



SLINGMAKERS

Issue No. 115

Winter, 2007

Message from the President Winter 2007



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A Warm Welcome to Anne Luten Renfroe as new president of AWRF

How did a young southern lady, brought up in a traditional fashion, who earned both undergraduate and graduate degrees in history and English, end up becoming not only owner of a company in the hard core technical industry of wire rope, but also president of AWRF?

The quick answer is that she met and married Charles Renfroe, whose father, Joseph Cleveland Renfroe, started J.C. Renfroe & Sons, Inc., in Jacksonville, FL 70 years ago. The elder Renfroe was a colorful character with many diverse interests. For a time he was a riverboat gambler on the Mississippi and kept a derringer hidden up his sleeve. But then, as Renfroe quips, "He met Miss Gertrude who took all his fun away." Well, not all of it. He grew up in Arkansas and worked at a variety of jobs. He moved to Birmingham and then to Jacksonville just before World War II. On both sides of the St. Johns river there were many shipyards. Large sheets of steel were moved with wire rope slings. But many times these unwieldy pieces would slip out of their sling. Or, when the steel was being moved from one point to the next,

if a corner touched the ground, its weight would no longer be held taunt and it would fall over. Often on someone.

"My father-in-law thought there must be a better way," Renfroe says. "So he literally went home to his garage and invented the first steel lifting clamp." This device had teeth that bit into the steel and a locking mechanism so it wouldn't slip. In 70 years, no Renfroe clamp, properly used, has ever dropped a load anywhere in the world. The elder Renfroe took his invention up and down the eastern seaboard, stopping at every port and shipyard to market it and build his business. During this time he fathered a daughter and four sons, each of whom worked in the company. "Charles was the youngest and began working after school at age 12, standing on a box to operate equipment."

Joseph Cleveland Renfroe ran the business for 25 years, and chose to pass it on to Charles whom he felt was the most qualified to run it," Renfroe says. "During the years Charles was in charge, he worked to expand the clamp line. I can remember sitting with him at home, watching the news, and

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ASSOCIATED WIRE ROPE FABRICATORS
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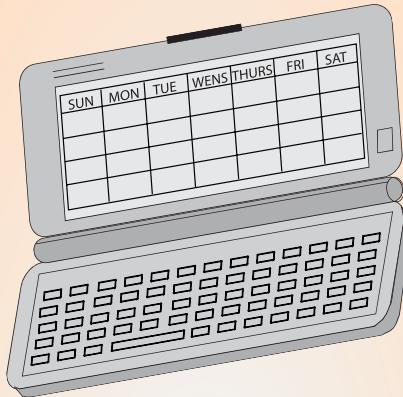


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A.W.R.F CALENDAR



2008

- | | |
|-----------------|--|
| January 20-23 | ASME B30 Meeting
New Orleans, LA |
| January 25-26 | AWRF BOD Meeting
Charleston, SC |
| February 12-13 | AWRF Tech
Committee Meeting
Savannah, GA |
| April 13-16 | AWRF General Meeting
Fairmont Hotel
San Francisco, CA |
| May 19-20 | ASME B30
Seattle, WA |
| June | Wire Rope Technical Board |
| July 13-19 | AWRF BOD Meeting
Ashville, NC |
| September | ASME B30
Louisville, KY |
| September 14-17 | General Meeting PIE
Chicago, IL
Sheraton Chicago Hotel
and Towers |

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THE GOVERNMENT AFFAIRS COMMITTEE

By: J. Barry Epperson,
General Counsel and
Chairman of Government
Affairs Committee



FEDERAL ESTATE TAX UPDATE

Many AWRF members will be impacted by the imposition of the Federal Estate Tax upon the death of a family member. Congressional hearings are currently being conducted to determine the future of this system which many feel is duplicative and unfair. Your AWRF Government Affairs Committee has been an active participant in this process by way of its association with the Death Tax Working Group (DTWG), chaired by the American Family Business Institute (AFBI) in Washington, D.C.

The following commentary is based on excerpts from recent Congressional testimony and press releases from Capitol Hill.

Ryan Ellis, Tax Policy Director of the Americans for Tax Reform, testified about the history of estate tax before the Senate Finance Committee on November 14, 2007:

"The last decade has witnessed efforts by Congress to kill the death tax. On August 5, 1997, President Clinton signed H.R. 2014, the "Revenue Reconciliation Act of 1997." This bill raised the death tax exemption from \$600,000 to \$100,000,000 by 2006 (\$1.3 million in the case of certain family-owned businesses).

On August 5, 1999, Congress passed H.R. 2488, the "Taxpayer Refund Act of 1999," which would have fully repealed the death tax (as well as the gift tax and the generation-skipping transfer tax) by 2008. This bill was vetoed by President Clinton.

On July 14, 2000, Congress passed H.R. 8, the Death Tax Elimination Act of 2000." This bill would have fully repealed the death tax (as well as the gift tax and the generation-skipping transfer tax) by 2009. This bill was vetoed by President Clinton.

On June 7, 2001, President Bush signed H.R. 1836, the "Economic Growth and Tax Relief Reconciliation Act of 2001" (EGTRRA). This bill slowly reduced the top death tax rate and increased the exclusion amount ..."

Senator John Kyl of Arizona issued the following press release on December 3, 2007:

"Throughout your entire life, the government taxes you on everything. There's a tax on your income, your home, your family business, and even your furniture. And when you die, the government swoops in and taxes you on everything you own all over again. ...

As a result of the 2001 ... tax relief package, the death tax rate is reduced to 45 percent through 2009, and

Announcement

The Government Affairs Committee of AWRF will host its annual legislative briefing at the U.S. Chamber of Commerce in Washington, D.C. on March 14, 2008. All members of the Association and guests are invited. There is no registration fee. Please contact Barry Epperson at (918) 585-5641 or jbarrye@sbcglobal.net for details.

HOTEL INFORMATION

Hotel Palomar
2121 P. Street NW
Washington D.C. 20037

Reservation Phone Numbers

1-877-866-3070 (National)
1-703-519-2025 (Local)

Cutoff date for rooms is February 11, 2008.

is fully repealed for one year in 2010. But because of concessions ..., the death tax will return to its original levels in 2011, with rates skyrocketing to as high as 60 percent! This means that the government will confiscate over half of all estates over \$1 million in value.

It's the small business owner who works hard throughout life, building a business from the ground up, and making it a success. Or the farmer who reinvests all of his profits back into his operation and has valuable land and expensive equipment, but very little liquid cash. Small, family-owned businesses, particularly manufacturers, often earn relatively low profit margins but are considered "wealthy" by the government because they own expensive production machinery or real estate. When the owner of such a company dies, the heirs are often forced to sell off the business (or parts of it if they can) just to pay the death tax.

The recent Senate Finance Committee hearing ... was the first of two hearings the panel will hold examining the death tax. A subsequent hearing will examine possible solutions, after which the committee will consider legislation in early 2008."

Howard Segermark of AFBI also testified at the November 14th hearing regarding the economics of the death tax:

"In study after study, economists show that the death tax – a direct tax on capital deprives the American economy of massive amounts of capital not simply because it confiscates capital, but because of the incentives the death tax gives to the destruction of capital and the misallocation of capital to less or non-productive areas.

One choice faced by those who may be subject to the death tax is to have a lawyer/estate planner calculate likely liability. Perhaps an option is to spend a lot on life insurance to cover the likely IRS levy. That would, of course, take money out of the business that would otherwise be used for reinvestment and growth. If the actuarial tables say that the odds of living a long time are not good, the cost of the insurance may be prohibitive and an entrepreneur might have to liquidate some or all of the business in preparation of the inevitable. That means a smaller business, fewer employees.

Continued on next pg

Or, perhaps, the entrepreneur chooses to set up trusts, foundations, and other death tax avoidance programs. The same results: a smaller business, fewer jobs.

The cost of ... avoidance maneuvers: hundreds of thousands of jobs per year. The Heritage Foundation estimates 250,000 new jobs per year are lost because of the death tax, and concomitantly there is the loss of economic growth and the creation of additional capital.

In sum, it is disingenuous to say that the death tax affects only a small number of people. It affects not only the hundreds of thousands who prepare for it; it affects the hundreds of thousands of men and women who don't have jobs that would otherwise have been created. Because America is poorer because of the death tax, it affects us all."

Your Government Affairs Committee at AWRF will continue to pursue the best possible course of action for the lifting, rigging and load securement industry members. The conventional wisdom is that full repeal of the U.S. Federal Estate Tax will not occur, but that a compromise combining a higher exclusion threshold and lower marginal rates is achievable. As the Wall Street Journal editorialized on December 10, 2007:

"Death as a taxable event and double taxation offend the average American's sense of fairness."

But perhaps Whoopi Goldberg put it best during a discussion of Republican presidential candidates on ABC's The View:

"I don't want to get taxed just because I died."

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Norman Hargreaves - Director of Product Safety - Terex Corporation (center), Paul Zorich - RZP International - Chair B30, Brad Clossen - Craft Forensic Services - Vice Chair

B30 Publication Update Schedule

B30 Standards Committee Publication Status

(September 2007)

Standard Designation	Document Status		Publication Cycle (Years)	Projected Date of Next New Edition
B30.1 - Jacks	B30.1-2004	Issued October 5, 2004	5	2009
B30.2 - Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist)	B30.2-2005	Issued December 30, 2005	3	2008
B30.3 - Construction Tower Cranes	B30.3-2004	Issued November 15, 2004	5	2009
B30.4 - Portal, Tower and Pedestal Cranes	B30.4-2003	Issued June 16, 2003	5	2008
B30.5 - Mobile and Locomotive Cranes	B30.5-2004	Issued September 27, 2004 ANSI Public Review closed September 3, 2007	3	2007
B30.6 – Derricks	B30.6-2003	Issued June 10, 2003	5	2008
B30.7 - Base Mounted Drum Hoists	B30.7-2006	Issued December 29, 2006	5	2011
B30.8 - Floating Cranes and Floating Derricks	B30.8-2004	Issued May 7, 2004	3	2007
B30.9 - Slings	B30.9-2006	Issued May 4, 2007	3	2010
B30.10 - Hooks	B30.10-2005	Issued December 5, 2005	3	2008
B30.11 - Monorails and Underhung Cranes	B30.11-2004	Issued February 1, 2005	3	2008
B30.12 - Handling Loads Suspended from Rotorcraft	B30.12-2006	Issued February 6, 2007	5	2011
B30.13 - Storage/Retrieval (S/R) Machines and Associated Equipment	B30.13-2003	Issued June 30, 2003	5	2008
B30.14 - Side Boom Tractors	B30.14-2004	Issued September 20, 2004	5	2009
B30.15 - Mobile	B30.15-1973 was withdrawn. Revision of the 1973		N/A	N/A

B30 Standards Committee Publication Status
 (September 2007)

Standard Designation	Document Status		Publication Cycle (Years)	Projected Date of Next New Edition
Hydraulic Cranes	Standard included in B30.5-1982.			
B30.16 - Overhead Hoists (Underhung)	B30.16-2007 .	Issued July 13, 2007	3	2010
B30.17 - Overhead and Gantry Cranes (Top Running Bridge, Single Girder, Underhung Hoist)	B30.17-2006	Issued February 12, 2007	3	2009
B30.18 - Stacker Cranes	B30.18-2004	Issued November 30, 2004	3	2007
B30.19 - Cableways	B30.19-2005	Issued April 28, 2006	5	2010
B30.20 - Below-the-Hook Lifting Devices	B30.20-2006	Issued January 16, 2007	3	2009
B30.21 - Manually Lever Operated Hoists	B30.21-2005	Issued July 29, 2005	3	2008
B30.22 - Articulating Boom Cranes	B30.22-2005	Issued December 15, 2005	5	2010
B30.23 - Personnel Lifting Systems	B30.23-2005	Issued January 25, 2006	5	2010
B30.24 - Container Cranes	Comments:	Out for ANSI Public Review	5	?
B30.25 - Scrap and Material Handlers	B30.25-2007	Issued September 3, 2007	3	2010
B30.26- Rigging Hardware	B30.26-2004	Issued May 20, 2005	3 (to be 5 after 2008)	2008
B30.27- Material Placement Systems	B30.27-2005	Issued October 22, 2005	5	2010
B30.28 - Balance Lifting Units	Comments:	Under development.	3	?

Guidance On Safe Sling Use

All tables and figures are on pages 45-47.

4) Natural and Synthetic Fiber Rope Slings:

Natural and synthetic fiber rope slings are used primarily for temporary work, such as construction and painting jobs, and in marine operations. Fiber rope slings are pliant, grip loads well, and do not mar the surface of the load.

The most common constructions for fiber rope slings are 3-strand laid, 8-strand plaited, and hollow braided nylon and polyester. Fiber rope slings have the following properties in common:

- Strength,
- Safety,
- Convenience,
- Load protection,
- Long life,
- Economy,
- Shock absorbency, and
- Temperature resistance.

Identification:

New slings are marked by the manufacturer to show:

- The rated load for the types of hitches, and the angle upon which they are based,
- The name or trademark of the manufacturer,
- The manufacturer's code or stock number, and
- The type of material and construction.

Rated loads:

Rated loads (capacities) for single-leg vertical, choker, and basket hitches are as shown in Tables 18 through 20.

For angles not shown, use the next lower angle or a qualified person to calculate the rated load. Rated loads are based on:

- Material strength,
- Design factor,
- Type of hitch (see Fig. 5),
- Angle of loading (see Fig. 3), and
- Diameter of curvature over which the sling is used (D/d) (see Fig. 6).

Do not use horizontal angles less than 30 degrees except as recommended by the sling manufacturer or a qualified person.

The rated load for a sling in a choker hitch is the value in Tables 18 through 20, provided that the angle of the choke is 120 degrees or more. For angles of choke less than 120 degrees, use the rated loads provided by the sling manufacturer or a qualified person.

For other synthetic materials and for configurations not shown, use the rated loads provided by the sling manufacturer or a qualified person.

End attachments:

Ensure that mechanical fittings used as part of a synthetic sling meet the following:

- Materials are compatible with the mechanical and environmental requirements of the sling,
- A qualified person verifies the suitability of mechanical or socketed fittings,
- Fittings have sufficient strength to sustain twice the rated load of the sling,

- Surfaces are clean and sharp edges are removed,
- Used, repaired, or welded fittings are proof tested to twice the rated load,
- Aluminum fittings are not used where fumes, vapors, sprays, mists, or liquids of alkalis or acids are present,
- Fitting openings have the proper shape and size to ensure that the fitting will seat properly,
- Thimbles are used in the sling whenever possible,
- Thimbles have closed ears to prevent them from falling out or rotating inside the eye, and
- Thimbles have a diameter at the bearing surface of at least twice the rope diameter.

Splicing:

Ensure that spliced synthetic fiber rope slings have been spliced in accordance with the following minimum requirements, and in addition to any recommendations of the manufacturer:

- For tuck splices in three- and eight-strand synthetic ropes, no less than four full tucks are used. Short splices contain at least eight full tucks, four on each side of the center splice,
- In manila rope, eye splices consist of at least three full tucks, and short splices consist of at least six full tucks, three on each side of the splice center line,
- Strand-end tails in all tuck splices are not trimmed short, and
- Synthetic rope slings have a minimum length of ten times the rope diameter between the last tuck of tuck splices or between the ends of the buried tails or strands of other types of splices. The diameter and width of the bearing surface of the fitting can affect the strength of the sling. Follow the sling manufacturer's recommendations when fittings are used with the sling. Do not use knots, clips, or clamps to fabricate slings. If thimbles do not have ears, lash the thimbles to the rope to prevent rotation.

Inspections:

Designate a qualified person[1] to inspect slings and all fastenings and attachments each day before use for damage or defects.

This qualified person also performs additional periodic inspections where service conditions warrant, as determined on the basis of:

- Frequency of sling use,
- Severity of service conditions,
- Nature of lifts being made, and
- Experience gained during the service life of slings used in similar circumstances.

Make periodic inspections of natural and synthetic fiber rope slings at intervals no greater than 12 months. A good guide to follow includes:

- Yearly for normal service use,
- Monthly to quarterly for severe service use, and
- As recommended by a qualified person for special and infrequent service use.

Although OSHA's sling standard does not require you to make and maintain records of inspections, the ASME standard contains provisions on inspection records.[3]

Make a thorough inspection of slings and attachments. Items to look for include:

- Missing or illegible sling identifications,
- Cuts, gouges, areas of extensive fiber breakage along the length and abraded areas on the rope,
- Damage of 10 percent or more of the ropes diameter,
- Uniform fiber breakage along the major part of the length of the rope in the sling such that the entire rope appears covered with fuzz or whiskers,

- Fiber breakage or melted fiber inside the rope that appears along the length at the same relative position and involves damage estimated at 10 percent of the fiber in the strand at that point,
- Discoloration and brittle or stiff areas on any part of the sling,
- Excessive dirt and grit in the interior of the rope structure,
- Foreign matter that has permeated the rope and attracts and holds grit,
- Kinks, distortion, or other damage in the rope structure,
- Melted or charred areas that affect more than 10 percent of the diameter of the rope or affect several adjacent strands along the length to more than 10 percent of their individual diameters.
- Poor condition of thimbles or other fittings manifested by corrosion, cracks, distortion, or localized wear, and
- Other conditions that cause doubt as to continued use of the sling.

Where any such defect or deterioration is present, remove the sling or attachment from service immediately.

Repairing/Reconditioning:

Do not use worn or damaged slings or attachments. Do not use repaired or reconditioned fiber rope slings. Do not use old or used rope to make up a fiber rope sling.

Modifications or alterations to end attachments or fittings are considered a repair.

Operating practices:

Ensure that natural and synthetic fiber rope slings have suitable characteristics for the type of load, hitch, and environment in which they will be used and that they are not used with loads in excess of the rated load capacities described in the appropriate tables. Follow other safe operating practices, including:

Sling Selection

- For multiple-leg slings used with nonsymmetrical loads, ensure that an analysis by a qualified person is performed to prevent overloading of any leg,
- Ensure that multiple-leg slings are selected according to Tables 18 through 20 when used at the specific angles given in the table. Ensure that operation at other angles is limited to rated loads of the next lower angle given in the table or calculated by a qualified person,
- When D/d ratios (see Fig. 6) smaller than those cited in Fig. 5 are necessary, ensure that the rated load of the sling is decreased. Consult the sling manufacturer or a qualified person, and
- Do not use a component unless it is of the proper shape and size to ensure that it is properly seated in the hook or lifting device.

Cautions to Personnel

- Ensure that all portions of the human body are kept away from the area between the sling and the load and between the sling and the crane or hoist hook,
- Ensure that personnel never stand in line with or next to the legs of a sling that is under tension,
- Ensure that personnel do not stand or pass under a suspended load,
- Ensure that personnel do not ride the sling or the load, unless the load is specifically designed and tested for carrying personnel, and
- Do not use synthetic rope slings as bridles on suspended personnel platforms.

Effects of Environment

- Store slings in an area where they will not be subjected to mechanical, chemical, or ultraviolet damage, or to extreme temperatures,
- When slings are exposed to extreme temperatures, follow the guidance provided by the sling manufacturer or qualified person.
- Do not store fiber ropes in areas where they may become impregnated with rust, and
- Ensure that slings exposed to salt water are thoroughly rinsed with fresh water to prevent mechanical damage from salt crystals when the rope dries.

Rigging Practices

- Ensure that slings are hitched in a manner providing control of the load,
- Ensure that sharp edges in contact with slings are padded with material of sufficient strength to protect the sling,
- Ensure that slings are shortened or adjusted only by methods approved by the sling manufacturer or a qualified person,
- Ensure that, during lifting with or without a load, personnel are alert for possible snagging,
- Ensure that, in a basket hitch, the load is balanced to prevent slippage,
- When using a basket hitch, ensure that the legs of the sling contain or support the load from the sides, above the center of gravity, so that the load remains under control,
- Ensure that, in a choker hitch, the choke point is only on the sling body, never on a splice or fitting,
- Ensure that, in a choker hitch, an angle of choke less than 120 degrees is not used without reducing the rated load,
- Ensure that slings are not constricted, bunched, or pinched by the load, hook, or any fitting,
- Ensure that the load applied to the hook is centered in the base (bowl) of the hook to prevent point loading on the hook, unless the hook is designed for point loading,
- Ensure that an object in the eye of a sling is not wider than one-third the length of the eye,
- Ensure that the sling and the load are not allowed to rotate when hand-tucked slings are used in a single-leg vertical lift application. Ensure that care is taken to minimize sling rotation.
- Do not shorten or lengthen a sling by knotting or twisting,
- Do not rest loads on the sling,
- Do not pull a sling from under a load when the load is resting on the sling,
- Do not drag slings on the floor or over abrasive surfaces,
- Do not allow shock loading, and
- Avoid twisting and kinking.

Proof testing:

Before initial use, ensure that all new natural and synthetic fiber rope slings incorporating previously used or welded fittings and all repaired slings are proof tested by the manufacturer or a qualified person.

Other new natural and synthetic fiber rope slings need not be proof tested, although the employer may require proof testing in purchasing specifications.

Environmental effects:

Temperature

Do not allow natural and synthetic fiber rope slings to be used in contact with objects or at temperatures in excess of 194 degrees F (90 degrees C), or below minus 40 degrees F (minus 40 degrees C).

Some synthetic yarns do not retain their breaking strength during long-term exposure above 140 degrees (60 degrees C). Consult the sling manufacturer for the effects of long-term heat exposure.

Sunlight & Ultraviolet

Long-term exposure to sunlight or ultraviolet radiation can affect the strength of natural, nylon and polyester rope slings. Consult the sling manufacturer for proper retirement criteria for nylon and polyester ropes subjected to long-term storage or use in sunlight.

Chemical

Chemically active environments can affect the strength of natural and synthetic fiber rope slings. Consult the manufacturer before using a sling in such environments. Also, the presence of rust in wet nylon ropes has been found to be potentially harmful.

5) Synthetic Web Slings:

Synthetic web slings offer a number of advantages for rigging purposes. The most commonly used synthetic web slings are made of nylon- or polyester-type yarns (Fig. 7). They have the following properties in common:

- Strength,
- Convenience,
- Load protection, and
- Economy.

Each synthetic material has its own unique properties.

Certain synthetic materials perform better than others in specific applications and environments. Consult the sling manufacturer or a qualified person for a specific application or before using in and around chemical environments.

Synthetic webbing materials other than nylon and polyester are also used and the manufacturer should be consulted for specific data for proper use.

Identification:

New slings are marked by the manufacturer to show:

- The rated load for each type of hitch, and
- The type of synthetic web material.

In addition, slings may be marked to show:

- The manufacturer's code or stock number, and
- The name or trademark of the manufacturer.

Rated loads:

Rated loads (capacities) for single-leg vertical, choker, basket hitches, and two-leg bridle slings are as shown in Tables 21 through 25.

For angles not shown, use the next lower angle or a qualified person to calculate the rated load. Rated loads are based on:

- Material strength,
- Design factor,
- Type of hitch,
- Angle of loading (see Fig. 3),
- Diameter of curvature over which the sling is used, and
- Fabrication efficiency.

Do not use horizontal angles less than 30 degrees except as recommended by the sling manufacturer or a qualified person.

The rated load for a sling in a choker hitch is the value in Tables 21 through 25, provided that the angle of the choke is 120 degrees or more (see Fig. 2). For angles of choke less than 120

degrees, use the reduced rated load values provided by the sling manufacturer or a qualified person. For other synthetic webbing materials and for configurations not shown, use the rated loads provided by the sling manufacturer or a qualified person.

Fittings:

Ensure that mechanical fittings used as part of a synthetic web sling meet the following:

- Materials are compatible with the mechanical and environmental requirements of the sling,
- Fittings have a rated load at least the same as the synthetic webbing sling,
- Fittings have sufficient strength to sustain twice the rated load of the sling without visible permanent deformation, and
- Surfaces are clean, and sharp edges are removed.

Inspections:

Designate a qualified person[1] to inspect slings each day before use for damage or defects.

This qualified person also performs additional periodic inspections where service conditions warrant, as determined on the basis of:

- Frequency of sling use,
- Severity of service conditions,
- Nature of lifts being made, and
- Experience gained during the service life of slings used in similar circumstances.

Make periodic inspections of synthetic web slings at intervals no greater than 12 months. A good guide to follow includes:

- Yearly for normal service use,
- Monthly to quarterly for severe service use, and
- As recommended by a qualified person for special and infrequent service use.

Although OSHA's sling standard does not require you to make and maintain records of inspections, the ASME standard contains provisions on inspection records.[3]

Make a thorough inspection of slings and attachments. Items to look for include:

- Missing or illegible sling identification,
- Acid or caustic burns,
- Melting or charring of any part of the sling,
- Holes, tears, cuts, or snags,
- Broken or worn stitching in load bearing splices,
- Excessive abrasive wear,
- Knots in any part of the sling,
- Discoloration and brittle or stiff areas on any part of the sling,
- Pitted, corroded, cracked, bent, twisted, gouged, or broken fittings, and
- Other conditions that cause doubt as to continued use of a sling.

Where any such damage or deterioration is present, remove the sling or attachment from service immediately.

Repairing/Reconditioning:

Do not use worn or damaged slings or attachments. Discard or repair them. Use damaged slings only after they are repaired, reconditioned, and proof tested by the sling manufacturer or a qualified person using the following criteria:

- Ensure that the manufacturer or a qualified person performs repairs,

- Ensure that repairs of hooks and fittings meet ASME B30.10 and B30.26,
- Do not repair cracked, broken, melted, or damaged webbing material,
- Do not repair load-bearing splices,
- Do not make any temporary repairs of synthetic webbings or fittings, and
- Mark repaired slings to identify who made the repairs.

Retain the certificates of proof test and make them available for examination.[2]

Operating practices:

Do not use synthetic web slings with loads in excess of the rated load capacities described in the appropriate tables. Ensure that synthetic web slings have suitable characteristics for the type of load, hitch, and environment in which they will be used and that they are not used with loads in excess of the rated load capacities described in the appropriate tables. Consult the sling manufacturer or a qualified person for synthetic web slings not included in the tables. Follow other safe operating practices, including:

Sling Selection

- For multiple-leg slings used with nonsymmetrical loads, ensure that an analysis by a qualified person is performed to prevent overloading of any leg,
- Ensure that multiple-leg slings are selected according to Tables 21 through 25 when used at the specific angles given in the table. Ensure that operations at other angles are limited to rated loads of the next lower angle given in the table or calculated by a qualified person, and
- Ensure that the fitting is the proper shape and size to ensure that it is seated properly in the hook or lifting device.

Cautions to Personnel

- Ensure that all portions of the human body are kept away from the areas between the sling and the load and between the sling and the crane or hoist hook,
- Ensure that personnel never stand in line with or next to the legs of a sling that is under tension,
- Ensure that personnel do not stand or pass under a suspended load,
- Ensure that personnel do not ride the sling or the load, unless the load is specifically designed and tested for carrying personnel, and
- Do not use synthetic webbing slings as bridles on suspended personnel platforms.

Effects of Environment

- Store slings in an area where they will not be subjected to mechanical, chemical, or ultraviolet damage, or to extreme temperatures,
- When slings are exposed to extreme temperatures, follow the guidance provided by the sling manufacturer or qualified person.
- Consult the sling manufacturer for recommended inspection procedures when nylon or polyester webbing slings are extensively exposed to sunlight or ultraviolet light.

Rigging Practices

- Ensure that slings are hitched in a manner providing control of the load,
- Ensure that sharp edges in contact with slings are padded with material of sufficient strength to protect the sling,
- Ensure that slings are shortened or adjusted only by methods approved by the sling manufacturer or a qualified person,

- Ensure that, during lifting with or without a load, personnel are alert for possible snagging,
- Ensure that, in a basket hitch, the load is balanced to prevent slippage,
- When using a basket hitch, ensure that the legs of the sling contain or support the load from the sides, above the center of gravity, so that the load remains under control,
- Do not drag slings on the floor or over abrasive surfaces,
- Ensure that, in a choker hitch, the choke point is only on the sling body, never on a splice or fitting,
- Ensure that, in a choker hitch, an angle of choke less than 120 degrees is not used without reducing the rated load,
- Ensure that slings are not constricted, bunched, or pinched by the load, hook, or any fitting,
- Ensure that the load applied to the hook is centered in the base (bowl) of the hook to prevent point loading on the hook, unless the hook is designed for point loading,
- Ensure that an object in the eye of a sling is not wider than one-third the length of the eye,
- Do not shorten or lengthen a sling by knotting or twisting,
- Do not rest loads on the sling,
- Do not pull a sling from under a load when the load is resting on the sling,
- Do not allow shock loading, and
- Avoid twisting and kinking.

Proof testing:

Before initial use, ensure that all synthetic webbing slings incorporating previously used or welded fittings and all repaired slings are proof tested by the manufacturer or a qualified person.

Other new synthetic webbing slings and fittings need not to be proof tested, although the employer may require proof testing in purchasing specifications.

Environmental effects:

Temperature

Do not allow nylon and polyester slings to be used in contact with objects or at temperatures in excess of 194 degrees F (90 degrees C), or below minus 40 degrees F (minus 40 degrees C).

Sunlight & Ultraviolet

Long-term exposure to sunlight or ultraviolet radiation can affect the strength of synthetic webbing slings. Consult the sling manufacturer for proper retirement criteria for synthetic webbing slings subjected to long-term storage or use in sunlight.

Chemical

The strength of synthetic webbing slings can be degraded by chemically active environments. This includes exposure to chemicals in the form of solids, liquids, vapors or fumes. Consult the sling manufacturer before using slings in chemically active environments.

6) Synthetic Round Slings:

Synthetic round slings offer a number of advantages for rigging purposes. The most commonly used synthetic round slings are made of nylon- or polyester-type yarns. They have the following properties in common:

- Strength,
- Convenience,
- Load protection, and
- Economy.

Each synthetic material has its own unique properties. Certain synthetic materials perform better than others in specific applications and environments. Consult the sling manufacturer or a qualified person for a specific application or before using in and around chemical environments.

Some round slings are manufactured using materials other than nylon or polyester; consult the manufacturer for the proper selection, use, maintenance, and any hazards associated with their use.

Identification:

New slings are marked by the manufacturer to show:

- The rated load for the types of hitches, and the angle upon which they are based,
- The core material, and
- The cover material if different from core material.

In addition, slings may be marked to show:

- The name or trademark of the manufacturer,
- The manufacturer's code or stock number, and
- The name or trademark of the manufacturer.

Rated loads:

Rated loads (capacities) for single-leg vertical, choker, basket hitches, and two-leg bridle slings are as shown in Table 26.

For angles not shown, use the next lower angle or a qualified person to calculate the rated load. Rated loads are based on:

- Material strength,
- Design factor,
- Type of hitch,
- Angle of loading (see Fig. 3), and
- Diameter of curvature over which the sling is used.

Do not use horizontal angles less than 30 degrees except as recommended by the sling manufacturer or a qualified person.

The rated load for a sling in a choker hitch is the value in Table 26, provided that the angle of the choke is 120 degrees or more (see Fig. 2). For angles of choke less than 120 degrees, use the rated loads provided by the sling manufacturer or a qualified person.

For other synthetic round sling materials and for configurations not shown, use the rated loads provided by the sling manufacturer or a qualified person.

Fittings:

Ensure that mechanical fittings used as part of a synthetic round sling meet the following:

- Materials are compatible with the mechanical and environmental requirements of the sling,
- Fittings have a rated load at least the same as the round sling,
- Fittings have sufficient strength to sustain twice the rated load of the sling without visible permanent deformation, and
- Surfaces are clean, and sharp edges are removed.

Inspections:

Designate a qualified person¹ to inspect slings and all fastenings and attachments each day before use for damage or defects.

This qualified person also performs additional periodic inspections where service conditions warrant, as determined on the basis of:

- Frequency of sling use,
- Severity of service conditions,
- Nature of lifts being made, and

- Experience gained during the service life of slings used in similar circumstances.

Make periodic inspections of synthetic round slings at intervals no greater than 12 months. A good guide to follow includes:

- Yearly for normal service use,
- Monthly to quarterly for severe service, and
- As recommended by a qualified person for special and infrequent service use.

Although OSHA's sling standard does not require you to make and maintain records of inspections, the ASME standard contains provisions on inspection records.³

Make a thorough inspection of slings and attachments. Items to look for include:

- Missing or illegible sling identification,
- Acid or caustic burns,
- Evidence of heat damage,
- Holes, tears, cuts, abrasive wear, or snags, that expose the core yarn,
- Broken or damaged core yarns,
- Welding splatter that exposes core yarns,
- Knots in the round sling body, except for core yarn knots inside the cover,
- Discoloration and brittle or stiff areas on any part of the sling,
- Pitted, corroded, cracked, bent, twisted, gouged, or broken fittings, and
- Other conditions that cause doubt as to the continued use of the sling.

Where any such damage or deterioration is present, remove the sling or attachment from service immediately.

Repairing/Reconditioning:

Do not use worn or damaged slings or attachments. Discard or repair them. Use damaged slings only after they are repaired, reconditioned, and proof tested by the sling manufacturer or a qualified person using the following criteria:

- Ensure that the manufacturer or a qualified person performs repairs,
- Ensure that repairs of hooks and fittings meet ASME B30.10 and B30.26,
- Do not repair cracked, broken, melted, or damaged fittings or attachments,
- Do not repair melted or damaged internal yarns,
- Do not make any temporary repairs of round slings or fittings, and
- Mark repaired slings to identify who made the repairs.

Operating practices:

Ensure that synthetic round slings have suitable characteristics for the type of load, hitch, and environment in which they will be used and that they are not used with loads in excess of the rated load capacities described in the appropriate tables. Consult the sling manufacturer for slings not included in the table. Follow other safe operating practices, including:

Sling Selection

- For multiple-leg slings used with nonsymmetrical loads, ensure that an analysis by a qualified person is performed to prevent overloading of any leg,
- Ensure that multiple-leg slings are selected according to Table 26 when used at the specific angles given in the table. Ensure that operations at other angles are limited to rated loads of the next lower angle given in the table or calculated by a qualified person, and

Continued on pg 45

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Profit Improvement Report

GMROI:
Good Intentions Gone Awry

By Dr. Albert D. Bates
President, Profit Planning Group



IMPROVEMENT

GMROI is one of the foundations of inventory management for distributors. The term GMROI stands for Gross Margin Return on Inventory. The enthusiasm for GMROI rests upon the fact that it allows firms to make inventory decisions from a return on investment perspective.¹

The sad truth is that despite the hoopla, GMROI actually produces biased financial results which can lead to counter-productive actions. If anything, using GMROI makes inventory management decisions less accurate.

This report examines the GMROI issue from two perspectives.

- The Computational Bias—An examination of why GMROI results may lead to incorrect decisions.
- Suggestions for Action—An identification of some very difficult, but necessary, steps to drive higher profits from the inventory investment.

The Computational Bias

The theory behind GMROI is unassailable. The ratio attempts to measure the return (gross margin) produced from every dollar of investment (inventory). In this way, individual items, departments and suppliers can be evaluated from an ROI perspective.

Computationally, GMROI is the gross margin dollars generated by a specific item (or department or supplier) during the course of the year divided by its average inventory investment over the year. In practice, very few firms calculate GMROI directly. Instead, most firms actually calculate an approximation of GMROI, more correctly called the Turn & Earn Ratio. The two ratios share basic DNA, so the exact form of the computation is not a problem as long as the firm uses the same method consistently.

GMROI (via the Turn & Earn formula) is the Gross Margin Percentage times the Inventory Turnover Ratio. The typical AWRF member has sales of \$8,000,000, and cost of goods sold of \$4,800,000 resulting in \$3,200,000 of gross margin. It also has inventory of \$1,450,000. The firm thus has a gross margin of 40.0% ($\$3,200,000 \div \$8,000,000$) and an inventory turnover of 3.3 times ($\$4,800,000 \div \$1,450,000$). Combining the two produces a GMROI of 132.4% for the firm.

(Footnotes)

1 This report can only provide an overview of the GMROI issue. For a much more complete discussion, see Saying Goodbye to GMROI, [www.profitplanninggroup.com.](http://www.profitplanninggroup.com/), seminar section.

Exhibit 1
GMROI Results for
Three Different SKUs

Financial Results	Item A	Item B	Item C
Dollars			
Net Sales	\$50,000	\$50,000	\$50,000
Cost of Goods Sold	26,000	30,000	34,000
Gross Margin	\$24,000	\$20,000	\$16,000
Average Inventory	\$10,875	\$9,062	\$7,250
Percent of Sales			
Net Sales	100.0	100.0	100.0
Cost of Goods Sold	52.0	60.0	68.0
Gross Margin	48.0	40.0	32.0
Operating Expenses for the Total Firm	35.0	35.0	35.0
Performance Ratios			
Inventory Turnover	2.4	3.3	4.7
GMROI (GM% x Turnover)	114.8	132.4	150.1

For managers with experience using GMROI, the value of this form of the calculation is obvious immediately. If the firm wants to increase GMROI, it has two financial levers to work with—it can try to increase the gross margin percentage or increase the inventory turnover. Either choice should lead the firm to a greater return on the inventory investment.

To get a feel for how GMROI is biased, it is necessary to examine Exhibit 1 which reviews three items, cleverly labeled Items A, B and C. As the exhibit indicates, these three items all have identical sales levels. However, they are very different in terms of both their gross margin and inventory investment.

Item B in the middle has been designated as typical. It has a gross margin of 40.0% and an inventory turnover of 3.3 times. To understand what is happening in the firm, it is necessary to know that Item B really is exactly typical. Since the typical AWRF member has a total firm gross margin of 40.0% and turned its inventory 3.3 times per year, Item B is a microcosm of the total firm.

Item B is flanked by two items with somewhat unique characteristics. Item A generates 20.0% more gross margin dollars than Item B on the same sales, but requires a 20.0% larger investment in inventory. It is a classic high margin/low turnover SKU.

In contrast, Item C is the mirror image of Item A with 20.0% fewer gross margin dollars than Item B, combined with a 20.0%

smaller investment in inventory. It is in the low margin/high turnover camp. Clearly, these three items are not equal.

GMROI is almost always used as to identify problem items. It is a “what should we worry about” sort of ratio. The answer, based upon GMROI, is to worry about the items with the lowest return. In Exhibit 1 this turns out to be Item A, with a GMROI of only 114.8%. At the extreme, Item A might even be considered a candidate for elimination given its low GMROI. If not a candidate for elimination, at least a candidate for corrective surgery. However, Item A actually produces the most gross margin dollars of the three items shown.

At the other extreme, Item C with the highest GMROI would be designated as a superstar item. It is the sort of item that management might want to emphasize in its marketing programs. The firm would try to sell all it can to enjoy the benefits of the item’s great GMROI of 150.1%.

It should be remembered that the typical AWRF member has an overall gross margin of 40.0%. It also has operating expenses that equal 35.0% of sales. Assuming that all three items have about the same cost structure (they are all in the same merchandise category), then Item C could be well under water as operating expenses actually exceed gross margin. Probably not an item to push.

GMROI will always make low gross margin items look better than they are and make high gross margin items look worse than they are. It is a bias that leads the firm down the wrong profit path. GMROI continues to be a ratio that is based upon a brilliant concept, but is flawed beyond repair in operation.

Suggestions for Action

The real advantages of GMROI are that it is quick to calculate and easy to understand. However, quick and easy but inaccurate is not necessarily a formula for success. Something else is needed, but that something else is almost always a lot more effort.

The real solution is to move to measuring direct product profit (DPP). Such an approach involves measuring the actual dollar profit generated on every individual product, department and supplier. This requires determining not only the gross margin produced on each item, but the expenses associated with buying, stocking, selling and distributing that item.

The real advantage of DPP is that it opens up a wide array of different ways to improve the profitability of individual items. The answer may not be just more gross margin or less inventory, but rather lowering handling costs, selling in different quantities or any of a myriad of different actions. If there are lots of things that drive profit, there is no real reason to focus on only two of them.

GMROI was invented before computers of any sort existed. This made the ease of calculation always more important than the level of sophistication of those calculations. With today’s incredibly low cost of computing power, the trade off should now favor sophistication.

Beyond information systems, there is also the need for education of the management team. GMROI is ingrained into the collective thinking of virtually every distribution organization. Replacing GMROI with something more difficult to understand will not be easy. If done correctly, though, the something new will lead to much better decision making.

A Managerial Sidebar:

GMROI Versus Turn & Earn

True GMROI and the Turn & Earn Ratio both attempt to measure the return on the firm’s investment in inventory. However, they do involve two somewhat different ratios. When comparisons are being made across industries, it is essential to ensure that the same calculation is being employed in all cases.

The basic difference between the two ratios is as follows. All figures are for a typical AWRF member.

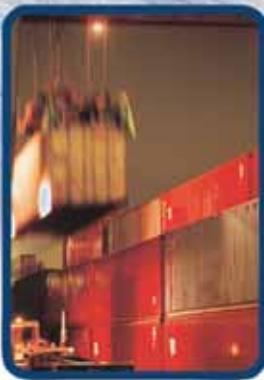
GMROI

$$\frac{\text{Gross Margin}}{\text{Inventory}} = \frac{\$3,200,000}{1,450,000} = 220.7\%$$

Turn & Earn

$$\begin{aligned} \text{Gross Margin \%} \\ \times \\ \text{Inventory Turnover} \\ = \\ 40.0\% \\ \times \\ 3.3 \\ = \\ 132.4\% \end{aligned}$$

PROFIT IMPROVEMENT



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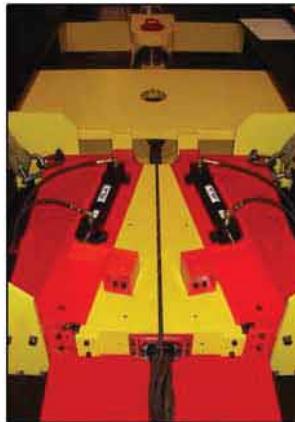
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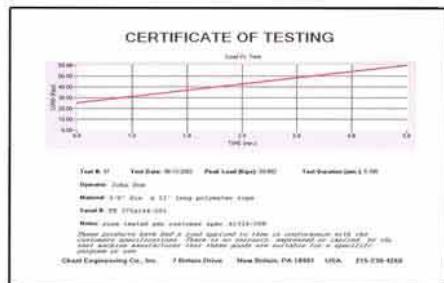
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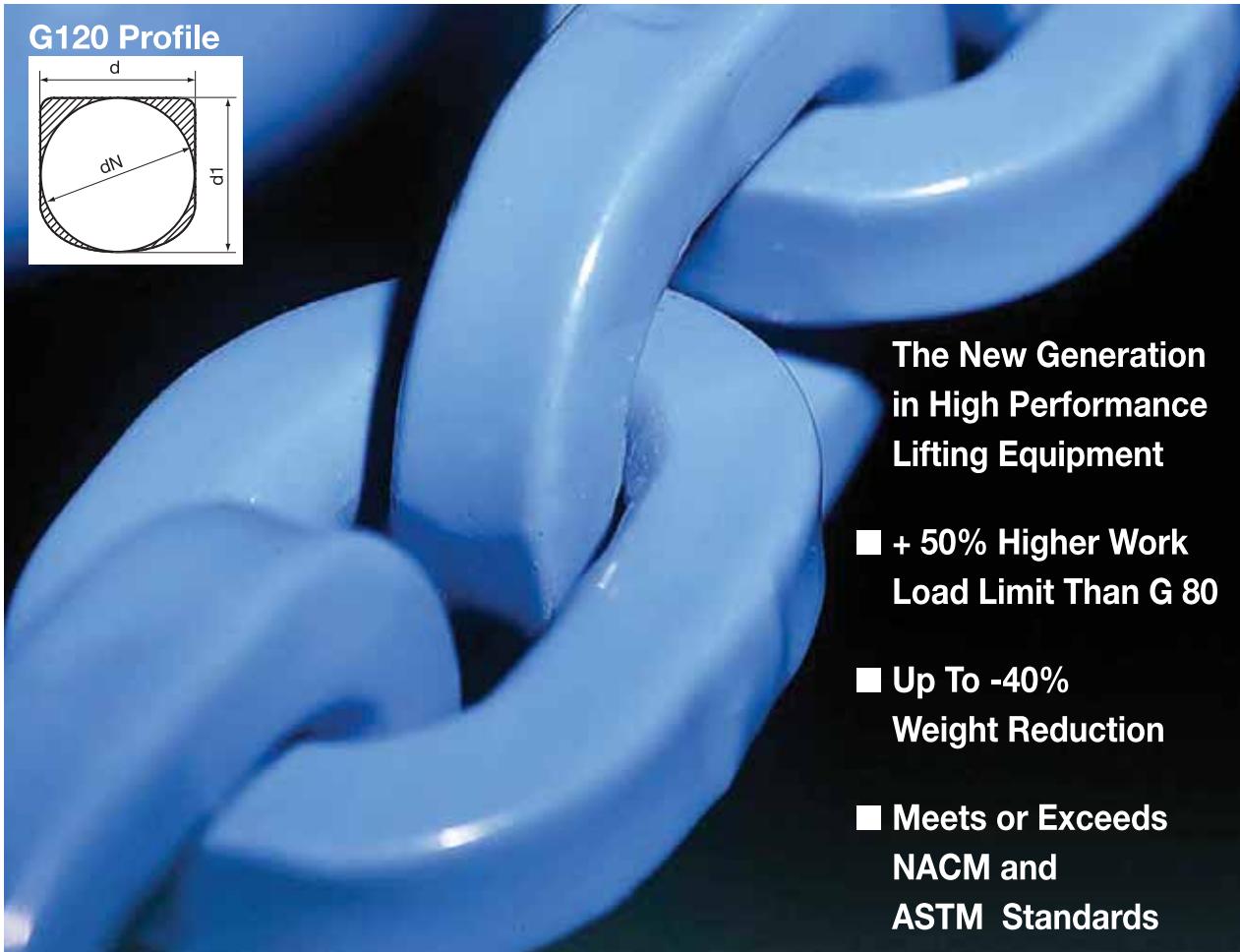
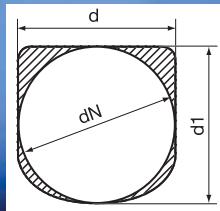
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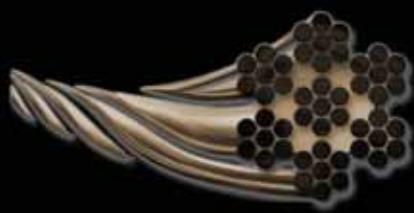
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Side Pull (Traditional)
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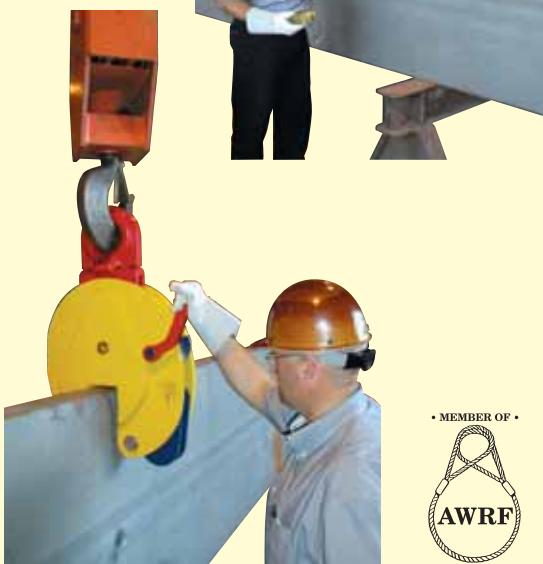


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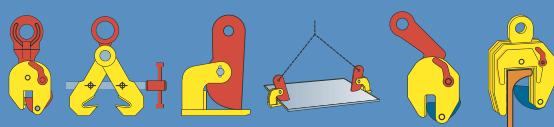
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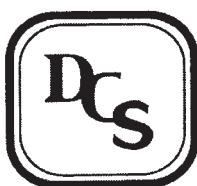
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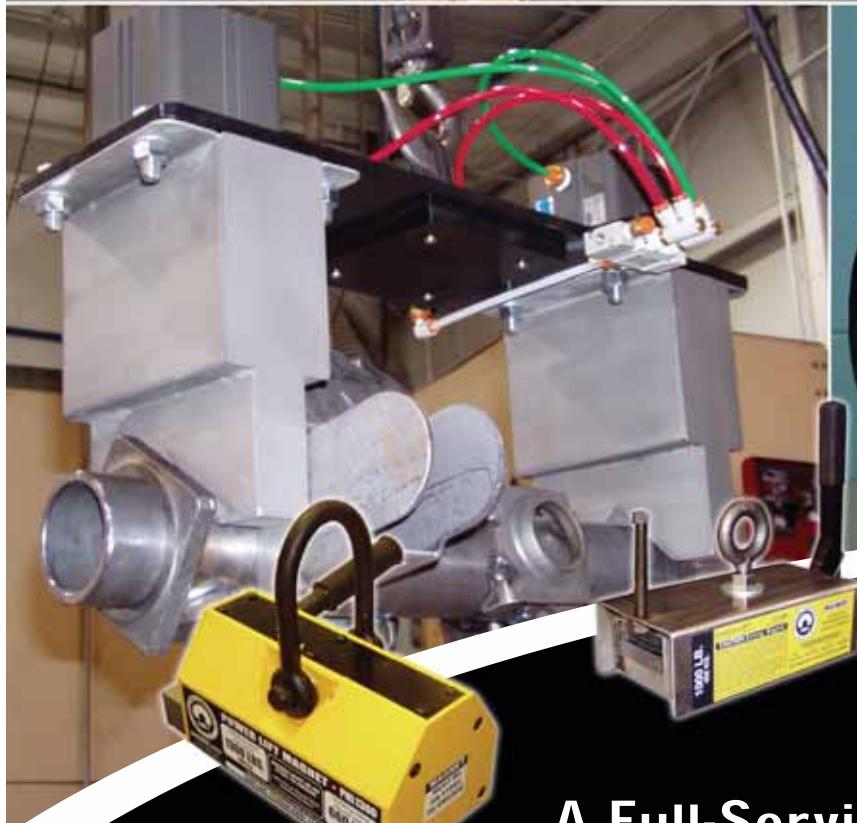
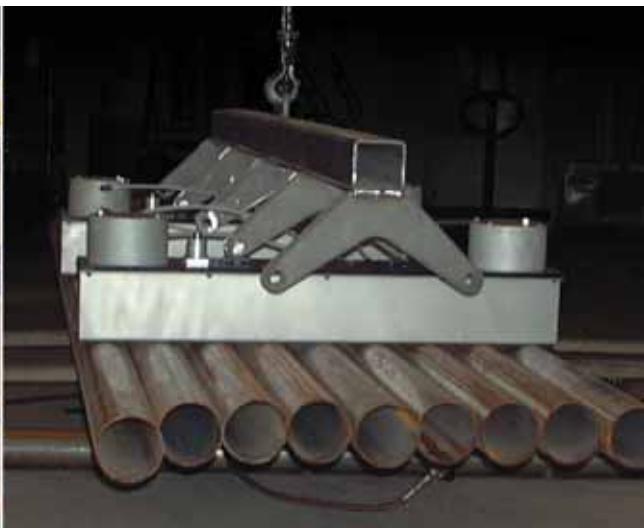
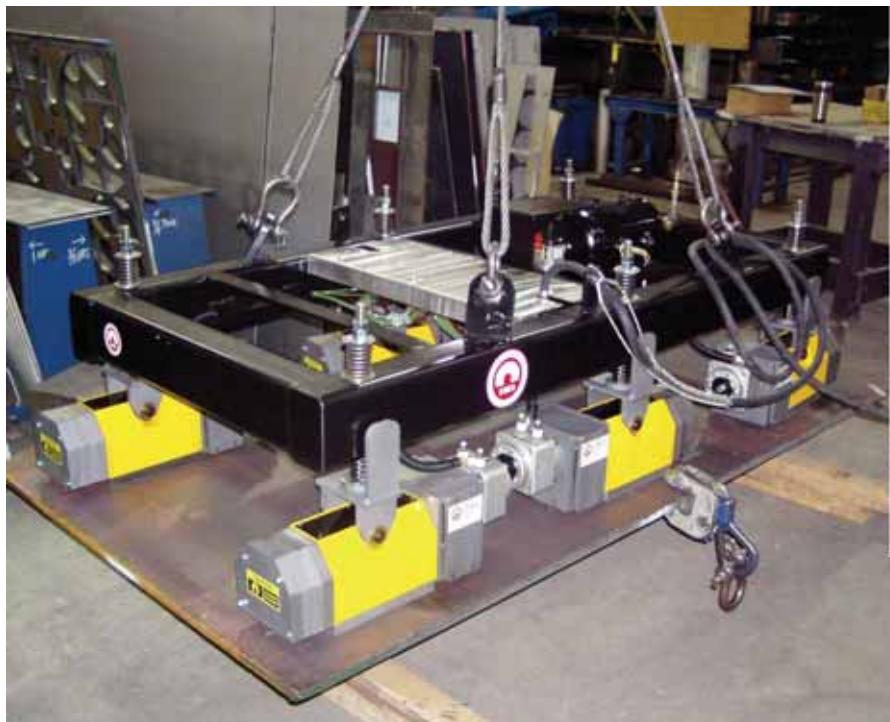
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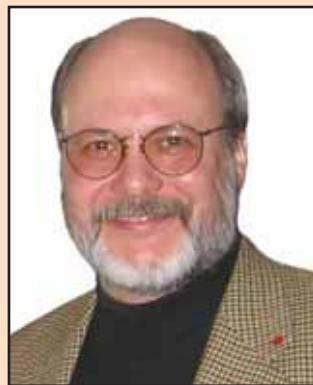
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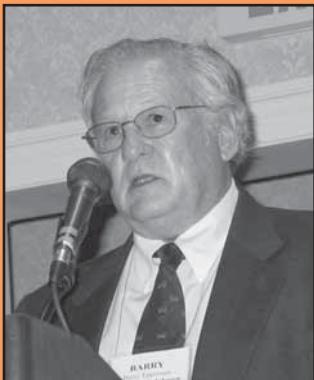


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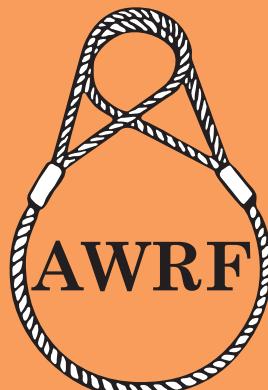


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LAEDC ECONOMICS CORNER

- U.S. economic growth has slowed, and the wire-rope related sectors are showing the effects.
- Economic growth outside the U.S. is reasonably healthy. Will it continue?

U.S. Economic Situation

U.S. economic growth ebbed to 2.8% in third quarter 2007 (compared to third quarter 2006) versus 3.1% in 2005. The economy is facing a new reality and at LAEDC, we're on "recession watch." A recession is not visible, but conditions warrant watchfulness. Braking economic growth are high energy prices, the continued shrinkage of the housing market, and the (unknown) extent of the subprime mortgage meltdown. The risk is a possible weakening in business and consumer spending leading to widespread slowdown in manufacturing. On the upside, the export sector serves as a beacon of hope, while government spending lends stability.

The Fed cut short-term interest rates three times beginning in fall '07 to stimulate the economy. Rates could fall further, but they also are concerned about inflation. Other assertive moves were taken by the Fed to alleviate the credit squeeze, such as

strategies. Demand for automotive and housing-related goods has deteriorated further. The same is true for imports of these products, though exports have increased. The trade deficit for goods has shrunk markedly. Reflecting these trends, freight transportation is sluggish.

Consumer spending has been the main support for the U.S. economy but is moderating. Still, incomes are rising and employment is growing, though more slowly. The unemployment rate has been creeping up gradually. Consumers are definitely feeling pinched by continued high gasoline prices and shrinking home equity credit lines (if any).

Housing starts have dropped by 25% so far this year and are expected to fall further, perhaps below one million units. Activity will continue at low levels through 2008. Foreclosures are soaring, which further elevates unsold inventories. Unfortunately, these trends will hang on until unsold inventories fall to more normal levels, which may not happen until early 2009. On the other hand, nonresidential and government construction spending continue very strong despite high construction material prices.

Business spending for information tech equipment and software remains healthy, along with demand for aircraft and agricultural machinery. Oil and natural gas drilling is another strong sector. However, business purchases of heavy trucks, railcars, and construction machinery all have declined in 2007.

Outlook: The economy will grow by about 2.2% in 2007 and by 2.0% to 2.5% in 2008. Housing activity will continue to drag, and light vehicle production will be flat at best. However, growth in exports and business fixed investment – especially nonresidential and infrastructure construction – energy drilling, commercial aerospace, and many types of business equipment – will pick up the slack.

GLOBAL ECONOMIC FORECAST

The global economy continues to operate at a good pace in 2007, though somewhat slower than 2006. The expansion is narrower this year, with the U.S. going through a housing-induced slowdown. At 4.8%, our forecast for global economic growth in 2008, is a bit below 2007's pace but marks the fourth year of strong global growth.

What changes will 2008 bring?

- Oil prices soared to record levels late in 2007. Energy prices likely will continue high in 2008, hurting some oil-importing nations. However, energy producers around the world are spending billions of dollars on drilling, exploration, production and refinery expansions.

Continued on pg 49

Table 1
FACTORS INFLUENCING WIRE ROPE DEMAND*

	2005	2006	3Q 2007
Real GDP Growth	3.1	2.9	2.8
Manufacturing Production	4.0	5.0	1.9
Manufacturing & Trade Sales	4.4	3.1	2.1
Goods Trade Deficit (\$2000)	710.1	719.5	652.8
Vehicle Sales (Mils, SAAR)			
--Cars (Domestic)	5.5	5.4	5.1
--Light Trucks (Domestic)	8.1	7.4	7.2
--Medium/Heavy Trucks	0.5	0.5	0.3
Construction:			
--Housing Starts (Mils)	2.07	1.81	1.30
--Private Nonresid Bldgs	7.6	15.2	16.7
--Gov't Bldgs & Infrastructure	6.3	9.0	13.8
Bus. Equipment Spending			
--High Tech & Software	9.6	7.5	8.3
--Other Equipment	9.5	3.9	-6.9
Freight Transportat'n Index	111.6	110.5	108.5
Oil & Gas Rigs Running	1,383	1,649	1,789

*Percent change from previous year unless otherwise noted.

injecting billions of dollars into the banking system in conjunction with other central banks. It remains to be seen if these actions quiet fears and calm the financial markets, as the big banks have to take billions of dollars in write-offs.

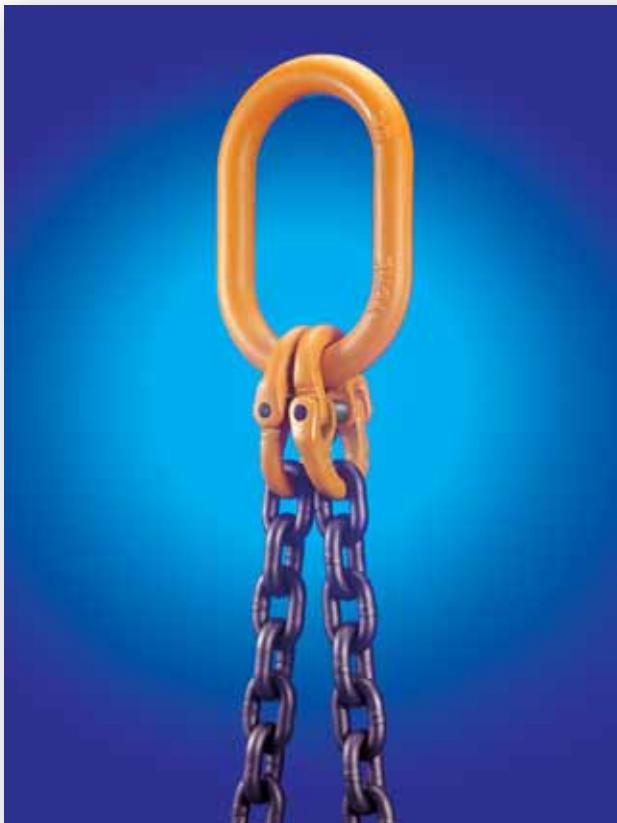
To cope with economic uncertainty, manufacturers and distributors have adopted conservative inventory



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News About Members



by Phil Gardner
MAGNA Lifting Products, Inc.
360-392-0432

“SIGNAL” Insurance Co. Celebrates 20th Anniversary”

The stockholders of SIGNAL (Select Insurance Group of North America, Ltd) recently celebrated the completion of twenty years of successful operation since the company was founded by twenty-three AWRF members on October 1, 1987.

The inception of SIGNAL was prompted by the then lack of reasonably priced products liability coverage from the traditional insurance marketplace. In some cases, AWRF members were unable to find new coverage after policy cancellations and were forced to operate without insurance. The founders' objectives were therefore less profit oriented and more directed to providing excellent coverage for their own businesses and those of other AWRF members at a reasonable price.

In spite of SIGNAL's lower profit expectations, which were demonstrated by rate cuts of 47% and 32% after particularly successful years since 1987, SIGNAL has done very well financially, and is even offering rate reductions of up to 10% for 2008 policy renewals. At the annual meeting earlier this year, it was reported that the value of SIGNAL shares had appreciated to more than sixteen times their 1987 value.

These exceptional financial results, even after two significant rate reductions, are in most part a result of the company's excellent loss ratio, which was 43.5% for the year 2006, 8% below SIGNAL's average since formation of 51.8%. Most traditional insurance companies operate with a loss ratio of around 100% or more, expecting any income to come from their investments, not from underwriting. The cyclical nature of the investment markets therefore causes instability in their rate structure, a condition that SIGNAL has effectively eliminated.

SIGNAL's exceptional loss ratio is in turn a testimonial to its very effective Loss Control and Claims Administration programs. These programs are overseen by loss prevention and claims committees consisting of representatives from member companies. The committee members' collective hands-on experience in the wire rope industry has contributed substantially to the effectiveness of both these programs. The development of loss prevention methods over twenty years coupled with annual loss control audits of policy holder operations, has earned SIGNAL the respect of the reinsurance market, resulting in lower reinsurance rates. The involvement of experienced operators in the activities of the claims administration process has allowed SIGNAL to defend successfully against claims that traditional insurance companies would likely have settled.

At the May annual meeting, company directors declared a significant dividend for the 2006 fiscal year. Also proposed at the meeting was a program to allow SIGNAL policy holders to share in the success of the company by becoming full shareholders. This program is presently being developed and will be presented to all policy holders in the near future. The company is expecting a good response to this offer and hopes to significantly add to the number of existing shareholders. As one SIGNAL officer has often said, “How often does your insurance company send you a check at the end of the year?”

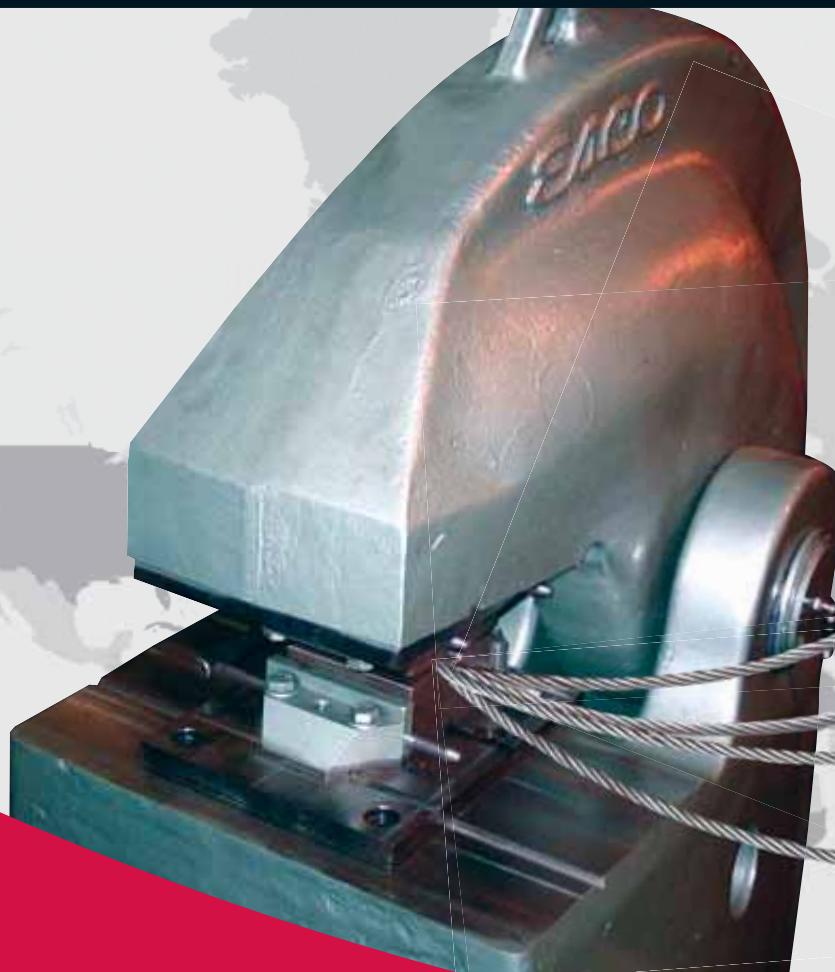
Information about SIGNAL's programs can be obtained by contacting President Bernie Martin (Carpenter Rigging), Secretary Phil Gardner (MAGNA Lifting Products) or Rhonda Shambarger, (SIGNAL's Program Manager at Meadowbrook Insurance Group). These companies are listed in the AWRF member directory.



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A Warm Welcome to Anne Luten Renfroe as new president of AWRF

Continued from pg 1

he would pull out his pad and pencil and start making drawings to take into work the next day. These things were constantly on his mind. There's no such thing as an all-purpose clamp. He kept meeting the demands of the market. Any time there's something new to lift or move, a different design is required."

Perhaps the main contribution her husband made to the company, Renfroe continues, is the relationships he established in Europe and the Far East, entering into agreements to supply the rest of the world from the manufacture of the company's products in those areas. "Renfroe clamps are used worldwide," Renfroe says. "And in some parts of the world Renfroe has become synonymous with clamps. Like Kleenex. You don't ask for a tissue, you often ask for a Kleenex."

Renfroe adds that, though the company has plants in different countries to make its products, often designed for the specific geographical area covered, these are not what are commonly referred to as offshore facilities. These manufacturing entities sell in their areas. All Renfroe products sold in the U.S. are made in the U.S. Also, the company never sells direct to end users. That would undercut its distributors. For a time it had its own representatives to call on distributors, but found this wasn't cost effective. It now works successfully through a national network of Independent Sales Representatives, who, service Renfroe's loyal distributors.

During the approximately 40 years her husband ran the business, she often went with him to trade shows and accompanied him on his travels around the world, meeting the many people he had contacts with. She never worked in the business, however. Mrs. Renfroe taught a few years in secondary school, cared for their four children and was deeply involved in volunteer work. After the children were grown she founded and operated a travel consultancy for 19 years.

Just before Charles died in 1999, a friend in AWRF tried again to convince him to sell the business. But, as Renfroe recalls, "He told me he just couldn't do it. I told him he would get better and probably live forever. Charles said, "You can do this." And he was right. The morning after he died I went to the office to tell the staff and employees. This has always been a closely-knit organization. There's no them and us here. I told the employee's I was not going to sell the business, that their jobs were secure, that I was going to stay here and hoped they would stay too. They all said they would, and here we are, eight years later."

In those eight years, Renfroe says, "Things have changed tremendously. Sales have more than doubled," and we are beginning our second expansion of the facilities. Whereas her father-in-law's main contribution was the invention



of the clamp, and her husband's was taking the business abroad, Renfroe believes her contribution has been expanding the product line. "We now sell other products related to the rigging and load moving business," she says. This includes electronic crane weighing blocks, which are used on cranes in Europe and, it is expected, will soon be required in the U.S. Snatch Blocks, Swivels, Load Moving Devices, Sheaves, Crane Blocks, and other rigging related devices have been added. In fact, Renfroe is building another facility dedicated to the manufacture of Sheaves and Blocks. "It seemed like the natural thing to do," Renfroe says. Our customers are buying these products anyway. Why not buy them from us?"

Although Renfroe had no technical experience when she took over, she was confident of her ability to deal with people. She credits the continuing growth of the company to her financial person, William Anderson, strong in that area, as well as consultant, Ronald Raymond, who became general manager, technical adviser, and oversees daily operations. Renfroe credits all her employees in helping make the transition a success. There are a little over 50 employees in manufacturing, office and engineering. "We still design products to order, and believe we are the only company which still does that," she says. She adds that this family business will continue to remain so. Her son, Joseph Cleveland, named after the founder, is in charge of quality control. There are still RENFROES at Renfroe.

The company has always done a great deal of government work. This includes designing non-marring clamps that were used to construct nuclear submarines. When the Challenger tragedy occurred, NASA asked Renfroe for a clamp that could be manipulated by robotic

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Although J. C. Renfroe & Sons, Inc. has been a member of AWRF for over 20 years, it was only when Anne Renfroe took over that it became really active. "When I became owner I realized that most of my distributors were AWRF members, and those who were not my customers should be." She and Ronald Raymond began attending all of the meetings, and Raymond has served on technical committees. She became a board member in 2003, and has served in all offices of AWRF.

"The technical aspect of AWRF drives the organization," she says. "It's vitally important for all of us to keep up to date with the latest findings. This helps us to better do our job, to know what customers need and what the government expects of us. New government regulations are formulated and we have the opportunity for input, for testing of products. AWRF makes a very strong effort and has been very successful. And none of it has to do with personal business. The information is open. The testing company does not benefit by itself. We have the opportunity to do a better job and make the industry safer for everybody. That's the attitude of the members. We have seen the accidents and know what the dangers are for someone welding in the hold of a ship, or executing a complicated rigging job. We're there when the government is formulating its regulations, and why wouldn't we want to be there?"

When asked what she's learned from her years of activism in AWRF, Renfroe responds, "I remember when I attended my first board meeting to sit at the table with so many leaders of the industry. They were very busy, but still donating their time, gaining no personal benefit except knowing they were doing their best to see that workers became more and more safe. And I've seen this same dedication year after year."

During the time she has been active, Renfroe continues, "There has been a tremendous increase in participation and the number of people who attend our conventions. We've dealt with a wide range of issues, from safety to legality to projecting a financial future.

Renfroe notes that in the past few years AWRF has been making connections with other industrial organizations in this country and abroad, and she intends to continue this effort, as well as the ongoing ones in technical testing and safety.

"What I am personally concerned about this year is adding value to our membership, to do things in such a way that the board will be more accessible to the members. The board has been open, but sometimes it hasn't appeared that way. I want members to feel comfortable contacting individuals on the board. There are many small shops in this country. I want them to know their issues are as important as those of 20 million dollar members. These small shops are the heart of AWRF."

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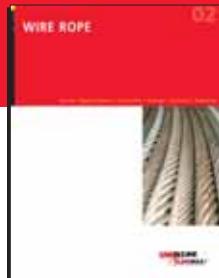
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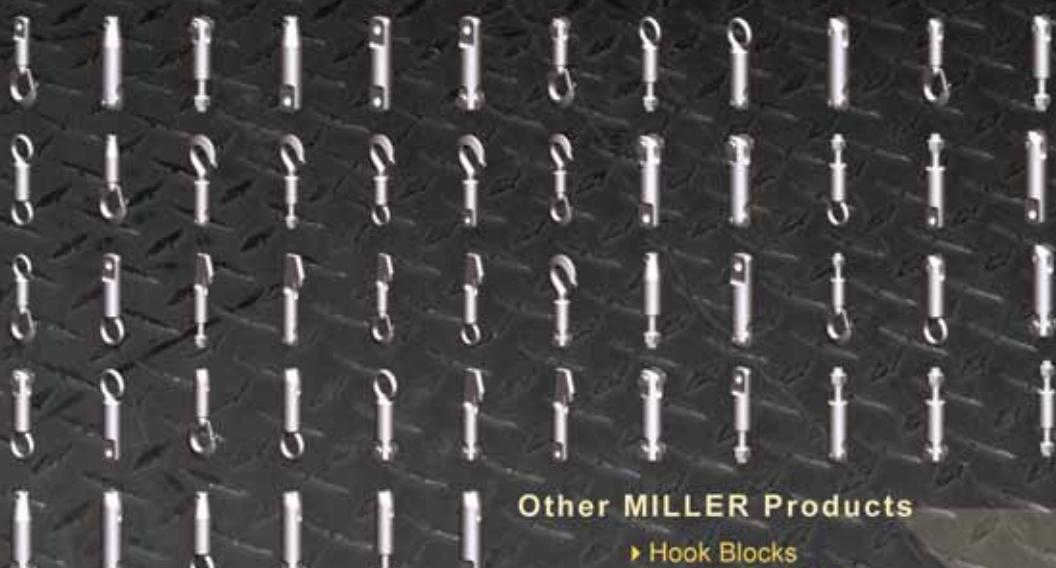
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Guidance On Safe Sling Use

Continued from pg 13

- Ensure that the fitting is the proper shape and size to ensure that it is seated properly in the hook or lifting device.

Cautions to Personnel

- Ensure that all portions of the human body are kept away from the areas between the sling and the load and between the sling and the crane or hoist hook,
- Ensure that personnel never stand in line with or next to the legs of a sling that is under tension,
- Ensure that personnel do not stand or pass under a suspended load,
- Ensure that personnel do not ride the sling or the load, unless the load is specifically designed and tested for carrying personnel, and
- Do not use synthetic round slings as bridles on suspended personnel platforms.

Effects of Environment

- Store slings in an area where they will not be subjected to mechanical, chemical, or ultraviolet damage, or to extreme temperatures, and
- When slings are exposed to extreme temperatures, follow the guidance provided by the sling manufacturer or qualified person.

Rigging Practices

- Ensure that slings are hitched in a manner providing control of the load,
- Ensure that sharp edges in contact with slings are padded with material of sufficient strength to protect the sling,
- Ensure that slings are shortened or adjusted only by methods approved by the sling manufacturer or a qualified person,
- Ensure that, during lifting with or without a load, personnel are alert for possible snagging,
- Ensure that, in a basket hitch, the load is balanced to prevent slippage,
- When using a basket hitch, ensure that the legs of the sling contain or support the load from the sides, above the center of gravity, so that the load remains under control,
- Ensure that, in a choker hitch, the choke point is only on the sling body, never on a splice or fitting,
- Ensure that, in a choker hitch, an angle of choke less than 120 degrees is not used without reducing the rated load,
- Ensure that slings are not constricted, bunched, or pinched by the load, hook, or any fitting,
- Ensure that the load applied to the hook is centered in the base (bowl) of the hook to prevent point loading on the hook, unless the hook is designed for point loading,
- Ensure that an object in the eye of a sling is not wider than one-third the length of the eye,
- Do not shorten or lengthen a sling by knotting or twisting,
- Do not rest loads on the sling,
- Do not pull a sling from under a load when the load is resting on the sling,
- Do not drag slings on the floor or over abrasive surfaces,
- Do not allow shock loading, and
- Avoid twisting and kinking.

Proof testing:

Before initial use, ensure that all synthetic round slings incorporating previously used or welded fittings are proof tested by the manufacturer or a qualified person.

Other new synthetic round slings and fittings need not be proof tested, although the employer may require proof testing in purchasing specifications.

Environmental effects:

Temperature

Do not allow polyester round slings to be used in contact with objects or at temperatures in excess of 194 degrees F (90 degrees C), or below minus 40 degrees F (minus 40 degrees C).

Some synthetic yarns do not retain their breaking strength during long-term exposure above 140 degrees (60 degrees C). Consult the sling manufacturer for the effects of long-term heat exposure.

Sunlight & Ultraviolet

Long-term exposure to sunlight or ultraviolet radiation can affect the strength of polyester round slings. Consult the sling manufacturer for proper retirement criteria for polyester round slings subjected to long-term storage or use in sunlight.

Chemical

Chemically active environments can affect the strength of synthetic round slings. Consult the manufacturer before using a sling in such environments.

Ensure that in chemically active environments the cover is the same yarn as the load-bearing core.

Table 18
Nylon Rope Slings
Based on Design Factor = 5 and Rated Loads Expressed in pounds (lb)

Rope Diameter, in.	Eye-and-Eye Sling - Hitch Type					Endless Sling - Hitch Type						
			Two-Leg Bridle or Basket					Basket				
	Vertical	Choker	90°	60°	45°	30°	Vertical	Choker	90°	60°	45°	30°
1/2	1,100	830	2,200	1,900	1,600	1,100	2,000	1,500	4,000	3,500	2,800	2,000
9/16	1,400	1,100	2,800	2,400	2,000	1,400	2,600	2,000	5,200	4,500	3,700	2,600
5/8	1,800	1,400	3,600	3,100	2,500	1,800	3,200	2,400	6,400	5,500	4,500	3,200
3/4	2,600	2,000	5,200	4,500	3,700	2,600	4,600	3,500	9,200	8,000	6,500	4,600
7/8	3,500	2,600	7,000	6,100	4,900	3,500	6,200	4,700	12,400	10,700	8,800	6,200
1	4,400	3,300	8,800	7,600	6,200	4,400	7,900	5,900	15,800	13,700	11,200	7,900
1 1/8	5,700	4,300	11,400	9,900	8,100	5,700	10,100	7,600	20,200	17,500	14,300	10,100
1 1/4	7,000	5,300	14,000	12,100	9,900	7,000	12,400	9,300	24,800	21,500	17,500	12,400
1 5/16	7,700	5,800	15,400	13,300	10,900	7,700	13,700	10,300	27,400	23,700	19,400	13,700
1 1/2	9,700	7,300	19,400	16,800	13,700	9,700	17,400	13,100	34,800	30,100	24,600	17,400
1 5/8	11,500	8,600	23,000	19,900	16,300	11,500	20,500	15,400	41,000	35,500	29,000	20,500
1 3/4	13,200	9,900	26,400	22,900	18,700	13,200	23,600	17,700	47,200	40,900	33,400	23,600
2	16,900	12,700	33,400	29,300	23,900	16,900	30,200	22,700	60,400	52,300	42,700	30,200
2 1/8	20,500	14,300	39,000	33,100	27,000	19,100	34,100	25,600	68,200	58,200	48,200	34,100
2 1/4	21,400	15,100	42,600	37,100	30,100	21,400	38,300	28,700	71,600	65,300	54,200	35,300
2 1/2	26,200	19,700	52,600	45,800	37,200	26,200	40,400	35,200	93,400	81,200	66,300	46,900
2 5/8	28,800	21,600	57,600	49,900	40,700	28,800	51,400	38,600	102,800	89,000	72,700	51,400
3	37,100	27,800	64,200	64,300	52,500	37,100	66,200	49,700	132,400	114,700	93,600	66,200

GENERAL NOTES:

(a) See Fig. 8 for sling types, Fig. 5 for hitch types, and Fig. 3 for sling angle descriptions. For D/d considerations see note in Fig. 5.

(b) For choker hitch, the angle of choke is 120 deg or greater.

Table 19
Polyester Rope Slings
Based on Design Factor = 5 and Rated Loads Expressed in pounds (lb)

Rope Diameter, in.	Vertical Choker	Eye-and-Eye Sling - Hitch Type				Endless Sling - Hitch Type			
		Two-Leg Bridle or Basket		Basket		Horizontal Angle, deg		Horizontal Angle, deg	
		90°	60°	45°	30°	Vertical Choker	90°	60°	45°
1/2	1,000	750	2,000	1,700	1,400	1,000	1,800	1,400	3,600
9/16	1,300	980	2,600	2,300	1,800	1,300	2,100	1,700	4,600
5/8	2,000	1,800	3,200	2,800	2,300	1,600	2,600	2,100	4,000
3/4	2,200	1,700	3,000	2,500	2,200	1,600	2,400	1,900	3,600
7/8	3,000	2,300	6,000	5,200	4,200	2,000	5,400	4,100	10,800
1	4,000	3,000	8,000	6,900	5,700	4,000	7,100	5,300	14,200
1 1/8	5,000	3,800	10,000	8,700	7,100	5,000	8,900	6,700	15,400
1 1/4	6,000	4,500	12,000	10,400	8,500	6,000	10,600	8,000	18,100
1 1/2	8,400	6,300	16,800	14,500	11,900	8,400	15,100	11,300	30,200
1 3/4	9,900	7,400	18,800	17,100	14,000	9,900	17,600	13,200	35,200
2	14,400	10,800	28,800	24,900	20,400	14,400	25,700	19,300	51,400
2 1/8	16,200	12,200	32,400	28,100	22,900	16,200	28,900	21,700	57,800
2 1/4	18,100	13,600	36,200	31,300	25,600	18,100	32,300	24,600	64,600
2 1/2	22,000	16,500	44,000	38,100	31,100	22,000	39,300	29,500	78,600
2 5/8	24,200	18,200	48,400	41,900	34,200	24,200	43,200	32,400	84,800
3	31,200	23,400	62,400	54,000	44,100	31,200	55,700	41,800	111,400
									96,500
									55,700

GENERAL NOTES:

(a) See Fig. 8 for sling types, Fig. 12 for hitch types, and Fig. 3 for sling angle descriptions. For D/d considerations see note in Fig. 5.

(b) For choker hitch, the angle of choke is 120 deg or greater.

Table 20
Polypropylene Rope Slings
Based on Design Factor = 5 and Rated Loads Expressed in pounds (lb)

Rope Diameter, in.	Vertical Choker	Eye-and-Eye Sling - Hitch Type				Endless Sling - Hitch Type			
		Two-Leg Bridle or Basket		Basket		Horizontal Angle, deg		Horizontal Angle, deg	
		90°	60°	45°	30°	Vertical Choker	90°	60°	45°
1/2	760	570	1,500	1,300	1,100	750	1,400	1,100	2,800
9/16	920	690	1,800	1,600	1,300	900	1,600	1,200	3,200
5/8	1,100	830	2,200	1,900	1,600	1,100	2,000	1,500	4,000
3/4	1,500	1,100	3,000	2,600	2,100	1,500	2,700	2,000	5,400
7/8	2,100	1,600	4,200	3,600	3,000	2,100	3,700	2,800	7,400
1	2,600	2,000	5,200	4,500	3,700	2,600	4,600	3,500	9,200
1 1/4	3,900	2,900	7,800	6,800	5,500	3,900	6,900	5,200	12,000
1 1/2	5,700	3,200	8,400	7,700	5,900	4,200	7,600	5,700	15,200
1 3/4	7,400	3,600	9,200	8,400	6,200	4,200	8,800	6,600	18,200
2	10,500	5,600	12,800	11,100	9,000	6,400	12,800	10,500	22,000
2 1/4	14,400	7,900	21,000	18,200	14,800	10,500	18,800	14,100	32,400
2 1/2	14,400	8,900	23,800	20,600	16,800	11,900	21,200	15,900	34,200
2 5/8	16,100	12,100	32,200	27,900	22,800	16,100	28,800	21,600	56,600
3	20,500	15,400	41,000	35,500	29,000	20,500	36,600	27,500	73,200
									63,400
									51,800
									36,600

GENERAL NOTES:

(a) See Fig. 8 for sling types, Fig. 5 for hitch types, and Fig. 3 for sling angle descriptions. For D/d considerations see note in Fig. 5.

(b) For choker hitch, the angle of choke is 120 deg or greater.

Table 21
Rated Load for One-ply, Class 5 Synthetic Webbing Slings
Expressed in Pounds

Width, in.	Types I, II, III, and IV				Type V		
	Single-Leg - Hitch Type	Two Leg - Horizontal Angles					
	Vertical	Choker	Vertical Basket	60°	45°	30°	Endless Vertical
1	1,100	880	2,200	2,200	1,900	1,600	1,100
1 1/2	1,600	1,280	3,200	2,800	2,300	1,600	3,200
2	1,900	1,520	3,800	3,300	2,700	1,900	3,800
2 1/2	2,200	1,760	4,400	3,800	3,100	2,200	4,400
3	3,300	2,640	6,600	5,700	4,700	3,300	6,600
4	4,400	3,520	8,800	7,600	6,200	4,400	8,800
5	5,500	4,400	11,000	9,500	7,800	5,500	11,000
6	6,600	5,280	13,200	11,400	9,300	6,600	13,200

GENERAL NOTES:

(a) The rated loads are based on stuffer weave construction webbing with a minimum certified tensile strength of 6,800 pounds per inch of width of the webbing.

(b) Rated loads for Types III and IV slings apply to both tapered and nontapered eye constructions. Rated loads for Type V slings are based on nontapered webbing.

(c) For Type VI slings, consult the manufacturer for rated loads.

(d) For choker hitch, the angle of choke is 120 deg or greater.

Table 22
Rated Load for Two-Ply, Class 5 Synthetic Webbing Slings
Expressed in Pounds

Width, in.	Types I, II, III, and IV				Type V		
	Single-Leg - Hitch Type	Two Leg - Horizontal Angles					
	Vertical	Choker	Vertical Basket	60°	45°	30°	Endless Vertical
1	2,200	1,760	4,400	4,400	3,800	3,100	2,200
1 1/2	3,300	2,640	6,600	6,600	5,700	4,700	3,300
1 3/4	3,800	3,040	7,600	7,600	5,400	3,800	7,600
2	4,400	3,520	8,800	8,800	7,600	6,200	4,400
3	6,600	5,280	13,200	13,200	11,400	9,300	6,600
4	8,200	6,560	16,400	16,400	14,200	11,600	8,200
5	10,200	8,160	20,400	20,400	17,700	14,400	10,200
6	12,300	9,840	24,600	24,600	21,300	17,400	12,300

GENERAL NOTES:

(a) The rated loads are based on stuffer weave construction webbing with a minimum certified tensile strength of 6,800 pounds per inch of width of the webbing.

(b) Rated loads for Types III and IV slings apply to both tapered and nontapered eye constructions. Rated loads for Type V slings are based on nontapered webbing.

(c) For Type VI slings, consult the manufacturer for rated loads.

(d) For choker hitch, the angle of choke is 120 deg or greater.

Table 23

Rated Load for One-Ply, Class 7

Synthetic Webbing Slings
Expressed in Pounds

Sling Width, in.	Types I, II, III, and IV				Type V		
	Single-Leg - Hitch Types	Two Leg - Horizontal Angles					
	Vertical	Choker	Vertical Basket	60°	45°	30°	Endless Vertical
1	1,600	1,280	3,200	3,200	2,800	2,300	1,600
1 1/2	2,300	1,840	4,600	4,600	4,000	3,300	2,300
1 3/4	2,700	2,160	5,400	4,700	3,800	2,700	5,400
2	3,200	2,480	6,200	6,200	5,400	4,400	3,200
3	4,700	3,760	9,400	9,400	8,100	6,600	4,700
4	6,200	4,960	12,400	12,400	10,700	8,800	6,200
5	7,800	6,240	15,600	13,500	11,000	7,800	15,600
6	9,300	7,440	18,600	18,600	16,100	13,200	9,300
8	11,750	9,440	21,150	23,600	18,300	15,000	21,150
10	14,700	11,760	26,450	29,400	22,900	18,700	26,450
12	17,650	14,120	31,750	35,200	31,750	22,400	17,650

GENERAL NOTES:

(a) The rated loads are based on stuffer weave construction webbing with a minimum certified tensile strength of 9,800 pounds per inch of width of the webbing.

(b) Rated loads for Types III and IV slings apply to both tapered and nontapered eye constructions. Rated loads for Type V slings are based on nontapered webbing.

(c) For Type VI slings, consult the manufacturer for rated loads.

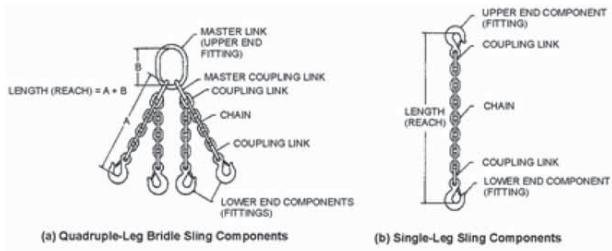
(d) For choker hitch, the angle of choke is 120 deg or greater.

Table 24

Rated Loads for Two-Ply, Class 7

Synthetic Webbing Slings
Expressed in Pounds

Sling Width, in.	Types I, II, III, and IV				Type V		
	Single-Leg - Hitch Types	Two Leg - Horizontal Angles					
	Vertical	Choker	Vertical Basket	60°	45°	30°	Endless Vertical
1	3,100	2,480	6,200	6,200	5,400	4,400	3,100
1 1/2	4,700	3,760	9,400	9,400	8,100	6,600	4,700
1 3/4	5,400	4,320	10,800	10,800	9,400	7,600	



(a) Quadruple-Leg Bridle Sling Components

(b) Single-Leg Sling Components



Fig. 1 Alloy Steel Chain Slings: Configurations, Components, and Hitches

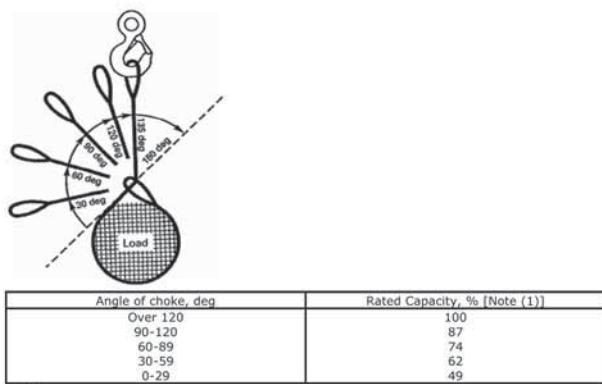


Fig. 2 Angle of Choke

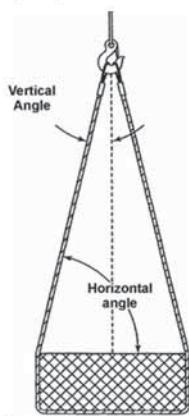
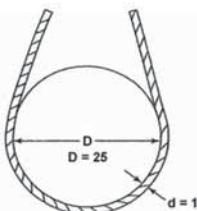
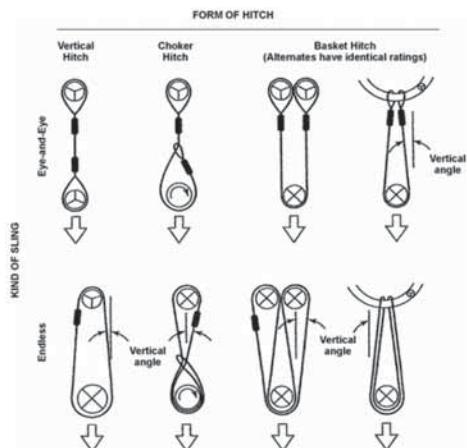


Fig. 3 Angle of Loading



GENERAL NOTE: When D is 25 times the component rope diameter (d), the D/d ratio is expressed as 25/1.

Fig. 4 D/d Ratio



The symbols below represent load or support surfaces in contact with the rope sling. The contact surface diameter divided by the rope diameter is designated D/d ratio as described in Fig. 6. Tables 18, 19, and 20 are based on the D/d ratios indicated below.

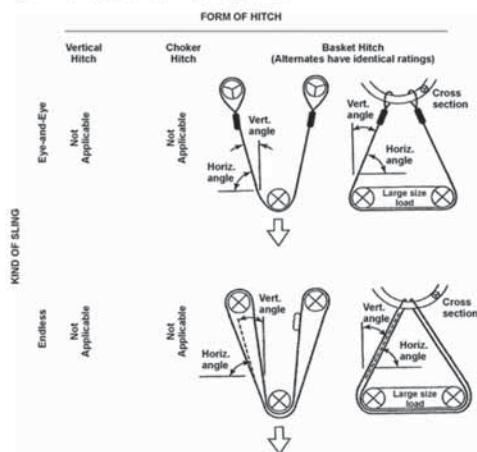
Represents a contact surface which has a diameter of curvature at least double the diameter of the rope from which the sling is made.

Represents a contact surface which has a diameter of curvature at least 8 times the diameter of the rope.

Represents a load in choker hitch and illustrates the rotary force on the load and/or the slippage of the rope in contact with the load. Diameter of curvature of load surface is at least double the diameter of the rope.

General Note: Legs 5 deg or less from vertical may be considered vertical. For slings more than 5 deg vertical, the actual angle shall be used.

Fig. 5 Hitch Types for Synthetic Rope Slings



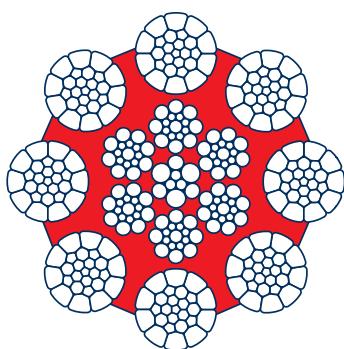
GENERAL NOTE: Legs 5 deg or less from vertical may be considered vertical. Slings with horizontal angles less than 30 deg should not be used.

Fig. 5 Hitch Types for Synthetic Rope Slings (cont'd)

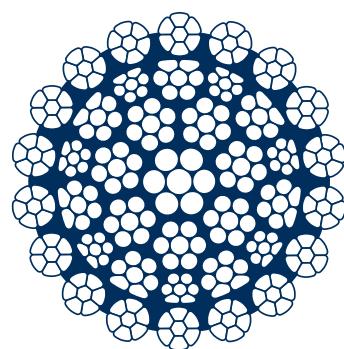
Bought a *cheap* product again?



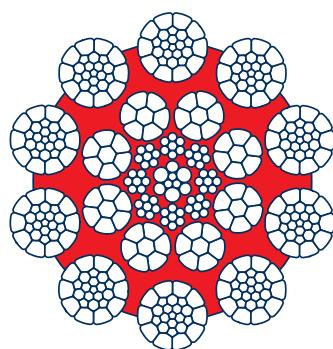
With glasses, and especially with steel wire ropes, this may lead to rather unpleasant results.



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LAEDC ECONOMICS CORNER

Continued from pg 33

- Short-term interest rates have declined in the U.S., reflecting easier monetary policy in the face of financial market turmoil. Central banks elsewhere (Europe, Japan, the U.K.) seem likely to follow suit in 2008. Long-term rates are mixed. U.S. Treasury rates fell as buyers fled to safety and will remain lower until stability returns to financial markets. However, other borrowers have not benefited much, as foreign, corporate and mortgage spreads all have widened.
- Housing activity is way down in the U.S. and won't recover in 2008. The housing sector is also at risk in several other nations.
- U.S. consumer spending has slowed, reflecting lower purchases of big-ticket light trucks and housing related items. Imports of these products have declined accordingly.
- In most nations, brisk growth in business investment in many types of equipment and reasonably healthy exports should make up for any shortfalls due to the U.S. slowdown.

The U.S. economy grew by an estimated 2.2% in 2007. Growth seems likely in the 2.0%-2.5% range in 2008. What about the rest of the world? The picture looks pretty good in most regions:

The Japanese economy continues to grow at a modest pace. GDP will increase by about 1.7% in 2008. Exports are the primary driver, especially to China and other Asian nations. However, domestic demand is growing slowly despite very low interest rates.

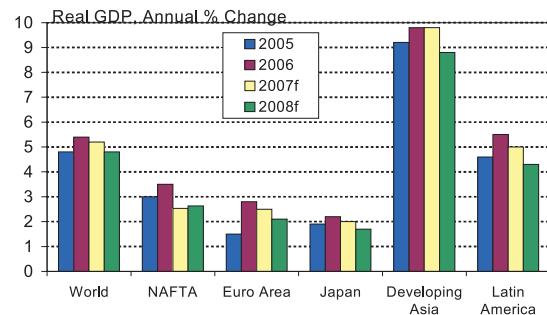
Growth in the Euro Area decelerated to 2.5% in 2007 from 2.8% the previous year. Unemployment rates have fallen nicely. Consumer spending is growing moderately in most nations. The Euro's sharp rise

against the U.S. dollar (up by 25% over the past two years) is a major concern for exporters. Euro Area growth will drop back to 2.1% in 2008.

Developing Asia's economic growth will continue rapid, boosted by exports, business investment and consumer spending. As in 2007, China and India will lead the way. Most commodity-exporting nations in the Middle East, the Former Soviet Union, and South America also should continue to prosper.

Global steel demand is expected to increase in 2008 but more slowly than in 2007. Housing and automotive production will slow outside Asia, but steel demand for business equipment, energy, mining, and infrastructure construction will be strong, especially in China, India, the Former Soviet Union, and the Middle East. Global steel production will rise in 2008, with much of the growth taking place in developing nations, China in particular. Prices of many steel inputs are on the rise again and are, on the whole, expected to remain high in 2007.

GLOBAL ECONOMIC OUTLOOK



U.S. steel demand will reflect the balance between reduced steel intake by automotive, appliance, residential construction, etc. on the one hand, and distributors' needs to build inventories from the extremely low levels of yearend 2007 on the other. Demand—and pricing—are at an inflection point. As long as steel supply is constrained by reduced imports, domestic producers will try to raise prices to cover their costs. The advantage could shift later, if the economy weakens more than currently expected.

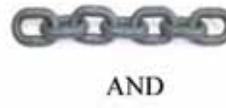
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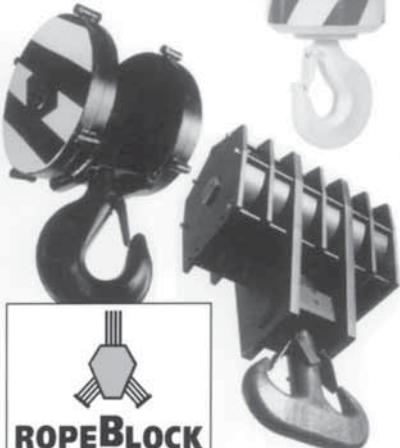
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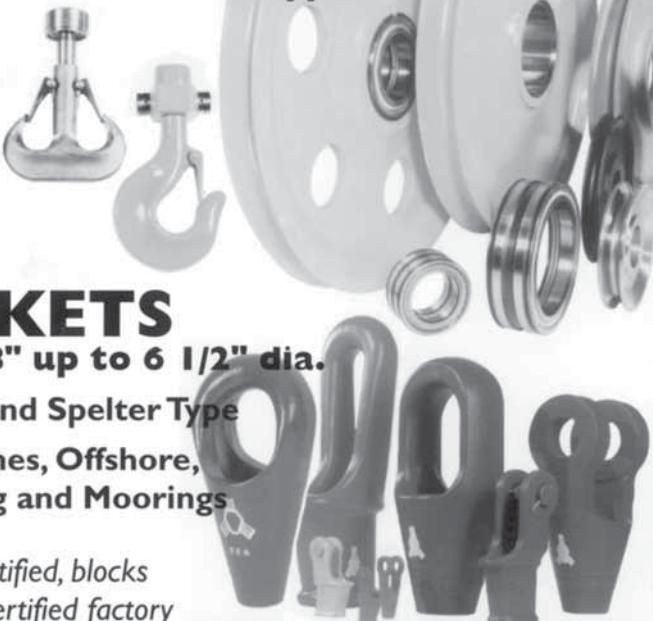
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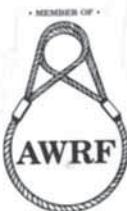
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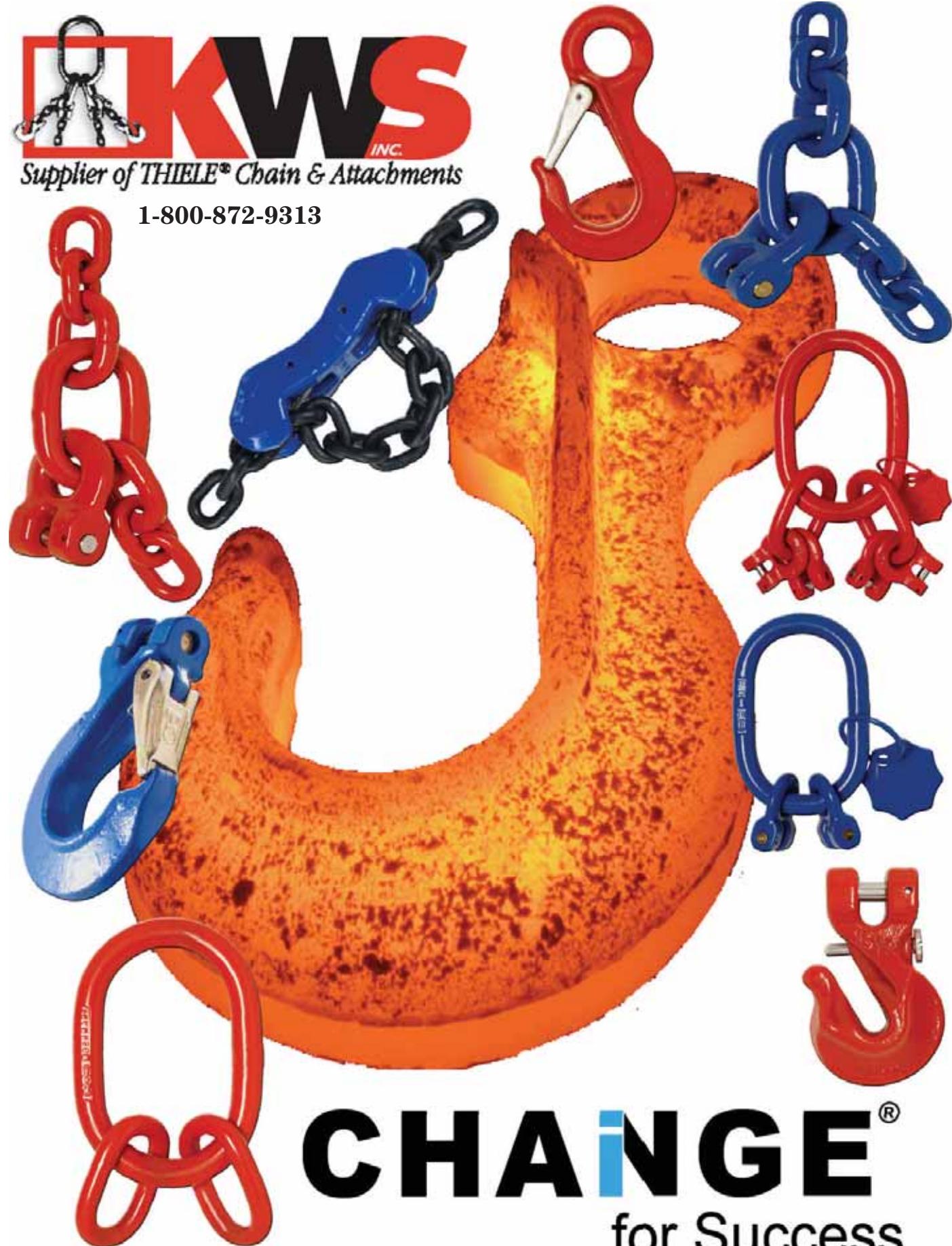
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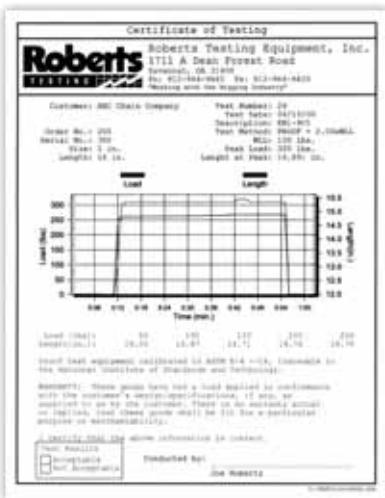
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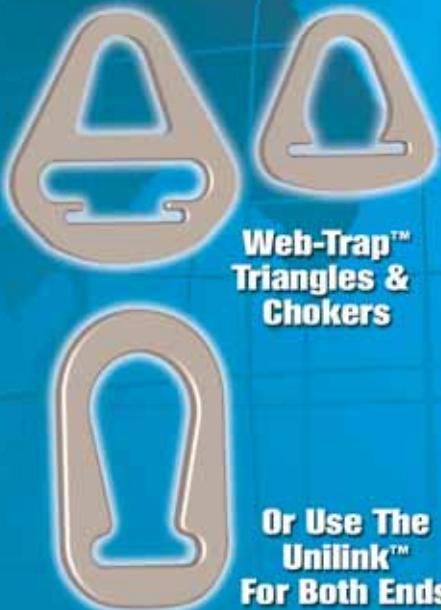


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