

## **SUPER STRONG SHACKLES**

*Also featuring these CM Shackles*

**Alloy • Stainless Steel • Long Reach • Government • DNV • Trawling**



An vital part of Columbus McKinnon Corporation (CMCO), Midland Forge is a leader in custom forged products. The company, based in Cedar Rapids, Iowa, began as Midland Industries in 1943, and primarily served the farming market. Midland Forge joined the CMCO family in 1976, and it has developed into a premier manufacturer of high-quality lifting shackles and chain attachments used in a variety of industries around the world.

Midland Forge has been ISO certified since 1994, currently ISO 9001:2000. All quality checks are performed on site including: magnetic particle inspection, proof-testing, fatigue testing, destructive testing, hardness, etc., and certification is available for all tests. In-house tool building and complete engineering capabilities enhance the focus on exceeding the expectations of the customer. Additionally, products are supplied to numerous branches of the U.S. Government under Midland forge Cage Code #90202.

Well-known for the Big Orange® line of products, Midland Forge has developed a reputation for creating the toughest shackles and hooks in the industry. Super Strong Carbon Shackles consistently exhibit superior strength and more ductility than other carbon steel shackles of the same nominal section size.

In addition to the Super Strong Shackles for professional riggers, products like Lodelok attachments that may be used with chain, synthetics, and wire rope in various configurations have recently been developed for use in diverse construction activities. Shackles, hooks, and related attachments are vital parts of CM Complete Lifting Systems, which provide all the necessary products for lifting and load securement applications. In addition to a broad product line, CM Complete Lifting Systems offer:

- A global network of authorized distributors that provide inventory, technical support, service after the sale, and consultation regarding specific needs.
- A thoroughly trained, knowledgeable sales force that provides expertise on applications, regulations, training requirements, and product features and benefits.
- Customer service representatives who address an array of issues related to shipments, product selection, specifications, and auxiliary items.
- Training programs dedicated specifically to rigging products or broad-based to cover all aspects of lifting and positioning.
- Abundantly stocked, integrated, corporate warehouses in key locations to provide timely service to the distributor network.
- The ONLY manufacturer of rigging products that is also a LEADER in the manufacturing and marketing of hoists, overhead cranes, and related products.





# CM SUPER STRONG CARBON SHACKLE

When it comes to working load limits for carbon shackles, there is no equal to the **SUPER STRONG SHACKLE**. Across the entire range, the **SUPER STRONG SHACKLE** provides substantially higher working load limits than its nearest competitor.

## Anchor Style

Size Diameter (in.)	Working Load Limits (tons)		CM Product Codes		
	CM	Crosby*	Screw Pin	Round Pin	Bolt, Nut & Cotter
3/16	1/2	1/3	M645G	M345G	—
1/4	3/4	1/2	M646G	M346G	M846G
5/16	1	3/4	M647G	M347G	M847G
3/8	1-1/2	1	M648G	M348G	M848G
7/16	2	1-1/2	M649G	M349G	M849G
1/2	3	2	M650G	M350G	M850G
5/8	4-1/2	3-1/4	M651G	M351G	M851G
3/4	6-1/2	4-3/4	M652G	M352G	M852G
7/8	8-1/2	6-1/2	M653G	M353G	M853G
1	10	8-1/2	M654G	M354G	M854G
1-1/8	12	9-1/2	M655G	M355G	M855G
1-1/4	14	12	M656G	M356G	M856G
1-3/8	17	13-1/2	M666G	M366G	M866G
1-1/2	20	17	M657G	M357G	M857G
1-5/8	24	Not Available	M685G	M385G	M885G
1-3/4	30	25	M677G	M377G	M877G

## Chain Style

Size Diameter (in.)	Working Load Limits (tons)		CM Product Codes		
	CM	Crosby*	Screw Pin	Round Pin	Bolt, Nut & Cotter
1/4	3/4	1/2	M746G	M546G	M946G
5/16	1	3/4	M747G	M547G	M947G
3/8	1-1/2	1	M748G	M548G	M948G
7/16	2	1-1/2	M749G	M549G	M949G
1/2	3	2	M750G	M550G	M950G
5/8	4-1/2	3-1/4	M751G	M551G	M951G
3/4	6-1/2	4-3/4	M752G	M552G	M952G
7/8	8-1/2	6-1/2	M753G	M553G	M953G
1	10	8-1/2	M754G	M554G	M954G
1-1/8	12	9-1/2	M755G	M555G	M955G
1-1/4	14	12	M756G	M556G	M956G
1-3/8	17	13-1/2	M766G	M566G	M966G
1-1/2	20	17	M757G	M557G	M957G
1-5/8	24	Not Available	M785G	M585G	M985G
1-3/4	30	25	M777G	M577G	M977G

\* Crosby working load limits listed in Crosby publication 9999100

# Anchor Shackles

## SUPER STRONG CARBON SHACKLE



Screw Pin



Round Pin



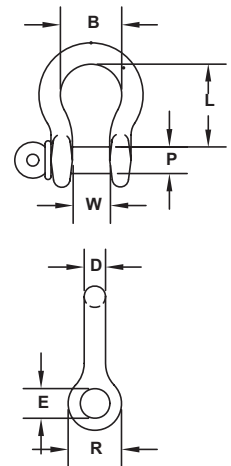
Bolt, Nut & Cotter

- Rated for overhead lifting
- All shackles meet or exceed Federal Specification RRC-271D and ASME B30.26
- Working Load Limit and traceability codes shown as permanent marking on body and pin
- Available in painted, galvanized and self-colored finishes (Dacromate coating upon special request only)
- All shackles have alloy quenched and tempered pins
- Shackles made from technically advanced microalloy material
- Load break tests consistently show microalloy outperforms quenched and tempered carbon material
- Shock load testing of assemblies at -300°F consistently demonstrate microalloy outperforms quenched and tempered carbon material\*
- Special testing and certification including magnetic particle, proof load, and fatigue test available upon request at time of order
- Proof tested at 2.2 times the working load limit
- Ultimate strength equals six times working load limit
- Shackles exhibit extreme deformation before failure\*
- Do not exceed working load limit
- When shackles need to be used above 400°F (204°C) or below -40°F (-140°C), consult factory

\*Independent lab verified

### Specifications

Size	Working Load Limit	Product Code (Screw Pin)	Product Code (Round Pin)	Product Code (B, N & C)	P	E	W	R	L	B min	Weight
<b>Imperial</b>											
3/16	1/2	M645	M345	-	0.250	0.307	0.375	0.625	0.875	0.562	0.06
1/4	3/4	M646	M346	M846	0.312	0.401	0.469	0.875	1.125	0.750	0.12
5/16	1	M647	M347	M847	0.375	0.463	0.531	1.000	1.250	0.812	0.20
3/8	1-1/2	M648	M348	M848	0.438	0.531	0.656	1.125	1.437	0.937	0.30
7/16	2	M649	M349	M849	0.500	0.593	0.750	1.250	1.689	1.062	0.50
1/2	3	M650	M350	M850	0.625	0.718	0.813	1.375	1.875	1.187	0.75
5/8	4-1/2	M651	M351	M851	0.750	0.843	1.063	1.875	2.375	1.500	1.30
3/4	6-1/2	M652	M352	M852	0.875	0.968	1.250	2.125	2.813	1.750	2.30
7/8	8-1/2	M653	M353	M853	1.000	1.109	1.438	2.375	3.312	2.000	3.50
1	10	M654	M354	M854	1.125	1.234	1.688	2.625	3.750	2.312	5.00
1-1/8	12	M655	M355	M855	1.250	1.375	1.812	2.875	4.250	2.625	7.00
1-1/4	14	M656	M356	M856	1.375	1.531	2.031	3.250	4.688	2.875	9.50
1-3/8	17	M666	M366	M866	1.500	1.656	2.250	3.500	5.250	3.250	12.50
1-1/2	20	M657	M357	M857	1.625	1.781	2.375	3.750	5.750	3.375	17.20
1-5/8	24	M685	M385	M885	1.750	1.906	2.625	4.125	6.250	4.000	23.50
1-3/4	30	M677	M377	M877	2.000	2.156	2.875	4.500	7.000	4.500	27.70
2	35	M658	M358	M858	2.250	2.406	3.250	5.250	7.750	5.250	39.00



Screw Pin



Round Pin



Bolt, Nut & Cotter



**Screw Pin**



**Round Pin**

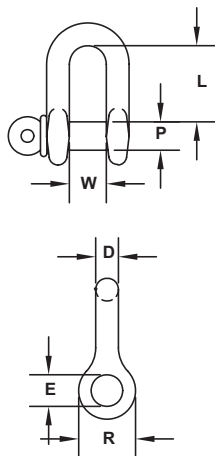


**Bolt, Nut & Cotter**

- Rated for overhead lifting
- All shackles meet or exceed Federal Specification RRC-271D and ASME B30.26
- Working Load Limit and traceability codes shown as permanent marking on body and pin
- Available in painted, galvanized and self-colored finishes (Dacromate coating upon special request only)
- All shackles have alloy quenched and tempered pins
- Shackles made from technically advanced microalloy material
- Load break tests consistently show microalloy outperforms quenched and tempered carbon material
- Shock load testing of assemblies at -300°F consistently demonstrate microalloy outperforms quenched and tempered carbon material\*
- Special testing and certification including magnetic particle, proof load, and fatigue test available upon request at time of order
- Proof tested at 2.2 times the working load limit
- Ultimate strength equals six times working load limit
- Shackles exhibit extreme deformation before failure\*
- Do not exceed working load limit
- When shackles need to be used above 400°F (204°C) or below -40°F (-140°C), consult factory
- Typically used in straight line corrections
- More compact than typical anchor shackles
- Ideal when securing guy lines or wire rope fences

\*Independent lab verified

### Specifications



Size	Working Load Limit	Product Code (Screw Pin)	Product Code (Round Pin)	Product Code (B, N & C)	P	E	W	R	L	Weight
<b>Imperial</b>										
1/4	3/4	M746	M546	M946	0.312	0.401	0.469	0.875	0.875	0.12
5/16	1	M747	M547	M947	0.375	0.463	0.531	1.000	1.031	0.20
3/8	1-1/2	M748	M548	M948	0.438	0.531	0.656	1.125	1.250	0.30
7/16	2	M749	M549	M949	0.500	0.593	0.750	1.250	1.437	0.50
1/2	3	M750	M550	M950	0.625	0.718	0.813	1.375	1.625	0.75
5/8	4-1/2	M751	M551	M951	0.750	0.843	1.063	1.875	2.000	1.30
3/4	6-1/2	M752	M552	M952	0.875	0.968	1.250	2.125	2.375	2.30
7/8	8-1/2	M753	M553	M953	1.000	1.109	1.438	2.375	2.812	3.50
1	10	M754	M554	M954	1.125	1.234	1.688	2.625	3.188	5.00
1-1/8	12	M755	M555	M955	1.250	1.375	1.812	2.875	3.562	7.00
1-1/4	14	M756	M556	M956	1.375	1.531	2.031	3.250	3.938	9.50
1-3/8	17	M766	M566	M966	1.500	1.656	2.250	3.500	4.438	12.50
1-1/2	20	M757	M557	M957	1.625	1.781	2.375	3.750	4.875	17.20
1-5/8	24	M785	M585	M985	1.750	1.906	2.625	4.125	5.250	23.50
1-3/4	30	M777	M577	M977	2.000	2.156	2.875	4.500	5.750	27.70
2	35	M758	M558	M958	2.250	2.406	3.250	5.250	6.750	39.00



**Screw Pin**



**Round Pin**



**Bolt, Nut & Cotter**

**Made in USA**

# Carbon Anchor Shackles

**INDUSTRIAL/  
GOVERNMENT RATED**



**Screw Pin**



**Round Pin**



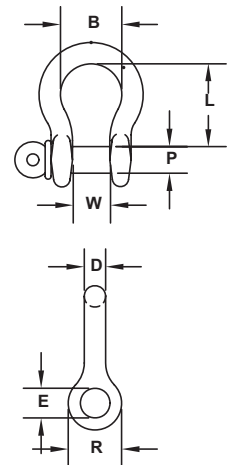
**Bolt, Nut & Cotter**

- Rated for overhead lifting
- These shackles meet requirements of Federal Specification RR-C-271D Amendment 1, and ASME B30.26
- All shackle pins are forged from alloy steel, heat treated and tempered to give greater strength
- All shackles are marked with size (inches and millimeters) and working load limit in tons
- Proof tested at 2.2 times the working load limit
- Ultimate strength equals five times working load limit
- All bolt, nut & cotter shackles have thread protected ends
- Galvanized per ASTM A153
- Standard industry tolerances apply
- Do not exceed working load limit
- When shackles need to be used above 400°F (204°C) or below -40°F (-140°C), consult factory

\*Independent lab verified

## Specifications

Size	Working Load Limit	Product Code (Screw Pin)	Product Code (Round Pin)	Product Code (B, N & C)	P	E	W	R	L	B min	Weight
<b>Imperial</b>											
in.	Ton				in.	in.	in.	in.	in.	in.	lb.
3/16	1/3	MC645G	MC345G	-	0.250	0.307	0.375	0.625	0.875	0.562	0.06
1/4	1/2	MC646G	MC346G	MC846G	0.312	0.401	0.469	0.875	1.125	0.750	0.12
5/16	3/4	MC647G	MC347G	MC847G	0.375	0.463	0.531	1.000	1.250	0.812	0.20
3/8	1	MC648G	MC348G	MC848G	0.438	0.531	0.656	1.125	1.437	0.937	0.30
7/16	1-1/2	MC649G	MC349G	MC849G	0.500	0.593	0.750	1.250	1.689	1.062	0.50
1/2	2	MC650G	MC350G	MC850G	0.625	0.718	0.813	1.375	1.875	1.187	0.75
5/8	3-1/4	MC651G	MC351G	MC851G	0.750	0.843	1.063	1.875	2.375	1.500	1.30
3/4	4-3/4	MC652G	MC352G	MC852G	0.875	0.968	1.250	2.125	2.813	1.750	2.30
7/8	6-1/2	MC653G	MC353G	MC853G	1.000	1.109	1.438	2.375	3.312	2.000	3.50
1	8-1/2	MC654G	MC354G	MC854G	1.125	1.234	1.688	2.625	3.750	2.312	5.00
1-1/8	9-1/2	MC655G	MC355G	MC855G	1.250	1.375	1.812	2.875	4.250	2.625	7.00
1-1/4	12	MC656G	MC356G	MC856G	1.375	1.531	2.031	3.250	4.688	2.875	9.50
1-3/8	13-1/2	MC666G	MC366G	MC866G	1.500	1.656	2.250	3.500	5.250	3.250	12.50
1-1/2	17	MC657G	MC357G	MC857G	1.625	1.781	2.375	3.750	5.750	3.375	17.20
1-5/8	20	MC685G	MC385G	MC885G	1.750	1.906	2.625	4.125	6.250	4.000	23.50
1-3/4	25	MC677G	MC377G	MC877G	2.000	2.156	2.875	4.500	7.000	4.500	27.70
2	35	M658G	M358G	M858G	2.250	2.406	3.250	5.250	7.750	5.250	39.00



**Screw Pin**



**Round Pin**



**Bolt, Nut & Cotter**





**Screw Pin**



**Round Pin**

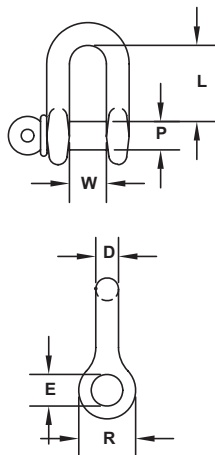


**Bolt, Nut & Cotter**

- Rated for overhead lifting
- Shackles meet or exceed Federal Specification RRC-271D, and ASME B30.26
- Working load limit and traceability codes shown as permanent marking on body and pin
- Available in painted, galvanized and self-colored finishes (Dacromate coating upon special request only)
- Special products engineering available to fit your special lifting, tie down, and pulling needs
- Proof tested at 2.2 times the working load limit
- Do not exceed working load limit
- When shackles need to be used above 400°F (204°C) or below -40°F (-140°C), consult factory
- For more information on industrial / government products visit us at [www.cmpatriots.com](http://www.cmpatriots.com)



### Specifications



Size	Working Load Limit	Product Code (Screw Pin)	Product Code (Round Pin)	Product Code (B, N & C)	P	E	W	R	L	Weight
Imperial										
in.	Ton				in.	in.	in.	in.	in.	lb.
1/4	1/2	MC746G	MC546G	MC946G	0.312	0.401	0.469	0.875	0.875	0.11
5/16	3/4	MC747G	MC547G	MC947G	0.375	0.463	0.531	1.000	1.031	0.17
3/8	1	MC748G	MC548G	MC948G	0.438	0.531	0.656	1.125	1.250	0.25
7/16	1-1/2	MC749G	MC549G	MC949G	0.500	0.593	0.750	1.250	1.437	0.40
1/2	2	MC750G	MC550G	MC950G	0.625	0.718	0.813	1.375	1.625	0.75
5/8	3-1/4	MC751G	MC551G	MC951G	0.750	0.843	1.063	1.875	2.000	1.30
3/4	4-3/4	MC752G	MC552G	MC952G	0.875	0.968	1.250	2.125	2.375	2.30
7/8	6-1/2	MC753G	MC553G	MC953G	1.000	1.109	1.438	2.375	2.812	3.50
1	8-1/2	MC754G	MC554G	MC954G	1.125	1.234	1.688	2.625	3.188	5.00
1-1/8	9-1/2	MC755G	MC555G	MC955G	1.250	1.375	1.812	2.875	3.562	7.00
1-1/4	12	MC756G	MC556G	MC956G	1.375	1.531	2.031	3.250	3.938	9.50
1-3/8	13-1/2	MC766G	MC566G	MC966G	1.500	1.656	2.250	3.500	4.438	12.50
1-1/2	17	MC757G	MC557G	MC957G	1.625	1.781	2.375	3.750	4.875	17.20
1-5/8	20	MC785G	MC585G	MC985G	1.750	1.906	2.625	4.125	5.250	23.50
1-3/4	25	MC777G	MC577G	MC977G	2.000	2.156	2.875	4.500	5.750	27.70
2	35	M758G	M558G	M958G	2.250	2.406	3.250	5.250	6.750	39.00



**Screw Pin**



**Round Pin**



**Bolt, Nut & Cotter**

# Anchor Shackles **ALLOY**



**Screw Pin**



**Round Pin**

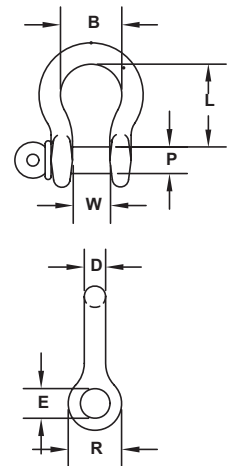


**Bolt, Nut & Cotter**

- Rated for overhead lifting
- All shackles meet or exceed Federal Specification RRC-271D, and ASME B30.26
- Working load limit and traceability codes shown as permanent marking on body and pin
- All shackles have alloy quenched and tempered pins
- Available in painted, galvanized and self-colored finishes (Dacromate coating upon special request only)
- Shackles exhibit extreme deformation before failure\*
- Special testing and certification including magnetic particle, proof load, and fatigue test available upon request at time of order
- Proof tested at 2.2 times the working load limit
- Ultimate strength equals five times working load limit
- Do not exceed working load limit
- When shackles need to be used above 400°F (204°C) or below -40°F (-140°C), consult factory
- \*Independent lab verified

## Specifications

Size	Working Load Limit	Product Code (Screw Pin)	Product Code (Round Pin)	Product Code (B, N & C)	P	E	W	R	L	B min	Weight
<b>Imperial</b>											
in.	Ton				in.	in.	in.	in.	in.	in.	lb.
3/8	2	M648A	-	M848A	0.438	0.531	0.656	1.125	1.437	0.937	0.30
7/16	2.6	M649A	M349A	M849A	0.500	0.593	0.750	1.250	1.689	1.062	0.50
1/2	3.3	M650A	M350A	M850A	0.625	0.718	0.813	1.375	1.875	1.187	0.75
5/8	5	M651A	M351A	M851A	0.750	0.843	1.063	1.875	2.375	1.500	1.30
3/4	7	M652A	M352A	M852A	0.875	0.968	1.250	2.125	2.813	1.750	2.30
7/8	9.5	M653A	M353A	M853A	1.000	1.109	1.438	2.375	3.312	2.000	3.50
1	12.5	M654A	M354A	M854A	1.125	1.234	1.688	2.625	3.750	2.312	5.00
1-1/8	15	M655A	M355A	M855A	1.250	1.375	1.812	2.875	4.250	2.625	7.00
1-1/4	18	M656A	M356A	M856A	1.375	1.531	2.031	3.250	4.688	2.875	9.50
1-3/8	21	M666A	M366A	M866A	1.500	1.656	2.250	3.500	5.250	3.250	12.50
1-1/2	25	M657A	M357A	-	1.625	1.781	2.375	3.750	5.750	3.375	17.20
1-1/2	30	-	-	M857A	1.625	1.781	2.375	3.750	5.750	3.375	17.20
1-5/8	29	M685A	M385A	-	1.750	1.906	2.625	4.125	6.250	4.000	23.50
1-5/8	35	-	-	M885A	1.750	1.906	2.625	4.125	6.250	4.000	23.50
1-3/4	34	M677A	M377A	-	2.000	2.156	2.875	4.500	7.000	4.500	27.70
1-3/4	40	-	-	M877A	2.000	2.156	2.875	4.500	7.000	4.500	27.70
2	43	M658A	M358A	-	2.250	2.406	3.250	5.250	7.750	5.250	39.00
2	50	-	-	M858A	2.250	2.406	3.250	5.250	7.750	5.250	39.00
2-1/2	85	-	-	MC860AG	2.750	2.906	4.125	6.250	10.500	6.750	90.50
3	120	-	-	MC862AG	3.250	3.406	5.000	6.750	13.000	7.375	137.00



**Screw Pin**



**Round Pin**



**Bolt, Nut & Cotter**





**Screw Pin**



**Round Pin**

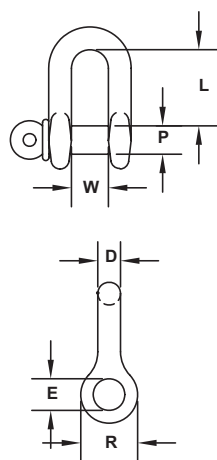


**Bolt, Nut & Cotter**

- Rated for overhead lifting
- All shackles meet or exceed Federal Specification RRC-271D, and ASME B30.26
- Working load limit and traceability codes shown as permanent marking on body and pin
- Available in painted, galvanized and self-colored finishes (Dacromate coating upon special request only)
- All shackles have alloy quenched and tempered pins
- Shackles exhibit extreme deformation before failure\*
- Special testing and certification including magnetic particle, proof load, and fatigue test available upon request at time of order
- Proof tested at 2.2 times the working load limit
- Do not exceed working load limit
- When shackles need to be used above 400°F (204°C) or below -40°F (-140°C), consult factory
- Typically used in straight line corrections
- More compact than typical anchor shackles
- Ideal when securing guy lines or wire rope fences

\*Independent lab verified

### Specifications



Size	Working Load Limit	Product Code (Screw Pin)	Product Code (Round Pin)	Product Code (B, N & C)	P	E	W	R	L	Weight
<b>Imperial</b>										
in.	Ton				in.	in.	in.	in.	in.	lb.
3/8	2	M748A	-	M948A	0.438	0.531	0.656	1.125	1.437	0.25
7/16	2.6	M749A	-	M949A	0.500	0.593	0.750	1.250	1.689	0.40
1/2	3.3	M750A	M550A	M950A	0.625	0.718	0.813	1.375	1.875	0.75
5/8	5	M751A	M551A	M951A	0.750	0.843	1.063	1.875	2.375	1.30
3/4	7	M752A	M552A	M952A	0.875	0.968	1.250	2.125	2.813	2.30
7/8	9.5	M753A	M553A	M953A	1.000	1.109	1.438	2.375	3.312	3.50
1	12.5	M754A	M554A	M954A	1.125	1.234	1.688	2.625	3.750	5.00
1-1/8	15	M755A	M555A	M955A	1.250	1.375	1.812	2.875	4.250	7.00
1-1/4	18	M756A	M556A	M956A	1.375	1.531	2.031	3.250	4.688	9.50
1-3/8	21	M766A	M566A	M966A	1.500	1.656	2.250	3.500	5.250	12.50
1-1/2	25	M757A	M557A	-	1.625	1.781	2.375	3.750	5.750	17.20
1-1/2	30	-	-	M957A	1.625	1.781	2.375	3.750	5.750	17.20
1-5/8	29	M785A	M585A	-	1.750	1.906	2.625	4.125	6.250	23.50
1-5/8	35	-	-	M985A	1.750	1.906	2.625	4.125	6.250	23.50
1-3/4	34	M777A	M577A	-	2.000	2.156	2.875	4.500	7.000	27.70
1-3/4	40	-	-	M977A	2.000	2.156	2.875	4.500	7.000	27.70
2	43	M758A	M558A	-	2.250	2.406	3.250	5.250	7.750	39.00
2	50	-	-	M958A	2.250	2.406	3.250	5.250	7.750	39.00



**Screw Pin**



**Round Pin**



**Bolt, Nut & Cotter**

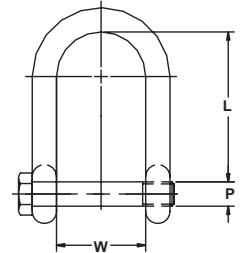
## Long Reach Shackles



- Rated for overhead lifting
- Alloy steel
- Load rated
- WLL forged on body
- Do not exceed working load limit
- Offered in self-colored or orange urethane finish
- Meet or exceed ASME B30.26
- Proof tested at 2.2 times the working load limit
- Ultimate strength equals five times working load limit
- When shackles need to be used above 400°F (204°C) or below -40°F (-140°C), consult factory

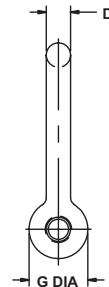
### Specifications

Product Code	Pin Number	Working Load Limit	P	D	L	W	G	Weight
<b>Imperial</b>								
		lb.	in.	in.	in.	in.	in.	lb.
M7152	2X7152	10,000	0.88	0.75	4.56	2.75	1.81	2.72
M7154	2X7154	19,000	1.00	1.00	5.50	3.25	2.38	5.86
M7157	2X7157	34,000	1.63	1.50	7.00	4.50	3.50	19.60



Standard Shackle      Long Reach Shackle

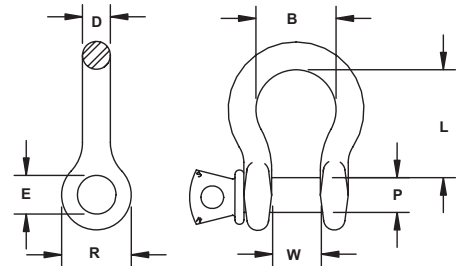
Long reach shackles can be used in applications where other shackles cannot reach. When space is at a premium, long reach shackles may eliminate the need for extra hardware when connecting.



## Stainless Steel Shackles



- Rated for overhead lifting
- Meet or exceed ASME B30.26
- Made from 300 series stainless
- Higher temperature resistance than standard Grade 80 components
- Used extensively in the food handling industry
- Less corrosive than standard alloy material
- Designed to be used with stainless steel chain
- 100% proof tested
- Ultimate strength equals five times working load limit



### Specifications

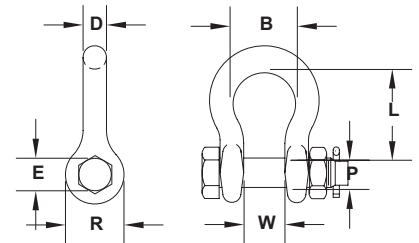
Size	Product Code	Working Load Limit	P	E	W	R	L	B	Tol. ±		Weight
									W	L	
Imperial											
in.		lb.	in.	in.	in.	in.	in.	in.	in.	in.	lb.
1/4	646S	720	0.312	0.406	0.469	0.719	1.125	0.813	0.062	0.062	0.12
5/16	647S	1,060	0.375	0.469	0.531	0.813	1.250	0.875	0.062	0.062	0.20
3/8	648S	1,600	0.438	0.531	0.656	0.969	1.438	1.063	0.062	0.062	0.30
7/16	649S	2,200	0.500	0.594	0.719	1.125	1.688	1.250	0.062	0.062	0.50
1/2	650S	2,800	0.625	0.719	0.813	1.250	1.938	1.438	0.062	0.062	0.75
5/8	651S	4,400	0.750	0.844	1.063	1.500	2.406	1.750	0.062	0.125	1.30

# DNV Shackles



- Rated for overhead lifting
- Lot trace code and individual serial numbers
- Alloy material (body and pin)
- Full certifications available
- Meet all requirements of DNV 2.7-1 specifications
- Each lot sample tested to the minimum breaking strength requirement
- 100% proof tested
- Fatigue tested and part V Notch Tested at -4° F, minimum average break requirement of 31 ft lbs.
- Meet the requirements of Federal Specification RR-C-271 D for Type IVA, Grade B, Class 3 anchor shackles.
- Midland Forge quality system is ISO 9001:2000 certified through DNV (Det Norske Veritas)
- Ultimate strength equals five times working load limit

Shackles meeting the DNV (Det Norske Veritas) requirements are generally used in offshore, saltwater environments. In order to meet the DNV standard, shackles must comply with stringent production, testing, identification, inspection, and documentation criteria set forth by DNV. Shackles meeting the DNV requirements may be used in applications such as the installation and removal of offshore platforms, securing of rigs and underwater exploration activities.



## Specifications

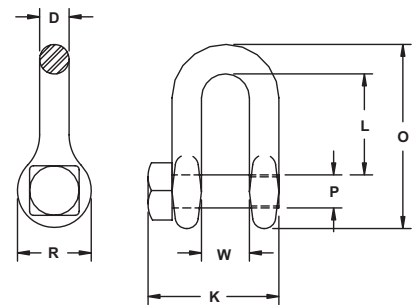
Size	Working Load Limit	Product Code (Bolt & Nut)	P	E	W	R	L	B min	Weight
<b>Imperial</b>									
in.	Ton		in.	in.	in.	in.	in.	in.	lb.
3/4	7	LX852ADNV	0.875	0.968	1.250	2.125	2.813	1.750	2.30
1	12.5	LX854ADNV	1.125	1.234	1.688	2.625	3.750	2.312	5.00
1-1/8	15	LX855ADNV	1.250	1.375	1.812	2.875	4.250	2.625	7.00
1-1/4	18	LX856ADNV	1.375	1.531	2.031	3.250	4.688	2.875	9.50
1-1/2	30	LX857ADNV	1.625	1.781	2.375	3.750	5.750	3.375	17.20

## Trawling Shackles

Load rated trawling chain shackles are used for various applications, such as on trawl doors, rigging nets, and areas where critical loads are applied.



- Heat treated bodies
- Heat treated alloy pins
- Square head pins for convenience in wrench tightening and loosening
- Proof tested at 2.2 times working load limit
- Ultimate strength equals six times working load limit
- Painted orange



## Specifications

Product Code	Pin Part Number	Body Part Number	Working Load Limit	D	P	W	L	O	R	K	Weight
<b>Imperial</b>											
			lb.	in.	in.	in.	in.	in.	in.	in.	lb.
449	2X449	1X749	4,000	0.438	0.500	0.719	1.500	2.750	1.125	1.906	0.43
450	2X450	1X750	6,000	0.500	0.625	0.813	1.688	3.125	1.250	2.063	0.60
451	2X451	1X751	9,000	0.625	0.750	1.063	2.000	3.780	1.500	2.625	1.30
452	2X452	1X752	13,000	0.750	0.875	1.250	2.375	4.530	1.875	3.125	2.20
453	2X453	1X753	17,000	0.875	1.000	1.438	2.812	5.750	2.125	3.625	3.00
454	2X454	1X754	20,000	1.000	1.125	1.688	3.188	5.940	2.375	4.188	4.50

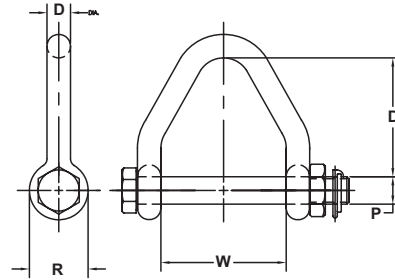


# Web Sling Shackles



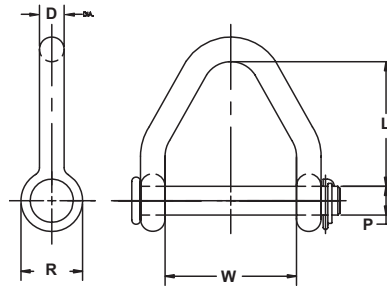
**Alloy Web Sling**

- Web Sling Shackles can be used on web slings from 3 to 6 inches in width
- Utilize a bolt and nut with linch style pin to secure the assembly in place
- All shackles are galvanized for longer life
- Alloy shackles are marked with working load limit (WLL) and size



## Alloy Specifications

Product Code	Pin Number	Linch Pin Number	Working Load Limit	P	D	L	W	R	Weight
<b>Imperial</b>			lb.	in.	in.	in.	in.	in.	lb.
M703A	2X8703A	65930	13,050	0.88	0.75	3.25	3.00	1.88	3.01
M704A	2X8704A	65930	14,500	0.88	0.75	3.75	4.00	1.88	3.16
M705A	2X8705A	65934	19,000	1.00	1.00	4.25	5.00	2.38	6.04
M706A	2X8706A	65934	22,500	1.13	1.13	4.75	6.00	2.63	9.02



## Carbon Specifications

Product Code	Pin Number	Linch Pin Number	Working Load Limit	P	D	L	W	R	Weight
<b>Imperial</b>			lb.	in.	in.	in.	in.	in.	lb.
M702	2X702	65930	8,050	0.75	0.63	2.25	2.00	1.63	1.70
M703	2X703	65930	13,050	0.88	0.75	3.25	3.00	1.88	2.86
M704	2X704	65930	10,800	0.88	0.75	3.75	4.00	1.88	3.15
M705	2X705	65934	18,000	1.00	0.88	4.25	5.00	2.13	4.75
M706	2X706	65934	18,000	1.13	1.00	4.75	6.00	2.38	6.75
M706H	2X706H	65934	23,850	1.25	1.13	4.75	6.00	2.63	9.80



**Carbon Web Sling**

- Finish: hot dip galvanized
- Klit pin (zinc plated) as shown furnished as standard-cotter or hair pin can be furnished on special order
- Shackle body: carbon steel, heat treated
- Shackle pin: alloy steel, heat treated
- Ultimate strength equals four times the working load limit

# Loading & Inspecting Information

## Screw Pin Tightening

The screw pin threads in the shackle and the tapped threads in the shackle head shall be clean and free of burrs and damaged threads which may cause an under-tightening of the shackle screw pin. The shackle screw pin shall be assembled into the shackle eyes finger tight or snug. It is recommended to further tighten to insure the pin is secured by using a wrench on the pin head or a bar in the pin head hole. Tighten until the last portion of visible tread is buried into the tapped shackle head.

(Read ASME B30.26 for inspection criteria and use)



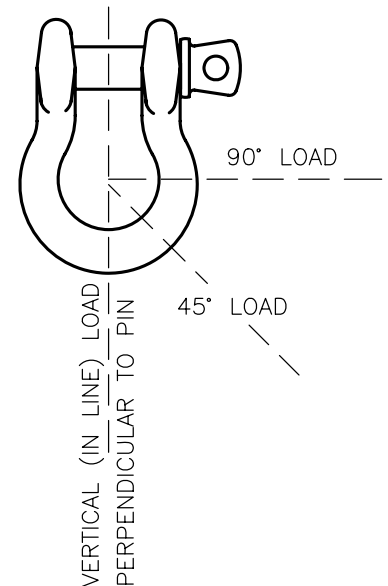
Side and symmetrical loading data applies to screw pin and bolt nut cotter shackles ONLY!

Side and symmetrical loading not permitted on round pin shackles.

## Side Loading

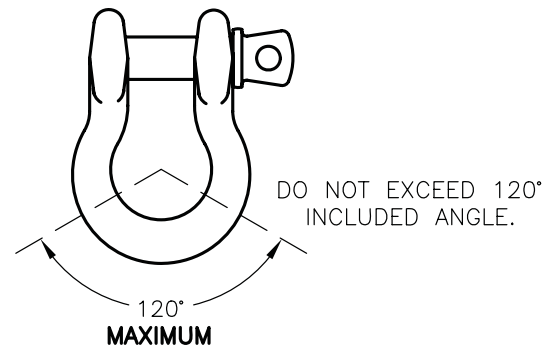
### Angles of Side Load

0°, vertical or in line	100% WLL
45°	70% WLL
90°	50% WLL



## Symmetrical Loading

Shackles symmetrically loaded with two legs at a maximum angle of 120° can be used to full working load limit

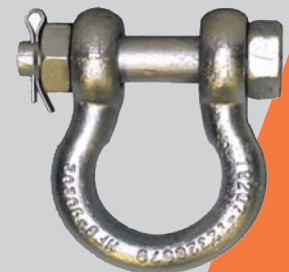


### SHACKLE INSPECTION - ASME B30.26

Discard shackle if any of the following is apparent:

- Any parts worn more than 10% of original dimensions
- Bent, twisted, distorted, stretched, elongated, cracked, or broken load bearing components
- Excessive pitting or corrosion, nicks or gouges
- Indication of heat damage
- Missing or illegible manufacturer's name or trademark
- Load pins have bent or visibly damaged threads

NOTE: ALL SHACKLES HAVE HIGH STRENGTH PINS, DO NOT SUBSTITUTE



**Made in USA**

# General Shackle Information

Shackles are mechanical couplers which consist of a U-shaped body closed by a “pin”. Shackles are used primarily for construction, rigging, and lifting applications. Shackles are made in two general styles and several special styles. The general styles are “anchor” and “chain” while special styles may include “twist”, “web”, “long reach” etc. The anchor pattern has a more generous loop better suited to multiple connections. Various pin styles are also available. They range from a round pin secured with a cotter pin or screw pin secured by tightening, to a bolt nut or cotter pin arrangement.

## Use

Always observe the following when using shackles

⚠ WARNING ⚠	
<b>Improper use or care of shackles can result in bodily injury or property damage</b>	
<b>To avoid injury:</b> <ul style="list-style-type: none"><li>• Do not exceed the working load limit.</li><li>• Do not shock load.</li><li>• Do not side load - center line of load must coincide with center line of shackle.</li><li>• Do not replace pin or bolt with other than original equipment.</li><li>• Inspect before use for wear, deformation, and pin engagement.</li></ul>	

Inspect shackles before each use as outlined in ASME B30.26

## Types

### Screw Pin Anchor Shackles / Screw Pin Chain Shackles

Screw pin shackles afford quick and easy removal of the screw pin which is secured by torque. Desirable in applications where the shackle is frequently removed. While the threaded pin can resist axial forces, it is vulnerable to backing out and the shackle is not reliable in applications where the pin is subjected to a torque or twisting action.

**Available in the following materials with capacities up to 43 tons:**

- Forged, heat treated special bar quality steel body with forged heat treated alloy steel pin.
- Forged, heat treated alloy steel body with forged heat treated alloy steel pin.
- Stainless steel body and pin. Available only in anchor pattern.

**Alloy steel shackles are acceptable for overhead lifting and meet or exceed the following:**

- ASME B30.26
- Fed, Spec. RR-C-271D
- Mil-S-24214



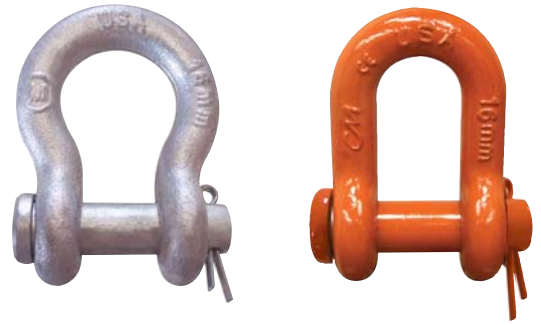


### **Round Pin Anchor Shackles**

#### **Round Pin Chain Shackles**

Round pin shackles afford easy removal of the pin which is secured by a cotter pin. Perform well where the pin is subjected to an axial load. Available in capacities up to 35 tons. Forged, heat treated steel body with forged heat treated alloy steel pin.

**DO NOT SIDE LOAD ROUND PIN ANCHOR SHACKLES!**



### **Bolt, Nut & Cotter Pin Anchor Shackles**

#### **Bolt, Nut & Cotter Pin Chain Shackles**

Bolt, nut, and cotter pin shackles provide the most secure pin (bolt) arrangement of all styles. Will resist axial loading and torsional loading. Should be used in applications where shackle is semi-permanent with infrequent removal.

**Available in the following materials with capacities up to 50 tons:**

- Forged, heat treated special bar quality steel body with forged heat treated alloy steel pin (bolt).
- Forged, heat treated alloy steel body with forged heat treated alloy steel pin (bolt). Available only in anchor pattern.



**Alloy steel shackles are acceptable for overhead lifting and meet or exceed the following:**

- ASME B30.26
- Fed, Spec. RR-C-271D
- Mil-S-24214

### **Web Sling Shackles**

Designed primarily for use with web sling up to 6 inches in width. Available in capacities up to 12 ton. Body is made of carbon steel or heat treated alloy steel.



### **Logging / Trawling Shackles**

Similar to screw pin chain shackles except the pin has a hex head for convenience in wrench tightening and loosening. Shackle body is made of drop forged heat treated steel and the pin is made of heat treated alloy steel. Available in capacities up to 8-1/2 tons.



### **DNV Shackles**

Shackles meeting the stringent DNV (Det Norske Veritas) requirements are generally used in offshore, saltwater environments. In order to meet the DNV standard, shackles shall be inspected by a DNV surveyor, and the DNV surveyor shall witness the production testing and issue DNV certificates for each batch.





## Complete Lifting Systems

From **BEAM** ... to **HOIST** ... to **BELOW THE HOOK**

### Columbus McKinnon Corporation

140 John James Audubon Parkway  
Amherst, NY 14228

Phone: (800) 888-0985 or (716) 689-5400

Fax: (716) 689-5644

[www.cmindustrial.com](http://www.cmindustrial.com)

Stock Code **CMSKL-1**  
SS 10M 2/08

© 2008 Columbus McKinnon Corporation