1 11/32	1/2	7/8	1 11/16	3 3/16	2 1/4	7/8	0.7
3.25	5/8	3/4	1 9/16	5/8	1 1/16	2	3 13/16	2 25/32	1 1/16	1.28
4.75	3/4	7/8	1 13/16	3/4	1 7/32	2 5/16	4 13/32	3 7/32	1 1/4	2.03
6.5	7/8	1	2 1/16	7/8	1 13/32	2 7/8	5 9/32	3 21/32	1 1/4	2.93
8.5	1	1 1/8	2 5/16	31/32	1 11/16	3 11/32	6 1/16	4 1/4	1 13/32	4.48
9.5	1 1/8	1 1/4	2 19/32	1 3/32	1 27/32	3 17/32	6 9/16	4 23/32	1 5/8	6.35
12	1 1/4	1 3/8	2 27/32	1 1/4	2	3 11/16	7 3/32	5 13/32	1 31/32	8.72
13.5	1 3/8	1 1/2	3 5/32	1 3/8	2 1/4	4 17/32	8 7/32	5 7/8	1 31/32	11.56
17	1 1/2	1 5/8	3 15/32	1 1/2	2 3/8	5	9 1/16	6 15/32	2 3/8	15
25	1 3/4	2	4 1/16	1 25/32	2 29/32	5 7/8	10 21/32	7 9/16	2 3/8	24.74



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G-4169



Green Pin® Sunken Hole Shackles

bow shackles with square sunken hole screw pin

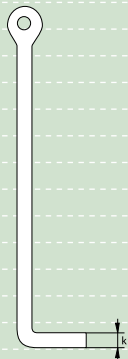
- **Material** : bow and pin high tensile steel, Grade 6, quenched and tempered
- **Safety Factor** : MBL equals 6 x WLL
- **Standard** : meets performance requirements of US Fed. Spec. RR-C-271, Grade A
- **Finish** : hot dipped galvanized
- **Certification** : at no extra charges this product can be supplied with a works certificate, material certificate, manufacturer test certificate and/or EC Declaration of Conformity
- **Note** : key for unscrewing the pin must be ordered separately

working load limit	diameter bow	diameter pin	diameter eye	width eye	width inside	length inside	width bow	length bow	length bolt	width hole	size hole	weight each
t	a mm	b mm	c mm	d mm	e mm	f mm	g mm	h mm	i mm	j mm	k mm	kg
2	13.5	16	34	13	22	51	32	89	51	58	11	0.31
3.25	16	19	40	16	27	64	43	110	63	75	11	0.56
4.75	19	22	46	19	31	76	51	129	74	89	11	0.98
6.5	22	25	52	22	36	83	58	144	85	102	13	1.46
8.5	25	28	59	25	43	95	68	164	99	118	13	2.18
9.5	28	32	66	28	47	108	75	185	110	131	17	3.06
12	32	35	72	32	51	115	83	201	122	147	17	4.24
13.5	35	38	80	35	57	133	92	227	135	162	17	5.59
17	38	42	88	38	60	146	99	249	145	175	17	7.37

In inch



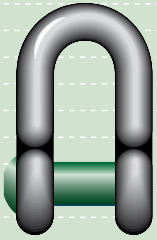
P-4170



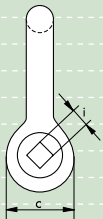
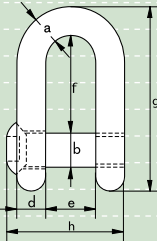
working load limit	diameter bow	diameter pin	diameter eye	width eye	width inside	length inside	width bow	length bow	length bolt	width hole	size hole	weight each
t	a inch	b inch	c inch	d inch	e inch	f inch	g inch	h inch	i inch	j inch	k inch	lbs
2	1/2	5/8	1 11/32	1/2	7/8	2	1 1/4	3 1/2	2	2 9/32	7/16	0.68
3.25	5/8	3/4	1 9/16	5/8	1 1/16	2 17/32	1 11/16	4 11/32	2 15/32	2 15/16	7/16	1.23
4.75	3/4	7/8	1 13/16	3/4	1 7/32	3	2	5 3/32	2 29/32	3 1/2	7/16	2.16
6.5	7/8	1	2 1/16	7/8	1 13/32	3 9/32	2 9/32	5 21/32	3 11/32	4 1/32	1/2	3.22
8.5	1	1 1/8	2 5/16	31/32	1 11/16	3 3/4	2 11/16	6 15/32	3 29/32	4 21/32	1/2	4.81
9.5	1 1/8	1 1/4	2 19/32	1 3/32	1 27/32	4 1/4	2 15/16	7 9/32	4 11/32	5 5/32	21/32	6.75
12	1 1/4	1 3/8	2 27/32	1 1/4	2	4 17/32	3 9/32	7 29/32	4 13/16	5 25/32	21/32	9.35
13.5	1 3/8	1 1/2	3 5/32	1 3/8	2 1/4	5 1/4	3 5/8	8 15/16	5 5/16	6 3/8	21/32	12.32
17	1 1/2	1 5/8	3 15/32	1 1/2	2 3/8	5 3/4	3 29/32	9 13/16	5 23/32	6 7/8	21/32	16.25



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G-4159



Green Pin® Sunken Hole Shackles

dee shackles with sunken hole screw pin

- **Material** : bow and pin high tensile steel, Grade 6, quenched and tempered
- **Safety Factor** : MBL equals 6 x WLL
- **Standard** : meets performance requirements of US Fed. Spec. RR-C-271, Grade A
- **Finish** : hot dipped galvanized
- **Certification** : at no extra charges this product can be supplied with a works certificate, material certificate, manufacturer test certificate and/or EC Declaration of Conformity
- **Note** : key for unscrewing the pin must be ordered separately

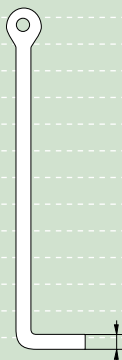
working load limit	diameter bow	diameter pin	diameter eye	width eye	width inside	length inside	length	length bolt	size hole	weight each
t	a mm	b mm	c mm	d mm	e mm	f mm	g mm	h mm	i mm	kg
2	13.5	16	34	13	22	43	81	51	11	0.34
3.25	16	19	40	16	27	51	97	63	11	0.6
4.75	19	22	46	19	31	59	112	74	11	0.98
6.5	22	25	52	22	36	73	134	85	13	1.26
8.5	25	28	59	25	43	85	154	99	13	2.14
9.5	28	32	66	28	47	90	167	110	17	3.05
12	32	35	72	32	51	94	180	122	17	3.56
13.5	35	38	80	35	57	115	209	135	17	5.17
17	38	42	88	38	60	127	230	145	17	6.84

In inch

working load limit	diameter bow	diameter pin	diameter eye	width eye	width inside	length inside	length	length bolt	size hole	weight each
t	a inch	b inch	c inch	d inch	e inch	f inch	g inch	h inch	i inch	lbs
2	1/2	5/8	1 11/32	1/2	7/8	1 11/16	3 3/16	2	7/16	0.75
3.25	5/8	3/4	1 9/16	5/8	1 1/16	2	3 13/16	2 15/32	7/16	1.33
4.75	3/4	7/8	1 13/16	3/4	1 7/32	2 5/16	4 13/32	2 29/32	7/16	2.15
6.5	7/8	1	2 1/16	7/8	1 13/32	2 7/8	5 9/32	3 11/32	1/2	2.77
8.5	1	1 1/8	2 5/16	31/32	1 11/16	3 11/32	6 1/16	3 29/32	1/2	4.72
9.5	1 1/8	1 1/4	2 19/32	1 3/32	1 27/32	3 17/32	6 9/16	4 11/32	21/32	6.72
12	1 1/4	1 3/8	2 27/32	1 1/4	2	3 11/16	7 3/32	4 13/16	21/32	7.84
13.5	1 3/8	1 1/2	3 5/32	1 3/8	2 1/4	4 17/32	8 7/32	5 5/16	21/32	11.4
17	1 1/2	1 5/8	3 15/32	1 1/2	2 3/8	5	9 1/16	5 23/32	21/32	15.08



P-4170



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