

HARDWARE

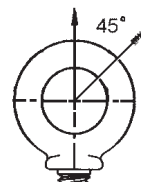
HARDWARE (GENERAL INFORMATION)

SHACKLES

Uses: The many types of shackles shown in this catalog have been designed for a variety of applications. Screw Pin Shackles are used when the connection must be changed frequently. Round Pin and Safety Pin Shackles are used when the shackle can be left in place. Safety Pin Shackles are made with a hex jam nut plus a cotter pin to prevent the nut from backing off. They should be used where safety requirements are of prime importance. Shackles meet Federal Specifications RRC-271D Type IV.

EYE BOLTS

Maximum load rating for eye bolts are based on a straight vertical lift in a gradually increasing manner. Angular lifts will significantly lower maximum loads and should be avoided whenever possible. If an angular lift is required, a properly seated shoulder pattern eye bolt must be used. A Load should always be applied to eye bolts in the plane of the eye, not at some angle to this plane. Angular fits must never be more than a 45 degree pull.



SWIVEL HOIST RINGS

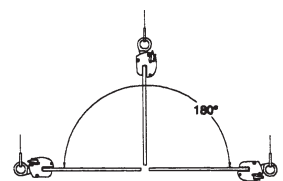
Swivel hoist rings are designed for lifting. They rotate and pivot to absorb any pitch, roll or sway of unbalanced loads. They will not yield to heavy side loads and help prevent the lifting hook from disengaging. Working Action: 360 degrees swivel and 180 degrees pivot.

STAR POINT EYE BOLT

The Star Point aligns to the direction of the pull, eliminating bending common with forged eye bolts. The body and bolt are 100% electromagnetic crack tested and working load limits are clearly marked in tons and lbs. on the body. **Warning:** the Star Point must be mounted on a flat surface to ensure proper seating and adjusted in the pulling direction. All fittings connected to the Star Point should be free moving.

SAFETY CLAMPS

Safety Clamps are designed to turn a single steel plate from horizontal to vertical to horizontal through a 180 degree arc. They lock open to facilitate loading and unloading the clamp and lock closed to provide a more secure lift. Lifting capacities range from 2 to 20 tons and incorporate dual gripping cams, which provide increased grip on the load.



TURNBUCKLES

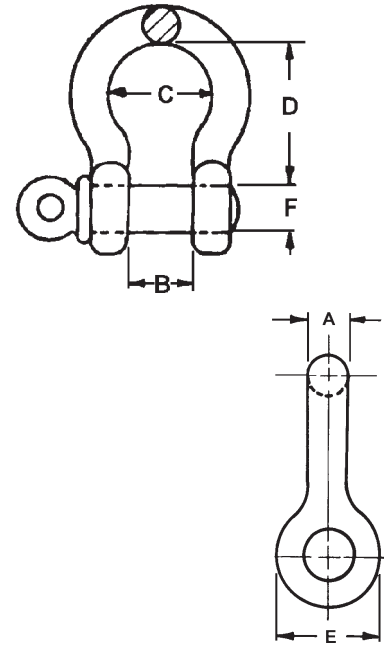
Turnbuckles allow for easy loosening and tensioning of chain and wire rope legs. They are available in eye and eye, hook and eye, jaw and eye, hook and jaw, hook and hook, and jaw and jaw styles. Turnbuckles meet performance requirements of ASTM specification F1145-92 Type 1 Grade 1. Maximum load ratings are based on straight vertical lift in a gradually increasing manner. Any deviations as angular lifts, shock loads, modification of the basic part, etc., will result in drastically reduced maximum loads.

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FORGED STEEL SHACKLES

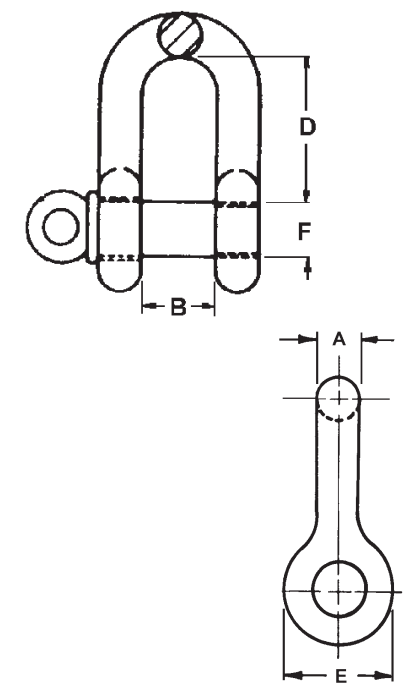
SCREW PIN ANCHOR SHACKLES

Working Load Limit (Tons)	A	B	C	D	E	F	Approx. Weight Each (lbs.)	Part Number
1/2	3/16"	3/8"	5/8"	7/8"	5/8"	1/4"	0.06	CM645P
3/4	1/4"	15/32"	3/4"	1-1/8"	7/8"	5/16"	0.12	CM646P
1	5/16"	17/32"	13/16"	1-1/4"	1"	3/8"	0.20	CM647P
1-1/2	3/8"	21/32"	15/16"	1-7/16"	1-1/8"	7/16"	0.30	CM648P
2	7/16"	3/4"	1-1/16"	1-11/16"	1-1/4"	1/2"	0.50	CM649P
3	1/2"	13/16"	1-3/16"	1-7/8"	1-3/8"	5/8"	0.75	CM650P
4-1/2	5/8"	1-1/16"	1-1/2"	2-3/8"	1-7/8"	3/4"	1.3	CM651P
6-1/2	3/4"	1-1/4"	1-3/4"	2-13/16"	2-1/8"	7/8"	2.3	CM652P
8-1/2	7/8"	1-7/16"	2"	3-5/16"	2-3/8"	1"	3.5	CM653P
10	1"	1-11/16"	2-5/16"	3-3/4"	2-5/8"	1-1/8"	5.0	CM654P
12	1-1/8"	1-13/16"	2-5/8"	4-1/4"	2-7/8"	1-1/4"	7.0	CM655P
14	1-1/4"	2-1/32"	2-7/8"	4-11/16"	3-1/4"	1-3/8"	9.5	CM656P
17	1-3/8"	2-1/4"	3-1/4"	5-1/4"	3-1/2"	1-1/2"	12.5	CM666P
20	1-1/2"	2-3/8"	3-3/8"	5-3/4"	3-3/4"	1-5/8"	17.2	CM657P



SCREW PIN CHAIN SHACKLES

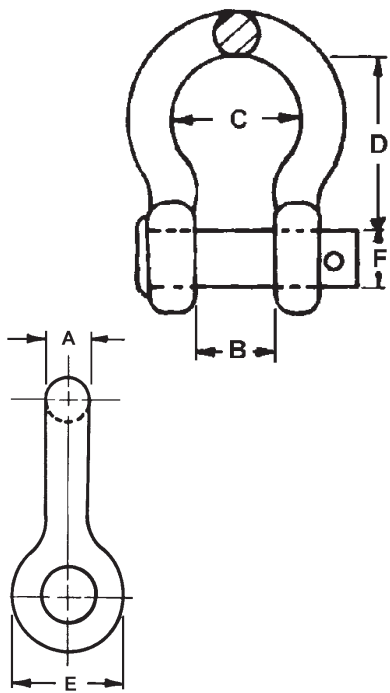
Working Load Limit (Tons)	A	B	D	E	F	Approx. Weight Each (lbs.)	Part Number
3/4	1/4"	15/32"	1-1/8"	7/8"	5/16"	0.12	CM746P
1	5/16"	17/32"	1-1/4"	1"	3/8"	0.20	CM747P
1-1/2	3/8"	21/32"	1-7/16"	1-1/8"	7/16"	0.30	CM748P
2	7/16"	3/4"	1-11/16"	1-1/4"	1/2"	0.50	CM749P
3	1/2"	13/16"	1-7/8"	1-3/8"	5/8"	0.75	CM750P
4-1/2	5/8"	1-1/16"	2-3/8"	1-7/8"	3/4"	1.3	CM751P
6-1/2	3/4"	1-1/4"	2-13/16"	2-1/8"	7/8"	2.3	CM752P
8-1/2	7/8"	1-7/16"	3-5/16"	2-3/8"	1"	3.5	CM753P
10	1"	1-11/16"	3-3/4"	2-5/8"	1-1/8"	5.0	CM754P



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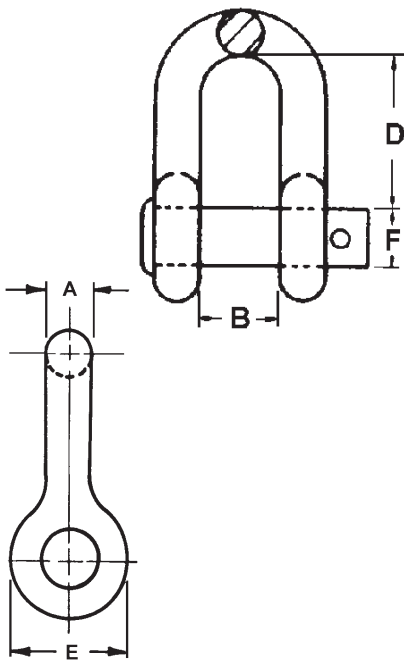
FORGED STEEL SHACKLES

ROUND PIN ANCHOR SHACKLES



Working Load Limit (Tons)	A	B	C	D	E	F	Approx. Weight Each (lbs.)	Part Number
1/2	3/16"	3/8"	5/8"	7/8"	5/8"	1/4"	0.06	CM345P
3/4	1/4"	15/32"	3/4"	1-1/8"	7/8"	5/16"	0.12	CM346P
1	5/16"	17/32"	13/16"	1-1/4"	1"	3/8"	0.20	CM347P
1-1/2	3/8"	21/32"	15/16"	1-7/16"	1-1/8"	7/16"	0.30	CM348P
2	7/16"	3/4"	1-1/16"	1-11/16"	1-1/4"	1/2"	0.50	CM349P
3	1/2"	13/16"	1-3/16"	1-7/8"	1-3/8"	5/8"	0.75	CM350P
4-1/2	5/8"	1-1/16"	1-1/2"	2-3/8"	1-7/8"	3/4"	1.3	CM351P
6-1/2	3/4"	1-1/4"	1-3/4"	2-13/16"	2-1/8"	7/8"	2.3	CM352P
8-1/2	7/8"	1-7/16"	2"	3-5/16"	2-3/8"	1"	3.5	CM353P
10	1"	1-11/16"	2-5/16"	3-3/4"	2-5/8"	1-1/8"	5.0	CM354P
12	1-1/8"	1-13/16"	2-5/8"	4-1/4"	2-7/8"	1-1/4"	7.0	CM355P
14	1-1/4"	2-1/32"	2-7/8"	4-11/16"	3-1/4"	1-3/8"	9.5	CM356P
17	1-3/8"	2-1/4"	3-1/4"	5-1/4"	3-1/2"	1-1/2"	12.5	CM366P
20	1-1/2"	2-3/8"	3-3/8"	5-3/4"	3-3/4"	1-5/8"	17.2	CM357P

ROUND PIN CHAIN SHACKLES



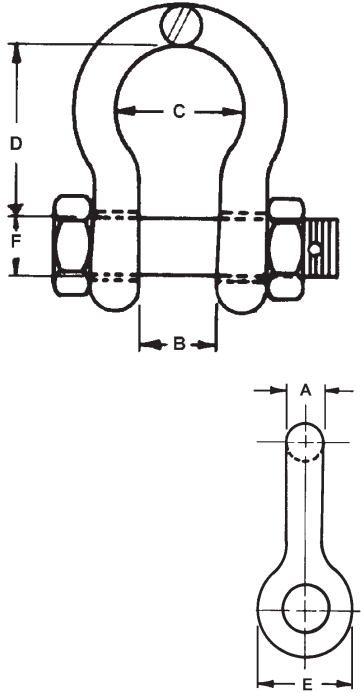
Working Load Limit (Tons)	A	B	D	E	F	Approx. Weight Each (lbs.)	Part Number
3/4	1/4"	15/32"	1-1/8"	7/8"	5/16"	0.12	CM546P
1	5/16"	17/32"	1-1/4"	1"	3/8"	0.20	CM547P
1-1/2	3/8"	21/32"	1-7/16"	1-1/8"	7/16"	0.30	CM548P
2	7/16"	3/4"	1-11/16"	1-1/4"	1/2"	0.50	CM549P
3	1/2"	13/16"	1-7/8"	1-3/8"	5/8"	0.75	CM550P
4-1/2	5/8"	1-1/16"	2-3/8"	1-7/8"	3/4"	1.3	CM551P
6-1/2	3/4"	1-1/4"	2-13/16"	2-1/8"	7/8"	2.3	CM552P
8-1/2	7/8"	1-7/16"	3-5/16"	2-3/8"	1"	3.5	CM553P
10	1"	1-11/16"	3-3/4"	2-5/8"	1-1/8"	5.0	CM554P

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FORGED STEEL SHACKLES

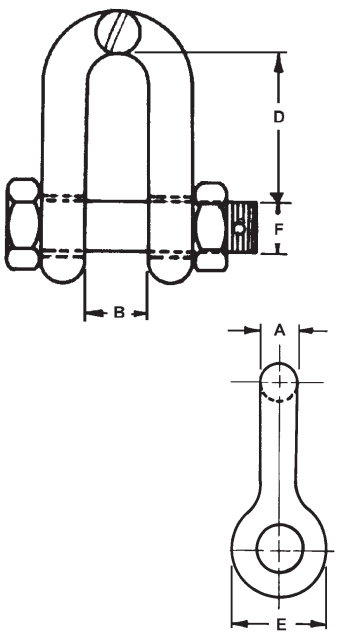
SAFTEY ANCHOR SHACKLES

Working Load Limit (Tons)	A	B	C	D	E	F	Approx. Weight Each (lbs.)	Part Number
3/4	1/4"	15/32"	3/4"	1-1/8"	7/8"	5/16"	0.12	CM846P
1	5/16"	17/32"	13/16"	1-1/4"	1"	3/8"	0.20	CM847P
1-1/2	3/8"	21/32"	15/16"	1-7/16"	1-1/8"	7/16"	0.30	CM848P
2	7/16"	3/4"	1-1/16"	1-11/16"	1-1/4"	1/2"	0.50	CM849P
3	1/2"	13/16"	1-3/16"	1-7/8"	1-3/8"	5/8"	0.75	CM850P
4-1/2	5/8"	1-1/16"	1-1/2"	2-3/8"	1-7/8"	3/4"	1.3	CM851P
6-1/2	3/4"	1-1/4"	1-3/4"	2-13/16"	2-1/8"	7/8"	2.3	CM852P
8-1/2	7/8"	1-7/16"	2"	3-5/16"	2-3/8"	1"	3.5	CM853P
10	1"	1-11/16"	2-5/16"	3-3/4"	2-5/8"	1-1/8"	5.0	CM854P
12	1-1/8"	1-13/16"	2-5/8"	4-1/4"	2-7/8"	1-1/4"	7.0	CM855P
14	1-1/4"	2-1/32"	2-7/8"	4-11/16"	3-1/4"	1-3/8"	9.5	CM856P
17	1-3/8"	2-1/4"	3-1/4"	5-1/4"	3-1/2"	1-1/2"	12.5	CM866P
20	1-1/2"	2-3/8"	3-3/8"	5-3/4"	3-3/4"	1-5/8"	17.2	CM857P



SAFTEY CHAIN SHACKLES

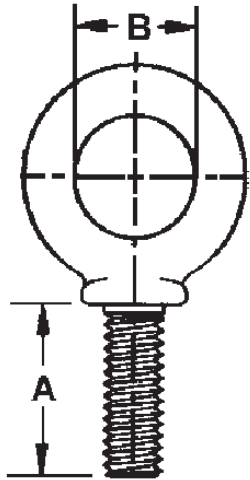
Working Load Limit (Tons)	A	B	D	E	F	Approx. Weight Each (lbs.)	Part Number
3/4	1/4"	15/32"	1-1/8"	7/8"	5/16"	0.12	CM946P
1	5/16"	17/32"	1-1/4"	1"	3/8"	0.20	CM947P
1-1/2	3/8"	21/32"	1-7/16"	1-1/8"	7/16"	0.30	CM948P
2	7/16"	3/4"	1-11/16"	1-1/4"	1/2"	0.50	CM949P
3	1/2"	13/16"	1-7/8"	1-3/8"	5/8"	0.75	CM950P
4-1/2	5/8"	1-1/16"	2-3/8"	1-7/8"	3/4"	1.3	CM951P
6-1/2	3/4"	1-1/4"	2-13/16"	2-1/8"	7/8"	2.3	CM952P
8-1/2	7/8"	1-7/16"	3-5/16"	2-3/8"	1"	3.5	CM953P
10	1"	1-11/16"	3-3/4"	2-5/8"	1-1/8"	5.0	CM954P



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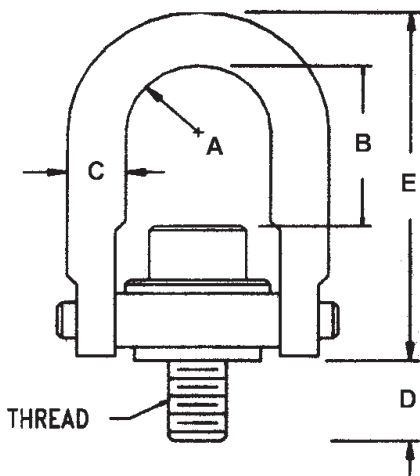
LIFTING HARDWARE

EYE BOLT SPECIFICATIONS



Working Load Limit (lbs.) Straight Pull	DIA & Thread	A	B	Part Number
500	1/4"-20	1"	3/4"	CH128056
900	5/16"-18	1-1/8"	7/8"	CH128254
1,400	3/8"-16	1-1/4"	1"	CH128452
2,000	7/16"-14	1-3/8"	1-3/32"	CH128650
2,600	1/2"-13	1-1/2"	1-3/16"	CH128858
3,200	9/16"-12	1-5/8"	1-9/32"	CH129053
4,000	5/8"-11	1-3/4"	1-3/8"	CH129251
6,000	3/4"-10	2"	1-1/2"	CH129480
7,000	7/8"-9	2-1/4"	1-11/16"	CH129688
9,000	1"-8	2-1/2"	1-13/16"	CH129886
12,000	1-1/8"-7	2-3/4"	2"	CH130080
15,000	1-1/4"-7	3"	2-3/16"	CH130318
21,000	1-1/2"-6	3-1/2"	2-1/2"	CH130516

SWIVEL HOIST RING SPECIFICATIONS



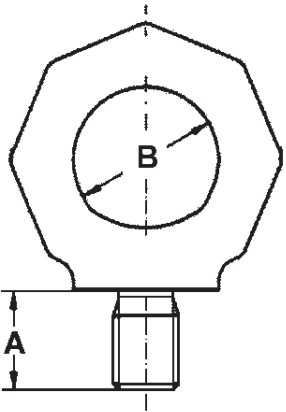
Working Load Limit (lbs.)	Thread Size	A	B	C	D	E	Part Number
600	1/4"-20	0.43"	1.27"	3/8"	0.54"	2.67"	AK46100
800	5/16"-18	0.43"	1.27"	3/8"	0.54"	2.67"	AK46104
1,000	3/8"-16	0.43"	1.27"	3/8"	0.54"	2.67"	AK46106
2,500	1/2"-13	0.88"	2.31"	3/4"	1.03"	4.78"	AK46010
4,000	5/8"-11	0.88"	2.18"	3/4"	1.03"	4.78"	AK46004
5,000	3/4"-10	0.88"	2.06"	3/4"	1.53"	4.78"	AK46018
7,000	3/4"-10	1.40"	3.06"	1"	1.54"	6.52"	AK46206
8,000	7/8"-9	1.40"	2.93"	1"	1.29"	6.52"	AK46203
10,000	1"-8	1.40"	2.81"	1"	1.54"	6.52"	AK46212
15,000	1-1/4"-7	1.75"	4.12"	1-1/4"	1.89"	8.73"	AK46802
20,000	1-3/8"-6	2.00"	5.50"	1-1/2"	2.50"	10.20"	AK46702
24,000	1-1/2"-6	2.25"	6.41"	1-3/4"	2.70"	12.47"	AK46404
30,000	2"-4.5	2.25"	5.91"	1-3/4"	2.96"	12.47"	AK46400
50,000	2-1/2"-8	3.00"	8.03"	2-1/4"	4"	16.87"	AK47002
75,000	3"-4	3.75"	8.48"	2-3/4"	5"	19.50"	AK47200
100,000	3-1/2"-4	4.00"	9.28"	3-1/4"	7"	22.09"	AK47402
250,000	6"-4	6.00"	14.00"	5"	9"	33"	AK47602

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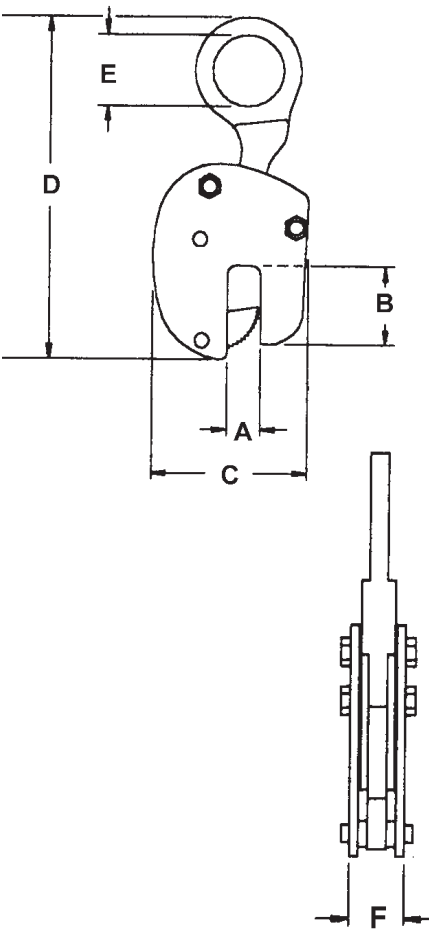
STAR POINT SPECIFICATIONS

Working Load Limit (lbs.)	DIA Inches	A Millimeter	B Inches	Part Number
880	3/8"	15	1"	RC7104480
1,650	1/2"	18	1-3/16"	RC7104481
3,300	5/8"	24	1-3/8"	RC7104482
5,070	3/4"	30	1-9/16"	RC7104483
5,070	7/8"	32	1-9/16"	RC7104484
7,050	1"	36	1-7/8"	RC7104485
9,920	1-1/4"	45	2-3/8"	RC7104486
15,430	1-1/2"	54	2-13/16"	RC7104487
19,480	1-3/4"	63	3-1/4"	RC7104488
26,450	2"	72	3-11/16"	RC7104489



SAFTEY CLAMPS SPECIFICATIONS

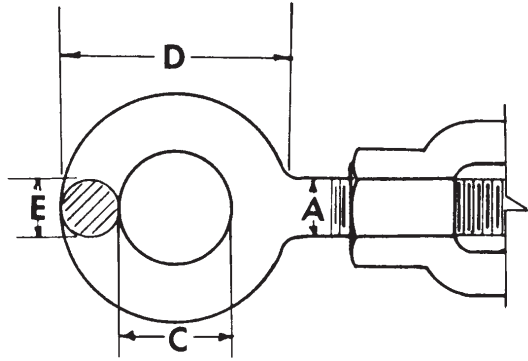
Working Load Limit (Tons)	A	B	C	D	E	F	Part Number
1/2	0 - 7/8"	2-3/4"	5-3/8"	11-3/4"	2-1/2"	2-7/8"	AVL12
1/2	0 - 1 3/8"	2-3/4"	5-1/2"	12"	2-1/2"	2-7/8"	VL12
1	0 - 7/8"	2-3/4"	5-3/8"	11-3/4"	2-1/2"	2-7/8"	AVL1
1	0 - 1 3/8"	2-3/4"	5-1/2"	12"	2-1/2"	2-7/8"	VL1
2	0 - 1 5/8"	4-1/8"	8"	16-1/4"	3-1/2"	4-1/8"	VL2a
2	1 1/2 - 2 3/4"	4-1/8"	9-1/8"	16-1/4"	3-1/2"	4-1/8"	VL2b
3	0 - 1 5/8"	4-1/8"	8"	16"	3-1/2"	4-1/8"	VL3a
3	1 1/2 - 2 3/4"	4-1/8"	9-1/8"	16"	3-1/2"	4-1/8"	VL3b
4	0 - 2 1/8"	4-5/8"	9-1/2"	18"	4"	5"	VL4a
4	2 - 3 3/4"	4-5/8"	11-1/8"	18"	4"	5"	VL4b
4	3 3/4 - 5 1/2"	4-5/8"	13"	18"	4"	5"	VL4c
6	0 - 2 1/8"	4-5/8"	9-1/2"	18"	4"	5"	VL6a
6	2 - 3 3/4"	4-5/8"	11-1/8"	18"	4"	5"	VL6b
6	3 3/4 - 5 1/2"	4-5/8"	13"	18"	4"	5"	VL6c
8	0 - 2 5/8"	5-1/4"	10-1/2"	22-3/8"	4-1/2"	5-3/4"	VL8a
8	2 1/2 - 4 1/2"	5-1/4"	12-3/8"	22-3/8"	4-1/2"	5-3/4"	VL8b
8	4 1/2 - 6 1/2"	5-1/4"	14-3/8"	22-3/8"	4-1/2"	5-3/4"	VL8c
10	0 - 2 5/8"	5-1/4"	10-1/2"	22-3/8"	4-1/2"	5-3/4"	VL10a
10	2 1/2 - 4 1/2"	5-1/4"	12-3/8"	22-3/8"	4-1/2"	5-3/4"	VL10b
10	4 1/2 - 6 1/2"	5-1/4"	14-3/8"	22-3/8"	4-1/2"	5-3/4"	VL10c
12	1/2 - 3 1/8"	6-1/2"	12-1/4"	27-3/4"	4-7/8"	6-3/4"	VL12a
12	3 - 5 1/4"	6-1/2"	14-3/8"	27-3/4"	4-7/8"	6-3/4"	VL12b
12	5 - 7 1/4"	6-1/2"	16-3/8"	27-3/4"	4-7/8"	6-3/4"	VL12c
20	1/2 - 4 1/4"	8-3/8"	17"	36-3/8"	5-5/8"	8-1/4"	VL20a
20	4 - 7"	8-3/8"	20"	36-3/8"	5-5/8"	8-1/4"	VL20b
20	7 - 10"	8-3/8"	22-5/8"	36-3/8"	5-5/8"	8-1/4"	VL20c



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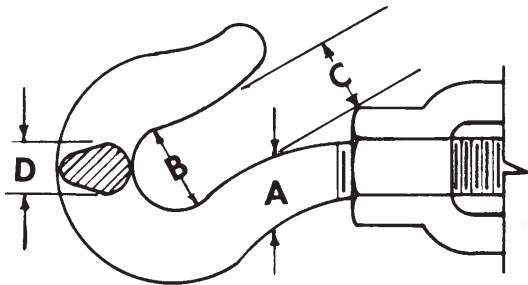
LIFTING HARDWARE

EYE TURNBUCKLE SPECIFICATIONS



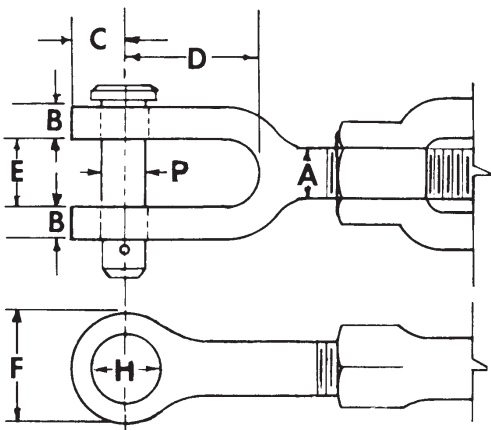
Working Load Limit (lbs.)	A	C	D	E
500	1/4"	1/2"	1"	7/32"
800	5/16"	5/8"	1-1/4"	9/32"
1,200	3/8"	3/4"	1-1/2"	11/32"
2,200	1/2"	1"	2"	7/16"
3,500	5/8"	1-1/4"	2-5/16"	17/32"
5,200	3/4"	1-1/2"	2-3/4"	5/8"
7,200	7/8"	1-3/4"	3-1/2"	7/8"
10,000	1"	2"	3-3/4"	7/8"

HOOK TURNBUCKLE SPECIFICATIONS



Working Load Limit (lbs.)	A	B	C	D
400	1/4"	5/16"	9/32"	7/32"
700	5/16"	1/2"	1/2"	5/16"
1,000	3/8"	1/2"	1/2"	3/8"
1,500	1/2"	7/8"	13/16"	17/32"
2,250	5/8"	29/32"	27/32"	5/8"
3,000	3/4"	1-1/8"	29/32"	11/16"
3,200	7/8"	1-3/16"	1-1/16"	13/16"
5,000	1"	1-3/8"	1-1/4"	7/8"

JAW TURNBUCKLE SPECIFICATIONS



Working Load Limit (lbs.)	A	B	C	D	E	F	H	P
500	1/4"	7/32"	5/16"	25/32"	3/8"	5/8"	9/32"	1/4"
800	5/16"	1/4"	5/16"	7/8"	15/32"	5/8"	9/32"	1/4"
1,200	3/8"	9/32"	13/32"	1"	1/2"	13/16"	11/32"	5/16"
2,200	1/2"	5/16"	1/2"	1-9/32"	5/8"	1"	15/32"	7/16"
3,500	5/8"	3/8"	21/32"	1-21/32"	7/8"	1-5/16"	35/64"	1/2"
5,200	3/4"	1/2"	13/16"	1-27/32"	15/16"	1-5/8"	43/64"	5/8"
7,200	7/8"	9/16"	29/32"	1-31/32"	1-5/32"	1-7/8"	25/32"	3/4"
10,000	1"	11/16"	1-1/16"	2-13/32"	1-3/16"	2"	15/16"	7/8"

HARDWARE

LIFTING HARDWARE

TURNBUCKLE SPECIFICATIONS

DIA & Take-Up	Overall lengths (Closed Position)				
	Eye & Eye	Hook & Eye	Hook & Hook	Jaw & Eye	Jaw & Jaw
1/4" x 4"	8"	8-1/4"	8-1/2"	8-1/4"	8-1/2"
5/16" x 4 1/2"	9"	9-1/4"	9-1/2"	9-1/8"	9-1/4"
3/8" x 6"	11 1/2"	11-3/4"	12"	11-1/2"	11-1/2"
1/2" x 2"	8-1/2"	9-1/4"	10"	8-3/4"	8-7/8"
1/2" x 6"	13"	13-5/8"	14-1/4"	13-1/4"	13-1/2"
1/2" x 9"	16"	16-3/8"	17-1/4"	16-1/4"	16-1/2"
1/2" x 12"	19"	19-5/8"	20-1/4"	19-1/4"	19-1/2"
5/8" x 6"	13-1/2"	14-1/8"	14-3/4"	14-5/8"	15-3/4"
5/8" x 9"	17"	17-3/8"	17-3/4"	17-7/8"	18-3/4"
5/8" x 12"	20-1/2"	20-5/8"	20-3/4"	21-1/8"	21-3/4"
5/8" x 18"	26-1/2"	26-5/8"	26-3/4"	27-1/8"	27-3/4"
3/4" x 6"	14-3/4"	15-3/4"	16-3/4"	15-5/8"	16-1/2"
3/4" x 9"	18"	18-7/8"	19-3/4"	18-3/4"	19-1/2"
3/4" x 12"	21-3/4"	22-1/8"	22-3/4"	22"	22-1/2"
3/4" x 18"	27-3/4"	28-1/8"	28-3/4"	28"	28-1/2"
7/8" x 6"	18"	18-1/2"	19"	19"	19-1/2"
7/8" x 12"	22-1/2"	23-1/8"	23-3/4"	23-1/2"	24-1/2"
7/8" x 18"	28-1/2"	29-1/8"	29-3/4"	29-1/2"	30-1/2"
1" x 6"	17"	19-1/2"	20"	19-1/8"	21-3/16"
1" x 12"	25"	25-1/4"	25-1/2"	25-1/4"	25-1/2"
1" x 18"	31"	31-1/4"	31-1/2"	31-1/4"	31-1/2"



Eye & Eye



Hook & Eye



Hook & Hook



Jaw & Eye



Jaw & Jaw



Body Only



Body with Stubs

DIA & Take-Up	Overall lengths	
	Bodies With Stubs Closed	Bodies Only
1/4" x 4"	10"	4-13/16"
5/16" x 4 1/2"	11"	5-9/16"
3/8" x 6"	16"	7-1/8"
1/2" x 2"	10-1/4"	3-1/2"
1/2" x 6"	16"	7-1/2"
1/2" x 9"	19"	10-1/2"
1/2" x 12"	22"	13-1/2"
5/8" x 6"	16"	7-7/8"
5/8" x 9"	19"	10-7/8"
5/8" x 12"	22"	13-7/8"
5/8" x 18"	28"	20-1/4"
3/4" x 6"	17"	8-1/4"
3/4" x 9"	20"	11-1/4"
3/4" x 12"	23"	14-1/4"
3/4" x 18"	29"	20-1/4"
7/8" x 6"	18"	8-5/8"
7/8" x 12"	24"	14-5/8"
7/8" x 18"	30"	20-5/8"
1" x 6"	19"	9"
1" x 12"	25"	15"
1" x 18"	31"	21"
1-1/8" x 6"	19"	9"
1-1/8" x 12"	25"	15"
1-1/4" x 6"	20"	9-3/4"
1-3/8" x 6"	20-1/2"	9-3/4"
1-1/2" x 6"	20-1/2"	10-3/8"