WHEN PERFORMANCE & QUALITY MATTER



11 1



www.kulkoni.com | 1-800-231-2357

2020

TABLE OF CONTENTS



Important Warnings
Working Load Limits 4
General Information on Wire Rope 6-7
Proper Handling of Wire Rope 8-9
Bright Wire Rope - 6 x 19 Class
Bright Wire Rope - 6 x 36 Class 11
Calvanized Wire Rope - 6 x 10 Class
Calvanized Wire Rope - 6 x 36 Class
Matric Wire Pope
Cable Laid Wire Rope
Potation Resistant Wire Rope
Spin Registent Wire Rope
Spin Resistant wire Rope
Compacted Strand Wire Rope
Rotation Resistant Compacted Strand Wire Rope 16
Drill Line
Swaged Rope
Stainless Steel Wire Rope
Stainless Steel Cable
Galvanized Steel Cable 20-21
Vinyl Coated Cable - Galvanized
Vinyl Coated Cable - Stainless Steel
Strand
Wire Rope Cutters
American Wire Rope 24
Domestic Rotation Resistant Wire Rope
Swaging Tools
Button Stops - Aluminum & Copper
Sleeves - Aluminum & Copper 26
Chain - Warnings and Information
Chain - Proof Coil Chain, Grade 30
Chain - High Test Chain, Grade 43 29
Chain - Transport Chain, Grade 70 29
Chain - Stainless Steel Chain 30
Chain - Alloy Steel Chain, Grade 100 30
Chain Assemblies
Clevis Type J Hooks
Load Binders 32
Fittings - Warnings and Information
Oblong Master Links 34
Imported and Domestic Links 35
Imported and Domestic Links - GR 100 36-37
Grade 100 Alloy Hooks
Chain Hooks 40-42

Sorting Hooks43Alloy Swivel Hooks44Stainless Latch Kits44Boat Hooks45Connecting Links45Rapid Links46Twin Clevis Links46Wire Rope Clips - Warnings and Information47Double K Grip Wire Rope Clips50Drop Forged Wire Rope Clips51Stainless Steel Wire Rope Clips52-53Shackles54-57Stainless Turnbuckles58Galvanized Jamnuts58Turnbuckle Bodies / Stub End Turnbuckles60Turnbuckle End Fitting Dimensions61-62Thimbles63-66Spelter Sockets67-68Upson Walton™ Swage Sockets72Drop Forged Eye Nuts73Regular Pattern Eye Bolts74Shoulder Pattern Eye Bolts74Shoulder Pattern Eye Bolts77Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Encless Polyester Round Slings82Polyester Webbing83Snatch Blocks - Warnings and Information84-87Snatch	Eye Hooks	43
Alloy Swivel Hooks 44 Stainless Latch Kits 44 Boat Hooks 45 Connecting Links 45 Rapid Links 46 Twin Clevis Links 46 Wire Rope Clips - Warnings and Information 47 Double K Grip Wire Rope Clips 50 Drop Forged Wire Rope Clips 51 Stainless Steel Wire Rope Clips 52-53 Shackles 54-57 Stainless Turnbuckles 58 Galvanized Jamnuts 58 Turnbuckles 59 Turnbuckle Bodies / Stub End Turnbuckles 60 Turnbuckle End Fitting Dimensions 61-62 Thimbles 63-66 Spelter Sockets 67-68 Upson Walton™ Swage Sockets 69-70 Sleeves - Carbon Steel 71 Forged Eye Nuts 73 Regular Pattern Eye Bolts 74 Shoulder Pattern Eye Bolts 75 Machinery Eye Bolts - Shoulder Pattern 76 Drop Forged Swivels 77 Compact Thrust Bearing Eye & Eye Swivels 78 Roll Off Hooks - Stop Buttons </td <td>Sorting Hooks</td> <td> 43</td>	Sorting Hooks	43
Stainless Latch Kits 44 Boat Hooks 45 Connecting Links 45 Rapid Links 46 Twin Clevis Links 46 Wire Rope Clips - Warnings and Information 47 Double K Grip Wire Rope Clips 50 Drop Forged Wire Rope Clips 51 Stainless Steel Wire Rope Clips 52-53 Shackles 54-57 Stainless Turnbuckles 58 Galvanized Jamnuts 58 Turnbuckles 59 Turnbuckle Bodies / Stub End Turnbuckles 60 Turnbuckle End Fitting Dimensions 61-62 Thimbles 63-66 Spelter Sockets 67-68 Upson Walton™ Swage Sockets 69-70 Sleeves - Carbon Steel 71 Forged Steel Clevis 72 Drop Forged Eye Nuts 73 Regular Pattern Eye Bolts 74 Shoulder Pattern Eye Bolts 75 Machinery Eye Bolts - Shoulder Pattern 76 Drop Forged Swivels 77 Compact Thrust Bearing Eye & Eye Swivels 78 Roll Off Hooks - Stop But	Alloy Swivel Hooks	44
Boat Hooks 45 Connecting Links 45 Rapid Links 46 Twin Clevis Links 46 Wire Rope Clips - Warnings and Information 47 Double K Grip Wire Rope Clips 49 Malleable Wire Rope Clips 50 Drop Forged Wire Rope Clips 51 Stainless Steel Wire Rope Clips 52-53 Shackles 54-57 Stainless Turnbuckles 58 Galvanized Jamnuts 58 Turnbuckles 59 Turnbuckles 59 Turnbuckle Bodies / Stub End Turnbuckles 60 Turnbuckle End Fitting Dimensions 61-62 Thimbles 63-66 Spelter Sockets 67-68 Upson Walton™ Swage Sockets 69-70 Sleeves - Carbon Steel 71 Forged Steel Clevis 72 Drop Forged Eye Nuts 73 Regular Pattern Eye Bolts 74 Shoulder Pattern Eye Bolts 75 Machinery Eye Bolts - Shoulder Pattern 76 Drop Forged Swivels 77 Compact Thrust Bearing Eye & Eye Swivels	Stainless Latch Kits	44
Connecting Links45Rapid Links46Twin Clevis Links46Wire Rope Clips - Warnings and Information47Double K Grip Wire Rope Clips50Drop Forged Wire Rope Clips51Stainless Steel Wire Rope Clips52-53Shackles54-57Stainless Turnbuckles58Galvanized Jamnuts58Turnbuckle Bodies / Stub End Turnbuckles60Turnbuckle Bodies / Stub End Turnbuckles61-62Thimbles63-66Spelter Sockets67-68Upson Walton™ Swage Sockets69-70Sleeves - Carbon Steel71Forged Steel Clevis72Drop Forged Eye Nuts73Regular Pattern Eye Bolts74Shoulder Pattern Eye Bolts74Shoulder Pattern Eye Bolts77Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks - Warnings and Information84-87Snatch Blocks - Warnings and Information84-87Snatch Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Boat Hooks	45
Rapid Links46Twin Clevis Links46Wire Rope Clips - Warnings and Information47Double K Grip Wire Rope Clips50Drop Forged Wire Rope Clips51Stainless Steel Wire Rope Clips52-53Shackles54-57Stainless Turnbuckles58Galvanized Jamnuts58Turnbuckles60Turnbuckle Bodies / Stub End Turnbuckles60Turnbuckle End Fitting Dimensions61-62Thimbles63-66Spelter Sockets67-68Upson Walton™ Swage Sockets69-70Sleeves - Carbon Steel71Forged Steel Clevis72Drop Forged Eye Nuts73Regular Pattern Eye Bolts74Shoulder Pattern Eye Bolts77Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks89-92Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Connecting Links	45
Twin Clevis Links 46 Wire Rope Clips - Warnings and Information 47 Double K Grip Wire Rope Clips 50 Drop Forged Wire Rope Clips 51 Stainless Steel Wire Rope Clips 52-53 Shackles 54-57 Stainless Turnbuckles 58 Galvanized Jamnuts 58 Turnbuckles 59 Turnbuckle Bodies / Stub End Turnbuckles 60 Turnbuckle End Fitting Dimensions 61-62 Thimbles 63-66 Spelter Sockets 67-68 Upson Walton™ Swage Sockets 69-70 Sleeves - Carbon Steel 71 Forged Steel Clevis 72 Drop Forged Eye Nuts 73 Regular Pattern Eye Bolts 74 Shoulder Pattern Eye Bolts 77 Compact Thrust Bearing Eye & Eye Swivels 78 Roll Off Hooks - Stop Buttons 79 D-Rings 80 Round Slings - Warnings and Information 81 Encless Polyester Round Slings 82 Polyester Webbing 83 Snatch Blocks 89-92 B	Rapid Links	46
Wire Rope Clips - Warnings and Information 47 Double K Grip Wire Rope Clips 50 Drop Forged Wire Rope Clips 51 Stainless Steel Wire Rope Clips 52-53 Shackles 54-57 Stainless Turnbuckles 58 Galvanized Jamnuts 58 Turnbuckle Bodies / Stub End Turnbuckles 60 Turnbuckle Bodies / Stub End Turnbuckles 61-62 Thimbles 63-66 Spelter Sockets 67-68 Upson Walton™ Swage Sockets 72 Drop Forged Eye Nuts 73 Regular Pattern Eye Bolts 74 Shoulder Pattern Eye Bolts 74 Shoulder Pattern Eye Bolts 77 Compact Thrust Bearing Eye & Eye Swivels 78 Roll Off Hooks - Stop Buttons 79 D-Rings 80 Round Slings - Warnings and Information 81 Endless Polyester Round Slings 82 Polyester Webbing 83 Snatch Blocks - Warnings and Information 84-87 Snatch Blocks - Warnings and Information 84-87 Snatch Blocks - Warnings and Information 84-87	Twin Clevis Links	46
Double K Grip Wire Rope Clips49Malleable Wire Rope Clips50Drop Forged Wire Rope Clips51Stainless Steel Wire Rope Clips52-53Shackles54-57Stainless Turnbuckles58Galvanized Jamnuts58Turnbuckle Bodies / Stub End Turnbuckles60Turnbuckle End Fitting Dimensions61-62Thimbles63-66Spelter Sockets67-68Upson Walton™ Swage Sockets69-70Sleeves - Carbon Steel71Forged Steel Clevis72Drop Forged Eye Nuts73Regular Pattern Eye Bolts74Shoulder Pattern Eye Bolts77Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks89-92Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Wire Rope Clips - Warnings and Information	47
Malleable Wire Rope Clips 50 Drop Forged Wire Rope Clips 51 Stainless Steel Wire Rope Clips 52-53 Shackles 54-57 Stainless Turnbuckles 58 Galvanized Jamnuts 58 Turnbuckles 59 Turnbuckle Bodies / Stub End Turnbuckles 60 Turnbuckle Bodies / Stub End Turnbuckles 61 Turnbuckle End Fitting Dimensions 61-62 Thimbles 63-66 Spelter Sockets 67-68 Upson Walton™ Swage Sockets 69-70 Sleeves - Carbon Steel 71 Forged Steel Clevis 72 Drop Forged Eye Nuts 73 Regular Pattern Eye Bolts 74 Shoulder Pattern Eye Bolts 75 Machinery Eye Bolts - Shoulder Pattern 76 Drop Forged Swivels 77 Compact Thrust Bearing Eye & Eye Swivels 78 Roll Off Hooks - Stop Buttons 79 D-Rings 80 Round Slings - Warnings and Information 81 Endless Polyester Round Slings 82 Polyester Webbing 83	Double K Grip Wire Rope Clips	49
Drop Forged Wire Rope Clips51Stainless Steel Wire Rope Clips52-53Shackles54-57Stainless Turnbuckles58Galvanized Jamnuts58Turnbuckle Bodies / Stub End Turnbuckles60Turnbuckle End Fitting Dimensions61-62Thimbles63-66Spelter Sockets67-68Upson Walton™ Swage Sockets69-70Sleeves - Carbon Steel71Forged Steel Clevis72Drop Forged Eye Nuts73Regular Pattern Eye Bolts74Shoulder Pattern Eye Bolts75Machinery Eye Bolts - Shoulder Pattern76Drop Forged Swivels77Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks89-92Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Malleable Wire Rope Clips	50
Stainless Steel Wire Rope Clips52-53Shackles54-57Stainless Turnbuckles58Galvanized Jamnuts58Turnbuckles59Turnbuckle Bodies / Stub End Turnbuckles60Turnbuckle End Fitting Dimensions61-62Thimbles63-66Spelter Sockets69-70Sleeves - Carbon Steel71Forged Steel Clevis72Drop Forged Eye Nuts73Regular Pattern Eye Bolts74Shoulder Pattern Eye Bolts75Machinery Eye Bolts - Shoulder Pattern76Drop Forged Swivels77Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks - Warnings and Information84-87Snatch Blocks - Warnings and Information84-87	Drop Forged Wire Rope Clips	51
Shackles54-57Stainless Turnbuckles58Galvanized Jamnuts58Turnbuckles59Turnbuckle Bodies / Stub End Turnbuckles60Turnbuckle End Fitting Dimensions61-62Thimbles63-66Spelter Sockets67-68Upson Walton™ Swage Sockets69-70Sleeves - Carbon Steel71Forged Steel Clevis72Drop Forged Eye Nuts73Regular Pattern Eye Bolts74Shoulder Pattern Eye Bolts75Machinery Eye Bolts - Shoulder Pattern76Drop Forged Swivels77Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks - Warnings and Information84-87Snatch Blocks89-92Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Stainless Steel Wire Rope Clips	52-53
Stainless Turnbuckles58Galvanized Jamnuts58Turnbuckles59Turnbuckle Bodies / Stub End Turnbuckles60Turnbuckle End Fitting Dimensions61-62Thimbles63-66Spelter Sockets67-68Upson Walton™ Swage Sockets69-70Sleeves - Carbon Steel71Forged Steel Clevis72Drop Forged Eye Nuts73Regular Pattern Eye Bolts74Shoulder Pattern Eye Bolts75Machinery Eye Bolts - Shoulder Pattern76Drop Forged Swivels77Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks - Warnings and Information84-87Snatch Blocks - Warnings and Sand Palles95-96Reference97Index98	Shackles	54-57
Galvanized Jamnuts58Turnbuckles59Turnbuckle Bodies / Stub End Turnbuckles60Turnbuckle End Fitting Dimensions61-62Thimbles63-66Spelter Sockets67-68Upson Walton™ Swage Sockets69-70Sleeves - Carbon Steel71Forged Steel Clevis72Drop Forged Eye Nuts73Regular Pattern Eye Bolts74Shoulder Pattern Eye Bolts75Machinery Eye Bolts - Shoulder Pattern76Drop Forged Swivels77Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks89-92Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Stainless Turnbuckles	58
Turnbuckles59Turnbuckle Bodies / Stub End Turnbuckles60Turnbuckle End Fitting Dimensions61-62Thimbles63-66Spelter Sockets67-68Upson Walton™ Swage Sockets69-70Sleeves - Carbon Steel71Forged Steel Clevis72Drop Forged Eye Nuts73Regular Pattern Eye Bolts74Shoulder Pattern Eye Bolts75Machinery Eye Bolts - Shoulder Pattern76Drop Forged Swivels77Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks89-92Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Galvanized Jamnuts	58
Turnbuckle Bodies / Stub End Turnbuckles60Turnbuckle End Fitting Dimensions61-62Thimbles63-66Spelter Sockets67-68Upson Walton™ Swage Sockets69-70Sleeves - Carbon Steel71Forged Steel Clevis72Drop Forged Eye Nuts73Regular Pattern Eye Bolts74Shoulder Pattern Eye Bolts75Machinery Eye Bolts - Shoulder Pattern76Drop Forged Swivels77Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks89-92Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Turnbuckles	59
Turnbuckle End Fitting Dimensions61-62Thimbles63-66Spelter Sockets67-68Upson Walton™ Swage Sockets69-70Sleeves - Carbon Steel71Forged Steel Clevis72Drop Forged Eye Nuts73Regular Pattern Eye Bolts74Shoulder Pattern Eye Bolts75Machinery Eye Bolts - Shoulder Pattern76Drop Forged Swivels77Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks - Warnings and Information84-87Snatch Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Turnbuckle Bodies / Stub End Turnbuckles	60
Thimbles63-66Spelter Sockets67-68Upson Walton™ Swage Sockets69-70Sleeves - Carbon Steel71Forged Steel Clevis72Drop Forged Eye Nuts73Regular Pattern Eye Bolts74Shoulder Pattern Eye Bolts75Machinery Eye Bolts - Shoulder Pattern76Drop Forged Swivels77Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks - Warnings and Information84-87Snatch Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Turnbuckle End Fitting Dimensions	61-62
Spelter Sockets67-68Upson Walton™ Swage Sockets69-70Sleeves - Carbon Steel71Forged Steel Clevis72Drop Forged Eye Nuts73Regular Pattern Eye Bolts74Shoulder Pattern Eye Bolts75Machinery Eye Bolts - Shoulder Pattern76Drop Forged Swivels77Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks - Warnings and Information84-87Snatch Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Thimbles	63-66
Upson Walton™ Swage Sockets69-70Sleeves - Carbon Steel71Forged Steel Clevis72Drop Forged Eye Nuts73Regular Pattern Eye Bolts74Shoulder Pattern Eye Bolts75Machinery Eye Bolts - Shoulder Pattern76Drop Forged Swivels77Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks - Warnings and Information84-87Snatch Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Spelter Sockets	67-68
Sleeves - Carbon Steel71Forged Steel Clevis72Drop Forged Eye Nuts73Regular Pattern Eye Bolts74Shoulder Pattern Eye Bolts75Machinery Eye Bolts - Shoulder Pattern76Drop Forged Swivels77Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks - Warnings and Information84-87Snatch Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Upson Walton™ Swage Sockets	69-70
Forged Steel Clevis72Drop Forged Eye Nuts73Regular Pattern Eye Bolts74Shoulder Pattern Eye Bolts75Machinery Eye Bolts - Shoulder Pattern76Drop Forged Swivels77Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks - Warnings and Information84-87Snatch Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Sleeves - Carbon Steel	71
Drop Forged Eye Nuts73Regular Pattern Eye Bolts74Shoulder Pattern Eye Bolts75Machinery Eye Bolts - Shoulder Pattern76Drop Forged Swivels77Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks - Warnings and Information84-87Snatch Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Forged Steel Clevis	72
Regular Pattern Eye Bolts74Shoulder Pattern Eye Bolts75Machinery Eye Bolts - Shoulder Pattern76Drop Forged Swivels77Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks - Warnings and Information84-87Snatch Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Drop Forged Eye Nuts	73
Shoulder Pattern Eye Bolts75Machinery Eye Bolts - Shoulder Pattern76Drop Forged Swivels77Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks - Warnings and Information84-87Snatch Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Regular Pattern Eye Bolts	74
Machinery Eye Bolts - Shoulder Pattern76Drop Forged Swivels77Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks - Warnings and Information84-87Snatch Blocks - Warnings and Information84-87Snatch Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Shoulder Pattern Eye Bolts	75
Drop Forged Swivels77Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks - Warnings and Information84-87Snatch Blocks - Warnings and Information84-87Snatch Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Machinery Eye Bolts - Shoulder Pattern	
Compact Thrust Bearing Eye & Eye Swivels78Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks - Warnings and Information84-87Snatch Blocks - Warnings and Information89-92Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Drop Forged Swivels	77
Roll Off Hooks - Stop Buttons79D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks - Warnings and Information84-87Snatch Blocks set89-92Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Compact Thrust Bearing Eye & Eye Swivels	
D-Rings80Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks - Warnings and Information84-87Snatch Blocks89-92Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Roll Off Hooks - Stop Buttons	
Round Slings - Warnings and Information81Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks - Warnings and Information84-87Snatch Blocks sand Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	D-Rings	80
Endless Polyester Round Slings82Polyester Webbing83Snatch Blocks - Warnings and Information84-87Snatch Blocks89-92Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Round Slings - Warnings and Information	81
Polyester Webbing83Snatch Blocks - Warnings and Information84-87Snatch Blocks89-92Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Endless Polyester Round Slings	82
Snatch Blocks - Warnings and Information84-87Snatch Blocks89-92Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Polyester Webbing	83
Snatch Blocks89-92Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Snatch Blocks - Warnings and Information	84-87
Blocks and Pulleys93Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Snatch Blocks	89-92
Reel Chart94Useful Conversions and Tables95-96Reference97Index98	Blocks and Pulleys	93
Useful Conversions and Tables	Reel Chart	
Reference 97 Index 98	Useful Conversions and Tables	95-96
Index	Reference	
	Index	





IMPORTANT WARNINGS

READ ALL WARNINGS BEFORE USING THIS PUBLICATION Failure to follow warnings and instructions may result in serious injury or death.

Working Load Limit

This is the term used throughout the catalog. There are, however, other terms used in the industry which are interchangeable with the term Working Load Limit. These are: WLL, SWL, Safe Working Load, Rated Load Value, Resulting Safe Working Load, and Rated Capacity.

Never exceed the Working Load Limit.

The Working Load Limit is the maximum load which should ever be applied to a product, even when the product is new and when the load is uniformly applied - straight line pull only. **Avoid side loading.** All catalog ratings are based upon usual environmental conditions, and consideration must be given to unusual conditions such as extreme high or low temperatures, chemical solutions or vapors, prolonged immersion in salt water, etc. Such conditions or high-risk applications may necessitate reducing the Working Load Limit.

Working Load Limit will not apply if product has been welded or otherwise modified.

Matching of Components

Components must match. Make certain that components such as hooks, links or shackles, etc. used with wire rope (or chain or cordage) are of suitable material size and strength to provide adequate safety protection. Attachments must be properly installed and must have a Working Load Limit at least equal to the product with which they are used. Remember: Any chain is only as strong as its weakest link.

Raised Loads

Keep out from under a raised load.

Take notice of the recommendation from the Safety Council Accident Prevention Manual concerning all lifting operations:

"All employees working at cranes or hoists or assisting in hooking or arranging a load should be instructed to **keep out from under the load**. From a safety standpoint, one factor is paramount:

Conduct all lifting operations in such a manner, that if there were an equipment failure, no personnel would be injured. This means keep out from under a raised load and keep out of the line of force of any load."

Do not operate a load over people. Do not ride on loads.

Shock Loads

Avoid impacting, jerking or swinging of load as the Working Load Limit could be exceeded and the Working Load Limit will not apply. A shock load is generally significantly greater than the static load. **Avoid shock loads**.



v620



Regular Inspections

Inspect products regularly for visible damage, cracks, wear, elongation, rust, etc. Protect all products from corrosion. The need for periodic inspections cannot be overemphasized. No product can keep operating at its rated capacity indefinitely. Periodic inspections help determine when to replace a product and reduce rigging hazards. Keep inspection records to help pinpoint problems and to ensure periodic inspection intervals.

Due to the diversity of the products involved and uses to which they can be put, it would b

e counterproductive to make blanket recommendations for inspection procedures and frequency. Best results will be achieved when qualified personnel base their decisions on information from rigging and engineering manuals and on experience from actual use in the field. Refer to sources listed on page 97 for technical literature.

Frequency of inspection will depend on environmental conditions, application, storage of product prior to use, frequency of use, etc. When in doubt, inspect products prior to each use. Carefully check each item for wear, deformation, cracks or elongation - a sure sign of imminent failure. Immediately withdraw such items from service.

Rust damage is another potential hazard. When in doubt about the extent of corrosion or other damage, withdraw the items from service.

Destroy, rather than discard, items that have been judged defective. They might be used again by someone not aware of the hazard involved.

Additional warnings and information on wire rope, chain, cordage, blocks and tools can be found preceding each section. These should be read and understood thoroughly before using a particular item.

DEFINITIONS

Information contained in this catalog is subject to change; all weights and dimensions are approximate. Ratings are stated in short tons (2,000lbs.) or pounds. All dimensions are in inches; all weights are in pounds, unless stated otherwise.

Working Load Limit (WLL)

The Working Load Limit is the maximum load which should ever be applied to a product, even when the product is new and when the load is uniformly applied - straight line pull only. **Avoid side loading.** All catalog ratings are based upon usual environmental conditions, and consideration must be given to unusual conditions such as extreme high or low temperatures, chemical solutions or vapors, prolonged immersion in salt water, etc. Such conditions or high-risk applications may necessitate reducing the Working Load Limit.

Proof Test Load (Proof Load)

The term "Proof Test" designates a quality control test applied to the product for the sole purpose of detecting defects in material or manufacture. The Proof Test Load (usually twice the Working Load Limit) is the load which the product withstood without deformation when new and under laboratory test conditions. A constantly increasing force is applied in direct line to the product at a uniform rate of speed on a standard pull testing machine. The Proof Test Load does not mean the Working Load Limit should ever be exceeded.

Breaking Strength/Ultimate Strength

Do not use breaking strength as a criterion for service or design purposes. Refer to the Working Load Limit instead. Breaking Strength is the average force at which the product, in the condition it would leave the factory, has been found

by representative testing to break, when a constantly increasing force is applied in direct line to the product at a uniform rate of speed on a standard pull testing machine. Proof testing to twice the Working Load Limit does not apply to handspliced slings.

Remember: Breaking Strengths, when published, were obtained under controlled laboratory conditions.

Listing of the Breaking Strength does not mean the Working Load Limit should ever be exceeded.

Design Factor (sometimes referred to as safety factor)

An industry term usually computed by dividing the catalog Breaking Strength by the catalog Working Load Limit and generally expressed as a ratio. For example: 5 to 1.

Shock Load

A load resulting from rapid change of movement, such as impacting, jerking or swinging of a static load. Sudden release of tension is another form of shock loading. Shock loads are generally significantly greater than static loads. Any shock loading must be considered when selecting the item for use in a system. Avoid shock loads as they may exceed the Working Load Limit.

Kulkoni, Inc.



WARNING: NEVER EXCEED WORKING LOAD LIMIT



WORKING LOAD LIMITS

FURTHER EXPLANATIONS AND CAUTIONS IF LIFTING ANGLES ARE INVOLVED

Numerical values published for Breaking Strength and Working Load Limit in the catalog are very specific in one point: They refer to straight, in-line pull or force and are obtained under laboratory conditions.

There are, however, many applications where a straight line pull is not possible or even desirable. When a tackle block system is reeved, wire rope may be bent over many sheaves; multiple leg wire rope or chain slings involve differing lifting angles; angular loads on shackles or eyebolts alter Working Load Limits of the equipment used.

All these and other factors influencing the Working Load Limit must be taken into account when systems are designed and used.

The following examples and tables are intended to highlight and demonstrate the effects of angles on the Working Load Limit.

CHAIN SLINGS, Fabricated entirely from grade 100 alloy components.

WORKING LOAD LIMITS - POUNDS











The rated capacity of a multiple leg sling is directly affected by the angle of the sling leg with the load. As this angle decreases, the stress on each leg increases with the same load. If the sling angle is known, the capacity can be readily determined by multiplying the sling's vertical capacity by the appropriate load angle factor from the table at right.

Sling Angle	Load Angle Factor
90° (vertical)	1.000
75°	0.966
60°	0.866
45°	0.707
30°	0.500

Example: A multiple leg sling with a rated capacity of 2000 lb. will have a reduced capacity of 1000 lb. (2000 x .500) when sling legs are at an angle of 30° with the load.

Page 4



WARNING: NEVER EXCEED WORKING LOAD LIMIT



WIRE ROPE IS A MACHINE. Understand and respect it.

Like any machine, it needs proper care and maintenance for optimal safety and long service life. For a better understanding of wire rope we highly recommend the Wire Rope Users Manual by the Wire Rope Technical Board. Wire Rope Technical Board 801 North Fairfax Street, Suite 211, Alexandria VA 22314-1757. Phone: (703) 299-8550 Fax:(703) 299-9253.

Refer to the Important Warnings on pages 2 - 9

These warnings also apply to wire rope. Only additional warnings and information are listed below.

Rated Capacity.

Rated capacity is the load which a new wire rope may handle under given operating conditions and at assumed design factor. A design factor of 5 is chosen most frequently for wire rope. (Operating loads not to exceed 20% of catalog Breaking Strength.) Operating loads may have to be reduced when life, limb or valuable property are at risk or other than new rope is used. A design factor of 10 is usually chosen when wire rope is used to carry personnel. (Operating loads not to exceed 10% of catalog Breaking Strength.)

Responsibility for choosing a design factor rests with the user.

Attachments must have at least the same Working Load Limit as the wire rope used.

Clips, sockets, thimbles, sleeves, hooks, links, shackles, sheaves, blocks, etc. must match in size, material and strength to provide adequate safety protection.

Proper installation is crucial for maximum efficiency and safety.

Keep out from under a raised load.

Do not operate load over people. Do not ride on load. Conduct all lifting operations in such a manner that if equipment were to fail or break, no personnel would be injured. This means: KEEP OUT FROM UNDER A RAISED LOAD, DO NOT OPERATE LOADS OVER PEOPLE AND KEEP OUT OF THE LINE OF FORCE OF ANY LOAD.

Avoid shock loads.

Avoid impacting, jerking or swinging of load. Working Load limit will not apply in these circumstances because a shock load is generally significantly greater than the static load.

Inspect wire rope regularly.

Use inspection instructions as guidelines only. Additional technical information on wire rope inspection can be obtained from the sources listed on page 97 (Technical Safety Sources). Two of the most important prerequisites for inspecting wire rope are technical knowledge and experience.

Check the general condition of the wire rope. Also, look for localized damage and wear, especially at wire rope attachments. Inspect all parts that come in contact with the wire rope. Poor performance of wire rope can often be traced back to worn or wrong-sized sheaves, drums, rollers, etc. Look for kinks, broken wires, abrasions, lack of lubrication, rust damage, crushing, reduction of diameter, stretch or other obvious damage. If any of these conditions exists or if there is any other apparent damage to the wire rope, retire the wire rope according to the instructions below.

When in doubt about the extent of the damage, retire the wire rope in question immediately. Without laboratory analysis, it is impossible to determine the strength of damaged or used wire. Thus, you will not be able to tell whether wire rope with any amount of damage is safe to use. Retire the wire rope that is damaged. For specific inspection procedures check various OSHA and ANSI publications.

Destroy, rather than discard, wire rope to be retired.

Wire rope that is not destroyed might be used again by someone not aware of the hazard associated with that use. Destroying wire rope is best done by cutting it up into short pieces.



WARNING: NEVER EXCEED WORKING LOAD LIMIT





The three basic components of a typical wire rope. (Fiber core is shown.) **COMPONENTS:** Wire rope consists of three basic components.

1. Wires.

2. Strands, formed by wires, laid helically around a core.

3. Core, or center.

MATERIAL: Steel grades in wide use today are IPS (improved plow steel), EIPS (extra improved plow steel), sometimes also referred to as XIPS, XIP, or EIP, as well as EEIPS (extra, extra improved plow steel).

CORE: Its function is to provide proper support for the strands under normal conditions. Three types of core (or center) are commonly used.

- 1. Fiber Core (F.C.), usually polypropylene (P.C.), sometimes hemp (H.C.) and sisal.
- 2. Independent Wire Rope Core (IWRC)
- 3. Wire Strand Core (WSC)

IWRC and WSC are sometimes referred to as steel wire core or steel center.

CONSTRUCTION: Expressed in numbers of strands x number of wires. 6 x 25 indicates that the wire rope consists of 6 strands, which in turn have 25 individual wires. Constructions are grouped into classes:

6 x 7 Class: Containing 6 strands that are made up of 3 through 14 wires, of which no more than 9 are outside wires.

6 x 19 Class: Containing 6 strands that are made up of 15 through 26 wires, of which no more than 12 are outside wires.

6 x 36 Class: Containing 6 strands that are made up of 27 through 49 wires, of which no more than 18 are outside wires.

8 x 19 Class: Containing 8 strands that are made up of 15 through 26 wires, of which no more than 12 are outside wires.

19 x 7 Class: Containing 19 strands, each of which is made up of 7 wires.

8 x 19 and 19 x 7 class wire ropes have rotation-resistant properties, excluding elevator ropes.

The constructions listed above are just some of the more popular constructions.

Other common constructions: 7 x 7, 7 x 19: Galvanized cable. Sometimes referred to as "aircraft cable" but **not** intended for aircraft use. 1 x 7, 1 x 19: Strand 7 x 7 x 7, 7 x 7 x 19: Cable Laid

Many others exist, some for highly specialized applications only.

Note that any class denotes the **nominal** number of wires in each strand. The **actual** number of wires may be different. For example 6 x 36 class: **strands** most commonly consist of 36 wires, or 31, or 41.



v620

GENERAL INFORMATION ON WIRE ROPE



STRAND PATTERNS: They refer to different types of arrangements of wires and their diameters within a strand. Common strand patterns are Filler Wire, Seale, Warrington and combinations thereof.

LAY: indicates how the wires have been laid to form strands and how the strands have been laid around the core. A right regular lay rope (RRL; the most common) has its strands laid right on the rope - similar to threading a right-hand threaded bolt. Regular means that the direction of the wire lay in the strand is opposite to the direction of the strand lay in the rope. (The wires in regular lay rope appear to be in line with the axis of the rope).

CAUTION: When combining separate ropes in a single line application always use ropes of the same lay pattern. Different lays can increase rotation at connection points decreasing rope efficiency.



Left Regular Lay (LRL)

Left Lang Lay (LLL)

Right Lang Lay (RLL)

PREFORMING: A manufacturing process wherein the strands and their wires are permanently formed - during fabrication - to the helical shape that they will ultimately assume in the finished wire rope. Proper preforming prevents the strands and wires from unlaying during normal use. The vast majority of wire rope sold today is preformed.

FINISH: Wire rope is either sold as "bright" (or "black") - meaning uncoated, or galvanized for better corrosion resistance. "Drawn Galvanized" wire has the same strength as bright wire, but wire, "galvanized at finished size" is usually 10% lower in strength. Plastic coated wire rope is also available, usually galvanized or stainless steel cable. The most common plastic coatings are vinyl or nylon in either clear or white, although other materials and colors are available. These coatings do not add strength to the wire rope itself.

LUBRICATION: During fabrication, wire ropes receive lubrication. The kind and amount depends on the rope's size, type and use, if known. This in-process treatment will provide the finished wire rope with ample protection for a reasonable time if it is stored under proper conditions. But, when the wire rope is put into service, the initial lubrication will normally be less than needed for the full useful life of the wire rope. Because of this, periodic applications of a suitable wire rope lubricant are necessary.

ORDERING WIRE ROPE: Construction, lay, core, finish and other factors mentioned above impart greatly differing characteristics to different wire ropes. They must be understood and considered when selecting wire rope. There is no perfect wire rope for all applications; usually some less desirable properties are traded off for other, more desirable ones. Refer to the Wire Rope Users Manual by the Wire Rope Technical Board for a better understanding of wire rope properties and consult professional help when in doubt.

Lacking a complete description of the wire rope desired, a supplier can make several assumptions:

1. If direction and type of lay are omitted from the rope description, it is assumed to be right regular lay (RRL).

2. If finish is omitted, this will be presumed to mean ungalvanized, "bright" finish.

3. If no mention is made with reference to preforming, preformed wire rope will be supplied.

4. If a supplier receives an order for 6 x 19 wire rope he may assume this to be a class reference and is, therefore, legally justified in furnishing any construction within this category.



WARNING: NEVER EXCEED WORKING LOAD LIMIT



PROPER HANDLING OF WIRE ROPE

MEASURING OF WIRE ROPE



How to measure (or caliper) a wire rope correctly. Since the "true" diameter (A) lies within the circumscribed circle, always measure the larger dimension (B). Actual diameter can be 5% larger than nominal wire rope diameter.

RECEIVING AND STORING WIRE ROPE

Make certain that the wire rope received is the one that was ordered. Check for obvious damage to wire rope and reel. Store wire rope away from heat, moisture and other corrosive agents. This means storing under a weatherproof cover, off the ground, preferably in a dry, cool, well ventilated warehouse. If wire rope has to be kept outdoors, cover it with a coating of protective wire rope lubricant and cover both wire rope and reel with waterproof material. Keep it well off the ground. Careful inspection after extended storage is of utmost importance.

UNREELING OR UNCOILING WIRE ROPE

Great care must be taken when removing wire rope from reels or coils. Looping the rope over the flange of the reel or pulling the rope off a coil while it is lying on the ground will create loops in the line. If these loops are pulled tight, kinks will result, thereby permanently damaging the wire rope. Check illustrations below showing correct and incorrect ways of unreeling and uncoiling wire rope.

Whenever handling wire rope, take care not to drop reels or coils. This can damage wire rope and collapse the reel, making removal of the wire rope extremely difficult if not impossible.



v620



RE-REELING WIRE ROPE

When reeling wire rope from one reel to another it is preferable for the wire rope to travel from top to top, as illustrated. Spooling from bottom to bottom is also acceptable, provided the surface over which the wire rope will travel is clean, smooth and dry, so as not to allow foreign particles to become embedded in the wire rope. Spooling from top to bottom or from bottom to top can put a reverse bend into wire rope and must be avoided. When stringing up on machinery wire rope should be removed from the reel in the same direction as placed on the drum.



CUTTING & SEIZING WIRE ROPE

There are numerous ways to cut wire rope - use only appropriate tools specifically designed to cut wire rope. Safety goggles and work gloves must **always** be worn. Observe other precautions peculiar to the tools used. Wire rope should be properly seized on both sides of the cut with wire or strand. Seizing wire diameter and the number and length of the seizings will depend on the diameter of the wire rope, and whether or not it is preformed.

BREAKING IN NEW WIRE ROPE

Since wire rope is a machine with many moving parts, it requires careful installation and breaking in procedures for maximum safety and long service life. After proper installation, allow the wire rope to run through a cycle of operation at a very low speed. Keep a close watch on the wire rope, its attachments and any working parts such as sheaves, drums, rollers, etc. to make certain that the wire rope runs freely. If no problems appear at this stage, run the wire rope through several cycles of operation under light load at reduced speed. This procedure allows the component parts of the new rope to make a gradual adjustment to the actual operating conditions.

WIRE ROPE EFFICIENCY

Wire rope will develop 100% efficiency, that is, break at or above minimum acceptance strength (not less than 2 1/2% below nominal breaking strength) under controlled laboratory conditions. Once fittings such as sleeves, clips, sockets, etc. are attached and/or the wire rope passes over a curved surface such as sheaves, pins, etc. its **strength is decreased.** In the case of wire rope passing over a curved surface this decrease in strength depends on the severity of the bend. In the case of wire rope fittings, the decrease in wire rope strength will depend on the type of fittings used. The wire rope efficiency usually ranges from 70% - 100%. For more detailed information consult the strength efficiency of wire rope table on page 86. Note, that hand spliced wire rope, while not using any fittings, has less efficiency than properly flemished and swaged wire rope. There are other factors, depending on the application of wire rope, that can cause a decrease in nominal wire rope strength. They must be considered when choosing a design factor. Refer to the Wire Rope Users Manual and/or other qualified sources for details.

ELASTIC PROPERTIES OF WIRE ROPE

Wire rope is an elastic member; it stretches or elongates under load. This elongation can be permanent or recoverable. The extent of elongation will depend on the wire rope used and the design factor chosen. While it may be acceptable for many wire rope uses to neglect its elastic properties, they are of critical importance for some uses. When in doubt about the importance of wire rope elongation consult professional help. Pre-stretching wire rope will only remove some of the constructional stretch and will not totally eliminate elongation under load.

WINDING WIRE ROPE ON DRUMS

Installation of wire rope on a plain or grooved drum requires a great deal of care. Make certain the wire rope is properly attached to the drum. Keep adequate tension on the wire rope as it is wound onto the drum. Guide each wrap as close to the preceding wrap as possible, or follow the groove in case of a grooved drum. No blanket recommendations can be given concerning direction of winding, desirable drum diameter, fleet angle, etc. Consult the Wire Rope Users Manual for this and other important technical information.

WIRE ROPE SLINGS

Refer to ASME standard B30.9 and OSHA standard 1910.184 for design factors and other important information. Other standards and information may apply.

Kulkoni, Inc.



WARNING: NEVER EXCEED WORKING LOAD LIMIT



Diameter

in Inches

1/4

5/16

3/8

7/16

1/2

9/16 5/8

3/4

7/8

1.1/4

1 1.1/8

BRIGHT WIRE ROPE - 6 x 19 CLASS



6 x 25 FILLER WIRE 6 x 19 SEALE WITH FIBER CORE WITH IWRC

FIBER CORE (EIPS)
Approx. Weight

per Foot

in Pounds

0.105

0.164

0.236

0.320

0.420

0.530

0.660

0.950

1.290

1.680

2.130

2.630







6 x 25 FILLER WIRE WITH IWRC

E 6 x 26 WARRINGTON SEALE WITH IWRC

	IWRC (EIPS)**			
Diameter in Inches	Approx. Weight per Foot in Pounds	Breaking Strength in Tons*		
1/4	0.116	3.40		
5/16	0.180	5.27		
3/8	0.260	7.55		
7/16	0.350	10.20		
1/2	0.460	13.30		
9/16	0.590	16.80		
5/8	0.720	20.60		
3/4	1.040	29.40		
7/8	1.420	39.80		
1	1.850	51.70		
1.1/8	2.340	65.00		
1.1/4	2.890	79.90		
 1.3/8	3.500	96.00		
1.1/2	4.160	114.00		
1.5/8	4.880	132.00		
1.3/4	5.670	153.00		
2	7.390	198.00		
2.1/4	9.360	247.00		
2.3/8	10.400	274.00		
2.1/2	11.600	302.00		

**EEIPS available in some sizes and constructions.

According to A.S.T.M. A1023/1023M Wire Rope for General Purposes and Federal Specification RR-W-410, current revision, as applicable. Meets the performance requirements of API-9A. Preformed, right regular lay.

* Listed for comparison only. Actual operating loads should never exceed the recommended design factor or 20% of catalog Breaking Strength.

NOTE: Lang lay, left lay, alternate lay, Seale available in some sizes. Heavy lubrication on request.

Breaking

Strength

in Tons*

3.01

4.69 6.71

9.10

11.80

14.90

18.40 26.20

35.40 46.00

57.90

71.10



v620



BRIGHT WIRE ROPE - 6 x 36 CLASS



6 x 36 WARRINGTON SEALE WITH FIBER CORE

FIBER CORE (EIPS)				
DiameterApprox. WeightBreakinginper FootStrengthInchesin Poundsin Tons*				
1/4	0.105	3.01		
5/16	0.164	4.69		
3/8	0.236	6.71		
7/16	0.320	9.10		
1/2	0.420	11.80		
9/16	0.530	14.90		
5/8	0.660	18.40		
3/4	0.950	26.20		
7/8	1.290	35.40		
1	1.680	46.00		
1.1/8	2.130	57.90		
1.1/4	2.630	71.10		





6 x 36 WARRINGTON SEALE WITH IWRC

IWRC (EIPS)**				
Diameter in Inches	Diameter Approx. Weight Breaking in per Foot Strength Inches in Poundsin Tons*			
1/4	0.116	3.40		
5/16	0.180	5.27		
3/8	0.260	7.55		
7/16	0.350	10.20		
1/2	0.460	13.30		
9/16	0.590	16.80		
5/8	0.720	20.60		
3/4	1.040	29.40		
7/8	1.420	39.80		
1	1.850	51.70		
1.1/8	2.340	65.00		
1.1/4	2.890	79.90		
1.3/8	3.500	96.00		
1.1/2	4.160	114.00		
1.5/8	4.880	132.00		
1.3/4	5.670	153.00		
1.7/8	6.500	174.00		
2	7.390	198.00		
2.1/4	9.360	247.00		
2.1/2	11.600	302.00		
2.3/4	14.000	361.00		
3	16.600	425.00		
3.1/2	22.700	572.00		

**EEIPS available in some sizes and constructions.

According to A.S.T.M. A1023/1023M Wire Rope for General Purposes and Federal Specification RR-W-410, current revision, as applicable. Meets the performance requirements of API-9A. Preformed, right regular lay.

* Listed for comparison only. Actual operating loads should never exceed the recommended design factor or 20% of catalog Breaking Strength.





Diameter

in

Inches

1/4

3/8

7/16

1/2

9/16

5/8

3/4

7/8

GALVANIZED WIRE ROPE - 6 x 19 CLASS



6 x 26 WARRINGTON SEALE WITH FIBER CORE

Drawn Galvanized FIBER CORE (EIPS)

Approx. Weight

per Foot

in Pounds

0.105

0.236

0.320

0.420

0.530

0.660

0.950

1.290

Breaking

Strength

in Tons*

3.01

6.71

9.10

11.80

14.90

18.40

26.20

35.40



6 x 26 WARRINGTON SEALE WITH IWRC

Drawn Galvanized IWRC (EIPS)**			
Diameter in Inches	Approx. Weight per Foot in Pounds	Breaking Strength in Tons*	
3/8	0.26	7.55	
7/16	0.35	10.20	
1/2	0.46	13.30	
9/16	0.59	16.80	
5/8	0.72	20.60	
3/4	1.04	29.40	
7/8	1.42	39.80	
1	1.85	51.70	
1.1/8	2.34	65.00	
1.1/4	2.89	79.90	
1.3/8	3.50	96.00	
1.1/2	4.16	114.00	
1.5/8	4.88	132.00	
1.3/4	5.67	153.00	
2	7.39	198.00	

According to A.S.T.M. A1023/1023M Wire Rope for General Purposes and Federal Specification RR-W-410, current revision, as applicable. Meets the performance requirements of API-9A. Preformed, right regular lay.

* Listed for comparison only. Actual operating loads should never exceed the recommended design factor or 20% of catalog Breaking Strength.

** EEIPS available in some sizes and constructions.



v620

WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9.



GALVANIZED WIRE ROPE - 6 x 36 CLASS



6 x 36 WARRINGTON SEALE WITH FIBER CORE

Drawn Galvanized FIBER CORE (EIPS)		
Diameter in Inches	Approx. Weight per Foot in Pounds	Breaking Strength in Tons*
1/4	0.105	3.01
3/8	0.236	6.71
1/2	0.420	11.80
9/16	0.530	14.90
5/8	0.660	18.40
3/4	0.950	26.20
7/8	1.290	35.40
1	1.680	46.00
1.1/8	2.130	57.90
1.1/4	2.630	71.10
1.3/8	3.180	85.50



6 x 36 WARRINGTON SEALE WITH IWRC

Drawn Galvanized IWRC (EIPS)**			
Diameter in Inches	Approx. Weight per Foot in Pounds	Breaking Strength in Tons*	
1/4	0.116	3.40	
5/16	0.180	5.27	
3/8	0.260	7.55	
7/16	0.350	10.20	
1/2	0.460	13.30	
9/16	0.590	16.80	
5/8	0.720	20.60	
3/4	1.040	29.40	
7/8	1.420	39.80	
1	1.850	51.70	
1.1/8	2.340	65.00	
1.1/4	2.890	79.90	
1.3/8	3.500	96.00	
1.1/2	4.160	114.00	
1.5/8	4.880	132.00	
1.3/4	5.670	153.00	
2	7.390	198.00	
2.1/4	9.360	247.00	
2.1/2	11.600	302.00	
2.3/4	14.000	361.00	
3	16.600	425.00	
3.1/2	22.700	572.00	

According to A.S.T.M. A1023/1023M Wire Rope for General Purposes and Federal Specification RR-W-410, current revision, as applicable. Meets the performance requirements of API-9A. Preformed, right regular lay.

* Listed for comparison only. Actual operating loads should never exceed the recommended design factor or 20% of catalog Breaking Strength.

** **EEIPS** available in some sizes and constructions.





METRIC AND CABLE-LAID WIRE ROPE



6 x 36 WARRINGTON SEALE WITH IWRC

METRIC WIRE ROPES

Diameter in mm	Approx. Weight per Foot in Pounds	Breaking Strength in KN*	Breaking Strength in Tons*
7	0.14	37.7	4.24
8	0.18	49.2	5.53
9	0.23	62.3	7.00
10	0.29	76.9	8.64
11	0.35	93.0	10.45
12	0.41	111.0	12.48
13	0.48	130.0	14.61
14	0.56	151.0	16.97
15**	0.64	170.0	19.11
16	0.73	197.0	22.14
18	0.93	249.0	27.99
20	1.15	308.0	34.62
22	1.39	372.0	41.81
24	1.65	443.0	49.80
26	1.76	520.0	58.45

6x36 (WS) IWRC, bright, RRL, Grade 2160 N/mm2 meets the breaking strength requirements of A.S.T.M. A 1023/A 1023M Wire Rope for General Purposes. **LRL available in most sizes.**

** Not included in A.S.T.M. A 1023/A 1023M.





7 x 7 x 19 CABLE-LAID

CABLE-LAID WIRE ROPE

Diameter in Inches	Construction	Metallic Area in Square Inches	Approx. Wt. per Foot in Pounds	Breaking Strength in Tons*
3/8	7 x 7 x 7	0.062	0.22	7.15
1/2	7 x 7 x 7	0.099	0.37	11.70
5/8	7 x 7 x 7	0.159	0.60	18.50
3/4	7 x 7 x 19	0.217	0.81	24.30
7/8	7 x 7 x 19	0.281	1.05	31.10
1	7 x 7 x 19	0.372	1.38	39.20
1.1/8	7 x 7 x 19	0.455	1.72	47.40
1.1/4	7 x 7 x 19	0.584	2.18	65.00
1.1/2	7 x 7 x 19	0.794	2.96	88.70

Galvanized, preformed TO BE USED FOR MECHANICALLY SWAGED SLINGS ONLY.

Do not use for hand-spliced assemblies or for general purpose operating rope.

* Listed for comparison only. Actual operating loads should never exceed the recommended design factor or 20% of catalog Breaking Strength.



v620

WARNING: NEVER EXCEED WORKING LOAD LIMIT

ROTATION AND SPIN RESISTANT WIRE ROPE





19 x 7 ROTATION RESISTANT WITH WIRE STRAND CORE



8 x 25 SPIN RESISTANT WITH IWRC



3 x 46 ROTATION RESISTANT GALVANIZED

19 x 7 ROTATION RESISTANT

Diameter in Inches	Approx. Weight per Foot in Pounds	Breaking Strength in Tons*/**
3/16 [‡]	0.065	1.56
1/4 [†] / ^{††}	0.113	2.77
5/16 [†]	0.177	4.30
3/8 [†] / ^{††}	0.250	6.15
7/16 **	0.350	8.33
1/2 [†] / ^{††}	0.450	10.80
9/16 ^{††}	0.580	13.60
5/8 ^{††}	0.710	16.80
3/4 **	1.020	24.00
7/8	1.390	32.50
1	1.820	42.20
1.1/8	2.300	53.10
1.1/4	2.850	65.10

Sizes 1/2" and up meet the performance requirements of API-9A (18x7-WSC). All sizes listed meet the requirements of A.S.T.M. A 1023/ A1023M, where applicable. WSC, EIPS.

[‡] Available in Galvanized only.

[†] Available in Type 304 Stainless Steel.**

^{††} Available in Galvanized.

These wire ropes are specially designed for use when rotation must be kept to a minimum. Strict adherence to breaking-in procedures and proper handling during use are extremely important with these ropes. Refer to the sources listed on page 97 for important information on rotation resistant wire ropes.

** Breaking Strengths shown are for Bright rope - Stainless Steel 19X7 Rotation Resistant ropes are not covered by the above specifications. Breaking Strengths will vary.

8 x 25 SPIN RESISTANT

Diameter in Inches	Approx. Weight per Foot in Pounds	Breaking Strength in Tons*
3/8	0.26	6.63
7/16	0.36	8.97
1/2	0.47	11.60
9/16	0.60	14.70
5/8	0.73	18.10
3/4	1.06	25.90
7/8	1.44	35.00
1	1.88	45.50
1.1/8	2.39	57.30

According to A.S.T.M. A1023/1023M Wire Rope for General Purposes and Federal Specification RR-W-410, current revision, as applicable. Meets the performance requirements of API-9A. Preformed, right regular lay.

3 x 46 ROTATION RESISTANT - GALVANIZED

Diameter in Inches	Approx. Weight per Foot in Pounds	Breaking Strength in Tons*
7/8	1.16	42.6
1	1.49	55.0

* Listed for comparison only. Actual operating loads should never exceed the recommended design factor or 20% of catalog Breaking Strength.



WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9.

v620



COMPACTED STRAND WIRE ROPE



6 x 31 (1/6/6+6/12) WARRINGTON SEALE



6 x 26 (1/5/5+5/10) WARRINGTON SEALE

COMPACTED WIRE ROPE - KompaKt 6 IWRC, RRL

Diameter in Inches	Construction	Approx. Weight per Ft. in Pounds	Breaking Strength in Tons*
1/2	6 x 26	0.50	14.6
9/16	6 x 26	0.62	18.5
5/8	6 x 31	0.80	22.7
3/4	6 x 31	1.12	32.4
7/8	6 x 31	1.50	43.8
1	6 x 31	2.10	56.9
1.1/8	6 x 31	2.44	71.5

Meets or exceeds the performance requirements of A.S.T.M. A1023/A1023M, Wire Rope for General Purposes, as applicable. EIPS, bright, preformed.

These ropes provide a combination of superior characteristics compared to conventional six strand ropes. The compacting process provides increased strength and durability. The smooth surface inherently provides a high resistance to abrasion and crushing, improving service life of the rope.

ROTATION RESISTANT COMPACTED STRAND WIRE ROPE



19 x 19

HIGH STRENGTH ROTATION RESISTANT COMPACTED WIRE ROPE - KompaKt 19

Diameter in Inches	Construction	Approx. Weight per Ft. in Pounds	Breaking Strength in Tons*
1/2	19 x 19	0.55	14.6
9/16	19 x 19	0.70	18.5
5/8	19 x 19	0.86	22.7
3/4	19 x 19	1.24	32.4
7/8	19 x 19	1.69	43.8
1	19 x 19	2.21	56.9
1.1/8	19 x 19	2.79	71.5
1.1/4	19 x 19	3.45	87.9

This multi-layered compacted design offers a higher resistance to rotation than a conventional 19 x 7 construction. Multipart reeving of blocks is made possible with this design. Compacting increases strength by as much as 30% per diameter over 19 x 7 and provides better resistance to abrasion, crushing, and bending fatigue.

Meets or exceeds the performance requirements of A.S.T.M. A1023/A1023M, Wire Rope for General Purposes, as applicable. EEIPS, bright, preformed.

* Listed for comparison only. Actual operating loads should never exceed the recommended design factor or 20% of catalog Breaking Strength.



DRILL LINE AND SWAGED ROPE





6 x 26 WARRINGTON SEALE WITH FIBER CORE



6 x 31 WARRINGTON SEALE WITH IWRC



6 x 21 FILLER WIRE WITH FIBER CORE



6 x 19 SEALE WITH IWRC



6 x 26 WARRINGTON SEALE WITH IWRC



6 x 31 WARRINGTON SEALE WITH FIBER CORE

DRILL LINES, BRIGHT

Diameter in Inches	Construction	Approx. Weight per Foot in Pounds	Breaking Strength in Tons*
5/8	6 x 21 POLY CORE LEFT LAY	0.66	16.7
5/8	6 x 26 POLY CORE RIGHT LAY	0.66	18.3
5/8	6 x 21 IWRC LEFT LAY	0.72	20.6
3/4	6 x 21 POLY CORE LEFT LAY	0.95	23.8
3/4	6 x 26 POLY CORE RIGHT OR LEFT LAY	0.95	26.2
3/4	6 x 26 IWRC RIGHT OR LEFT LAY	1.04	29.4
3/4	6 x 31 POLY CORE LEFT LAY	0.95	26.2
3/4	6 x 31 IWRC RIGHT OR LEFT LAY	1.04	29.4
7/8	6 x 21 POLY CORE RIGHT OR LEFT LAY	1.29	32.2
7/8	6 x 26 IWRC RIGHT OR LEFT LAY	1.42	39.8
7/8	6 x 31 IWRC RIGHT OR LEFT LAY	1.42	39.8
1	6 x 21 POLY CORE LEFT LAY	1.68	41.8
1	6 x 26 IWRC RIGHT OR LEFT LAY	1.85	51.7
1.1/8	6 x 19S IWRC	2.34	65.0
1.1/4	6 x 19S IWRC	2.89	79.9
1.3/8	6 x 19S IWRC	3.50	96.0
1.1/2	6 x 19S IWRC	4.16	114.0

According to Federal Specification RR-W-410, current revision, and A.S.T.M. A1023/A1023M, Wire Rope for General Purposes. Bright, heavy lube, preformed.



6 x 31 SWAGED ROPE, EIP, BRIGHT, IWRC

Diameter in Inches	Construction	Approx. Weight per Foot in Pounds	Breaking Strength in Tons*
7/8	6 x 31	1.70	47.4
1	6 x 31	2.22	62.0

According to A.S.T.M. A1023/A1023M and API-9A as applicable to minimum breaking strengths listed.

* Listed for comparison only. Actual operating loads should never exceed the recommended design factor or 20% of catalog Breaking Strength.



WARNING: NEVER EXCEED WORKING LOAD LIMIT

Read important warnings and information on pages 2 - 9.



STAINLESS STEEL WIRE ROPE



6 x 19 (1 + 6 + 12) WITH IWRC



6 x 25 FILLER WIRE WITH IWRC

6 x 19 CLASS STAINLESS STEEL TYPE 304

Diameter in Inches	Approx. Wt. per Foot. in Pounds	Breaking Strength in Pounds*
7/16 †	0.35	16,300
1/2 †	0.46	22,800
9/16 †	0.59	28,500
5/8**	0.72	35,000
3/4**	1.04	49,600
7/8**	1.42	66,500
1**	1.85	85,400

According to Federal Specification RR-W-410, current revision, preformed, right regular lay, IWRC.

† Some sizes available in Type 316.

Type 316 not covered by Federal Specification RR-W-410, current revision — breaking strength may vary.

** Actual construction 6 x 25 (FI)



6 x 36 WARRINGTON SEALE WITH IWRC

6 x 36 STAINLESS STEEL TYPE 304

Diameter in Inches	Approx. Wt. per Foot. in Pounds	Breaking Strength in Pounds*
1/4**	0.116	5,325
5/16**	0.180	8,300
3/8** †	0.240	11,700
7/16	0.350	16,300
1/2	0.460	22,800
9/16	0.590	28,500
5/8 †	0.720	35,000
3/4 †	1.040	49,600
7/8	1.420	66,500
1†	1.850	85,400
1.1/8	2.340	106,400
1.1/4	2.890	129,400
1.3/8	3.500	153,600

According to Federal Specification RR-W-410, current revision, preformed, right regular lay, IWRC. † Some sizes available in Type 316.

Type 316 not covered by Federal Specification RR-W-410, current revision — breaking strength may vary.

** Sizes 1/4", 5/16", and 3/8" are not covered by Federal Specification RR-W-410, current revision.

* Listed for comparison only. Actual operating loads should never exceed the recommended design factor or 20% of catalog Breaking Strength.



v620

WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9.

STAINLESS STEEL CABLE





7 x 7 STAINLESS STEEL CABLE, TYPE 304

Size in Inches	Approx. Wt. per 1000 Ft. in Pounds	Breaking Strength in Pounds*
1/16**	7.5	480
3/32**	16.0	920
1/8	28.0	1,700
3/16	62.0	3,700

** According to Federal Specification RR-W-410, current revision.



7 x 19 STAINLESS STEEL CABLE, TYPE 304

Size in Inches	Approx. Wt. per 1000 Ft. in Pounds	Breaking Strength in Pounds*
3/32**	17.0	920
1/8**	29.0	1,760
5/32**	45.0	2,400
3/16**	65.0	3,700
7/32**	86.0	5,000
1/4**	110.0	6,400
5/16**	173.0	9,000
3/8**	243.0	12,000

** According to Federal Specification RR-W-410, current revision.

7 x 19 STAINLESS STEEL CABLE, TYPE 316

Size in Inches	Approx. Wt. per 1000 Ft. in Pounds	Breaking Strength in Pounds*
1/16 (7x7)	7.5	360
1/8	29.0	1,670
3/16	65.0	3,565
1/4	110.0	5,875
5/16	173.0	8,825
3/8	243.0	11,760

Small diameter 7 x 7 and 7 x 19 construction cable is sometimes referred to as "aircraft cable".

It is not intended for aircraft use but designed for industrial and marine applications.

* Listed for comparison only. Actual operating loads should never exceed the recommended design factor or 20% of catalog Breaking Strength.





GALVANIZED STEEL CABLE



7 x 7 GALVANIZED CABLE

Size in Inches	Approx. Wt. per 1000 Ft. in Pounds	Breaking Strength in Pounds*
1/16	7.5	480
5/64	11.0	650
3/32	16.0	920
1/8	28.0	1,700
5/32	43.0	2,600
3/16	62.0	3,700
1/4	106.0	6,100



7 x 19 GALVANIZED CABLE

Size in Inches	Approx. Wt. per 1000 Ft. in Pounds	Breaking Strength in Pounds*
3/32	17.4	1,000
1/8	29.0	2,000
5/32	45.0	2,800
3/16	65.0	4,200
7/32	86.0	5,600
1/4	110.0	7,000
5/16	173.0	9,800
3/8	243.0	14,400

Small diameter 7 x 7 and 7 x 19 construction cable is sometimes referred to as "aircraft cable". *It is not intended for aircraft use* but designed for industrial and marine applications according to Federal Specification RR-W-410, current revision and A.S.T.M. A 1023/A 1023M, as applicable.

* Listed for comparison only. Actual operating loads should never exceed the recommended design factor or 20% of catalog Breaking Strength.



v620

WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9.

GALVANIZED STEEL CABLE





DISPLAY REELS

DISPLAY REELS - GALVANIZED CABLE

Size in Inches	Construction	Approx. Wt. per 1000 Ft. in Pounds	Display Reels Leng	ths Available in Feet
1/16	7 x 7	7.5	500	250
3/32	7 x 7	16.0	500	250
1/8	7 x 7	28.0	500	250
5/32	7 x 7	43.0	500	250
3/16	7 x 7	62.0	500	250
1/8	7 x 19	29.0	500	250
5/32	7 x 19	45.0	500	250
3/16	7 x 19	65.0	500	250
1/4	7 x 19	110.0	500	250
5/16	7 x 19	173.0	500	200
3/8	7 x 19	243.0	500	200

VINYL COATED CABLE - GALVANIZED



CLEAR VINYL COATED CABLE, 7 x 7 - GALVANIZED

Cable Diameter in Inches	Coated To (in Inches)	Approx. Wt. per 1000 Ft. in Pounds	Breaking Strength in Pounds*	Construction
1/16	3/32	9.3	480	7 x 7
1/16	1/8	11.8	480	7 x 7
3/32	1/8	18.5	920	7 x 7
3/32	3/16	25.8	920	7 x 7
1/8	3/16	35.2	1,700	7 x 7
1/4	5/16	122.0	6,100	7 x 7

Small diameter 7 x 7 and 7 x 19 construction cable is sometimes referred to as "aircraft cable". *It is not intended for aircraft use* but designed for industrial and marine applications. When using wire rope clips with plastic coated cable, match clip size to uncoated cable diameter (3/16" cable coated to 1/4" takes 3/16" clip.) Strip plastic coating off cable where clips will be positioned for full holding power. Uncoated cable according to Federal Specification RR-W-410, current revision and A.S.T.M. A1023/1023M, as applicable.

* Listed for comparison only. Actual operating loads should never exceed the recommended design factor or 20% of catalog Breaking Strength.





VINYL COATED CABLE - GALV. & STAINLESS





7 x 19

CLEAR VINYL COATED CABLE, 7 x 19 - GALVANIZED

Cable Diameter in Inches	Coated To (in Inches)	Approx. Wt. per 1000 Ft. in Pounds	Breaking Strength in Pounds*	Construction
3/32	1/8	19.9	1,000	7 x 19
1/8	3/16	36.2	2,000	7 x 19
3/16	1/4	77.5	4,200	7 x 19
3/16	5/16	81.4	4,200	7 x 19
1/4	5/16	123.0	7,000	7 x 19
5/16	3/8	197.0	9,800	7 x 19
3/8	7/16	270.0	14,400	7 x 19

CLEAR VINYL COATED STAINLESS STEEL CABLE - TYPE 304

Cable Diameter in Inches	Coated To (in Inches)	Approx. Wt. per 1000 Ft. in Pounds	Breaking Strength in Pounds*	Construction
1/16	3/32	9.3	480	7 x 7
3/32	1/8	18.5	920	7 x 7
1/8	3/16	36.2	1,760	7 x 19
3/16	1/4	77.5	3,700	7 x 19
1/4	5/16	123.0	6,400	7 x 19
5/16	3/8	197.0	9,000	7 x 19
3/8	7/16	270.0	12,000	7 x 19



DISPLAY REELS

DISPLAY REELS - VINYL COATED GALVANIZED CABLE

Cable Diameter in Inches	Coated To (in Inches)	Approx. Wt. per 1000 Ft. in Pounds	Construction	Lengths Ava	ailable in Ft.
3/32	3/16	25.8	7 x 7	500	250
1/8	3/16	35.2	7 x 7	500	250
3/16	1/4	77.5	7 x 19	500	250
1/4	5/16	123.0	7 x 19	500	200
5/16	3/8	197.0	7 x 19	500	200

Small diameter 7 x 7 and 7 x 19 construction cable is sometimes referred to as "aircraft cable". *It is not intended for aircraft use* but designed for industrial and marine applications. When using wire rope clips with plastic coated cable, match clip size to uncoated cable diameter (3/16" cable coated to 1/4" takes 3/16" clip.) Strip plastic coating off cable where clips will be positioned for full holding power. Uncoated cable according to Federal Specification RR-W-410, current revision and A.S.T.M. A1023/1023M, as applicable.

Also available on special order: nylon and vinyl in various colors.

* Listed for comparison only. Actual operating loads should never exceed the recommended design factor or 20% of catalog Breaking Strength.

Page 22



v620

WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9.







1 x 7 GALVANIZED STEEL STRAND

Diameter in Inches	Approx. Wt. per 1000 Ft. in Pounds	Breaking Strength in Pounds*
3/16	73.0	3,990
1/4	121.0	6,650
5/16	205.0	11,200
3/8	273.0	15,400
1/2	517.0	26,900

According to ASTM A 475, class "A" coating, left regular lay, Extra High Strength.



1 x 19 STAINLESS STEEL STRAND, TYPE 316, LEFT REGULAR LAY

Diameter in Inches	Approx. Wt. per 1000 Ft. in Pounds	Breaking Strength in Pounds*
1/16	8.5	500
3/32	20.0	1,200
1/8	35.0	1,780
5/32	55.0	2,800
3/16	77.0	4,000
7/32	102.0	5,350
1/4	135.0	6,900
5/16	210.0	10,600
3/8	300.0	14,800

* Listed for comparison only. Design factors vary between 6:1 and 3:1 depending on application.

WIRE ROPE CUTTERS



Model Number	Cutting Capacity in Inches	Approx. Weight per each in Pounds
RC 8	3/16	1.3
RC 450	3/8	3.1
RC 800	9/16	7.5

WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9. Always wear safety goggles when using wire rope cutters.

v620

Page 23





AMERICAN WIRE ROPE



6 x 19 SEALE WITH IWRC



6 x 26 WARRINGTON SEALE WITH IWRC



6 x 25 FILLER WIRE WITH IWRC



6 x 31 WARRINGTON



6 x 36 WARRINGTON SEALE WITH IWRC



Bright and Drawn Galvanized Wire Rope 6 X 19 Class and 6 X 36 Class

FIBER CORE (EIPS)			
Diameter In Inches	Approx. Weight per Foot in Pounds	Breaking Strength in Tons*	
5/16	0.164	4.69	
3/8	0.236	6.71	
7/16	0.320	9.10	
1/2	0.420	11.80	
9/16	0.530	14.90	
5/8	0.660	18.40	
3/4	0.950	26.20	
7/8	1.290	35.40	
1	1.680	46.00	
1.1/8	2.130	57.90	



IWRC (EIPS)			
Diameter In Inches	Approx. Weight per Foot in Pounds	Breaking Strength in Tons*	
1/4**	0.116	3.40	
5/16**	0.180	5.27	
3/8	0.260	7.55	
7/16	0.350	10.20	
1/2	0.460	13.30	
9/16	0.590	16.80	
5/8	0.720	20.60	
3/4	1.040	29.40	
7/8	1.420	39.80	
1	1.850	51.70	
1.1/8	2.340	65.00	
1.1/4	2.890	79.90	
1.3/8	3.500	96.00	
1.1/2	4.160	114.00	
1.5/8	4.880	132.00	
1.3/4	5.670	153.00	
2	7.390	198.00	

According to A.S.T.M. A1023/1023M Wire Rope for General Purposes and Federal Specification RR-W-410, current revision, as applicable. Meets the performance requirements of API-9A. Preformed, right regular lay.

Other lays are available for certain sizes and constructions, such as RAL, LAL, LRL, and Lang lay. EEIPS grade ropes are also available upon request and stocked on several items.

* Listed for comparison only. Actual operating loads should never exceed the recommended design factor or 20% of catalog Breaking Strength.

** 1/4" & 5/16" are domestic but not American Wire Rope brand items.



v620

WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9.

DOMESTIC ROTATION RESISTANT WIRE ROPE



8 x 25 SPIN RESISTANT WITH IWRC



19 x 7 ROTATION RESISTANT WITH WIRE STRAND CORE



DYPAC 18

8 x 19 CLASS - BRIGHT, EIPS, ROTATION RESISTANT, STEEL CORE (IWRC)

Diameter in Inches	Approx. Weight per Foot in Pounds	Breaking Strength in Tons*
1/2	0.47	11.6
9/16	0.60	14.7
5/8	0.73	18.1
3/4	1.02	24.0
7/8	1.06	25.9

According to A.S.T.M. A1023/1023M Wire Rope for General Purposes, current revision. Meets the performance requirements of API-9A, and Federal Specification RR-W-410, as applicable. IWRC, bright, preformed, EIPS.

These wire ropes are specially designed for use when rotation must be kept to a minimum. Strict adherence to breakingin procedures and proper handling during use are extremely important with these ropes.

19 x 7 CLASS - BRIGHT, EIPS, ROTATION RESISTANT

Diameter in Inches	Approx. Weight per Foot in Pounds	Breaking Strength in Tons*	
3/8	0.25	6.15	
7/16	0.35	8.33	
1/2	0.45	10.80	
9/16	0.58	13.60	
5/8	0.71	16.80	
3/4	1.02	24.00	
7/8	1.39	32.50	
1	1.82	42.20	
1.1/8	2.30	53.10	
1.1/4	2.84	65.10	

According to A.S.T.M. A1023/1023M Wire Rope for General Purposes, current revision. Meets the performance requirements of API-9A, and Federal Specification RR-W-410, as applicable. WSC, EIPS

* These strengths apply only when a test is conducted with both ends fixed. When in use, these ropes' strengths will be reduced if one end is free to rotate.

Actual operating loads should never exceed the recommended design factor or 20% of catalog Breaking Strength. **Note:** Rotation resistant ropes shown on this page are domestic and may not be American Wire Rope brand items.

DYPAC 18 - BRIGHT, EEIPS, ROTATION RESISTANT

Diameter in Inches	Approx. Weight per Foot in Pounds	Breaking Strength in Tons
1/2*	0.542	14.6
9/16*	0.686	19.3
5/8*	0.847	22.7
3/4**	1.220	32.4
7/8**	1.660	46.8
1**	2.170	57.5

Dypac 18 is a high performance compacted rotational resistant rope. Good wear characteristics due to its smooth exterior profile. Improved bending fatigue performance - robust stable rope construction. Diameter stability, requirement of multi-layered spooling.

The cross section image is for reference only. Actual cross section varies due to diameter.

* Sizes 1/2" ~ 5/8" are an 18 x 7 Compacted Construction.

** Sizes 3/4" ~ 1" are an 18 x 19 Compacted Construction.



WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9.

v620



SWAGING TOOLS



BENCH SWAGING TOOL

Size in Inches	Sleeve Size Range in Inches	# Cavities	Approx. Weight Each in Pounds
24	1/16—3/16	5	6.61



HAND SWAGING TOOLS

Size in Inches	Sleeve Size Range in Inches	# Cavities	Approx. Weight Each in Pounds
24	1/16—3/16	5	5.60
30	5/32-1/4-5/16	3	7.25

Aluminum Sleeves





Copper Sleeves

Size in Inches	Pkg. Qty.	Approx. Pkg. Wt. in Pounds
1/16	100	0.31
3/32	100	0.92
1/8	100	1.83
5/32	50	2.71
3/16	50	4.72
7/32	25	1.76
1/4	25	2.06
5/16	25	3.36
3/8	25	4.41
Copper Button	Stops	
3/32	25	0.20
1/8	25	0.18
5/32	25	0.31
3/16	25	0.30
7/32	25	0.46
1/4	25	1.54
5/16	25	1.49
3/8	25	1.43

Size in Inches	Pkg. Qty.	Approx. Pkg. Wt. in Pounds
1/16	250/500	0.23/0.45
3/32	250/500	0.83/1.65
1/8	250/500	1.60/3.20
5/32	250	1.98/3.95
3/16	250	1.98/3.95
7/32	100	2.21
1/4	50	1.22
5/16	25	1.16
3/8	25	1.49
Aluminum But	ton Stops	
3/32	50	0.13
1/8	50	0.11
5/32	50	0.21
3/16	50	0.20
7/32	50	0.17
1/4	50	1.02
5/16	50	0.85
3/8	50	0.80

Sleeves meet the requirements of MIL-MS51844, current revision.

Proper care and maintenance (i.e. lubrication, visual inspection) should accompany use of hand tools. Proof testing is recommended whenever the possibility of personal injury or property damage exists.



v620

WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9.

CHAIN - WARNINGS AND INFORMATION





Refer to warnings on pages 2 - 9.

These warnings also apply to chain and chain assemblies. Only additional warnings and information are listed below.

Never exceed the Working Load Limit of the chain.

The Working Load Limit is the maximum load that should ever be applied to the chain, even when new and when the load is uniformly applied. Working Load Limit applies only to straight line pulls. When using multiple leg chain slings, the Working Load Limit of each leg will have to be reduced considerably depending on the angle of the sling legs. See page 4 for further discussion. Consult industry recommendations for information, such as ASME B 30.9.

When in doubt as to the Working Load Limit of the chain, refer to the periodic, permanently embossed grade marking on chain links. Proof Coil Chain is identified by P.C. or 30 or 3 or 28; High Test Chain by H.T. or 43 or 40 or 4; Transportation Chain by 70 or 7; Alloy Chain by 80 or 8 or 800 or 10 or 100.

Use only alloy chain for overhead lifting.

Alloy chain, grade 80 or higher, is the only type of chain which can be used for overhead lifting. Use only alloy fittings, grade 80 or higher, for overhead lifting.

Attachments must have at least the same Working Load Limit as the chain used.

Hooks, links, shackles, etc. must be of suitable material and strength to provide adequate safety protection.

Keep out from under a raised load.

Do not move load over people. Do not ride on load. Conduct all lifting operations in such a manner that if equipment were to fail or break, no personnel would be injured. This means KEEP OUT FROM UNDER A RAISED LOAD, DO NOT OPERATE LOADS OVER PEOPLE AND KEEP OUT OF THE LINE OF FORCE.

Avoid shock loads.

Avoid impacting, jerking or swinging of load. Working Load Limit will not apply in these circumstances because a shock load is generally significantly greater than the static load.

Inspect chain frequently.

No product can keep operating at its rated capacity indefinitely. Closely examine each link for deformation, cracks, elongation, corrosion, rust, etc. Take chain out of service even if only one bad link is found. Eliminate twists and kinks in chain before using. Do not attempt to repair damaged or worn links in a chain. Do not attempt to weld, anneal, heat treat or hot galvanize alloy chain - its capacity will be completely destroyed. Protect chain from corrosion.

Destroy, rather than discard, chain that is judged to be defective.

Chain that is not destroyed might be used again by someone not aware of the hazard associated with that use. Destroying chain is best done by cutting it up into short pieces.

Chain Slings.

Only alloy chain, grade 80 or higher, can be used for overhead lifting. Refer to OSHA standard 1910.184 and ASME standard B30.9 for design factors and other important information. Other standards and information may apply depending on specific use.

Consult the sources listed on page 97 for additional information.



WARNING: NEVER EXCEED WORKING LOAD LIMIT





Caution: Never use G30 Proof Coil Chain for overhead lifting or where its failure would cause damage to property or life.

PROOF COIL CHAIN (GRADE 30)						
Nominal Size mm	Nominal Size Inches	Working Load Limit in Pounds	Feet per Drum	Feet per 1/2 Drum	Minimum Weight per Foot	Max. Length per 100 Links in Inches
4	1/8	400		1,000	0.17	90.5
5.5	3/16	800		800	0.33	96.4
7	1/4	1,300	800	400	0.63	124.0
8	5/16	1,900	550	275	0.93	129.1
10	3/8	2,650	400	200	1.41	137.8
13	1/2	4,500	200	100	2.40	179.1
16	5/8	6,900	150	75	3.58	220.5
20	3/4	10,600	100	50	5.48	275.6
22	7/8	12,800	80	40	7.31	258.7
26	1	17,900	60	30	9.41	287.8

Self colored, zinc plated, or hot galvanized. According to ASTM A413 and NACM Welded Steel Chain Specification. Proof tested to 2x the Working Load Limit.

DO NOT USE FOR OVERHEAD LIFTING

DEALER PAILS, PROOF COIL CHAIN (GRADE 30)

Nominal Size mm	Nominal Size Inches	Working Load Limit in Pounds	Feet per Pail, Approx.
4	1/8	400	500
5.5	3/16 800		250
7	1/4	1,300	141
8	5/16	1,900	92
10	3/8	2,650	63
13	1/2	4,500	35

Bright, zinc plated, or hot galvanized. According to ASTM A413 and NACM Welded Steel Chain Specification. Proof tested to 2x the Working Load Limit.

DO NOT USE FOR OVERHEAD LIFTING LONG LINK CHAIN (GRADE 30) - BUMPER MOORING CHAIN

Nominal Size mm	Nominal Size Inches	Working Load Limit in Pounds	Feet per Drum	Inside Length*	Inside Width*	Min. Weight per Foot in Pounds
13	1/2	4,500	200	2.27	0.87	2.55
16	5/8	6,900	150	2.56	1.00	3.50
20	3/4	10,600	100	4.00	1.15	4.48

Hot galvanized.

* ± 5%



v620

CHAIN - HIGH TEST CHAIN, GRADE 43





Caution: Never use G43 High Test Chain for overhead lifting or where its failure would cause damage to property or life.

HIGH TEST CHAIN (GRADE 43)

Nominal Size mm	Nominal Size Inches	Working Load Limit in Pounds	Feet per Drum	Feet per 1/2 Drum	Minimum Weight per Foot	Max. Length per 100 Links in Inches
7.0	1/4	2,600	800	400	0.63	124.0
8.0	5/16	3,900	550	275	0.93	129.1
10.0	3/8	5,400	400	200	1.41	137.8
13.0	1/2	9,200	200	100	2.40	179.1
16.0	5/8	13,000	150	75	3.58	220.5
20.0	3/4	20,200	100	50	5.48	275.6

Self colored or hot galvanized.

According to ASTM A413 and NACM Welded Steel Chain Specification.

Proof tested to 2X the Working Load Limit.

DEALER PAILS, HIGH TEST CHAIN (GRADE 43) - BRIGHT

Nominal Size mm	Nominal Size Inches	Working Load Limit in Pounds	Approximate Feet per Pail
7.0	1/4	2,600	130
8.0	5/16	3,900	90
10.0	3/8	5,400	64

CHAIN - TRANSPORT CHAIN, GRADE 70



Caution: Never use G70 Transport Chain for overhead lifting or where its failure would cause damage to property or life.

TRANSPORT CHAIN (GRADE 70)

Yellow chromate finish. According to ASTM A413 and NACM Welded Steel Chain Specification. Proof tested to 2x the Working Load Limit.

Nominal Size mm	Nominal Size Inches	Working Load Limit in Pounds	Feet per Drum	Ft. per 1/2 Drum	Minimum Weight per Foot in Pounds	Max. Length per 100 Links in Inches
7.0	1/4	3,150	800	400	0.63	124.0
8.0	5/16	4,700	550	275	0.93	129.1
10.0	3/8	6,600	400	200	1.41	137.8
13.0	1/2	11,300	200	100	2.40	179.1

Plated. Dealer Pails on request.





WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and page 27. Never use grade 43 or grade 70 chain for overhead lifting.

v620



CHAIN - STAINLESS STEEL CHAIN



DO NOT USE FOR OVERHEAD LIFTING

STAINLESS STEEL CHAIN

Nominal Size mm	Nominal Size Inches	Working Load Limit in Pounds*	Feet per Drum	Minimum Weight per Foot in Pounds	Max. Length per 100 Links in Inches
4.0	1/8	500	1,000	0.17	88.8
5.0	3/16	930	1,000	0.38	96.4
7.0	1/4	1,570	800	0.61	124.0
8.0	5/16	2,400	550	0.84	129.1
10.0	3/8	3,550	400	1.40	137.8

*AT ROOM TEMPERATURE

CHAIN - ALLOY STEEL CHAIN, GRADE 100



ALLOY CHAIN (GRADE 100) - IMPORTED and DOMESTIC

According to ASTM A973 and NACM Welded Steel Chain Specification.

Trade Size mm	Trade Size Inches	Working Load Limit in Pounds*	Minimum Weight per foot in Pounds	Max. Length per 100 Links in Inches
7	9/32	4,300	0.71	88
8	5/16	5,700	0.92	96
10	3/8	8,800	1.44	126
13	1/2	15,000	2.36	164
16	5/8	22,600	3.76	202
20	3/4	35,300	5.50	252
22	7/8	42,700	7.12	277
26	1**	59,700	9.65	293
32	1.1/4 G80	72,300	15.75	375

Refer to pages 36 - 39 for Grade 100 Alloy fittings.

Chain is 100% proof tested to 2x the Working Load Limit.

* Working Load Limit is based on single leg Grade 100 alloy sling, when utilizing Grade 100 attachments.

** Not covered by ASTM A973 or NACM Welded Steel Chain Specification.

CHAIN SLINGS

v620

Only chain rated Grade 80 or higher can be used for chain slings for overhead lifting.

Refer to OSHA standard 1910.184, ASME standard B30.9 and ASTM A906 specification for design factors and other important information. Other standards and information may apply. Refer to page 4 for a discussion of chain slings.



WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and page 27.

CHAIN ASSEMBLIES





DO NOT USE FOR OVERHEAD LIFTING

BINDING CHAIN (GRADE 70)

Size Working Load Limit in Pounds		Approx. Weight Each in Pounds	
5/16" x 20 ft.	4,700	20.0	
3/8" x 20 ft.	6,600	30.0	
1/2" x 20 ft.	11,300	52.4	

Transport chain with grab hook each end.

DO NOT USE FOR OVERHEAD LIFTING

HIGH TEST BOOMER CHAIN (GRADE 43)

Size	Working Load Limit in Pounds	Approx. Weight Each in Pounds
1/4" x 20 ft.	2,600	13.5
5/16" x 20 ft.	3,900	20.0
3/8" x 20 ft.	5,400	30.5

High Test chain with grab hook each end.



TAIL CHAIN (WINCH LINE END CHAIN) - DOMESTIC

Wire Rope Diam. in Inches	Length in Inches	Working Load Limit in Pounds	Grade	No. of Links	Approx. Weight Each in Pounds
3/8	18	5,400	High Test	13	5
1/2	18	9,200	High Test	7	9
5/8	18	18,100	Alloy	8	10
3/4	18	28,300	Alloy	9	13
7/8	24	34,200	Alloy	9	24
1	24	47,700	Alloy	7	27

Use same size chain as wire rope.

Proper end connection to wire rope should be maintained.



CLEVIS TYPE J HOOKS - DOMESTIC

	Zinc Plated				
	Size in Inches	Working Load Limit in Pounds	Weight Each in Pounds		
	8	3,000	2.03		
	15	3,000	3.14		
Kulkoni, Inc.		WARNING: NEVER EXCEED WORK Read important warnings and information on pages 2 - Never use for overhead lifting.	VING LOAD LIMIT 9 and page 27.	v620	Page 31



LOAD BINDERS





LOAD BINDERS, LEVER TYPE

Size in Inches	Model Number	Working Load Lim- it in Pounds	Breaking Strength in Pounds*	Approx. Wt. Each in Pounds	Take-up in Inches
1/4	K14	2,600	7,800	3.10	2.1/2
5/16 - 3/8	K38	6,600	26,000	8.25	3.3/4
3/8 - 1/2	K12	9,200	33,000	11.50	4.1/2
1/2 - 5/8	K58	13,000	46,000	14.38	4.75

Forged steel, heat treated, painted.

LOAD BINDERS, RATCHET TYPE

Size in Inches	Model Number	Working Load Lim- it in Pounds	Breaking Strength in Pounds*	Approx. Wt. Each in Pounds	Take-up in Inches
1/4**	KR516	3,150	13,700	3.50	4
5/16 - 3/8	KR38	6,600	26,000	11.25	8
3/8 - 1/2	KR12	9,200	33,000	13.25	8
1/2 - 5/8	KR58	13,000	46,000	14.40	8

Forged steel**, heat treated, painted.

*Listed for comparison only. Never exceed the Working Load Limit.

**Handles of 1/4" Load Binders are cast steel.

• IMPROPER OPERATION OF LOAD BINDERS CAN RESULT IN SERIOUS INJURY OR DEATH.

- In releasing lever type binders, be sure no one is positioned to be struck by the handle which may release suddenly.
- If there is a possibility for a relaxation of the chain when the binder is in the locked or "over center" position, the handle should be secured to the binding chain by securely wrapping the loose end of the chain around the handle. Whenever possible, secure the handle down with a positive retaining method.
- Never exceed the Working Load Limit.
- Read the following warnings, as well as the warnings on pages 2 9 and the warnings applicable to fittings on page 33
- Do not operate the binder while you or anyone else is on the load. You might slip or fall risking serious injury or death.
- When applying the binder, always position the load binder so the handle is tightened in a downward manner.
- Failure to do so may result in a sudden snapping back of the lever which might result in serious injury or death.
- Load binders are designed to be tightened to the approximate Working Load Limit by a substantial hand effort.
- Do not use a handle extension. Extensions can severely damage the binder system and result in serious injury or death.
- The operator should at all times use the load binder from a firm standing position that will ensure protection for himself as well as those in the immediate vicinity.
- Load binders are a form of machinery and require periodic inspection and maintenance. Inspect for wear, deformation, cracks, nicks or gouges before using. Replace if damaged.
- Load binders should be periodically lubricated to give optimum performance and reduce friction losses.
- Consult the U.S. Government Printing Office for the Federal Motor Carrier Safety Regulations for additional important information, specifically S 392.9 (relating to safe loading), S 393.100 (relating to protection against shifting cargo) and S 393. 102 (relating to strength securement systems).



v620

FITTINGS - WARNINGS AND INFORMATION









IMPORTANT WARNINGS

Failure to follow warnings and instructions can result in serious injury or death.

Refer to warnings on pages 2 - 9.

These warnings also apply to fittings. Only additional warnings and information are listed below.

Never exceed the Working Load Limit.

The Working Load Limit is the maximum load which should ever be applied to the product, even when the product is new and when the load is uniformly applied - straight line pull only. Avoid side loading. All catalog ratings are based upon usual environmental conditions, and consideration must be given to unusual conditions such as extreme high or low temperatures, chemical solutions or vapors, prolonged immersion in salt water, etc. Such conditions or high-risk applications may necessitate reducing the Working Load Limit.

Working Load Limit will not apply if product has been welded or otherwise modified.

Match components properly.

Make certain that components such as hooks, links or shackles, etc. used with wire rope (or chain or cordage) are of suitable material and strength to provide adequate safety protection. Attachments must be properly installed and must have a Working Load Limit at least equal to the product with which they are used.

Keep out from under a raised load.

Conduct all lifting operations in such a manner, that if there were an equipment failure, no personnel would be injured. This means keep out from under a raised load and keep out of the line of force of any load. Do not operate load over people. Do not ride on loads.

Avoid shock loads.

Avoid impacting, jerking or swinging of load as the Working Load Limit could be exceeded and the Working Load Limit will not apply. A shock load is generally significantly greater than the static load.

Inspect products regularly.

No product can keep operating at its rated capacity indefinitely. Periodic inspections help determine when to replace a product and reduce rigging hazards. Check for visible damage, cracks, wear, elongation, rust, corrosion, etc. When in doubt about the extent of the damage, retire the item in question immediately.

Destroy, rather than discard, items that have been judged defective.

They might be used again by someone not aware of the hazard associated with use.

Consult the sources listed on page 97 for additional information.





OBLONG MASTER LINKS



OBLONG MASTER LINKS, ALLOY, DOMESTIC

	DOMESTIC	Link Dimensions i	Approximate	
Diameter	W.L.L.	-W-	-L-	Weight Each
in Inches	in Pounds*	Width	Length	in Pounds
5/8	9,000	3.0	6.0	1.50
1.1/2	54,300	5.1/4	10.5	16.50
1.3/4	84,900	6.0	12.0	24.80
2	102,600	7.0	14.0	37.60
2.1/4	143,100	8.0	16.0	54.30
2.1/2	160,000	8.0	16.0	68.00
2.3/4	216,900	9.0	16.0	85.60
3	228,000	10.0	19.0	136.00
4	373,000	10.0	20.0	228.00
4.1/2	360,000	14.0	28.0	345.00
5	395,000	15.0	30.0	516.00
5.1/2	495,900	16.0	32.0	675.00
6	606,100	18.0	36.0	875.00

A.S.T.M. A952/A906*. Welded or forged*, painted.

ALL oblong master links are individually proof tested in accordance with the requirements of ASTM A952 / A906.

All oblong master links meet or exceed the performance requirements of A.S.T.M. A952 - Standard Specification for Forged Grade 80 Alloy Steel Lifting Components and Welded Attachment Links and the mechanical requirements of A.S.T.M. 906, Standard Specification for Alloy Steel Chain Slings for Overhead Lifting - as applicable.

* All welded master links have a 4:1 design factor — Forged (weldless) domestic links are available in sizes 1/2" - 1.1/4". Working Load Limits, Dimensions, and Design Factors may vary by manufacturer.



v620

IMPORTED AND DOMESTIC LINKS





PEAR SHAPED SLING LINKS

-D-			
Size in Inches	Working Load Limit in Pounds*	L x W1 x W2	Approximate Weight Each in Pounds
3/8	1,800	2.25 x 1.50 x .75	0.25
1/2	2,900	3.00 x 2.00 x 1.00	0.58
5/8	4,200	3.75 x 2.50 x 1.25	1.12
3/4	6,000	4.50 x 2.75 x 1.38	1.92
7/8	8,300	5.25 x 3.50 x 1.75	3.03
1	10,800	6.00 x 3.75 x 1.88	4.58
1.1/4	16,750	7.75 x 5.00 x 2.50	8.96
1.3/8	43,000	8.50 x 5.50 x 2.75	11.65
1.1/2	47,880	12.00 x 6.00 x 3.00	17.00
1.3/4	62,520	12.00 x 7.00 x 4.00	24.30
2	97,680	14.00 x 7.00 x 4.00	37.00
2.1/4	119,400	14.00 x 7.00 x 4.00	47.50
2.1/2	147,300	15.50 x 10.00 x 5.00	67.00
2.3/4	178,200	16.00 x 9.00 x 7.00	83.90

3/8" through 1.1/4" forged. Larger sizes welded. Heat treated, painted, or hot galvanized.

Sizes 3/8" thru 1.1/4" Carbon Steel, Ultimate Breaking Strength is 6 times Working Load Limit. Proof Load tested.

Sizes 1.3/8" thru 2.3/4" Alloy Steel. Ultimate Breaking Strength is 4 times Working Load Limit.

Proof Load Tested.

*Single Leg Sling (in-line) or maximum load capacity on multiple legs, where the included angle is 120° degrees or less. Working Load Limits, Dimensions, and Design Factors may vary by manufacturer.


IMPORTED AND DOMESTIC LINKS - GRADE 100



GRADE 100 COUPLING LINK

For Chain			Dime	ensions			Weight Ea.	WLL
(in Inches)	Α	С	0	R	Р	S	in Pounds	in Pounds
9/32	0.63	0.79	0.75	2.05	0.41	0.35	0.31	4,300
5/16	0.71	0.98	0.91	2.44	0.47	0.37	0.44	5,700
3/8	0.91	1.18	1.06	2.76	0.47	0.47	0.77	8,800
1/2	1.06	1.42	1.34	3.54	0.79	0.67	1.63	15,000
5/8	1.30	1.57	1.54	4.13	0.87	0.81	2.56	22,600
3/4	1.65	1.81	1.81	4.45	1.14	0.98	4.52	35,300
7/8	1.93	2.17	2.28	5.24	1.18	1.10	6.83	42,700
1	2.24	3.35	3.25	7.56	1.57	1.18	14.99	59,700*

Forged alloy steel, heat treated. Meets the performance requirements of ASTM A952.

* Not covered by ASTM A952.

To assemble:

1. Put two halves of coupling link together as shown.

2. Put locking spacer between halves, line up with holes in coupling link.

3. Drive pin through holes in coupling link and locking spacer until flush with outside of coupling link.



GRADE 100 SUB ASSEMBLY

For Chain		Dir	nensions	in Inche	es			
(in Inches)	Α	В	C D E F		F	Weight Each in Pounds	WLL in Pounds	
9/32	3/4	2.95	5.31	1/2	0.98	2.13	2.65	11,200
5/16	7/8	3.62	6.50	5/8	1.34	2.76	5.07	15,200
3/8	1	3.94	7.09	3/4	1.57	3.35	7.85	26,000
1/2	1.1/4	4.33	7.87	7/8	1.97	4.53	13.34	39,000
5/8	1.1/2	5.51	10.24	1	2.56	5.51	22.05	58,700

Grade 100 alloy, heat treated. Painted. Meets the performance requirements of ASTM A952. Dimensions are listed for reference only and may vary by manufacturer.



v620

IMPORTED AND DOMESTIC LINKS - GRADE 100





GRADE 100 OBLONG MASTER LINK

Dime	ensions in Ind	ches	Weight Ea.	WLL	Suited for Chain Siz	ze (in Inches)
Diameter	I.L.*	I.W.*	in Pounds	in Pounds	1 Leg	2 Leg
1/2	4.33	2.36	0.75	6,000	9/32 & 5/16	7/32
5/8	5.51	3.15	1.47	8,600	5/16	9/32
3/4	5.91	3.54	2.02	12,900	3/8	5/16
7/8	6.30	3.54	3.30	17,600	1/2	3/8
1	7.09	3.94	5.06	30,000	5/8	1/2
1.1/4	7.87	4.33	8.58	39,100	3/4	5/8
1.1/2	10.24	5.51	13.97	61,100	7/8	3/4
1.3/4	13.39	7.09	28.16	74,000	1	7/8
2	13.78	7.48	37.84	103,400	1.1/4	1
2.1/4	15.75	7.87	53.24	178,900		1.1/4

*Dimensions are listed for reference only and may vary by manufacturer.

Meets the performance requirements of ASTM A952.

Chain sizes above 7/8" not covered under ASTM A952.





GRADE 100 ALLOY HOOKS







SELF LOCKING CLEVIS HOOK (GRADE 100)

For Chain				Dimensi	ons in In	ches			Weight Ea.	WLL
(in Inches)	Α	В	С	G	Н	R	Т	PxL	in Pounds	in Pounds
9/32	1.34	0.35	0.39	0.79	1.02	4.84	1.69	0.35 x 0.89	2.09	4,300
5/16	1.34	0.35	0.39	0.79	1.02	4.84	1.69	0.39 x 0.89	2.09	5,700
3/8	1.77	0.47	0.55	0.98	1.18	5.63	2.20	0.51 x 1.24	3.53	8,800
1/2	2.01	0.59	0.67	1.38	1.57	7.09	2.72	0.63 x 1.65	7.05	15,000
5/8	2.36	0.75	0.75	1.42	1.97	8.46	3.15	0.82 x 2.03	13.23	22,600
3/4	2.76	0.91	1.02	2.36	2.64	9.96	3.54	0.94 x 2.87	21.61	35,300

Forged alloy steel, heat treated. Painted. Meets the performance requirements of ASTM A952.

SELF LOCKING EYE HOOK (GRADE 100)

For Chain			Dimen	sions in	Inches			Weight Ea. in	WLL
(in Inches)	Α	D	G	Н	0	R	R T Pounds		in Pounds
9/32 - 5/16	1.34	0.47	0.79	1.02	0.98	5.31	1.69	2.12	5,700
3/8	1.77	0.63	0.98	1.18	1.30	6.61	2.20	3.64	8,800
1/2	2.01	0.79	1.38	1.57	1.57	8.07	2.72	7.16	15,000
5/8	2.36	1.06	1.42	1.97	1.97	9.88	3.15	13.45	22,600
3/4	2.76	1.18	2.36	2.64	2.36	11.42	3.54	21.61	35,300

Forged alloy steel, heat treated. Painted. Meets the performance requirements of ASTM A952.

SELF LOCKING SWIVEL HOOK (GRADE 100)

For Chain			Dimen	sions in	Inches			Weight Ea. in	WLL	
(in Inches)	Α	D	G	Н	0	R	В	Pounds	in Pounds	
9/32 - 5/16	1.34	0.51	0.79	1.02	1.42	7.17	1.69	2.43	5,700	
3/8	1.77	0.63	0.98	1.18	1.65	8.54	2.20	4.41	8,800	
1/2	2.13	0.83	1.38	1.57	1.97	10.67	2.72	8.82	15,000	
5/8	2.44	0.94	1.50	1.97	2.44	12.60	3.15	14.99	22,600	

Forged alloy steel, heat treated. Painted. Meets the performance requirements of ASTM A952.



v620

GRADE 100 ALLOY HOOKS





CLEVIS SLING HOOK with LATCH (GRADE 100)

For Chain				Dim	ensions				Weight Ea.	WLL
(in Inches)	Α	A1	В	С	G	Н	R	PxL	in Pounds	in Pounds
9/32	1.34	1.02	0.37	0.39	0.75	1.10	3.74	0.35 x 0.89	1.21	4,300
5/16	1.34	1.02	0.37	0.39	0.75	1.10	3.74	0.39 x 0.89	1.10	5,700
3/8	1.57	1.22	0.47	0.53	0.98	1.30	4.33	0.51 x 1.16	2.20	8,800
1/2	2.01	1.57	0.59	0.67	1.18	1.57	5.35	0.63 x 1.46	3.75	15,000
5/8	2.20	1.77	0.71	0.87	1.46	1.89	6.10	0.79 x 2.05	7.05	22,600
3/4	2.36	2.09	0.91	1.02	2.01	2.05	7.28	0.94 x 2.87	11.02	35,300
7/8	2.76	2.44	0.98	1.14	1.97	2.48	8.27	1.02 x 2.83	27.12	42,700

Forged alloy steel, heat treated. Painted. Meets the performance requirements of ASTM A952. To assemble:

1. Fully insert clevis pin.

2. Secure clevis pin by driving locking pin into place until flush with body of hook.



CLEVIS GRAB HOOK (GRADE 100)

For Chain				Dim	ensions				Weight Ea.	WLL	
(in Inches)	Α	В	С	G	Н	R	М	PxL	in Pounds	in Pounds	
9/32	0.39	0.39	0.45	1.18	1.10	2.58	1.85	0.35 x 0.89	0.97	4,300	
5/16	0.39	0.39	0.43	1.18	1.10	2.56	1.85	0.39 x 0.91	0.97	5,700	
3/8	0.51	0.51	0.59	1.34	1.34	3.15	2.17	0.51 x 1.24	2.12	8,800	
1/2	0.67	0.67	0.69	1.85	1.85	4.15	3.19	0.63 x 1.65	4.63	15,000	
5/8	0.75	0.75	0.72	2.52	2.52	4.40	3.62	0.83 x 2.03	7.50	22,600	
3/4	0.93	0.91	0.87	3.31	3.31	4.65	3.94	0.94 x 2.42	11.46	35,300	
7/8	1.02	1.02	0.98	3.62	2.68	6.06	4.72	1.02 x 2.83	17.20	42,700	

Forged alloy steel, heat treated. Painted. Meets the performance requirements of ASTM A952.

To assemble:

1. Fully insert clevis pin.

2. Secure clevis pin by driving locking pin into place until flush with body of hook.





Size

CHAIN HOOKS



HIGH TEST* CLEVIS GRAB HOOKS (GRADE 43)

AB HOOKS (GRADE 43) Approximate Weight Each in Pounds
DO NOT USE FOR OVERHEAD LIFTING
Dimension in Inches
A B C D

in Inches	in Pounds	in Pounds	A	В	C	D
1/4	2,600	0.43	0.38	0.38	0.34	1.94
5/16	3,900	0.72	0.44	0.44	0.41	2.38
3/8	5,400	1.15	0.56	0.47	0.50	2.63
1/2	9,200	2.35	0.69	0.63	0.66	3.50
5/8	13,000	4.10	0.81	0.63	0.81	4.19

Forged steel, heat treated, plated.

Also available in DOMESTIC.

*Ultimate Load is 3 times the Working Load Limit.

Working Load Limit



ALLOY / GRADE 70 CLEVIS GRAB HOOKS DO NOT USE FOR OVERHEAD LIFTING

Size	Working Load Limit	Approximate Weight Each		Dimension	n in Inches	
in Inches	in Pounds	in Pounds	Α	В	С	D
1/4	3,500	0.43	0.38	0.38	0.34	1.94
5/16	4,700	0.72	0.44	0.44	0.41	2.38
3/8	7,100	1.15	0.56	0.47	0.50	2.63
1/2	12,000	2.35	0.69	0.63	0.66	3.50

Forged steel, heat treated, yellow chromate.

v620

Meets or exceeds the performance requirements of NACM Forged Grade 30, Grade 43, and Grade 70 Chain Hook Specifications.



WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and page 33. Never use for overhead lifting.

CHAIN HOOKS





HIGH TEST* EYE GRAB HOOKS (GRADE 43) DO NOT USE FOR OVERHEAD LIFTING **Dimension in Inches Working Load Limit** Approximate Weight Each Size in Inches in Pounds in Pounds Α С D 1/4 2,600 0.30 0.50 0.31 1.88 5/16 3,900 0.57 0.56 0.44 2.25 3/8 5,400 0.69 0.50 2.56 0.95 1/2 9,200 2.14 0.88 0.59 3.50

Forged steel, heat treated, plated.

*Ultimate Load is 3 times the Working Load Limit.



HIGH TEST* EYE SLIP HOOKS (GRADE 43) DO NOT USE FOR OVERHEAD LIFTING **Dimension in Inches** Size **Working Load Limit** Approximate Weight Each in Inches in Pounds in Pounds С D Α 1/4 2,600 0.36 0.50 0.69 2.00 5/16 3,900 0.60 0.75 1.00 2.56 3/8 5,400 0.91 0.75 1.06 3.00 9,200 1.38 1/2 1.94 1.06 4.13

Forged steel, heat treated, plated.

*Ultimate Load is 3 times the Working Load Limit.





CHAIN HOOKS



HIGH TEST* CLEVIS SLIP HOOKS (GRADE 43)

Size	Working Load Limit	Approximate Weight Each		Dimension in Inches				
in Inches	in Pounds	in Pounds	А	В	С	D		
1/4	2,600	0.58	0.38	0.38	0.88	2.56		
5/16	3,900	0.86	0.44	0.44	1.00	2.81		
3/8	5,400	1.40	0.56	0.47	1.28	3.25		
1/2	9,200	2.20	0.63	0.56	1.38	4.00		

DO NOT USE FOR OVERHEAD LIFTING

Forged steel, heat treated, plated.

*Ultimate Load is 3 times the Working Load Limit.



GRADE	70 CLEVIS SLIP H	DO NOT USE FOR OVERHEAD LIFTING					
Size	Working Load Limit	Approximate Weight Each			Dimensior	n in Inches	
in Inches	in Pounds	in Pounds	A		В	С	D
1/4	3,150	0.58	0.3	8	0.38	0.88	2.56
5/16	4,700	0.86	0.4	4	0.44	1.00	2.81
3/8	6,600	1.40	0.5	6	0.47	1.28	3.25
1/2	11,300	2.20	0.6	3	0.56	1.38	4.00

Forged steel, heat treated, yellow chromate.

v620

Meets the performance requirements of NACM Forged Grade 30, Grade 43, and Grade 70 Chain Hook Specifications.



EYE HOOKS





EYE HOOKS

Size (W	/LL)*				Dim	ension	ns in in	ches				Approximate Weight Each	
Carbon	Alloy	Α	В	С	D	E	F	G	Н	J	K	with Latch in Pounds	
3/4 Ton**	1 Ton	1.50	0.75	0.38	0.88	0.63	0.94	2.88	0.75	4.38	3.25	0.60	
1**	1.1/2	1.75	0.88	0.44	1.00	0.69	1.06	3.13	0.81	4.88	3.63	0.82	
1.1/2**	2	2.00	1.13	0.44	1.19	0.81	1.06	3.50	1.00	5.50	4.13	1.44	
2	3	2.38	1.25	0.59	1.38	0.94	1.22	3.94	1.19	6.31	4.56	1.94	
3	5	3.00	1.56	0.69	1.63	1.19	1.50	5.00	1.50	7.94	5.75	3.94	
5	7	3.81	2.00	0.88	2.06	1.50	1.88	6.25	1.75	10.00	7.38	7.75	
7.1/2	11	4.69	2.44	1.13	2.63	1.63	2.25	7.56	2.25	12.44	9.06	15.40	
—	15	5.37	2.84	1.26	2.94	2.19	2.51	8.30	2.59	13.93	10.07	22.20	
	22	6.64	3.50	1.58	3.50	2.69	3.30	10.30	3.00	17.06	12.50	37.60	

Carbon or Alloy steel, forged, heat-treated, painted, with latch installed or without. Some sizes also available in DOMESTIC.

* Working Load Limit applies only when the load is applied to the center of the saddle of the hook.

** 3/4, 1, 1.1/2, and 2 Ton Carbon Steel Hooks also available in Hot Galvanized.

SORTING HOOKS



SORTING HOOKS

Working Load Limit 2.1/2" from tip		2 Tons
Working Load Limit, at bottom		7.1/2 Tons
Approximate Weight Each		7.75 Pounds
Overall Length in Inches	L	9.69
I.D. of Eye in Inches	Α	1.38
Opening at top of Hook in Inches	0	2.81
Radius at Bottom of Hook in Inches	R	0.63

Forged alloy steel, heat treated, painted.





ALLOY SWIVEL HOOKS





ALLOY SWIVEL HOOKS

Size		Dimensions in Inches													Approximate	
(WLL) (t)*	Α	в	С	D	F	G	н	J	к	L	М	ο	R	S	AA	Weight Each with Latch in Pounds
1	2.00	0.82	1.25	2.86	1.25	0.73	0.81	0.93	0.63	2.66	0.63	0.89	4.55	0.38	1.50	0.75
2	3.00	1.50	1.75	3.59	1.50	1.00	1.16	1.06	0.88	7.75	0.88	1.00	6.12	0.63	2.00	2.25
3	3.00	1.50	1.75	4.00	1.62	1.13	1.31	1.19	0.94	8.25	0.94	1.09	6.50	0.63	2.00	2.30
5	3.50	1.64	2.00	4.84	2.00	1.44	1.63	1.50	1.31	9.69	1.13	1.36	7.50	0.75	2.50	4.96
7	4.56	2.29	2.50	6.28	2.50	1.81	2.06	1.78	1.66	12.47	1.44	1.61	9.63	1.00	3.00	10.29
11	5.00	2.53	2.75	7.54	3.00	2.25	2.63	2.41	1.88	14.75	1.63	2.08	11.37	1.13	4.00	19.40
15	5.62	2.48	3.12	8.34	3.25	2.59	2.94	2.62	2.19	16.40	1.94	2.27	12.25	1.25	4.00	23.25

* Working Load Limit applies only when the load is applied to the center of the saddle of the hook. Also available in domestic.

LATCH KITS



STAINLESS LATCH KITS

v620

Ноо	k Size	Approximate Weight Each		Dimens	ions (in)	
Carbon	Alloy	in Pounds	А	В	С	D
3/4 Ton	1 Ton	0.02	0.45	0.14	1.50	0.62
1	1.1/2	0.03	0.42	0.14	1.85	0.72
1.1/2	2	0.03	0.46	0.18	1.85	0.76
2	3	0.03	0.48	0.18	2.04	0.84
3	5	0.06	0.64	0.17	2.40	1.02
5	7	0.11	0.74	0.19	2.96	1.47
7.1/2	11	0.15	0.81	0.27	3.66	1.59
10	15	0.17	0.68	0.26	3.67	1.47
—	22	0.34	0.85	0.39	5.09	1.89



WARNING: NEVER EXCEED WORKING LOAD LIMIT

Read important warnings and information on pages 2 - 9 and page 33.



DO NOT USE FOR OVERHEAD LIFTING

BOAT HOOKS AND CONNECTING LINKS



BOAT HOOKS – SNAP HOOKS

Size	Working Load	Weight Each	Dimensions in Inches									
in Inches	Limit in Pounds	in Pounds	Α	В	С	D	E	F	G	Н		
7/16	750	0.42	0.28	0.68	0.72	0.58	2.05	0.74	3.18	4.06		
9/16	1,000	0.53	0.34	1.12	0.76	0.55	2.16	0.88	3.86	4.76		

Forged steel, hot galvanized.



CHAIN CO	DNNECTING LI	DO NOT USE FOR OVERHEAD LIFTING								
Size	Working Load	Approximate Weight Each	Dimensions in Inches							
in Inches	Limit in Pounds	in Pounds	Α	В	С	D				
3/16	800	0.03	0.81	1.19	0.31	0.69				
1/4	1,300	0.06	1.00	1.50	0.44	0.84				
5/16	1,900	0.10	1.19	1.69	0.47	0.94				
3/8	2,650	0.17	1.44	2.09	0.56	1.19				
1/2	4,500	0.36	1.75	2.63	0.66	1.44				

TO BE USED WITH PROOF COIL CHAIN ONLY.

Forged steel, heat treated, electro galvanized.

Meets the performance requirements of Federal Specification RR-C-271, current revision, Type II.



WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and page 33. Never use for overhead lifting.



RAPID AND TWIN CLEVIS LINKS



RAPID L	INKS, PLATE	D OR STAINLE	DO NOT USE FOR OVERHEAD LIFTING						
Size	Working Load	d Limit in Pounds	Approximate Weight	t E	Dimension	s in Inches	5		
in Inches	Galv.	S.S.	Each in Pounds	Α	В	С	D		
1/8	220	300	0.02	0.19	1.45	0.39	1.19		
3/16	615	620	0.05	0.25	2.06	0.50	1.69		
1/4	880	1,100	0.08	0.31	2.38	0.56	1.88		
5/16	1,540	2,200	0.18	0.38	2.94	0.69	2.31		
3/8	1,980	2,750	0.23	0.44	3.19	0.69	2.44		
1/2	3,300	4,400	0.52	0.56	4.25	0.94	3.25		

USE ONLY WITH CHAIN OF EQUAL OR LOWER WORKING LOAD LIMIT.



TWIN CLEV	IS LINKS, GRAD	DO	DO NOT USE FOR OVERHEAD LIFTING										
Chain Size	Working Load Limit	Weight Each	Dimensions in Inches										
in Inches	in Pounds	В	С	D	F	G	Н	K					
1/4 – 5/16*	4,700	0.31	0.47	2.49	1.55	0.38	1.32	0.44	0.935	0.50			
3/8	6,600	0.44	0.53	2.81	1.81	0.44	1.53	0.50	1.000	0.56			
7/16 – 1/2*	11,300	0.96	0.65	3.62	2.31	0.56	1.91	0.63	1.310	0.81			

Forged steel, heat treated, plated.

v620

* Also available in domestic.



WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and page 33. Never use for overhead lifting.

KULKONI, INC.





Kulkoni, Inc.



WARNING: NEVER EXCEED WORKING LOAD LIMIT

WIRE ROPE CLIPS - WARNINGS AND INFO.

Read and follow ALL instructions and warnings. Failure to do so could result in injury or death.

Select the right wire rope clip for your application

- NEVER use cast malleable wire rope clips for lifting or suspending ANY load.
- Match the same size wire rope clip to the same size rope diameter. For example, use a 3/8" wire rope clip with a 3/8" wire rope.
- When working with coated cable, ALWAYS:
 - match wire rope clip size to uncoated cable diameter and
 - strip coating off cable where wire rope clips will be attached.

Install wire rope clips correctly

- Never use fewer than the number of wire rope clips defined in the tables on the next three pages.
- Wire rope clips are made for use with wire rope only. Never use wire rope clips on pipe, rod, chain, fiber rope, etc.

Use wire rope clips properly

- Never connect two ends of wire rope with wire rope clips.
- Never shock or impact load.

Inspect and maintain wire rope clips regularly

- Inspect wire rope clips before each use. Discard and replace wire rope clips that are worn, distorted, or damaged.
- Inspect wire rope clip nuts before and after each use and re-torque as needed.





Correct Method of Installing Wire Rope Clips

When using wire rope clips, extreme care must be exercised to make certain they are attached correctly. **Failure to do so could result in serious injury or death.**

- Turn back specified length of wire rope from thimble (see tables on next three pages). Put first clip one saddle width from seized "dead end" (Fig. 1). Seat "live end" (load carrying part) of wire rope in saddle and position U-bolt over "dead end." Remember: "Never saddle a dead horse." Tighten nuts evenly to proper torque (see tables on next five pages).
- 2. Put second clip close to the thimble without binding it (Fig. 2). Install nuts firmly but do not yet tighten to proper torque.
- 3. Install all remaining clips equally spaced between the first two clips (Fig. 3). Install nuts firmly but do not yet tighten to proper torque.
- 4. Apply light tension to wire rope assembly, and then tighten all nuts evenly to proper torque (Fig. 4).
- 5. Inspect wire rope clip nuts before and after each use and re-torque as needed. When loads are applied, the wire rope will stretch slightly causing the rope to slip and the termination to come loose, which may cause serious injury or death.

Add at least one more clip if a pulley (sheave) is used in place of a thimble. If uncertain, check with the wire rope manufacturer. If more clips are used than specified, proportionally increase the amount of wire rope that is turned back.

When the required minimum number of clips is installed in accordance with these written instructions, they will develop up to 80% efficiency when used on right lay wire rope of classes 6x19, 6x36, 7x19, 8x19, 19x7, and cable laid. Drop forged wire rope clips are recommended for use only with steel core wire ropes.



WARNING: NEVER EXCEED WORKING LOAD LIMIT

DOUBLE K GRIP WIRE ROPE CLIPS





GALVANIZED, DROP FORGED

	Dime	nsions i	n Inches				Wire Rope		
Size in Inches	С	D	Thd.	G	N	Min. # Clips	Turn Back in Inches	Torque* (ft.lbs.)	Weight per 100 (lbs.)
3/16 - 1/4	0.40	0.94	3/8-16	1.41	1.44	2	4.00	30	21
5/16	0.47	1.06	3/8-16	1.50	1.54	2	5.00	30	28
3/8	0.51	1.06	7/16-14	1.84	1.78	2	5.25	45	38
7/16 - 1/2	0.59	1.25	1/2-13	2.21	2.15	3	11.00	65	63
9/16 - 5/8	0.72	1.50	5/8-11	2.72	2.57	3	13.50	130	115
3/4	0.86	1.81	3/4-10	2.94	2.67	3	16.00	225	180
7/8	0.97	2.12	3/4-10	3.31	2.86	4	26.00	225	230
1	1.13	2.25	3/4-10	3.72	3.06	5	37.00	225	275

* Based on clean, unlubricated threads. The table above shows the minimum torque required to reach maximum holding power of wire rope clips.

Meets the performance requirements of Federal Specification FF-C-450, current revision, Type 3, Class 1.

Improper use and installation of forged wire rope clips can result in serious injury or death. Forged wire rope clips are the only type of wire rope clip approved for lifting purposes. For complete installation instructions refer to page 48.





WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and page 48.



MALLEABLE WIRE ROPE CLIPS







ZINC PLATED, MALLEABLE

		Wire Rope	Torque in	Approx.		D	imens	ions ir	n Inche	es	
Size in Inches	Min. Clips Required	Turn Back in Inches	Foot Pounds*	Wt. in Pounds	Α	В	с	D	Е	F	G
1/16**	3	4	2.0	0.030	0.15	0.65	0.45	0.38	0.38	0.45	0.69
1/8**	3	4.3/4	3.0	0.040	0.18	0.81	0.50	0.50	0.50	0.56	0.94
3/16	3	5.1/2	4.5	0.063	0.25	0.94	0.56	0.56	0.56	0.63	1.06
1/4	3	7	15.0	0.130	0.31	1.19	0.75	0.75	0.69	0.75	1.31
5/16	3	7.3/4	15.0	0.150	0.31	1.31	0.84	0.75	0.75	0.75	1.44
3/8	3	9.1/2	30.0	0.210	0.38	1.63	1.00	0.88	0.84	0.88	1.63
7/16	4	10.1/4	40.0	0.370	0.38	2.00	1.19	1.06	1.00	1.06	1.88
1/2	4	15.1/4	45.0	0.370	0.44	2.00	1.19	1.06	1.00	1.06	1.88
9/16	4	16	50.0	0.590	0.50	2.31	1.38	1.25	1.25	1.28	2.09
5/8	4	16	75.0	0.590	0.50	2.31	1.38	1.25	1.25	1.28	2.09
3/4	5	22.1/4	75.0	0.840	0.56	2.56	1.56	1.31	1.44	1.56	2.38
7/8	5	23.1/2	130.0	1.250	0.63	3.06	1.81	1.63	1.75	1.81	2.88
1	6	31	130.0	1.660	0.63	3.44	2.00	1.88	2.06	2.00	3.00
1.1/8	7	39	200.0	2.430	0.75	4.00	2.75	2.00	2.19	2.06	3.38

Meets the performance requirements of Federal Specification FF-C-450, current revision, Type 1, Class 2.**

* Based on clean, unlubricated threads. The table above shows the minimum torque required to reach maximum holding power of wire rope clips.

** NOTE: 1/16" and 1/8" are not covered by Federal Specification FF-C-450, current revision.

Improper use and installation of cast malleable wire rope clips can result in serious injury or death.

NEVER use cast malleable wire rope clips for lifting or suspending ANY load.

Cast malleable wire rope clips are to be used <u>only for non-critical, light duty applications</u> with small applied loads.

For complete installation instructions refer to page 48.



v620



DROP FORGED WIRE ROPE CLIPS

B





GALVANIZED, DROP FORGED

		Wire Rope	Torque	Approx.	Dimensions in Inches							
Size in Inches	Min. Clips Required	Turn Back in Inches	in Foot Pounds*	Wt. in Pounds	Α	В	С	D	Е	F	G	
1/8**	2	3.1/4	4.5	0.05	0.19	0.75	0.44	0.44	0.38	0.81	0.94	
3/16**	2	3.3/4	7.5	0.10	0.25	0.94	0.56	0.56	0.50	0.94	1.19	
1/4	2	4.3/4	15.0	0.18	0.31	1.06	0.56	0.75	0.63	1.19	1.50	
5/16	2	5.1/4	30.0	0.31	0.38	1.44	0.75	0.88	0.75	1.31	1.69	
3/8	2	6.1/2	45.0	0.46	0.44	1.50	0.75	1.00	0.88	1.56	1.94	
7/16	3	7	65.0	0.73	0.50	1.88	1.00	1.19	1.00	1.81	2.31	
1/2	3	11.1/2	65.0	0.73	0.50	1.88	1.00	1.19	1.06	1.81	2.31	
9/16	3	12	95.0	0.96	0.56	2.38	1.25	1.31	1.13	2.06	2.50	
5/8	3	12	95.0	1.00	0.56	2.38	1.25	1.31	1.25	2.06	2.50	
3/4	4	18	130.0	1.50	0.63	2.75	1.38	1.50	1.38	2.31	2.75	
7/8	4	19	225.0	2.44	0.75	3.19	1.44	1.81	1.69	2.63	3.31	
1	5	26	225.0	2.70	0.75	3.63	1.75	1.88	1.75	2.63	3.47	
1.1/8	6	34	225.0	3.10	0.75	4.00	2.00	2.00	1.88	2.81	3.56	
1.1/4	7	44	360.0	4.60	0.88	4.38	2.25	2.31	2.06	3.25	4.06	
1.3/8	7	44	360.0	5.20	0.88	4.63	2.31	2.38	2.25	3.44	4.25	
1.1/2	8	54	360.0	5.90	0.88	4.94	2.38	2.63	2.50	3.50	4.38	
1.5/8	8	58	430.0	7.34	1.00	5.31	2.62	2.75	2.66	3.61	4.75	
1.3/4	8	61	590.0	9.80	1.13	5.88	2.75	3.06	2.88	3.75	5.25	
2	8	71	750.0	13.75	1.25	6.50	3.00	3.31	3.38	4.44	5.81	
2.1/4	8	73	750.0	15.70	1.25	7.13	3.31	3.88	3.81	4.50	6.31	
2.1/2	9	84	750.0	17.90	1.25	7.75	3.38	4.13	4.25	4.50	6.44	
2.3/4	10	100	750.0	22.00	1.25	8.31	3.50	4.36	5.00	5.00	6.75	
3	10	106	1,200.0	32.00	1.50	9.19	3.88	4.75	5.25	5.31	7.56	

Meets the performance requirements of Federal Specification FF-C-450, current revision, Type 1 Class 1.

* Based on clean, unlubricated threads. The table above shows the minimum torque required to reach maximum holding power of wire rope clips.

** U-Bolts and nuts zinc plated.

Improper use and installation of forged wire rope clips can result in serious injury or death.

Forged wire rope clips are the only type of wire rope clip approved for lifting purposes.

For complete installation instructions refer to page 48.





STAINLESS STEEL WIRE ROPE CLIPS



STAINLESS STEEL, CAST, MALLEABLE STYLE

Size		Torque in	Approx. Wt.	Dimensions in Inches			
in Inches	Min. Clips Required	Foot Pounds*	in Pounds	Α	В		
1/8	3	3.0	0.05				
5/32	3	4.0	0.06	0.15	0.79		
3/16	3	4.5	0.19	0.19	0.97		
1/4	3	15.0	0.19	0.22	1.08		
5/16	3	15.0	0.30	0.30	1.34		
3/8	3	30.0	0.46	0.38	1.78		
1/2	4	45.0	0.65	0.45	2.07		
5/8	4	75.0	0.78				
3/4	5	75.0	1.09	0.55	2.88		
7/8	5	130.0	1.63	0.61	3.15		
1	6	130.0	2.15	0.62	3.53		

* Based on clean, unlubricated threads. The table above shows the minimum torque required to reach maximum holding power of wire rope clips.

Improper use and installation of cast malleable wire rope clips can result in serious injury or death.

NEVER use cast malleable wire rope clips for lifting or suspending ANY load.

Cast malleable wire rope clips are to be used <u>only for non-critical, light duty applications</u> with small applied loads.

For complete installation instructions refer to page 48.





v620

WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and page 48.



STAINLESS STEEL WIRE ROPE CLIPS



STAINLESS STEEL, DROP FORGED

Size in Inches	Minimum Clips Required	Torque in Foot Pounds*	Approximate Weight in Pounds
1/8	2	4.5	0.050
3/16	2	7.5	0.106
1/4	2	15.0	0.190
5/16	2	30.0	0.300
3/8	2	45.0	0.460
1/2	3	65.0	0.680
5/8	3	95.0	1.000
3/4	4	130.0	1.500
7/8	4	225.0	2.440
1	5	225.0	2.700

Dimensions for drop forged stainless steel clips are the same as for the drop forged galvanized clips on page 51.

* Based on clean, unlubricated threads. The table above shows the minimum torque required to reach maximum holding power of wire rope clips.

Improper use and installation of forged wire rope clips can result in serious injury or death.

Forged wire rope clips are the only type of wire rope clip approved for lifting purposes.

For complete installation instructions refer to page 48.





WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and page 48.

R





*U.S. Registered Trademark No. 2,011,393

GALVANIZED SCREW PIN ANCHOR SHACKLES

Size in Inches	Working Load Limit	Pin Ø in Inches	Length Inside in Inches	Width Between Eyes in Inches (D)				Approx. Weight Each in
(A)	in Tons	(B)	(C)	Nominal	Tolerance	(E)	(F)	Pounds
3/16	1/3	1/4	7/8	3/8	± 1/16	5/8	9/16	0.05
1/4	1/2	5/16	1.1/8	15/32	± 1/16	7/8	3/4	0.13
5/16	3/4	3/8	1.1/4	17/32	± 1/16	1	13/16	0.21
3/8	1	7/16	1.7/16	21/32	± 1/16	1.1/8	15/16	0.33
7/16	1.1/2	1/2	1.11/16	3/4	± 1/16	1.1/4	1.1/16	0.47
1/2	2	5/8	1.7/8	13/16	± 1/16	1.3/8	1.3/16	0.78
5/8	3.1/4	3/4	2.3/8	1.1/16	± 1/16	1.7/8	1.1/2	1.44
3/4	4.3/4	7/8	2.13/16	1.1/4	± 1/16	2.1/8	1.3/4	2.30
7/8	6.1/2	1	3.5/16	1.7/16	± 1/16	2.3/8	2	3.50
1	8.1/2	1.1/8	3.3/4	1.11/16	± 1/8	2.5/8	2.5/16	5.00
1.1/8	9.1/2	1.1/4	4.1/4	1.13/16	± 1/8	2.7/8	2.5/8	7.00
1.1/4	12	1.3/8	4.11/16	2.1/32	± 1/8	3.1/4	2.7/8	9.50
1.3/8	13.1/2	1.1/2	5.1/4	2.1/4	± 1/8	3.1/2	3.1/4	13.00
1.1/2	17	1.5/8	5.3/4	2.3/8	± 1/8	3.3/4	3.3/8	16.50
1.3/4	25	2	7	2.7/8	± 3/16	4.1/2	4.1/2	29.00
2	35	2.1/4	7.3/4	3.1/4	± 3/16	5.1/4	5.1/4	43.00
2.1/4	45	2.1/2	9.1/4	3.7/8	± 3/16	5.3/4	5.1/2	59.40
2.1/2	55	2.3/4	10.1/2	4.1/8	± 1/4	6.1/4	6.3/4	86.00
3	85	3.1/4	13	5	± 1/4	6.3/4	7.3/8	119.50

* The YELLOW shackle pin is the Federally Registered Trademark of Kulkoni, Inc.

** Width Between Eyes as defined by Federal Specification RR-C-271, current revision.

Meets the performance requirements of Federal Specification RR-C-271, current revision, Type IV A, Class 2, Grade A. Hot galvanized, forged carbon steel, heat treated, with alloy pins, permanently marked with size and Working Load Limit. Sizes 3/16" through 2" also available in DOMESTIC.





v620

WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and page 33. Do not use screw pin shackles if the pin can roll under load and unscrew.





STAINLESS STEEL SCREW PIN ANCHOR SHACKLES, CAST

Size in Inches	Working Load Limit in Pounds	Pin Diameter in Inches	Approximate Weight Each in Pounds
3/16	300	1/4	0.04
1/4	450	5/16	0.10
5/16	650	3/8	0.18
3/8	1,000	7/16	0.29
1/2	1,990	5/8	0.74
5/8	3,050	3/4	1.40
3/4	4,475	7/8	2.30
7/8	6,000	1	3.50
1	7,950	1.1/8	5.10

TYPE 304 OR 316, cast.

Dimensions are the same as Galvanized Screw Pin Anchor Shackles on page 54.



* U.S. Registered Trademark No. 2,011,393

ALLOY TOWING SHACKLES

Size Working		Bolt Diameter	Mouth Opening	Approximate	Dimensions in Inches			
in Inches (A)	Load Limit in Tons	in Inches (B)	in Inches (D)	Weight Each in Pounds	С	Е	F	
1.1/2	22	1.7/8	4.19	27.5	8.50	3.75	6.25	
1.3/4	30	2	5.00	40.0	9.75	4.38	6.88	
2	40	2.1/4	5.75	56.0	10.75	5.00	8.13	
2.1/2	55	2.3/4	6.50	106.0	12.38	6.00	8.38	
3	80	3.1/4	7.25	157.0	13.00	6.75	10.00	

* The YELLOW shackle bolt is the Federally Registered Trademark of Kulkoni, Inc. Hot galvanized, forged, heat-treated, all alloy steel, extra wide opening for hawser thimbles, permanently marked with size and Working Load Limit.

Kulkoni, Inc.



WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and page 33. Do not use screw pin shackles if the pin can roll under load and unscrew.





* U.S. Registered Trademark No. 2,011,393

GALVANIZED BOLT TYPE ANCHOR SHACKLES

Size in Inches	Working Load Limit	Bolt Ø in Inches	Length Inside in Inches (D)		Dimer in In	nsions ches	Appx. Weight Each	
(A)	in Tons	(B)	(C)	Nominal	Tolerance	E	F	in Pounds
1/2	2	5/8	1.7/8	13/16	± 1/16	1.3/8	1.3/16	0.9
5/8	3.1/4	3/4	2.3/8	1.1/16	± 1/16	1.7/8	1.1/2	1.6
3/4	4.3/4	7/8	2.13/16	1.1/4	± 1/16	2.1/8	1.3/4	2.8
7/8	6.1/2	1	3.5/16	1.7/16	± 1/16	2.3/8	2	4.2
1	8.1/2	1.1/8	3.3/4	1.11/16	± 1/8	2.5/8	2.5/16	6.4
1.1/8	9.1/2	1.1/4	4.1/4	1.13/16	± 1/8	2.7/8	2.5/8	8.3
1.1/4	12	1.3/8	4.11/16	2.1/32	± 1/8	3.1/4	2.7/8	11.7
1.3/8	13.1/2	1.1/2	5.1/4	2.1/4	± 1/8	3.1/2	3.1/4	15.6
1.1/2	17	1.5/8	5.3/4	2.3/8	± 1/8	3.3/4	3.3/8	19.7
1.3/4	25	2	7	2.7/8	± 3/16	4.1/2	4.1/2	32.6
2	35	2.1/4	7.3/4	3.1/4	± 3/16	5.1/4	5.1/4	48.3
2.1/2	55	2.3/4	10.1/2	4.1/8	± 1/4	6.1/4	6.3/4	94.0
3	85	3.1/4	13	5	± 1/4	6.3/4	7.3/8	145.0
3.1/2	120	3.3/4	15	5.1/2	± 1/4	8.1/2	9	250.0

* The YELLOW shackle bolt is the Federally Registered Trademark of Kulkoni, Inc.

** Minimum Width Between Eyes as defined by Federal Specification RR-C-271, current revision.

Meets the performance requirements of Federal Specification RR-C-271, current revision, Type IV A, Class 3, Grade A. Hot galvanized, forged carbon steel, heat treated, with alloy bolts, permanently marked with size and Working Load Limit. Sizes 1/2" through 3" are also available in DOMESTIC.

STAINLESS STEEL BOLT TYPE ANCHOR SHACKLES, CAST

Size in Inches	Working Load Limit in Pounds	Bolt Diameter in Inches	Approx. Weight Each in Pounds
3/8	1,000	7/16	0.45
1/2	1,990	5/8	0.93
5/8	3,050	3/4	1.81
3/4	4,475	7/8	2.75
7/8	6,000	1	4.20

TYPE 304 or 316, cast.

v620

Dimensions are the same as galvanized Bolt Type Anchor Shackles above.







* U.S. Registered Trademark No. 2,011,393

ALLOY STEEL BOLT TYPE ANCHOR SHACKLES

Size in Inches	Working Load Limit	Bolt Ø in Inches	Length Inside in Inches	Length Width between eyes Inside in Inches in Inches (D)		Dimer in In	nsions ches	Appx. Weight Each
(A)	in Tons	(B)	(C)	Nominal	Tolerance	E	F	in Pounds
1.1/2	30	1.5/8	5.3/4	2.3/8	± 1/8	3.3/4	3.3/8	19.7
1.3/4	40	2	7	2.7/8	± 3/16	4.1/2	4.1/2	32.6
2	55	2.1/4	7.3/4	3.1/4	± 3/16	5.1/4	5.1/4	48.3
2.1/2	85	2.3/4	10.1/2	4.1/8	± 1/4	6.1/4	6.3/4	94.0
3	120	3.1/4	13	5	± 1/4	6.3/4	7.3/8	145.0
3.1/2	150	3.3/4	15	5.1/2	± 1/4	8.1/2	9	250.0
4	175	4.1/4	15	5.1/2	± 1/4	9.1/2	10.1/2	358.0

* The YELLOW Shackle Bolt is the federally registered trademark of KULKONI, INC. Hot galvanized.

** For sizes 1.1/2" - 3": Minimum Width Between Eyes as defined by Federal Specification RR-C-271, current revision. Meets the performance requirements of Federal Specification RR-C-271, current revision, Type IV A, Class 3, Grade B for sizes 1.1/2" through 3". All sizes forged all-alloy steel, heat treated, permanently marked with size and Working Load Limit.





WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and page 33.



STAINLESS TURNBUCKLES



T316 FORGED and CAST 316 CF8M STAINLESS

	Working	Average Overall Length	Approximate Weight Each in Pounds			
Size in Inches	Load Limit in Pounds	in Inches with Ends in Closed Position	Eye & Eye	Jaw & Eye	Jaw & Jaw	
1/4 x 4	500 **	8.75	0.30	0.30	0.40	
5/16 x 4.1/2	800 **	9.56	0.50	0.53	0.58	
3/8 x 6	1,200 **	12.00	0.75	0.82	0.93	
1/2 x 6	2,200 **	13.50	1.50	1.62	1.68	
5/8 x 6	3,500 **	15.50	2.63	2.69	2.82	
3/4 x 6	5,200 **	17.00	3.75	4.25	4.68	
1 x 6*	8,000 **	20.63	10.75	11.10	11.80	
1 x 12*	8,000 **	26.63	11.25	12.00	12.88	

* 1" turnbuckles available in cast only.

** All cast stainless steel turnbuckles are 4:1 design factor.

GALVANIZED JAMNUTS



FOR GALVANIZED TURNBUCKLES LEFT or RIGHT THREAD

Size in Inches	Thread	Approximate Weight Each in Pounds	NC Threads per Inch	Width Across Flat (A) in Inches
3/8	Left or Right	0.01	16	0.56
1/2	Left or Right	0.03	13	0.75
5/8	Left or Right	0.05	11	0.94
3/4	Left or Right	0.08	10	1.13
7/8	Left or Right	0.11	9	1.31
1	Left or Right	0.18	8	1.50
1.1/4	Left or Right	0.37	7	1.81
1.1/2	Left or Right	0.60	6	2.19
1.3/4	Left or Right	1.02	5	2.56
2	Left or Right	2.25	4.1/2	2.94
2.1/2	Left or Right	3.13	4	3.75
2.3/4	Left or Right	3.30	4	4.13

Sold only in pairs with turnbuckles; 1 each R.H., 1 each L.H., galvanized. Do not over tighten locknuts during installation.



TURNBUCKLES





Size in Inches	Approxima	te Weight Eacl	n in Pounds	Working Load Limit in Lbs.		
Diameter x Take-Up	Eyes and/or Hooks	Jaw & Eye	Jaw & Jaw	Hook & Hook Hook & Eye	Eye & Eye Jaw & Eye Jaw & Jaw	Average Overall Length with Ends in Closed Position
1/4 x 4	0.30	0.30	0.40	400	500	8.25
5/16 x 4.1/2	0.50	0.53	0.58	700	800	9.56
3/8 x 6	0.75	0.82	0.93	1,000	1,200	11.88
1/2 x 6	1.50	1.62	1.68	1,500	2,200	13.31
1/2 x 9	1.75	1.82	1.85	1,500	2,200	16.31
1/2 x 12	2.18	2.19	2.20	1,500	2,200	19.31
5/8 x 6	2.63	2.69	2.82	2,250	3,500	15.30
5/8 x 9	3.00	3.01	3.25	2,250	3,500	18.50
5/8 x 12	3.25	3.50	3.75	2,250	3,500	21.50
3/4 x 6	3.75	4.25	4.68	3,000	5,200	17.00
3/4 x 9	4.50	5.00	5.38	3,000	5,200	20.00
3/4 x 12	5.75	5.75	6.12	3,000	5,200	23.00
3/4 x 18	7.00	7.25	7.75	3,000	5,200	29.00
7/8 x 12	8.38	8.88	9.38	4,000	7,200	24.63
7/8 x 18	10.25	10.60	11.44	4,000	7,200	30.63
1 x 6	10.75	11.10	11.80	5,000	10,000	20.63
1 x 12	11.25	12.00	12.88	5,000	10,000	26.63
1 x 18	14.00	14.75	16.10	5,000	10,000	32.63
1 x 24	17.00	17.75	18.60	5,000	10,000	38.63
1.1/4 x 12	19.00	21.20	23.60	6,500	15,200	29.88
1.1/4 x 18	24.10	26.00	26.60	6,500	15,200	35.88
1.1/4 x 24	25.00	28.70	31.20	6,500	15,200	41.88
1.1/2 x 12	27.00	31.10	35.50	7,500	21,400	32.38
1.1/2 x 18	31.20	36.40	40.70	7,500	21,400	38.38
1.1/2 x 24	38.20	44.20	47.60	7,500	21,400	44.38
1.3/4 x 18	53.00	57.50	62.00	**	28,000	41.38
1.3/4 x 24	58.00	60.00	64.00	**	28,000	47.75
2 x 24	90.00	102.00	115.00	**	37,000	51.75
2.1/2 x 24	163.00	180.00	200.00	**	60,000*	58.50
2.3/4 x 24	180.00	214.00	248.00	**	75,000*	61.50

* Supplied with locknuts.

** Hooks not supplied on sizes larger than 1.1/2" diameter.

Meets or exceeds performance requirements of A.S.T.M. F 1145. Hot galvanized, drop forged. Bodies normalized, end fittings quenched and tempered.

Jaw ends up to 5/8": Fitted with bolt and nut. Jaw ends 3/4" & up: Fitted with pin and cotter.





WARNING: NEVER EXCEED WORKING LOAD LIMIT

Read important warnings and information on pages 2 - 9 and page 33.

v620



TURNBUCKLE BODIES / STUB END TB'S



BODY ONLY



STUB END

Size in Inches	Working	Approximate Weight	Approximate	Dimension		s in Inches		
Dia. (A) x Take-Up (B)	Load Limit in Pounds	Each Body Only in Pounds	Weight Each Stub End in Pounds	С	D	Е	F*	
3/8 x 6	1,200	0.3	0.7	7.13	0.56	4.44	16.00	
1/2 x 6	2,200	0.6	1.4	7.50	0.75	4.25	16.00	
1/2 x 9	2,200	0.8	1.7	10.50	0.75	4.25	19.00	
1/2 x 12	2,200	1.0	1.8	13.50	0.75	4.25	22.00	
5/8 x 6	3,500	1.0	2.0	7.88	0.94	4.06	16.00	
5/8 x 9	3,500	1.2	2.5	10.88	0.94	4.06	19.00	
5/8 x 12	3,500	1.4	3.1	13.88	0.94	4.06	22.00	
3/4 x 6	5,200	1.2	3.3	8.25	1.13	4.38	17.00	
3/4 x 9	5,200	1.6	4.0	11.25	1.13	4.38	20.00	
3/4 x 12	5,200	2.1	4.8	14.25	1.13	4.38	23.00	
3/4 x 18	5,200	3.2	5.8	20.25	1.13	4.38	29.00	
7/8 x 6	7,200	1.8	4.5	8.63	1.31	4.69	18.00	
7/8 x 12	7,200	2.7	6.4	14.63	1.31	4.69	24.00	
7/8 x 18	7,200	3.8		20.63	1.31			
1 x 6	10,000	2.5	6.3	9.00	1.50	5.00	19.00	
1 x 12	10,000	4.2	8.9	15.00	1.50	5.00	25.00	
1 x 18	10,000	7.0	11.4	21.00	1.50	5.00	31.00	
1 x 24	10,000	7.4		27.00	1.50			
1.1/8 x 6	12,400	5.0		9.13	1.56			
1.1/8 x 12	12,400	5.4		15.13	1.56			
1.1/4 x 6	15,200	5.0	10.2	9.13	1.56	5.44	20.00	
1.1/4 x 12	15,200	5.4	13.6	15.13	1.56	5.44	26.00	
1.1/4 x 18	15,200	8.0		21.10	1.56			
1.1/4 x 24	15,200	10.2		27.13	1.56			
1.3/8 x 6	18,000	6.0	13.9	9.75	1.88	5.38	20.50	
1.1/2 x 6	21,400	5.7	15.1	9.75	1.88	5.38	20.50	
1.1/2 x 12	21,400	8.5	20.5	15.75	1.88	5.38	26.50	
1.1/2 x 18	21,400	11.0		21.75	1.88			
1.1/2 x 24	21,400	13.7		27.75	1.88			
1.5/8 x 6	25,000	8.2		10.38	2.19			
1.3/4 x 6	28,000	10.3	22.5	10.38	2.19	5.80	22.00	
2 x 6	37,000	14.2	34.0	11.00	2.50	6.00	23.00	
2 x 24	37,000	30.0		29.00	2.50			
2.1/2 x 6	60,000	33.0	68.0	13.50	3.75	6.25	26.00	

* Closed position

ē

Meets the performance requirements of ASTM F 1145. Self-colored finish. Some bodies available hot-galvanized. Drop forged.

TURNBUCKLE END FITTING DIMENSIONS





Dimensions in Inches							
А	В	С	D	E			
1/4	0.25	0.41	0.45	1.66			
5/16	0.31	0.44	0.50	1.91			
3/8	0.38	0.53	0.56	2.28			
1/2	0.50	0.69	0.66	2.84			
5/8	0.63	0.84	0.84	3.53			
3/4	0.75	1.00	0.97	4.31			
7/8	0.88	1.19	1.13	5.00			
1	1.00	1.38	1.25	5.69			
1.1/4	1.06	1.50	1.50	6.91			
1.1/2	1.31	1.75	1.88	8.69			



		Dimensions in Inches		
Α	В	С	D	E
1/4	0.34	0.22	0.78	1.78
5/16	0.44	0.28	0.94	2.19
3/8	0.53	0.34	1.13	2.56
1/2	0.72	0.44	1.44	3.22
5/8	0.88	0.50	1.75	3.88
3/4	1.00	0.63	2.13	4.69
7/8	1.25	0.75	2.38	5.25
1	1.44	0.88	3.00	6.38
1.1/4	1.81	1.13	3.56	7.75
1.1/2	2.13	1.25	4.13	8.63
1.3/4	2.38	1.50	4.69	10.00
2	2.69	1.75	5.75	12.13
2.1/2	3.13	2.00	6.50	13.56
2.3/4	3.25	2.25	7.00	15.00

Kulkoni, Inc.



WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and page 33.

v620



TURNBUCKLE END FITTING DIMENSIONS





			Dimension	s in Inches			
А	В	С	D	E	F	G	Н
1/4	0.63	0.25	0.41	0.28	0.50	1.63	0.63
5/16	0.88	0.25	0.47	0.28	0.50	2.00	0.69
3/8	0.88	0.31	0.50	0.31	0.59	2.19	0.81
1/2	1.06	0.38	0.63	0.41	0.75	2.75	1.00
5/8	1.31	0.50	0.75	0.50	1.03	3.50	1.31
3/4	1.50	0.63	0.94	0.56	1.28	4.13	1.63
7/8	1.75	0.75	1.13	0.69	1.47	4.84	1.88
1	2.06	0.88	1.19	0.78	1.66	5.53	2.13
1.1/4	2.81	1.13	1.75	1.00	2.09	7.19	2.63
1.1/2	2.81	1.38	2.06	1.06	2.47	7.88	3.13
1.3/4	3.38	1.63	2.38	1.25	2.91	9.38	3.50
2	3.75	2.00	2.50	1.56	3.53	10.88	4.19
2.1/2	4.19	2.25	2.88	1.56	4.63	13.34	5.63
2.3/4	4.44	2.75	3.50	1.63	5.38	15.00	6.13



v620

.





GALVANIZED HEAVY DUTY WIRE ROPE THIMBLES

	Approx Weight		Dim	ensions in Inc	hes	
Size in Inches	Each in Pounds	Α	В	С	D	Е
1/4	0.075	2.19	1.50	1.63	0.88	0.41
5/16	0.140	2.50	1.81	1.88	1.06	0.50
3/8	0.250	2.88	2.13	2.13	1.13	0.66
7/16	0.360	3.25	2.25	2.38	1.25	0.75
1/2-9/16	0.510	3.63	2.56	2.75	1.50	0.84
5/8	0.750	4.25	3.00	3.25	1.75	1.00
3/4	1.470	5.00	3.50	3.75	2.00	1.25
7/8	1.850	5.50	4.00	4.25	2.25	1.38
1	3.000	6.13	4.38	4.50	2.50	1.56
1.1/8-1.1/4	3.800	7.00	5.63	5.13	2.88	1.88
1.1/4-1.3/8	8.600	9.06	6.75	6.50	3.50	2.25
1.3/8-1.1/2	11.000	9.06	7.00	6.50	3.50	2.63
1.5/8	11.800	11.25	8.13	8.00	4.00	2.72
1.3/4	17.900	12.19	8.25	9.00	4.50	2.88
1.7/8-2	25.000	15.13	10.25	12.00	6.00	3.13
2.1/4	45.000	17.13	11.88	14.00	7.00	3.63
2.1/2*	63.500	22.25	12.75	17.50	8.00	4.38

*2.1/2" available with or without gusset plates.

Hot dip galvanized. Meets the performance requirements of Federal Specification FF-T-276, current revision, Type III.







STAINLESS HEAVY DUTY WIRE ROPE THIMBLES

	Approx Weight		Dim	ensions in Inc	hes	
Size in Inches	Each in Pounds	Α	В	С	D	Е
1/8**	0.020	1.88	1.06	1.25	0.69	0.16
3/16	0.023	1.79	1.30	1.30	0.76	0.21
1/4	0.080	2.19	1.50	1.63	0.88	0.44
5/16	0.100	2.50	1.88	1.88	1.13	0.50
3/8	0.250	2.88	2.09	2.12	1.13	0.66
1/2	0.450	3.63	2.63	2.75	1.50	0.88
5/8	0.680	4.25	3.09	3.25	1.75	1.00
3/4	1.200	5.00	3.50	3.75	2.00	1.25
7/8	1.850	5.66	4.19	4.31	2.25	1.50
1	2.200	6.13	4.63	5.00	2.50	1.56
1.1/8-1.1/4	3.800	7.13	5.33	5.38	2.88	1.88
1.1/4-1.3/8	8.600	8.38	6.67	6.50	3.50	2.25

**1/8" available in REGULAR style and TYPE 304 only. TYPE 304 and 316.

WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and page 33.

Kulkoni, Inc.



ļ







REGULAR WIRE ROPE THIMBLES - GALVANIZED

	Approx. Weight Each		Diı	mensions in I	nches	
Size in Inches	in Pounds	А	В	С	D	E
1/8	0.020	1.88	1.06	1.25	0.69	0.30
3/16	0.023	1.88	1.06	1.25	0.69	0.39
1/4	0.050	1.94	1.06	1.31	0.69	0.41
5/16	0.054	2.13	1.25	1.50	0.81	0.46
3/8	0.062	2.38	1.47	1.63	0.94	0.57
1/2	0.130	2.75	1.75	1.88	1.13	0.72
5/8	0.220	3.50	2.38	2.25	1.38	0.94
3/4	0.500	3.75	2.69	2.50	1.63	1.12
7/8	0.850	5.00	3.19	3.50	1.88	1.32
1	1.000	5.69	3.75	4.25	2.50	1.38
1.1/8-1.1/4	1.750	6.25	4.31	4.50	2.75	1.75

Meets the performance requirements of Federal Specification FF-T-276, current revision, Type II.





HAWSER THIMBLES

Size	Approx. Weight Each		Din	nensions in Ir	nches	
in Inches	in Pounds	А	В	С	D	E
5/8 - 3/4	3.5	6.7/8	4.1/2	5	3	1.3/16
7/8 - 1	5.5	8.5/8	5.3/4	6.1/4	3.3/4	1.7/16
1.1/8 - 1.1/4	10.5	10	6.5/8	7.1/8	4.3/16	1.11/16
1.3/8 - 1.1/2	18.0	12.1/8	8	8.3/4	5	2.3/16
1.5/8 - 1.3/4	23.5	12.3/4	8	9.1/4	5	2.7/16
1.7/8 - 2	32.5	14.3/4	9.1/2	10.3/4	6	2.11/16
2.1/8 - 2.1/4	51.0	17.1/8	11	12.1/2	7	3.1/8
2.3/8 - 2.1/2	80.0	19.1/4	12.3/4	14.1/4	8.1/4	3.7/8
2.3/4 - 3	135.0	24.1/2	17	15	9.3/8	4.15/16

Hot galvanized, Cast Alloy Steel





WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and page 33.

v620





SYNTHETIC ROPE THIMBLES

Size Rope	Rope	Approx. Wt.		Di	imension	s in Inche	Inches				
Diameter in Inches	Circumference in Inches	Each in Pounds	А	В	С	D	Е	F			
2 - 2.1/4	6-7	10	9.25	6.00	3.85	2.75	2.75	3.39			
2.1/2 - 2.5/8	8	18	11.00	6.50	4.25	3.00	3.12	3.75			
3	9	23	12.00	7.63	4.75	3.25	3.50	4.00			
3.1/4	10	29	13.50	8.50	5.00	3.50	3.88	4.25			
3.3/8 - 4	11-12	43	15.50	9.50	6.00	4.50	5.38	5.50			
4.1/4 - 4.5/8	13-14	52	17.00	10.00	6.13	5.25	5.75	6.00			
5 - 5.1/4	15-16	68	18.50	11.00	6.44	5.75	6.50	6.63			
5.1/2 - 6	17-18	100	20.12	13.12	9.00	6.09	6.09	7.00			

Hot Galvanized or Hot Galvanized and Painted.





.

SPELTER SOCKETS





These drawings illustrate one groove used on sockets 1/2" & smaller. Sizes 9/16"-1.1/2" have two grooves. Sizes 1.5/8" & larger have three grooves.

OPEN SPELTER SOCKETS

			D	imension	s in Inche	es			Weight Each in
Size in Inches	Α	В	С	D	E	F	G	Н	Pounds
5/16 - 3/8	4.88	0.81	0.81	0.50	2.25	1.75	1.50	0.44	1.3
7/16 - 1/2	5.56	1.00	1.00	0.56	2.50	2.00	1.88	0.50	2.3
9/16 - 5/8	6.75	1.25	1.19	0.69	3.00	2.50	2.25	0.56	3.8
3/4	7.94	1.50	1.38	0.81	3.50	3.00	2.63	0.63	6.0
7/8	9.25	1.75	1.63	0.94	4.00	3.50	3.13	0.75	10.0
1	10.56	2.00	2.00	1.13	4.50	4.00	3.75	0.88	15.5
1.1/8	11.81	2.25	2.25	1.25	5.00	4.50	4.13	1.00	22.0
1.1/4 - 1.3/8	13.19	2.50	2.50	1.50	5.50	5.00	4.75	1.13	32.0
1.1/2	15.13	3.00	2.75	1.63	6.00	6.00	5.38	1.19	46.0
1.5/8	16.25	3.00	3.00	1.75	6.50	6.50	5.75	1.31	55.0
1.3/4 - 1.7/8	18.25	3.50	3.50	2.00	7.50	7.00	6.50	1.56	85.0
2 - 2.1/8	21.50	4.00	3.75	2.25	8.50	9.00	7.00	1.81	125.0
2.1/4 - 2.3/8	23.50	4.50	4.25	2.50	9.00	10.00	7.75	2.13	165.0
2.1/2 - 2.5/8	25.50	5.00	4.75	2.88	9.75	10.75	8.50	2.38	252.0
2.3/4 - 2.7/8	27.25	5.25	5.00	3.13	11.00	11.00	9.00	2.88	315.0
3 - 3.1/8	29.00	5.75	5.25	3.38	12.00	11.25	9.50	3.00	380.0

Hot galvanized. Forged sockets through 1.1/2". Alloy cast steel 1.5/8" and larger.

7/16" - 2.1/2" meet performance requirements of Federal Specification RR-S-550, current revision.

Caution: When attaching spelter sockets to wire rope it is extremely important to follow recommended procedures, such as outlined by the Wire Rope Technical Board. Proper brooming and cleaning of wire rope is important. If resin is used, follow resin manufacturer's specific installation instructions.

Efficiency of spelter socket terminations: 100% of the catalog breaking strength of wire rope. Ratings are based on the recommended use with 6 X 7, 6 X 19, or 6 X 37, IPS or XIP (EIP), XXIP (EEIP), RRL, FC, or IWRC wire rope.





SPELTER SOCKETS



These drawings illustrate one groove used on sockets 1/2" & smaller. Sizes 9/16"-1.1/2" have two grooves. Sizes 1.5/8" & larger have three grooves.

CLOSED SPELTER SOCKETS

		Dimensions in Inches											
Size in Inches	Α	В	С	D	E	F	G	Н	Pounds				
5/16 - 3/8	4.88	0.94	0.63	0.50	2.25	2.00	1.69	0.69	1.1				
7/16 - 1/2	5.44	1.13	0.69	0.56	2.50	2.25	2.00	0.88	1.5				
9/16 - 5/8	6.31	1.38	0.81	0.69	3.00	2.50	2.63	1.00	3.0				
3/4	7.56	1.63	1.06	0.81	3.50	3.00	3.00	1.25	4.5				
7/8	8.75	1.88	1.25	0.94	4.00	3.50	3.63	1.50	7.0				
1	9.88	2.25	1.38	1.13	4.50	4.00	4.13	1.75	11.0				
1.1/8	11.00	2.50	1.50	1.25	5.00	4.50	4.50	2.00	16.0				
1.1/4 - 1.3/8	12.13	2.75	1.63	1.50	5.50	5.00	5.00	2.25	22.0				
1.1/2	13.94	3.13	1.94	1.63	6.00	6.00	5.38	2.50	28.0				
1.5/8	15.38	3.25	2.13	1.75	6.50	6.75	5.75	2.75	36.0				
1.3/4 - 1.7/8	17.25	3.53	2.19	2.00	7.50	7.56	6.75	3.00	58.0				
2 - 2.1/8	19.50	3.78	2.44	2.25	8.50	8.56	7.63	3.25	80.0				
2.1/4 - 2.3/8	21.38	4.28	2.88	2.50	9.00	9.50	8.50	3.63	105.0				
2.1/2 - 2.5/8	23.50	5.50	3.13	2.88	9.75	10.63	9.50	4.00	140.0				
2.3/4 - 2.7/8	25.38	6.50	3.13	3.13	11.00	11.25	10.75	4.88	220.0				
3 - 3.1/8	27.00	6.75	3.25	3.38	12.00	11.75	11.50	5.25	276.0				

Hot galvanized. Forged sockets through 1.1/2". Alloy cast steel 1.5/8" and larger.

7/16" - 2.1/2" meet performance requirements of Federal Specification RR-S-550, current revision.

Caution: When attaching spelter sockets to wire rope it is extremely important to follow recommended procedures, such as outlined by the Wire Rope Technical Board. Proper brooming and cleaning of wire rope is important. If resin is used, follow resin manufacturer's specific installation instructions.

Efficiency of spelter socket terminations: 100% of the catalog breaking strength of wire rope. Ratings are based on the recommended use with 6 X 7, 6 X 19, or 6 X 37, IPS or XIP (EIP), XXIP (EEIP), RRL, FC, or IWRC wire rope.



I



UPSON-WALTON[™] SWAGE SOCKETS



DOMESTIC OPEN SWAGE SOCKETS

Rope				Din	nension	s in Inc	hes				Approx.	
Diameter in Inches	Α	В	D	Е	F	Н	L	М	ο	Y	Weight Each in Pounds	A/S*
1/4	0.50	0.27	0.69	1.50	4.75	2.13	4.00	0.31	0.69	1.38	0.55	0.438
5/16	0.77	0.34	0.81	1.75	6.25	3.19	5.31	0.41	0.81	1.63	1.10	0.688
3/8	0.77	0.41	0.81	1.75	6.25	3.19	5.31	0.41	0.81	1.63	1.08	0.688
7/16	0.98	0.48	1.00	2.00	7.81	4.25	6.69	0.50	1.00	2.00	2.30	0.875
1/2	0.98	0.55	1.00	2.00	7.81	4.25	6.69	0.50	1.00	2.00	2.25	0.875
9/16	1.26	0.61	1.19	2.25	9.56	5.31	8.13	0.63	1.25	2.50	4.60	1.125
5/8	1.26	0.67	1.19	2.25	9.56	5.31	8.13	0.63	1.25	2.50	4.50	1.125
3/4	1.55	0.80	1.38	2.75	11.69	6.38	10.00	0.75	1.50	3.00	7.80	1.375
7/8	1.70	0.94	1.63	3.25	13.63	7.44	11.63	0.94	1.75	3.38	11.70	1.500
1	1.98	1.06	2.00	3.75	15.63	8.50	13.38	1.03	2.00	4.00	17.80	1.750
1.1/8	2.25	1.19	2.25	4.25	17.50	9.56	15.00	1.19	2.25	4.50	29.70	2.000
1.1/4	2.53	1.33	2.50	4.75	19.44	10.63	16.50	1.19	2.50	5.00	36.00	2.250
1.3/8	2.80	1.45	2.50	5.25	21.25	11.69	18.13	1.31	2.50	5.25	47.00	2.500
1.1/2	3.08	1.58	2.75	5.75	23.25	12.75	19.75	1.44	3.00	5.75	65.00	2.750
1.3/4	3.39	1.86	3.50	6.75	27.13	14.88	23.00	1.69	3.50	7.00	93.00	3.000
2	3.94	2.11	3.75	8.00	31.44	17.00	26.75	1.81	4.00	8.00	145.00	3.500

* A/S indicates the proper dimension of A after swaging.

Swage sockets are recommended for use on 6 x 19 or 6 x 36 IWRC regular lay ropes. They are also satisfactory on galvanized bridge rope. They are **NOT** recommended for use on fiber core or lang lay ropes. Spheroidized annealed for cold swaging. Sockets properly applied have an efficiency rating of 100%. This rating is based on the catalog breaking strength of wire rope.

Caution: When attaching swage sockets to wire rope it is extremely important to follow recommended procedures.





UPSON-WALTON[™]SWAGE SOCKETS



DOMESTIC CLOSED SWAGE SOCKETS

Rope			D	imension	s in Inche	s			Approx.	
Diameter in Inches	Α	В	С	D	Е	н	к	L	Weight Each in Pounds	A/S*
1/4	0.50	0.27	1.44	0.75	0.50	2.13	4.38	3.50	0.34	0.438
5/16	0.77	0.34	1.69	0.88	0.69	3.19	5.50	4.50	0.79	0.688
3/8	0.77	0.41	1.69	0.88	0.69	3.19	5.50	4.50	0.78	0.688
7/16	0.98	0.48	2.00	1.06	0.88	4.25	6.94	5.75	1.45	0.875
1/2	0.98	0.55	2.00	1.06	0.88	4.25	6.94	5.75	1.38	0.875
9/16	1.26	0.61	2.50	1.25	1.13	5.31	8.75	7.25	2.78	1.125
5/8	1.26	0.67	2.50	1.25	1.13	5.31	8.75	7.25	2.75	1.125
3/4	1.55	0.80	3.00	1.44	1.31	6.38	10.38	8.63	5.00	1.375
7/8	1.70	0.94	3.50	1.69	1.50	7.44	12.13	10.13	7.50	1.500
1	1.98	1.06	4.00	2.06	1.75	8.50	13.75	11.50	11.20	1.750
1.1/8	2.25	1.19	4.50	2.31	2.00	9.56	15.25	12.75	15.80	2.000
1.1/4	2.53	1.33	5.00	2.56	2.25	10.63	17.25	14.38	23.00	2.250
1.3/8	2.80	1.45	2.52	2.56	2.25	11.69	18.88	15.75	31.00	2.500
1.1/2	3.08	1.58	5.50	2.81	2.50	12.75	20.38	17.00	39.00	2.750
1.3/4	3.39	1.86	6.75	3.56	3.00	14.88	24.00	20.00	52.00	3.000
2	3.94	2.11	7.75	3.81	3.25	17.00	27.50	23.00	90.00	3.500

* A/S indicates the proper dimension of A after swaging.

Swage sockets are recommended for use on 6×19 or 6×36 IWRC regular lay ropes. They are also satisfactory on galvanized bridge rope. They are **NOT** recommended for use on fiber core or lang lay ropes. Spheroidized annealed for cold swaging. Sockets properly applied have an efficiency rating of 100%. This rating is based on the catalog breaking strength of wire rope.

Caution: When attaching swage sockets to wire rope it is extremely important to follow recommended procedures.

I

SWAGING SLEEVES





DOMESTIC CARBON STEEL SWAGING SLEEVES

			Dim	nensions in l	nches			
Rope Diameter in Inches	А	В	С	D	E	Wall Thickness	After Swage Diameter	Weight Each in Pounds
1/4	1	21/32	21/64	15/32	9/32	3/32	0.50	0.08
5/16	1.1/2	29/32	7/16	39/64	7/16	9/64	0.73	0.09
3/8	1.1/2	29/32	15/32	21/32	7/16	1/8	0.73	0.12
7/16	2	1.7/32	9/16	27/32	19/32	3/16	0.98	0.30
1/2	2	1.7/32	5/8	29/32	19/32	5/32	0.98	0.29
9/16	2.3/4	1.15/32	11/16	1.1/32	45/64	7/32	1.20	0.43
5/8	2.3/4	1.15/32	3/4	1.3/32	45/64	3/16	1.20	0.57
3/4	3.3/16	1.23/32	59/64	1.9/32	55/64	7/32	1.41	0.88
7/8	3.9/16	2.1/32	1.1/32	1.17/32	1	1/4	1.63	1.36
1	4	2.9/32	1.5/32	1.23/32	1.1/8	9/32	1.88	1.95
1.1/8	4.13/16	2.1/2	1.9/32	1.15/16	1.1/4	9/32	2.08	2.60
1.1/4	5.13/64	2.25/32	1.7/16	2.5/32	1.13/32	5/16	2.27	3.40
1.3/8	5.13/16	3	1.9/16	2.3/8	1.9/16	5/16	2.46	4.30
1.1/2	6.1/4	3.1/4	1.11/16	2.5/8	1.11/16	5/16	2.65	5.00
1.5/8	7.1/2	2.45/64	1.7/8	2.7/8	1.7/8	13/32	3.04	8.10
1.3/4	7.1/4	3.27/32	1.15/16	3.1/8	1.31/32	23/64	3.04	8.10
2	8.1/2	4.3/8	2.1/4	3.5/8	2.1/4	3/8	3.50	11.25
2.1/4	9.9/16	5.1/32	2.1/2	4.1/32	2.17/32	1/2	4.06	19.36
2.5	10.1/2	5.1/2	2.3/4	4.1/2	2.13/16	1/2	4.44	23.20
3	12	6	3.1/4	5	3.3/8	1/2	4.89	29.40

Recommended for flemished eyes only.

Caution: When attaching swage sleeves to wire rope it is extremely important to follow recommended procedures. Flemish Eye Carbon Steel Sleeves are recommended for use on 6 x 19 or 6 x 37 IPS or XIP, EIP, RRL, FC, or IWRC wire rope. Proper swaging practices are the sling manufacturer's responsibility. A color change will not indicate proper swaging. Before using sleeves with other type lay, construction, or grade of wire rope, it is recommended that the termination be proof loaded to prove the adequacy of the assembly.



WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and page 33.

v620


FORGED STEEL CLEVIS



	Мах	Min			All Din	nensior	ns in In	ches		Max Pin	Min Pin	
Size Number	Tap Size in Inches	Tap Size in Inches	Max W.L.L. in Pounds*	Α	B (Max)	с	D	Е	F	Diameter in Inches	Diameter in Inches	Weight per 100
2**	5/8	3/8	see table	3.3/4	13/16	1.7/16	1	5/8	5/16	3/4	1/2	77
2.1/2**	7/8	5/8	see table	4	1.9/16	2.1/2	1.1/4	7/8	5/16	1.1/2	3/4	250
3**	1.3/8	7/8	see table	5	1.13/16	3	1.1/2	1.3/8	1/2	1.3/4	1	400
3.1/2	1.1/2	1.1/8	see table	6	2.1/16	3.1/2	1.3/4	1.1/2	1/2	2	1.1/4	600
4	1.3/4	1.3/8	see table	6	2.5/16	4	2	1.3/4	1/2	2.1/4	1.1/4	800
5	2	1.1/2	see table	7	2.9/16	5	2.5	2.1/4	5/8	2.1/2	1.3/8	1700

**#2, #2.1/2, #3 Clevises are available in Type 316 Stainless Steel.

According to Manufacturers Standardization Society SP 58 (Type 14). Forged and heat treated to ASTM-A-668.

Maximum Allowable Working Load Limits are based on Tap Sizes Listed in Table.

Caution: <u>DO NOT DEVIATE</u> from range of pin sizes listed for each clevis size. All W.L.L. are inclusive of the range of pin diameters listed for each clevis size.

Grip tolerance is +1/8", -1/16".

When ordering, please specify finish (self colored or galvanized), size no., tap size (oversized or standard) & pitch, and grip, pin type & size.

Tap Size in Inches	Maximum Allowable Working Load Limit @ 650° F in Pounds
3/8	1,250
1/2	1,900
5/8	3,500
3/4	5,300
7/8	7,500
1	9,700
1.1/8	12,200
1.1/4	15,000
1.3/8	18,500
1.1/2	22,500
1.3/4	27,500
2	37,000

I

DROP FORGED EYE NUTS





SELF COLORED, GALVANIZED and STAINLESS STEEL, TYPE 316

		Working	Bail in			Dime	ensions in	Inches	
Size No.	Thread Size	Load Limit in Pounds	Inches (A)	Weight in Pounds	В	С	D	E	F
#1	1/4" - 20	520	1/4	0.09	0.75	1.00	0.66	1.25	1.69
#1A	5/16" - 18	850	1/4	0.09	0.75	1.00	0.66	1.25	1.69
#2A*	1/4" - 20	520	5/16	0.15	1.00	1.19	0.75	1.63	2.06
#2B*	5/16" - 18	520	5/16	0.15	1.00	1.19	0.75	1.63	2.06
#2*	3/8" - 16	1,250	5/16	0.15	1.00	1.19	0.75	1.63	2.06
#3A*	1/2" - 13	2,250	3/8	0.27	1.25	1.44	1.00	2.06	2.50
#4B*	3/8" - 16	1,250	1/2	0.57	1.50	1.88	1.25	2.50	3.13
#4C*	1/2" - 13	2,250	1/2	0.57	1.50	1.88	1.25	2.50	3.13
#4*	5/8" - 11	3,600	1/2	0.57	1.50	1.88	1.25	2.50	3.13
#4A*	3/4" - 10	**5,200	1/2	0.57	1.50	1.88	1.25	2.50	3.13
#5	3/4" - 10	5,200	5/8	0.97	1.75	2.31	1.38	3.00	3.95
#6	7/8" - 9	7,200	3/4	1.69	2.00	2.50	1.63	3.50	4.40
#6A	1" - 8	7,200	3/4	1.69	2.00	2.50	1.63	3.50	4.44
#8A	1.1/8" - 7	12,300	1	3.85	2.50	3.37	1.88	4.40	5.62
#8	1.1/4" - 7	15,500	1	3.85	2.50	3.44	1.88	4.40	5.62
#8B	1.3/8" - 6	15,500	1	3.85	2.50	3.44	1.88	4.40	5.62
#8C	1.1/2" - 6	22,500	1	3.85	2.50	3.44	1.88	4.40	5.62
#10	1.1/2" - 6	22,500	1.1/4	6.31	3.08	3.88	2.38	5.60	6.63
#11A	1.3/4" - 5	30,500	1.1/2	18.70	4.00	6.25	3.88	7.00	10.00
#11	2" - 4.1/2	40,000	1.1/2	18.70	4.00	6.25	3.88	7.00	10.00
#11B	2.1/4" - 4.1/2	40,000	1.1/2	18.70	4.00	6.25	3.88	7.00	10.00
#11C	2.1/2" - 4	40,000	1.1/2	18.70	4.00	6.25	3.88	7.00	10.00

* #2A thru #4A available in 316 stainless steel.

Some sizes available in LH.

** CAUTION: Due to the nature of stainless steel, deformation may occur at proof loads exceeding 7,000 pounds.



WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and page 33.



REGULAR PATTERN EYE BOLTS



REGULAR PATTERN EYE BOLTS WITH HEAVY HEX NUTS

Size in Inches			Dimensions in Inches			
Diameter x Shank A B	Working Load Limit in Pounds*	Approx. Weight Each in Pounds	С	D	Е	
1/4 x 2	650	0.06	1.50	0.50	1.00	
1/4 x 4	650	0.10	2.50	0.50	1.00	
5/16 x 2.1/4	1,200	0.13	1.50	0.63	1.25	
5/16 x 4.1/4	1,200	0.17	2.50	0.63	1.25	
3/8 x 2.1/2	1,500	0.22	1.50	0.75	1.50	
3/8 x 4.1/2	1,500	0.28	2.50	0.75	1.50	
3/8 x 6	1,500	0.33	2.50	0.75	1.50	
1/2 x 2	2,600	0.46	1.50	1.00	2.00	
1/2 x 3.1/4	2,600	0.54	1.50	1.00	2.00	
1/2 x 6	2,600	0.68	3.00	1.00	2.00	
1/2 x 8	2,600	0.80	3.00	1.00	2.00	
1/2 x 10	2,600	0.93	3.00	1.00	2.00	
1/2 x 15	2,600	1.23	5.00	1.00	2.00	
5/8 x 4	5,200	1.00	2.00	1.25	2.50	
5/8 x 6	5,200	1.14	3.00	1.25	2.50	
5/8 x 8	5,200	1.38	3.00	1.25	2.50	
5/8 x 10	5,200	1.55	3.00	1.25	2.50	
5/8 x 12	5,200	1.69	4.00	1.25	2.50	
3/4 x 4.1/2	7,200	1.64	2.00	1.50	3.00	
3/4 x 6	7,200	1.81	3.00	1.50	3.00	
3/4 x 8	7,200	2.00	3.00	1.50	3.00	
3/4 x 10	7,200	2.30	3.00	1.50	3.00	
3/4 x 12	7,200	2.50	4.00	1.50	3.00	
3/4 x 15	7,200	2.90	5.00	1.50	3.00	
1 x 6	10,000	3.60	3.00	2.00	4.00	
1 x 9	10,000	4.30	4.00	2.00	4.00	
1 x 12	10,000	5.00	4.00	2.00	4.00	

*Regular nut eye bolts are designed for straight line pull applications only.

Straight shank, forged carbon steel, heat treated, hot galvanized. Heavy hex nut according to ASME/ANSI B18.2.2. Never insert the point of a hook in an eyebolt. Always use a shackle.

Never apply load at an angle.

SHOULDER PATTERN EYE BOLTS





SHOULDER PATTERN EYE BOLT WITH HEAVY HEX NUT

Size in Inches			Dime	ensions in Inc	hes
Diameter x Shank A B	Working Load Limit in Pounds*	Approx. Weight Each in Pounds	С	D	Е
1/4 x 2	650	0.06	1.50	0.50	0.88
1/4 x 4	650	0.09	2.50	0.50	0.88
5/16 x 2.1/4	1,200	0.11	1.50	0.63	1.13
5/16 x 4.1/4	1,200	0.15	2.50	0.63	1.13
3/8 x 2.1/2	1,500	0.19	1.50	0.75	1.38
3/8 x 4.1/2	1,500	0.25	2.50	0.75	1.38
1/2 x 3.1/4	2,600	0.41	1.50	1.00	1.75
1/2 x 6	2,600	0.59	3.00	1.00	1.75
5/8 x 4	5,200	0.83	2.00	1.25	2.25
5/8 x 6	5,200	1.00	3.00	1.25	2.25
3/4 x 4.1/2	7,200	1.50	2.00	1.50	2.75
3/4 x 6	7,200	1.70	3.00	1.50	2.75

Forged carbon steel, heat treated, hot galvanized. Heavy hex nut according to ASME/ANSI B18.2.2.

Never insert the point of a hook in an eyebolt. Always use a shackle. DO NOT SIDE LOAD.

TYPE 316 STAINLESS STEEL, WITH STAINLESS HEAVY HEX NUT

Size in Inches			Dimensions in Inches			
Diameter x Shank A B	Working Load Limit in Pounds*	Approx. Weight Each in Pounds	С	D	Е	
1/4 x 4	500	0.10	2.50	0.50	0.88	

WARNING:

* Working Load Limit applies to straight line pull only. When applying load at an angle the Working Load Limit is drastically reduced. Refer to Standard Rigging Handbook for reductions in Working Load Limit of shoulder pattern eye bolts for angular lifting. Above ratings apply only when the shoulder of the eyebolt is in full contact with the mating part of the load and the load is applied in the plane of the eye (see illustration).





WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and page 33.

v620

KUKONACHINERY EYE BOLTS—SHOULDER PATTERN



Size in Inches			Dimensions in Inches				
Diameter x Shank D B	Working Load Limit in Pounds*	Approx. Weight Each in Pounds	С	Е	F	т	
1/4 x 1	500	0.06	0.75	0.69	1.19	0.19	
5/16 x 1.1/8	900	0.10	0.81	0.81	1.44	0.25	
3/8 x 1.1/4	1,400	0.16	0.88	0.94	1.69	0.31	
1/2 x 1.1/2	2,600	0.38	1.12	1.12	2.12	0.44	
9/16 x 1.5/8	3,000	0.73	1.25	1.19	2.25	0.47	
5/8 x 1.3/4	4,000	0.73	1.38	1.31	2.56	0.56	
3/4 x 2	6,000	1.04	1.62	1.44	2.81	0.62	
7/8 x 2.1/4	7,000	1.61	1.81	1.56	3.19	0.75	
1 x 2.1/2	9,000	2.31	2.06	1.69	3.56	0.88	

Forged carbon steel, quenched and tempered, self-colored. Dimensions according to ANSI/ASME B18.15, Type 2, Style A. Manufactured in accordance with A.S.T.M. A489. Rated capacities meet or exceed the requirements of ANSI/ASME 18.15 for Type 2, Style A.

Never insert the point of a hook in an eyebolt. Always use a shackle. DO NOT SIDE LOAD.

WARNING:

* Working Load Limit applies to straight line pull only. When applying load at an angle, the Working Load Limit is drastically reduced. Refer to Standard Rigging Handbook for reductions in Working Load Limit of shoulder pattern eyebolts for angular lifting. Above ratings apply only when the shoulder of the eyebolt is in full contact and properly seated with the mating part of the load and the load is applied in the plane of the eye (see illustration).



v620

I

WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and page 33.

DROP FORGED SWIVELS





JAW & EYE SWIVELS

	Working	Approximate		Dimensions in Inches							
Size (A) in Inches	Load Limit in Pounds	Weight Each in Pounds	В	С	D	Е	F	G			
1/4	850	0.22	0.69	0.75	0.38	0.88	2.69	0.25			
5/16	1,250	0.39	0.88	1.00	0.50	0.88	2.88	0.31			
3/8	2,250	0.71	0.94	1.25	0.63	1.00	3.50	0.38			
1/2	3,600	1.40	1.38	1.50	0.81	1.31	4.50	0.50			
5/8	5,200	2.30	1.63	1.75	1.00	1.50	5.31	0.63			
3/4	7,200	3.50	1.75	2.00	1.19	1.75	6.06	0.75			
7/8	10,000	5.70	2.08	2.25	1.20	2.07	7.06	0.88			
1	12,500	9.50	2.27	2.44	1.73	2.85	8.56	1.12			
1.1/4	18,000	16.00	2.69	3.13	2.06	2.81	9.44	1.38			
1.1/2	45,200	55.00	4.20	4.00	2.87	4.43	14.75	2.25			

Meets or exceeds the performance requirements of Federal Specification RR-C-271, current revision. Hot galvanized.



EYE & EYE SWIVELS

	Working	Approximate		Dimensions in Inches							
Size (A) in Inches	Load Limit in Pounds	Weight Each in Pounds	В	С	Е	F					
1/4	850	0.22	0.69	0.75	0.94	2.88					
5/16	1,250	0.39	0.75	1.00	1.13	3.63					
3/8	2,250	0.71	0.94	1.25	1.38	4.25					
1/2	3,600	1.40	1.38	1.50	1.94	5.63					
5/8	5,200	2.30	1.63	1.75	2.31	6.63					
3/4	7,200	3.50	1.81	2.00	2.56	7.25					
7/8	10,000	6.00	2.06	2.25	3.02	8.28					
1	12,500	8.50	2.35	2.48	3.43	9.53					
1.1/4	18,000	16.50	2.69	3.13	3.69	11.13					
1.1/2	45,200	46.00	4.18	4.00	4.18	17.12					

Meets or exceeds the performance requirements of Federal Specification RR-C-271, current revision. Hot galvanized.





WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and page 33. Drop Forged Swivels are not intended to rotate under load.

KUIKONI COMPACT THRUST BEARING EYE & EYE SWIVEL



Size	А	В	с	D	E	F	G	Working Load Limit	Weight in Pounds
3 Ton	2.13	7.48	1.06	1.02	1.06	1.10	3.15	6,000	5.5
5 Ton	2.32	8.66	1.30	1.18	1.22	1.30	3.62	10,000	6.6
8 Ton	3.35	10.43	1.65	1.34	1.34	1.54	4.65	16,000	15.7
12 Ton	3.70	11.61	1.97	1.61	1.61	1.77	4.84	24,000	22.5
17 Ton	4.69	14.53	2.05	2.05	2.28	2.17	5.63	34,000	39.7
22 Ton	4.92	16.97	2.28	2.05	2.17	2.48	7.68	44,000	59.0





.

WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and page 33.



XOOK[™] HOOK—CARBON STOP BUTTON



ROLL OFF HOOK, ALLOY

Working Load Limit in Pounds	Wire Rope Size in Inches	Approx. Weight Each in Pounds		
18,000	7/8	11.5		



STOP BUTTON, CARBON

	Dimensio	ns in Inches Bef	ore Swage	Maximum Dimension		
Rope Size in Inches*	Α	В	С	After Swage (D)	Approx. Weight Each in Pounds	
7/8	2.00	3.27	0.94	1.80	2.25	





WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and page 33.

D-RINGS







DO NOT USE FOR OVERHEAD LIFTING

FORGED D-RING WITH STRAP, TYPE A, SELF COLORED

	Dimensions in Inches				Breaking Strength	Approx. Weight Each	
Size in Inches	Α	В	С	D	E	in Pounds*	in Pounds
1/2	2.25	2.50	0.50	1.76	0.61	12,000	0.94
5/8	3.00	3.00	0.63	2.48	0.92	18,000	1.87
3/4	3.00	3.00	0.75	2.48	1.00	26,500	2.70
1	3.00	3.00	1.00	2.52	1.21	47,000	4.21





DO NOT USE FOR OVERHEAD LIFTING

FORGED D-RING WITH STRAP, TYPE B, GALVANIZED, FOR OFFSHORE USE

Dimensions in Inches					Breaking Strength	Approx. Weight Each
Size	Α	В	С	D	in Tons*	in Pounds
F187	0.50	2.63	2.00	1.97	7	1.19
F653	0.87	4.72	3.15	3.94	36	6.61
F654	1.00	5.00	3.66	4.01	41	7.72
F655	1.00	5.00	4.02	4.01	50	9.92

* Please note that the loads shown are "ultimate breaking strength" loads and not "working load limits" and are based on a single straight line pull and apply to the ring itself as well as the connection between the ring and strap, *but does not apply to the weld securing the strap to the mounting surface*. Working load limits are to be determined by the user and should be based on the particular application, angle of pull (which will reduce breaking strength), and any other applicable standards or specifications. Always apply an appropriate safety factor.

D-Rings and Straps should not be used at temperatures exceeding 500 degrees Fahrenheit as this will permanently alter the properties of the steel and thus reduce the strength of the D-Ring. Care should be taken when welding the strap so as not to allow the D-Ring to be heated above 500 degrees.

D-Rings and Straps are only sold together as a set and are not available individually.

"Type A" D-Rings zinc plated, Straps self-colored.

D-Rings are designed for tie-down purposes only and are not intended for lifting.

v620

Page 80

WARNING: NEVER EXCEED WORKING LOAD LIMIT

Read important warnings and information on pages 2 - 9 and page 33. Do not use for overhead lifting.



INSPECTION, CARE AND USE OF SYNTHETIC POLYESTER ROUNDSLINGS

Removal from Service

- 1. Holes, tears, cuts, snags, embedded particles or abrasive wear that expose the core fibers.
- 2. If roundsling rated capacity tag is missing or not readable.
- 3. If roundsling has been tied into one or more knots.
- 4. Melting, charring or weld spatter of any part of the roundsling.
- 5. Acid or alkali burns of the roundsling.
- 6. Broken or worn stitching in the cover that exposes the core fibers.
- 7. Distortion, excessive pitting, corrosion or other damage to fitting(s).
- 8. Any conditions which cause doubt as to the strength of the roundsling.

Operation Practices

- 1. ROUNDLINGS SHALL ALWAYS BE PROTECTED FROM BEING CUT OR DAMAGED BY CORNERS, EDGES OR PROTRUSIONS.
- 2. Roundslings should be protected from abrasive surfaces.
- 3. Determine the weight of the load. Roundslings shall not be loaded in excess of the rated capacity. Consideration shall be given to the roundsling angle, which affects rated capacity (See Sling Angle Chart).
- 4. Select roundslings having suitable characteristics for type of load, hitch and environment.
- 5. Roundslings with fittings which are used in a choker hitch shall be of sufficient length to assure that the choking action is on the roundsling and never on a fitting.
- 6. Roundslings used in a basket hitch shall have the load balanced to prevent slippage.
- 7. The opening in fittings shall be the proper shape and size to insure that the fitting will seat properly in the hook or other attachments.
- 8. Roundslings should not be dragged on the floor or over an abrasive surface.
- 9. Roundslings shall not be twisted, shortened, lengthened or tied into knots, or joined by knotting.
- 10. Roundslings should not be pulled from under loads if the load is resting on the roundsling.
- 11. Roundslings equipped with metal fittings should not be dropped.
- 12. Roundslings that appear to be damaged shall not be used unless inspected and accepted by a designated person.
- 13. Roundslings shall be hitched in a manner providing control of the load.
- 14. Personnel, including portions of the human body, shall be kept from between the roundsling and the load, and from between the roundsling and the crane hook or hoist hook.
- 15. Personnel shall not stand under and should stand clear of the suspended load.
- 16. Personnel shall not ride the roundsling.
- 17. Shock loading shall be avoided.
- 18. Twisting and kinking the legs shall be avoided.
- 19. Load applied to the hook shall be centered in the base (bowl) of hook to prevent point loading on the hook.
- 20. During lifting, with or without the load, personnel shall be alert for possible snagging of the roundsling.
- 21. The roundsling's legs shall contain or support the load from the sides above the center of gravity when using a basket hitch.
- 22. Roundslings shall be long enough so that the rated capacity of the roundsling is adequate when the angle of the legs is taken into consideration. (See Sling Angle Chart).
- 23. If applicable, place blocks under load prior to setting down the load to allow removal of the roundsling.
- 24. Roundslings shall not be used at temperatures above 194 degrees F (90 degrees C).
- 25. Roundslings shall not be constricted or bunched between the ears of a clevis, shackle, or in a hook.
- 26. When a roundsling is used with a shackle, it is recommended that it be used (rigged) in the bow of the shackle.
- 27. Store roundslings in a cool, dry and dark place when not in use.

Inspection

A. Initial Inspection

Before any new or repaired roundsling is placed in service, it shall be inspected by a designated person to ensure that the correct roundsling is being used, as well as to determine that the roundsling meets applicable-specifications and has not been damaged in shipment.

B. Frequent Inspection

This inspection shall be made by the user handling the roundsling each time it is used.

C. Periodic Inspection

This inspection shall be conducted by designated personnel. Frequency of inspection should be based on:

- **1.** Frequency of roundsling use.
- 2. Severity of service conditions
- 3. Experience gained on the service life of roundslings used in similar applications.
- 4. Periodic inspections should be conducted at least annually.





ENDLESS POLYESTER ROUND SLINGS

			Vertical	Choker	Vertical Basket	60° Bas- ket	45° Bas- ket	30° Bas- ket
		Pull to Pull Lenath		8	U	\bigtriangleup	ð	
Part #	Color	in Feet	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Part # ER1	Color Purple	in Feet 3,4,6,8,10,12	lbs. 2,600	lbs. 2,100	lbs. 5,200	lbs. 4,500	lbs. 3,700	lbs. 2,600
Part # ER1 ER2	Color Purple Green	in Feet 3,4,6,8,10,12 3,4,6,8,10,12	Ibs. 2,600 5,300	lbs. 2,100 4,200	lbs. 5,200 10,600	lbs. 4,500 9,200	lbs. 3,700 7,500	Ibs. 2,600 5,300
Part # ER1 ER2 ER3	Color Purple Green Yellow	in Feet 3,4,6,8,10,12 3,4,6,8,10,12 3,46,8,10,12,16	Ibs. 2,600 5,300 8,400	lbs. 2,100 4,200 6,700	Ibs. 5,200 10,600 16,800	Ibs. 4,500 9,200 14,500	Ibs. 3,700 7,500 11,900	Ibs. 2,600 5,300 8,400
Part # ER1 ER2 ER3 ER5	Color Purple Green Yellow Red	in Feet 3,4,6,8,10,12 3,4,6,8,10,12 3,46,8,10,12,16 4,6,8,10,12,16,20	Ibs. 2,600 5,300 8,400 13,200	Ibs. 2,100 4,200 6,700 10,600	Ibs. 5,200 10,600 16,800 26,400	Ibs. 4,500 9,200 14,500 22,900	Ibs. 3,700 7,500 11,900 18,700	Ibs. 2,600 5,300 8,400 13,200

Kulkoni Endless Round Slings feature heavy duty double jacket covers of equal thickness. Slings are color coded for ease of identification per WSTDA recommendation, individually packaged for protection and effective display, and individually serialized for traceability.

- Easy to handle and store.
- Highly flexible.
- Ergonomically friendly
- Design accommodates shifting of wear points for extended life.





Recommended Minimum Connecting Hardware Diameter

Sling Size Vertical Capacity	Vertical Hitch		Basket Hitch	
Lbs.	In.	mm	ln.	mm
2,600	0.50	13	0.62	16
5,300	0.62	16	0.88	23
8,400	0.75	19	1.00	26
10,600	0.88	23	1.25	32
13,200	1.00	26	1.38	35
16,800	1.12	29	1.62	42
21,200	1.25	32	1.75	45

Sling Size Vertical Capacity	Vertica	al Hitch	Basket Hitch		
Lbs.	ln.	mm	ln.	mm	
25,000	1.25	32	1.88	48	
31,000	1.50	39	2.00	51	
40,000	1.62	42	2.38	61	
53,000	1.88	48	2.75	70	
66,000	2.12	54	3.00	77	
90,000	2.50	64	3.50	89	

Sling Angle. When slings are used at an angle, sling capacity is reduced. Multiply the Sling Capacity by the Factor below (for the angle used) to determine the reduced rating.

Angle	Factor	Angle	Factor
90°	1.000	55°	0.819
85°	0.996	50°	0.766
80°	0.985	45°	0.707
75°	0.966	40°	0.643
70°	0.940	35°	0.574
65°	0.906	30°	0.500
60°	0.866		



Sling capacity decreases as the angle decreases. A sling capable of lifting 1,000 lbs. in a 90° vertical basket hitch can only lift 866 lbs. at a 60° angle lift.

Additional requirements and safe operating practices may be outlined in the WSTDA-RS-1 Polyester Roundsling Standard, OSHA and ANSI/ASME B30.9, and/or other regulations as applicable.



WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and page 82.



POLYESTER TIE DOWN WEBBING

Width in Inches	Rating Per Inch	Breaking Strength	Std. Packing	Feet / Carton	Feet / Pallet	Lbs / ft.
2	6,000 lbs	12,000 lbs	300 ft Coil	2,700 ft	21,600 ft	0.075
3	5,000 lbs	15,000 lbs	300 ft Coil	1,800 ft	14,400 ft	0.113
4	5,000 lbs	20,000 lbs	300 ft Coil	1,200 ft	9,600 ft	0.150

Produced in accordance with WSTDA-T-4 Recommended Standard Specification for Synthetic Webbing Used for Tie Downs; current revision.

POLYESTER SLING WEBBING - CLASS 7*

Width in Inches	Rating Per Inch	Breaking Strength	Std. Packing	Feet / Carton	Feet / Pallet	Lbs / ft.
1	9,800 lbs	9,800 lbs	Bulk	2,300 ft	18,400 ft	0.060
2	9,800 lbs	19,600 lbs	Bulk	1,400 ft	11,200 ft	0.120
3	9,800 lbs	29,400 lbs	Bulk	1,000 ft	9,600 ft	0.168
4	9,800 lbs	39,200 lbs	Bulk	800 ft	6,400 ft	0.228
6	9,800 lbs	58,800 lbs	300 ft Coil	300 ft	1,800 ft	0.290
8	9,800 lbs	78,400 lbs	300 ft Coil	300 ft	1,500 ft	0.470
10	9,800 lbs	98,000 lbs	240 ft Coil	240 ft	960 ft	0.570
12	9,800 lbs	117,600 lbs	240 ft Coil	240 ft	720 ft	0.700

Produced in accordance with WSTDA-WB-1 Recommended Standard Specification for Synthetic Webbing for Slings; current revision.

Webbing should be stored in a cool, dry, and dark location.

Environments in which synthetic webbing is continuously exposed to ultraviolet light can affect the strength in varying degrees, ranging from slight to total degradation.

Polyester webbing shall not be used at temperatures in excess of 194 °F (90 °C) or below -40 °F (-40 °C).







SNATCH BLOCKS - WARNINGS AND INFO.

DEFINITIONS

Design (Safety) Factor: An industry term denoting a product's theoretical reserve capability; usually computed by dividing the catalog Ultimate Load by the Working Load Limit. Generally expressed for blocks as a ratio of 4 to 1.

Proof Load: The average force applied in the performance of a proof test; the average force which a product may be subjected before deformation occurs.

Proof Test: A test applied to a product solely to determine non-conforming material or manufacturing defects.

Shock Load: A force that results from the rapid application of a force (such as impacting and/or jerking) or rapid movement of a static load. A shock load significantly adds to the static load.

Snatch Block: An assembly consisting of a sheave(s), side plates, and generally an end fitting (hook, shackle, etc.) that is used for lifting, lowering, or applying tension.

Static Load: The load resulting from a constantly applied force or load.

Working Load: The maximum mass or force which the product is authorized to support in a particular service.

Working Load Limit: The Working Load Limit is the maximum load which should ever be applied to a product, even when the product is new and when the load is uniformly applied - straight line pull only. **Avoid side loading.** All catalog ratings are based upon usual environmental conditions, and consideration must be given to unusual conditions such as extreme high or low temperatures, chemical solutions or vapors, prolonged immersion in salt water, etc. Such conditions or high-risk applications may necessitate reducing the Working Load Limit.

This term is used interchangeably with the following terms: WLL, SWL, Safe Working Load, Rated Load Value, Resulting Safe Working Load, and Rated Capacity.

Never exceed the Working Load Limit.

Ultimate Load: The average load or force at which the product fails, or no longer supports the load.

READ THE FOLLOWING WARNINGS AND SAFETY INFORMATION CAREFULLY. EVEN EXPERIENCED PERSONNEL NEED TO UNDERSTAND THIS INFORMATION. Failure to follow warnings and instructions can result in serious injury or death.

To avoid serious injury, death, or property damage -

- Always design and rig snatch block systems so that the load will not slip or fall.
- Always design the lifting system with appropriate sheave assembly material to prevent premature sheave, bearing or wire rope wear and failure.
- Always have a qualified person (as defined by ANSI/ASME B.30) rig the snatch block system.
- Instruct workers to keep hands and body away from the block sheaves, swivels, and "pinch points" where wire rope makes contact with block parts or loads.
- Do not side load snatch blocks side loading exerts additional force or loading which the snatch block is not designed to accommodate.
- Instruct workers to be alert and to wear appropriate safety gear in areas where loads are moved or supported with snatch block systems.
- Always make sure the hook (and not the latch) supports the load.
- Do not weld snatch blocks or load supporting parts.
- Keep out from under a raised load and stay out of the line of force.
- Never lift personnel with a hook snatch block.
- Remove from service any snatch block that is cracked or deformed.
- Always regularly inspect, lubricate, and maintain snatch blocks.



v620



GENERAL PRECAUTIONS

Ratings shown are applicable only to new or "like new condition" products. Working Load Limit ratings indicate the greatest force or load a product can carry under usual environmental conditions. Shock loading and extraordinary conditions must be taken into account.

The Working Load Limit or Design (Safety) Factor may be affected by wear, misuse, overloading, corrosion, deformation, intentional alteration, and other use conditions. Regular inspection must be conducted to determine whether use can be continued at the catalog assigned WLL, a reduced WLL, a reduced Design (Safety) Factor, or withdrawn from service.

SELECT THE CORRECT SNATCH BLOCK

In general, the products displayed are used as parts of a system being employed to accomplish a task. Therefore, we can only recommend the snatch block(s) to be used within the Working Load Limits, or other stated limitations.

It is necessary to determine the total load being imposed on each block in the system to properly determine the rated capacity block to be used. A single sheave block used to change load line direction can be subjected to total loads greatly different from the weight being lifted or pulled. The total load value varies with the angle between the incoming and departing lines to the block. Thus, there are several critical steps to selecting a correct snatch block for a given application including: (1) identify the weight of the load to be lifted or moved; (2) determine the total load on each block in the system; and (3) determine sheave size & wire rope strength.

1. Identify the Weight of the Load to be Lifted or Moved

2. Determine the Total Load on Each Block in the System

	Angle Facto	r Multiplier		
Angle	Factor	Angle	Factor	TOTAL LOAD
0°	2.00	100°	1.29	Î
10°	1.99	110°	1.15	Δ
20°	1.97	120°	1.00	
30°	1.93	130°	0.84	la l
40°	1.87	135°	0.76	
45°	1.84	140°	0.68	· · · ·
50°	1.81	150°	0.52	
60°	1.73	160°	0.35	ANGLE
70°	1.64	170°	0.17	
80°	1.53	180°	0.00	LINE PULL LINE PULL
90°	1.41	-	-	

Use the following chart to identify the factor to be multiplied by the line pull to obtain the total load on the block.

Example

Calculations for determining a total load value on a single line system (a gin pole truck lifting 1,000 lbs.). There is no mechanical advantage to a single part load line system, so winch line pull is equal to 1,000 lbs. or the weight being lifted.

To determine total load on Block A: A = 1,000 lbs. x 1.81 = 1,810 lbs. (line pull) (factor 50° angle)

To determine total load on Block B: B = 1,000 lbs. X .76 = 760 lbs. (line pull) (factor 135° angle)





3. Determine Sheave Size & Wire Rope Strength

Strength Efficiency

Flexing wire rope reduces its strength. To account for the effect of bend radius on wire rope strength when selecting a sheave, use the following table:

Ratio A = $\frac{\text{Sheave Diameter}}{\text{Rope Diameter}}$

Example

To determine the strength efficiency of 1/2" diameter wire rope using a 10" diameter sheave:

Ratio A = $\frac{10"}{1/2"}$ (sheave diameter) = 20

Refer to Ratio A of 20 in the table, then check the column under the heading "Strength Efficiency Compared to Catalog Strength in %" ... 91% strength efficiency compared to the catalog strength of wire rope.

Ratio A	Strength Efficiency Compared to Catalog Strength in %
40	95
30	93
20	91
15	89
10	86
8	83
5	79
4	75
2	65
1	50

Fatigue Life

Repeated flexing and straightening of wire rope causes a cyclic change of stress called "fatiguing." Bend radius affects wire rope fatigue life. A comparison of the relative effect of sheave diameter on wire rope fatigue life can be determined as shown below:

Potio P -	Sheave Diameter				
Ralio D =	meter				
Relative F	atigue	_ RFBL (Sheave 1)			
Bending L	ife (RFBL)	= RFBL (Sheave 2)			

Ratio B	Relative Fatigue Bending Life
30	10.0
25	6.6
20	3.8
18	2.9
16	2.1
14	1.5
12	1.1

Example

To determine the extension of fatigue life for a 3/4" wire rope using a 22.5" diameter sheave versus a 12" diameter sheave:

Ratio B = $\frac{12" \text{ (sheave diameter)}}{3/4" \text{ (wire rope diameter)}} = 30$ Ratio B = $\frac{22.5" \text{ (sheave diameter)}}{3/4" \text{ (wire rope diameter)}} = 16$

The relative fatigue bending life for a Ratio B of 16 is 2.1 (see above table) and Ratio B of 30 is 10. Relative Fatigue Bending Life = 10/2.1 = 4.7

Therefore, we expect extension of fatigue life using a 22.5" diameter sheave to be 4.7 times greater than that of a 12" diameter sheave.





INSPECT & MAINTAIN FITTINGS and SNATCH BLOCKS REGULARLY

Fittings

Fitting, including hooks, shackles, links, etc. may become worn and disfigured with use, corrosion, and abuse resulting in nicks, gouges, worn threads and bearings, sharp corners which may produce additional stress conditions and reduce system load capacity.

Grinding is the recommended procedure to restore smooth surfaces. The maximum allowance for reduction of a product's original dimension due to wear or repair before removal from service is:

- 1. Any single direction: no more than 10% of original dimension;
- 2. Two directions: no more than 5% of each dimension.

For detailed instructions on specific products, see the application and warning information for that product. Any greater reduction may necessitate a reduced Working Load Limit. Any crack or deformation in a fitting is sufficient cause to withdraw the snatch block from service.

Snatch Block

Snatch blocks must be regularly inspected, lubricated, and maintained for peak efficiency and extended usefulness. Their proper use and maintenance is equal in importance to other mechanical equipment. The frequency of inspection and lubrication is dependent upon frequency and periods of use, environmental conditions, and the user's good judgment.

Inspection: At a minimum, the following should be inspected, repaired if possible, and removed from service if necessary:

- 1. Wear on pins or axles, rope grooves, side plates, bushings, and fittings. Excessive wear may be a cause to replace parts or remove block or sheave from service.
- Deformation in side plates, pins and axles, fitting attachment points, trunnions, etc. Deformation can be caused by abusive service and/or overload and may be a cause to remove block or sheave from service.
 Nisolizement or webble is chosen.
- 3. Misalignment or wobble in sheaves.
- 4. Security of nuts, bolts, and other locking methods, especially after reassembly following a tear down inspection. Original securing method should be used; e.g., staking, set screw, cotter pin, cap screw.
- 5. Pins retained by snap rings should be checked for missing or loose rings.
- 6. Sheave pin nuts should be checked for proper positioning.
- 7. Deformation or corrosion of hook and nut threads.
- 8. Surface condition and deformation of hook (see "Fitting Maintenance" and ANSI 830.10.)
- 9. Hook latch for deformation, proper fit and operation.
- 10. Remove from service any bushings with cracks on inside diameter or bushing end. Bushings that are cracked and/or extended beyond sheave hub are indications of bushing overload.

Lubrication

The frequency of lubrication depends upon frequency and period of snatch block use as well as environmental conditions, which are contingent upon the user's good judgment. Assuming normal product use, bronze bushings (not self lubricating) should be lubricated using a lithium-based grease of medium consistency every 8 hours for continuous operation or every 7 days for intermittent operation.

Further Information

Please refer to OSHA Rule 1926.550(g) for personnel hoisting by cranes and derricks, and OSHA Directive CPL 2-1.29 - "Interim Inspection Procedures During Communication Tower Construction Activities" for specific information regarding using snatch block systems for these applications.





SNATCH BLOCKS



Page 88



WARNING: NEVER EXCEED WORKING LOAD LIMIT

SNATCH BLOCKS - SWIVEL HOOK - SINGLE KUK



K4180

Sheave Size in Inches	Working Load Limit in Tons	Wire Rope Size in Inches	Approximate Weight Each in Pounds
3	2	3/8	5
4.1/2	4	1/2	14
6	8	3/4	28
8	8	3/4	34
10	8	3/4	53

Bronze bushed, painted blue.

K4182

Sheave Size in Inches	Working Load Limit in Tons	Wire Rope Size in Inches	Approximate Weight Each in Pounds
6	10	3/4 ~ 7/8	26
8	10	3/4 ~ 7/8	35

Bronze bushed, painted yellow.

K4185

Sheave Size in Inches	Working Load Limit in Tons	Wire Rope Size in Inches	Approximate Weight Each in Pounds
6	12	3/4 ~ 7/8	27
8	12	3/4 ~ 7/8	36

Bronze bushed, painted red.

K4200

Sheave Size	Working Load Limit	Wire Rope Size	Approximate Weight Each
in Inches	in Tons	in Inches	in Pounds
10	15	3/4 ~ 7/8	77

Bronze bushed, painted red.

K4300

Sheave Size in Inches	Working Load Limit in Tons	Wire Rope Size in Inches	Approximate Weight Each in Pounds
10	20	1.1/8	90
12	20	1.1/8	135

Bronze bushed, painted blue.





SNATCH BLOCKS - SWIVEL SHACKLE - SINGLE



K4190

Sheave Size in Inches	Working Load Limit in Tons	Wire Rope Size in Inches	Approx. Weight Each in Pounds
3	2	3/8	5
4.1/2	4	1/2	13
6	8	3/4	29
8	8	3/4	36
10	8	3/4	44

Bronze bushed, painted blue.

K4192

Sheave Size in Inches	Working Load Limit in Tons	Wire Rope Size in Inches	Approx. Weight Each in Pounds
6	10	3/4 ~ 7/8	28
8	10	3/4 ~ 7/8	37

Bronze bushed, painted yellow.

K4195

Sheave Size in Inches	Working Load Limit in Tons	Wire Rope Size in Inches	Approx. Weight Each in Pounds
6	12	3/4 ~ 7/8	28
8	12	3/4 ~ 7/8	38

Bronze bushed, painted red.

K4170 - ALL ALLOY

Sheave Size	Working Load Limit	Wire Rope Size	Approx. Weight Each
in Inches	in Tons	in Inches	in Pounds
10	12	1	44

Bronze bushed, painted red.

K4210

Sheave Size	Working Load Limit	Wire Rope Size	Approx. Weight Each
in Inches	in Tons	in Inches	in Pounds
10	15	3/4 ~ 7/8	83

Bronze bushed, painted red.

K4310

Sheave Size in Inches	Working Load Limit in Tons	Wire Rope Size in Inches	Approx. Weight Each in Pounds
10	20	1.1/8	103
12	20	1.1/8	115

Bronze bushed, painted blue.

v620



WARNING: NEVER EXCEED WORKING LOAD LIMIT Read important warnings and information on pages 2 - 9 and pages 84 - 87.

SNATCH BLOCKS - TAIL BOARD - SINGLE





K4040 - TAIL BOARD

Sheave Size in Inches	Working Load Limit in Tons	Wire Rope Size in Inches	Approx. Weight Each in Pounds
3*	2	3/8	3.5
4.1/2	4	1/2	7.5
6	8	3/4	16.0

* Also available Hot Galvanized.

Bronze bushed, painted blue.

K4020 - ALL ALLOY - TAIL BOARD

Sheave Size	Working Load Limit	Wire Rope Size	Approx. Weight Each
in Inches	in Tons	in Inches	in Pounds
6	12	3/4 ~ 7/8	16

Bronze bushed, painted red.

K4070 - TAIL BOARD

Sheave Size	Working Load Limit	Wire Rope Size	Approx. Weight each
in Inches	in Tons	in Inches	in Pounds
10	20	1.1/8	66

Bronze bushed, painted blue.







SNATCH BLOCKS



K4080 DOUBLE SHEAVE - WITH HOOK

Sheave Size in Inches	Working Load Limit in Tons	Wire Rope Size in Inches	Approx. Weight Each in Pounds
4.1/2	4	1/2	22
6	12	3/4	60
8	12	3/4	71

Bronze bushed, painted.



K4090 DOUBLE SHEAVE - WITH SHACKLE

Sheave Size in Inches	Working Load Limit in Tons	Wire Rope Size in Inches	Approx. Weight Each in Pounds
4.1/2	4	1/2	22
6	12	3/4	61
8	12	3/4	72

Bronze bushed, painted.



YARDING STYLE SNATCH BLOCK

Sheave Size in Inches	Working Load Limit in Tons	Wire Rope Size in Inches	Approx. Weight Each in Pounds
3	1.1/2	1/4 - 3/8	3.40
4	3	1/4 - 3/8	5.25



v620

BLOCKS AND PULLEYS





TONG LINE BLOCK - WITH SWIVEL EYE

Sheave Size	Model	Working Load Limit	Wire Rope Size	Approx. Weight Each
in Inches	Number	in Pounds	in Inches	in Pounds
8	K1710	6,000	5/8	23

Roller bearing with pressure grease lubrication. Forged swivel eye top fitting.



LIGHT DUTY SNATCH BLOCKS

Sheave Size in Inches	Model Number	Working Load Limit in Tons	Wire Rope Size in Inches	Approx. Weight Each in Pounds
3	KC 3*	1	3/8	3
4	KC 4**	2	3/8	4

* Plated; without grease nipple; with screw pin chain shackle.

** Hot galvanized; with grease nipple.



HAY FORK PULLEYS - WITH SWIVEL EYE

Sheave Size in Inches	Model Number	Working Load Limit in Tons	Wire Rope Size in Inches	Approx. Weight Each in Pounds
4	KW 4	1	1/2 (Wire)	6
4	KM 2	1	1.1/8 (Manila)	6
6	KM 12	2	1.1/4 (Manila)	11

Galvanized, bronze bushed, with grease nipple.





REEL CHART

Listed below are some of the most commonly used reels in our inventory and the approximate lengths of wire rope (in feet) that will fit on the reels.

H B D	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	7/8"	1"	1.1/8"	1.1/4"	1.3/8"
12" x 6" x 5"	500	300	200	125								
18" x 8" x 8"	1,800	1,200	800	600	300							
24" x 16" x 12"	6,400	3,900	2,600	2,000	1,200	800						
26" x 16" x 12"	8,300	5,100	3,400	2,600	1,550	1,000	625	450				
28" x 16" x 12"	10,300	6,400	4,300	3,300	1,900	1,200	800	570	450			
32" x 16" x 14"		7,800	5,200	3,700	2,350	1,550	1,100	800	600	475		
36" x 24" x 16"		13,900	9,400	6,700	4,200	2,750	1,950	1,400	1,100	850	625	
40" x 22" x 18"			1,300	9,300	5,800	3,800	2,700	1,950	1,500	1,200	900	725
42" x 22" x 18"		19,300		10,000	6,250	4,100	2,900	2,100	1,600	1,300	1,000	850

REEL CAPACITY

Due to tolerances on diameters and variety of constructions of wire rope, it is difficult to calculate the maximum length of wire rope that can be spooled on a reel or drum. The formula below may be used to calculate reel capacities with at least one wire rope diameter below the flange diameter, for clearance ("X"). Calculated reel capacities are based on uniform rope winding on the reel.

$L = (A + D) \times A \times B \times K$

L = length of wire rope in feet

- A = depth of rope space on reel in inches
- B = width of drum between flanges in inches
- D = barrel diameter in inches
- K = constant for given wire rope diameter (per table below)
- H = diameter in reel flange in inches
- X = clearance



iameter inches)	К	Diameter (inches)	К	Diameter (inches)	К
1/16	49.80	1/2	0.925	1.3/8	0.1270
3/32	23.40	9/16	0.741	1.1/2	0.1070
1/8	13.60	5/8	0.607	1.5/8	0.0886
5/32	8.72	11/16	0.506	1.3/4	0.0770
3/16	6.14	3/4	0.428	1.7/8	0.0675
7/32	4.59	13/16	0.354	2	0.0597
1/4	3.29	7/8	0.308	2.1/8	0.0532
5/16	2.21	1	0.239	2.1/4	0.0476
3/8	1.58	1.1/8	0.191	2.3/8	0.0419
7/16	1.19	1.1/4	0.152	2.1/2	0.0380



v620

USEFUL CONVERSION FACTORS AND TABLES KUK



	Decimals of	
Inch	an Inch	Millimeters
	.03937	1.0
1/16	.0625	1.587
	.07874	2.0
3/32	.09375	2.381
	.11811	3.0
1/8	.125	3.175
5/32	.15625	3.968
	.15748	4.0
3/16	.187	4.762
	.19685	5.0
7/32	.21875	5.556
	.23622	6.0
1/4	.25	6.35
	.275591	7.0
9/32	.28125	7.143
5/16	.3125	7.937
	.314961	8.0
	.354331	9.0
3/8	.375	9.525
	.393701	10.0
	.433071	11.0
7/16	.4375	11.112
	.472441	12.0
1/2	.50	12.70
	.511811	13.0
	.551181	14.0
9/16	.5625	14.287
	.590551	15.0
5/8	.625	15.875
	.629921	16.0
	.669291	17.0

	Decimals of	
Inch	an Inch	Millimeters
	.708661	18.0
-	.748031	19.0
3/4	.75	19.05
-	.787402	20.0
-	.826772	21.0
	.866142	22.0
7/8	.875	22.225
	.905512	23.0
15/16	.9375	23.812
	.944882	24.0
	.984252	25.0
1	1.00	25.4
	1.023622	26.0
	1.062992	27.0
	1.102362	28.0
1.1/8	1.125	28.575
	1.141732	29.0
	1.181102	30.0
	1.220472	31.0
1.1/4	1.25	31.75
	1.259843	32.0
	1.299213	33.0
	1.338583	34.0
1.3/8	1.375	34.925
	1.377953	35.0
	1.417323	36.0
	1.456693	37.0
	1.496063	38.0
1.1/2	1.50	38.10
	1.535433	39.0
	1.574803	40.0

	Decimals of	
Inch	an Inch	Millimeters
	1.614173	41.0
1.5/8	1.625	41.275
	1.653543	42.0
	1.692913	43.0
	1.732283	44.0
1.3/4	1.75	44.45
-	1.771654	45.0
	1.811024	46.0
	1.850394	47.0
1.7/8	1.875	47.625
	1.889764	48.0
-	1.929134	49.0
	1.968504	50.0
2	2.00	50.80
	2.007874	51.0
	2.047244	52.0
-	2.086614	53.0
2.1/8	2.125	53.975
-	2.125984	54.0
	2.165354	55.0
	2.204724	56.0
	2.244094	57.0
2.1/4	2.25	57.15
	2.283465	58.0
	2.322835	59.0
	2.362205	60.0
2.3/8	2.375	60.325
	2.401575	61.0
	2.440945	62.0
	2.480315	63.0
2.1/2	2.50	63.5

TEMPERATURES

Fahrenheit	Celsius
806	430
608	320
212	100
100	38
86	30
75	24
68	20
59	15
50	10
41	5

Fahrenheit	Celsius
-250	-418
-50	-58
-40	-40
-22	-30
-4	-20
+14	-10
32	0

Kulkoni, Inc.





USEFUL CONVERSION FACTORS

WEIGHT		
1 lb.	(pound)	= .45359 kg (kilogram)
1 kg.	(kilogram)	= 2.20462 lbs.
1 short ton (U	S) = 2,000 lbs.	= 907.185 kg
1 metric ton	= 2,204.62 lbs.	= 1,000 kg
1 long ton	= 2,240 lbs.	= 1,016.05 kg

BREA	KING FORCE	
1 kN	(kilonewton) =	101.972 kgf (kilogram/force)
1 kN	(kilonewton) =	224.809 pounds/force
1 kip	=	1,000 lbs.
1 kpf	=	.4536 lbs. pounds/force

MASS/UNIT LENGTH			
1 inch	= 25.4 mm	1 mm (millimeter)	= .03937 inch
1 foot	= .3048 m (meter)	1 cm (centimeter)	= .3937 inch
1 yard	= .9144 m (meter)	1 m (meter)	= 3.28084 ft. = 39.3701 inches
1 mile	= 1,609 m (meter)	1 km (kilometer)	= 1,000 meters
1 rod	= 5.5 yards		= 16.5 ft.
1 chain	= 22 yards		= 66 ft.
1 shot	= 90 ft.		= 15 fathoms

AREA		
1 sq. in. (square inch)	= 645.16 mm2 (square millimeter)	
1 sq. ft. (square foot)	= .0929 m2 (square meter)	
1 m2 (square meter)	= 10.7639 ft2 (square feet)	
1 acre	= 43,560 sq. ft.	= 4,046.86 sq. meters
1 hectare	= 10,000 sq. meters	= 2.47 acres
1 hectare	= 10,000 sq. meters	= 2.47 acres

TENSILE GRADE		
1770 N/mm2	= 180 kp/mm2	= IPS breaking strength
1960 N/mm2	= 200 kp/mm2	 EIPS breaking strength
2160 N/mm2	= 220 kp/mm2	= EEIPS breaking strength

ZINC WEIGHT	
1 gram/square meter	= .0032765 oz/square ft.
1 oz/sq. ft.	= 305.15686 grams/square meter



v620

REFERENCE



CONSULT THE FOLLOWING SOURCES FOR IMPORTANT TECHNICAL LITERATURE AND OR SAFETY MANUALS

American Iron & Steel Institute

1101 17th Northwest Suite 1300 Washington, DC 20036 Telephone: (202) 452-7100 Fax: (202) 463-6573 Website: www.steel.org

American National Standards Institute

11 W. 42nd St., 13th Floor New York, NY 10036 Telephone: (212) 642-4900 Website: www.ansi.org

American Petroleum Institute

Publications Department 1220 L. St. N.W. Washington, DC 20005 Telephone:(202) 682-8375 Fax: (202) 682-8232 Website: www.api.org

The American Society of Mechanical Engineers

22 Law Drive P.O. Box 2900 Fairfield, NJ 07007-2900 Telephone:(973) 882-1167 Fax: (973) 882-1717 Website: www.asme.org

American Society for Testing Material

100 Barr Harbor Drive West Conshohocken, PA 19428-2959 Telephone:(610) 832-9500 Fax: (610) 832-9555 Website:www.astm.org

Construction Safety Association of Ontario

21 Voyager Court South Etobicoke Ontario, Canada M9W5M7 Telephone: (416) 674-2726 (800) 781-2726 Fax: (416) 674-8866 Website: www.csao.org

The Cordage Institute

350 Lincoln Street East Hingham, MA 02043 Telephone: (781) 749-1016 Fax: (781) 749-9783 Website: www.ropecord.com

National Safety Council

1121 Spring Lake Drive Itasca, IL 60143-3201 Telephone:(630) 285-1121 Website:www.nsc.org

Occupational Safety & Health Admin. Department of Labor

200 Construction Ave. N.W. Room N 3101 Washington, DC 20210 Telephone:(202) 523-1452 Website: www.osha.gov

U.S. Government Printing Office

Postal Code 9325 Superintendent of Documents Washington, DC 20402 Telephone:(202) 512-1800 Website:www.gpo.gov

Wire Rope Technical Board

P.O. Box 286 Woodstock, MD 21163-0286 Telephone:(410) 461-7030 Website: www.wireropetechnicalboard.org

The Hand Tools Institute

25 North Broadway Tarrytown, NY 10591 Telephone:(914) 332-0040 Fax: (914) 332-1541 Website: www.hti.org





INDEX

Button Stops, Aluminum & Copper26
Cable & Strand 19-23
Galvanized, / x 1920
Galvanized, / x /20
Galvanized, Display Reels
Stainless Steel, Type 304, 7 x 19 19
Stainless Steel, Type 304, 7 x 719
Stainless Steel, Type 316, 7 x 19 19
Strand, Galvanized, 1 x 723
Strand, Stainless Steel, 1 x 1923
Vinyl Coated, Galvanized, 7 x 1922
Vinyl Coated, Galvanized, 7 x 721
Vinyl Coated, Galv., Display Reels22
Vinyl Coated, Stainless, Type 30422
Chain
Alloy Steel, Grade 100
High Test, Grade 43
High Test, Grade 43, Dealer Pails29
Long Link Grade 30 28
Proof Coil Grade 30 28
Proof Coil Grade 30 Dealer Pails 28
Stainless Steel 30
Transport Grade 70 29
Chain Assemblies 31
Binding Chain 21
Ligh Test Doomer Chain 21
Tail Chain Winch Line End Chain 21
Clavicas Forged Steel 72
D Dinge 00
D-Rings
D-Rings 80 Eye Bolts 74-76
D-Rings
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stationary State 71
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stainless Steel, Type 316 75
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stainless Steel, Type 316 75 Eye Nuts 73
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stainless Steel, Type 316 75 Eye Nuts 73 Hooks 31, 38-44
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stainless Steel, Type 316 75 Eye Nuts 73 Hooks 31, 38-44 Boat Hooks - Snap Hooks 45
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stainless Steel, Type 316 75 Eye Nuts 73 Hooks 31, 38-44 Boat Hooks - Snap Hooks 45 Clevis Grab, Alloy / Grade 70 40
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stainless Steel, Type 316 75 Eye Nuts 73 Hooks 31, 38-44 Boat Hooks - Snap Hooks 45 Clevis Grab, Alloy / Grade 70 40 Clevis Grab, Grade 100 39
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stainless Steel, Type 316 75 Eye Nuts 73 Hooks 31, 38-44 Boat Hooks - Snap Hooks 45 Clevis Grab, Alloy / Grade 70 40 Clevis Grab, High Test, Grade 43 40
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stainless Steel, Type 316 75 Eye Nuts 73 Hooks 31, 38-44 Boat Hooks - Snap Hooks 45 Clevis Grab, Alloy / Grade 70 40 Clevis Grab, High Test, Grade 43 40 Clevis Sling, with Latch, Grade 100 39
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stainless Steel, Type 316 75 Eye Nuts 73 Hooks 31, 38-44 Boat Hooks - Snap Hooks 45 Clevis Grab, Alloy / Grade 70 40 Clevis Grab, High Test, Grade 43 40 Clevis Sling, with Latch, Grade 100 39 Clevis Slip, Grade 70 42
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stainless Steel, Type 316 75 Eye Nuts 73 Hooks 31, 38-44 Boat Hooks - Snap Hooks 45 Clevis Grab, Alloy / Grade 70 40 Clevis Grab, Grade 100 39 Clevis Sling, with Latch, Grade 100 39 Clevis Slip, Grade 70 42 Clevis Slip, High Test, Grade 43 42
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stainless Steel, Type 316 75 Eye Nuts 73 Hooks 31, 38-44 Boat Hooks - Snap Hooks 45 Clevis Grab, Alloy / Grade 70 40 Clevis Grab, High Test, Grade 43 40 Clevis Sling, with Latch, Grade 100 39 Clevis Slip, Grade 70 42 Clevis Slip, High Test, Grade 43 42 Clevis Type J Hooks 31
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stainless Steel, Type 316 75 Eye Nuts 73 Hooks 31, 38-44 Boat Hooks - Snap Hooks 45 Clevis Grab, Alloy / Grade 70 40 Clevis Grab, High Test, Grade 43 40 Clevis Slip, with Latch, Grade 100 39 Clevis Slip, Grade 70 42 Clevis Slip, High Test, Grade 43 42 Clevis Type J Hooks 31 Clevis, Self Locking, Grade 100 38
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stainless Steel, Type 316 75 Eye Nuts 73 Hooks 31, 38-44 Boat Hooks - Snap Hooks 45 Clevis Grab, Alloy / Grade 70 40 Clevis Grab, Grade 100 39 Clevis Grab, High Test, Grade 43 40 Clevis Slip, Grade 70 42 Clevis Slip, Grade 70 42 Clevis Slip, High Test, Grade 43 42 Clevis, Self Locking, Grade 100 38 Eye Grab, High Test, Grade 43 41
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stainless Steel, Type 316 75 Eye Nuts 73 Hooks 31, 38-44 Boat Hooks - Snap Hooks 45 Clevis Grab, Alloy / Grade 70 40 Clevis Grab, Grade 100 39 Clevis Grab, High Test, Grade 43 40 Clevis Slip, Grade 70 42 Clevis Slip, Grade 70 42 Clevis Slip, High Test, Grade 43 42 Clevis Slip, High Test, Grade 43 41 Eye Grab, High Test, Grade 43 41
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stainless Steel, Type 316 75 Eye Nuts 73 Hooks 31, 38-44 Boat Hooks - Snap Hooks 45 Clevis Grab, Alloy / Grade 70 40 Clevis Grab, Alloy / Grade 70 40 Clevis Grab, High Test, Grade 43 40 Clevis Slip, With Latch, Grade 100 39 Clevis Slip, High Test, Grade 43 42 Clevis Type J Hooks 31 Clevis Slip, High Test, Grade 43 41 Eye Grab, High Test, Grade 43 41 Eye Slip, High Test, Grade 43 41 Eye, Alloy 43
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stainless Steel, Type 316 75 Eye Nuts 73 Hooks 31, 38-44 Boat Hooks - Snap Hooks 45 Clevis Grab, Alloy / Grade 70 40 Clevis Grab, Alloy / Grade 70 40 Clevis Grab, High Test, Grade 43 40 Clevis Slip, With Latch, Grade 100 39 Clevis Slip, High Test, Grade 43 42 Clevis Slip, High Test, Grade 43 41 Eye Grab, High Test, Grade 43 41 Eye Slip, High Test, Grade 43 41 Eye, Alloy 43 Eye, Carbon 43
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stainless Steel, Type 316 75 Eye Nuts 73 Hooks 31, 38-44 Boat Hooks - Snap Hooks 45 Clevis Grab, Alloy / Grade 70 40 Clevis Grab, Alloy / Grade 70 40 Clevis Grab, High Test, Grade 43 40 Clevis Slip, Grade 70 42 Clevis Slip, High Test, Grade 43 42 Clevis Slip, High Test, Grade 43 41 Eye Grab, High Test, Grade 43 41 Eye Slip, High Test, Grade 43 41 Eye, Alloy 43 Eye, Carbon 43 Eye, Self Locking, Grade 100 38
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stainless Steel, Type 316 75 Eye Nuts 73 Hooks 31, 38-44 Boat Hooks - Snap Hooks 45 Clevis Grab, Alloy / Grade 70 40 Clevis Grab, Grade 100 39 Clevis Grab, High Test, Grade 43 40 Clevis Slip, Grade 70 42 Clevis Slip, Grade 70 42 Clevis Slip, High Test, Grade 43 42 Clevis Slip, High Test, Grade 43 41 Eye Grab, High Test, Grade 43 41 Eye, Self Locking, Grade 100 38 Eye, Carbon 43 Eye, Self Locking, Grade 100 38 Eye, Self Locking, Grade 100 38 Latch Kits 44
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stainless Steel, Type 316 75 Eye Nuts 73 Hooks 31, 38-44 Boat Hooks - Snap Hooks 45 Clevis Grab, Alloy / Grade 70 40 Clevis Grab, Grade 100 39 Clevis Grab, High Test, Grade 43 40 Clevis Slip, Grade 70 42 Clevis Slip, Grade 70 42 Clevis Slip, High Test, Grade 43 42 Clevis Slip, High Test, Grade 43 42 Clevis Slip, High Test, Grade 43 41 Eye Grab, High Test, Grade 43 41 Eye Slip, High Test, Grade 43 41 Eye, Alloy 43 Eye, Self Locking, Grade 100 38 Eye, Self Locking, Grade 100 38 Latch Kits 44 Sorting 43
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stainless Steel, Type 316 75 Eye Nuts 73 Hooks 31, 38-44 Boat Hooks - Snap Hooks 40 Clevis Grab, Alloy / Grade 70 40 Clevis Grab, Grade 100 39 Clevis Grab, High Test, Grade 43 40 Clevis Slip, Grade 70 42 Clevis Slip, Grade 70 42 Clevis Slip, High Test, Grade 43 42 Clevis Slip, High Test, Grade 43 42 Clevis Slip, High Test, Grade 43 41 Eye Grab, High Test, Grade 43 41 Eye, Slip, High Test, Grade 100 38 Eye, Carbon 43 Eye, Self Locking, Grade 100 38 Latch Kits 44 Sorting 43 Swive
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stainless Steel, Type 316 75 Eye Nuts 73 Hooks 31, 38-44 Boat Hooks - Snap Hooks 45 Clevis Grab, Alloy / Grade 70 40 Clevis Grab, Grade 100 39 Clevis Grab, High Test, Grade 43 40 Clevis Sling, with Latch, Grade 100 39 Clevis Slip, Grade 70 42 Clevis Slip, High Test, Grade 43 42 Clevis Slip, High Test, Grade 43 42 Clevis Slip, High Test, Grade 43 41 Eye Grab, High Test, Grade 43 41 Eye Slip, High Test, Grade 43 41 Eye, Slip, High Test, Grade 43 41 Eye, Slip, High Test, Grade 43 41 Eye, Slip, High Test, Grade 100 38 Eye, Carbon 43 Eye, Self Locking, Grade 100 38 Latch Kits 44 Sorting 43 Swivel, Alloy 44
D-Rings 80 Eye Bolts 74-76 Machine 76 Regular 74 Shoulder 75 Stainless Steel, Type 316 75 Eye Nuts 73 Hooks 31, 38-44 Boat Hooks - Snap Hooks 45 Clevis Grab, Alloy / Grade 70 40 Clevis Grab, Grade 100 39 Clevis Grab, High Test, Grade 43 40 Clevis Sling, with Latch, Grade 100 39 Clevis Slip, Grade 70 42 Clevis Slip, High Test, Grade 43 42 Clevis Slip, High Test, Grade 43 41 Eye Grab, High Test, Grade 43 41 Eye, Self Locking, Grade 100 38 Eye, Carbon 43 Eye, Self Locking, Grade 100 38 Latch Kits 44 Sorting 43 Swivel, Alloy 44 Latch Kits for Eye Hooks, Stainless 44

Chain Connecting Links45	
Coupling Link, Grade 100	
Oblong Master Link Grade 100 37	
Oblong Master Links Allov 34	
Dear Shaned Sling Links 35	
Panid Links Diatod or Stainloss 16	
Sub Accombly Crado 100 26	
Sub Assembly, Glade 100	
I WITI CIEVIS LITIKS, GIAUE 70	
Load Binders	
Lever Type	
Raichei Type	
Roll Off Hooks / Stop Buttons	
Round Slings, Polyester Engless81-82	
Shackles	
Alloy Steel Bolt Type Anchor57	
Alloy I owing55	
Galvanized Bolt Type Anchor56	
Galvanized Screw Pin Anchor54	
Stainless Steel Bolt Type Anchor	
Stainless Steel Screw Pin Anchor55	
Sleeves26, 72	
Aluminum & Copper26	
Carbon Steel71	
Snatch Blocks & Pulleys84-93	
Hay Fork Pulleys with Swivel Eye93	
K4020, All Alloy, Tail Board	
K4040 Tail Board91	
K4070 Tail Board91	
K4080 Double Sheave with Hook92	
K4090 Double Sheave with Shackle 92	
K4170, All Allov, with Shackle 90	
K4180 with Hook	
K4182 with Hook 89	
K4185 with Hook 89	
K4190 with Shackle 90	
K/192 with Shackle 90	
K4195 with Shackle 90	
K4200 with Hook 80	
K1210 with Shackle 90	
K4210 with Black 80	
K4310 with Shacklo	
Light Duty 03	
Tong Lino with Swivel Evo 02	
Varding Style 02	
Falter Sockets 47.69	
Closed 40	
CIUSEU	
Open	
Swage Sockets	
Ciusea, Domestic	
Open, Domestic	
Swaging Sieeves	
Swivels	
Compact Thrust Bearing Eye & Eye /8	
Eye & Eye, Drop forged	
Jaw & Eye, Drop Forged77	
inimples63-66	

lloweer (f	_
Hawsel) ר
Heavy Duty, Galvanized63	3
Heavy Duty, Stainless	1
Regular, Galvanized65	5
Synthetic Rope	Ś
Tools	ó
Bench Swaging Tool	ś
Hand Swaging Tools 26	6
Wire Rone Cutters	2 2
Turphucklos 58 6	, ,
lampute Calvanized	<u>-</u> 5
Jahninus, Galvanizeu	5 n
Stainless	5
Turnbuckle Bodies / Stub End TB's 60	J
Turnbuckles59)
Webbing, Polyester83	3
Wire Rope6-25	5
American, Bright, 6 x 1924	4
American, Bright, 6 x 36	4
American Galvanized 6 x 19 24	4
American Galvanized 6 x 36	1
Bonch Swaging Tool	т 4
Deficit Swaging 100120	ר ר
Dright Fiber Core (v 2)) 1
Bright, Fiber Core, 6 X 36	
Bright, IWRC, 6 x 19 10)
Bright, IWRC, 6 x 3611	l
Cable-Laid14	1
Compacted Strand 19 x 1916	5
Compacted Strand 6 x 2616	ó
Compacted Strand 6 x 3116	ó
Drill Line	7
Galvanized Fiber Core 6 x 19)
Galvanized, Fiber Core, 6 x 36	- 2
Calvanized, IMPC 6 x 10	י כ
Calvanized, IWDC, 6 x 26	<u>^</u> ว
Uand Swaging Tools	2
Haliu Swayiliy 100is) 4
	+
Rotation Resistant, 19 x /)
Rotation Resistant, 3 x 46 Galvanized15	כ
Rotation Resistant, Domestic, 19 x 7 25	5
Rotation Resistant, Domestic, 8 x 19 25	5
Rotation Resistant, Dom., Dypac25	5
Rotation Resistant, Kompakt 19,16	ó
Spin Resistant, 8 x 25	5
Stainless Steel Type 304 6 x 19 18	3
Stainless Steel Type 304 6 x 36	ş
Swagod 6 v 31	7
Wire Dope Cuttors	' >
Wire Done Cline	כ ח
Wire Rope Clips	5
Double K Grip, Drop Forgea	1
Drop Forged51	I
Malleable50)
Stainless Steel, Cast Malleable Style 52	2
Stainless Steel, Drop Forged53	3
Warnings 2-3, 5, 27, 33, 48, 81, 84-87	1



KULKONI TRADEMARKS











Kulkoni, Inc. | www.kulkoni.com | 1-800-231-2357 502 Garden Oaks Blvd, Houston, Texas USA 77018