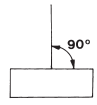
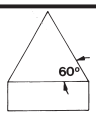
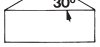
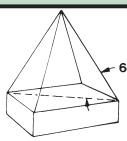
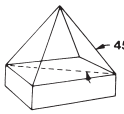
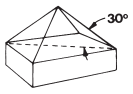
Chain Slings

Working Load Limits In Pounds*

SIZE OF CHAIN		TYPES OR C	DOUBLE BRANCH TYPE D					
								
INCHES	MM.	POUNDS LIFT WHEN USED SINGLE	POUNDS LIFT WHEN USED AT 60° ANGLE	POUNDS LIFT WHEN USED AT 45° ANGLE	POUNDS LIFT WHEN USED AT 30° ANGLE	TRIPLE/QUAD 60° ANGLE	TRIPLE/QUAD 45° ANGLE	TRIPLE/QUAD 30° ANGLE
7/32"	5.5	2100	3600	3000	2100	5450	4450	3150
9/32"	7.0	3500	6100	4900	3500	9100	7400	5200
3/8"	10.0	7100	12300	10000	7100	18400	15100	10600
1/2"	13.0	12000	20800	17000	12000	31200	25500	18000
5/8"	16.0	18100	31300	25600	18100	47000	38400	27100
3/4"	20.0	28300	49000	40000	28300	73500	60000	42400
7/8"	22.0	34200	59200	48400	34200	88900	72500	51300
1"	26.0	47700	82600	67400	47700	123900	101200	71500
1 1/4"	32.0	72300	125200	102200	72300	187800	153400	108400

NOTE: DESIGN FACTOR = 4 : 1 WARNING: DO NOT EXCEED RATED CAPACITIES

• Factory assembled HERC-ALLOY 800 chain slings have the "HERC-ALLOY 800" trademark on serial number tags and on the sling hooks. On chain sizes 9/32" thru – 1-1/4", links are alternately embossed with grade symbol " HA-800" and maker's symbol "CM" at approximate 10" intervals. This data applies to CM Herc-Alloy 800 Chain only. Ratings apply to both factory assembled slings and slings assembled with Hammerlok coupling links or Clevlok hooks.

Use, Care & Inspection of Herc Alloy 800 Chain Slings

The life and strength of Herc Alloy 800 Chain Slings depend on proper use, maintenance and inspection. Read the enclosed information carefully and refer also to ANSI B30.9 and OSHA regulations for additional information.

WARNING

IMPROPER USE AND CARE OF CHAIN SLINGS CAN RESULT IN BODILY INJURY.

TO AVOID INJURY:

- **NEVER EXCEED THE WORKING LOAD LIMIT.**
- **ALWAYS INSPECT SLING BEFORE EACH USE.**
- **DO NOT IMPACT LOAD OR JERK THE SLING.**
- **PROTECT CHAIN FROM SHARP CORNERS AND OBJECTS.**
- **PROTECT SLINGS FROM CORROSION.**

Chain Slings

Use

Observing the following precautions when using chain slings will help protect both operators and materials.

1. Inspect chain slings before use as indicated in inspection section.
2. Do not exceed working load limit as indicated on sling identification tag.† Any of the following factors can lower the load the chain will hold.
   - Rapid load application can produce dangerous overloading.
   - Variation in the angle of the load to the sling. As the angle decreases, the working load of the sling will decrease. Refer to Working Load Limit Chart.
   - Twisting, knotting and kinking subjects links to undesirable loading which decreases the working load limit of the sling.
   - Conditions other than that for which slings are intended can reduce the working load limit of the sling. For example, use at elevated temperatures will result in a reduction in working limit. Refer to CM Catalog 800 - Use of Chain under Heat Conditions.
3. Free all twists, knots and kinks.
4. Center load in hook(s). Hook latches must not support load.
5. Avoid sudden jerks when lifting and lowering.
6. Balance all loads, avoid tipping of loads.
7. Use pads around sharp corners.
8. Don't drop load on chains.
9. Select attachments such as hooks or rings for use with chain to match the size and working load limit of the chain.
10. Use only GR. 80 Alloy Chain.

† The identification tag is found on the master coupling link of each chain sling and contains the following information:
• Grade • Size • Reach • Type • Working Load Limit (at a specific angle of lift) • Serial number

Care

Chain slings require proper care as follows:

1. Store slings on an 'A' Frame in a clean dry place.
2. Avoid corrosion. Oil chains before prolonged storage.
3. Never alter the thermal treatment of Herc-Alloy 800 chain by heating.
4. Do not plate or change surface finish of sling. Contact Northern Strands for special requirements.

Inspection

It is important to inspect chain slings regularly and to keep a record of each chain inspection. The following is a guide for such an inspection procedure. Northern Strands will supply sling record cards or sheets as requested.

Before inspecting, clean the chain sling so that marks, nicks, wear and other defects can be seen. Use a non acid/non caustic solvent. Each chain link and sling component should be individually inspected for the following conditions.

1. Twist or bends.
2. Nicks or gouge.
3. Excessive wear at bearing points. Refer to Wear Allowance Chart.
4. Stretch.
5. Distorted, worn or damaged master links, coupling links, or attachments, especially spread in throat opening of hooks.
   Each link or component having any condition listed above is to be marked with paint to plainly indicate rejection and eliminated from service until properly repaired.

WEAR ALLOWANCE CHART

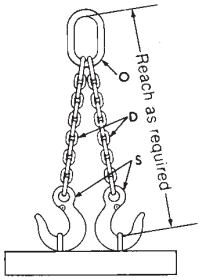
HERC-ALLOY 800 CHAIN SIZE	MAXIMUM ALLOWABLE WEAR	*MINIMUM THICKNESS ALLOWABLE AT LINK ENDS
9/32″	3/64″ (.046)	13/64″ (.203)
3/8″	5/64″ (.078)	18/64″ (.281)
1/2″	7/64″ (.109)	22/64″ (.343)
5/8″	9/64″ (.140)	27/64″ (.421)
3/4″	10/64″ (.156)	34/64″ (.531)
7/8″	11/64″ (.171)	40/64″ (.625)
1″	12/64″ (.187)	47/64″ (.734)
1-1/4″	16/64″ (.250)	58/64″ (.906)

This data valid for CM HERC-ALLOY 800 Chain only.

NOTE:
Northern Strands and Manufacturer assume no responsibility for the misuse or misapplication of any of its products. Products are provided with the express understanding that the purchaser and/or user are thoroughly familiar with the correct application and proper use. Warnings and definitions are provided as an aid to the user in understanding correct application and proper use.
Working Load Limit - Refers to the maximum load (rated capacity) in pounds that shall be applied to the chain sling. Refer to Working Load Limit Chart. The manufacturer does not accept any liability for damages which result from the sling being used in excess of the working load limit or from abuse.

How to select and order the proper chain sling

1. Determine the weight and configuration of the load(s) to be lifted.
2. Determine the type of chain sling required (see page 14), according to weight and configuration.
3. Determine the size of the body chain according to the working load limits on page 14. Be sure to take into consideration the effect of the required angle.
   *Working load limit: The working load limit is the maximum load in pounds which should ever be applied to chain, even when chain is new, and when load is uniformly applied in direct tension to a straight length of chain.
4. Determine the reach required to give the desired angle. The reach is measured from the upper bearing surface of the master link to the bearing surface of the lower attachment.
   If chain slings are to be used in pairs and are to be matched for reach, please indicate when ordering.
5. Be sure to specify type, size and reach when ordering chain slings. For specifications on additional hooks, attachments and accessories, see pages 23 through 30.
6. Product UPC code represents the last five digits of the complete UPC code. Each product UPC code must be preceded by CM Identification No. 43927 in order to obtain complete UPC code number. Example: 43927-00000.



CM Herc-Alloy 800 chain and attachments conversion table

Chain size			Hook size designation and markings			
Fraction (in.)	Decimal (in.)	Metric (mm)	Sling	Grab	Foundry	Latchlok
7/32	.218	5.5	HA22	10M	—	—
9/32	.281	7.0	HA220	HA1	HA498	9/32
3/8	.394	10.0	HA250	HA3	HA499	3/8
1/2	.512	13.0	HA280	HA5	HA500	1/2
5/8	.630	16.0	HA290	HA6	HA501	5/8
3/4	.787	20.0	HA300	HA7	HA502	3/4
7/8	.875	22.0	HA320	HA8	HA503	—
1	1.024	26.0	HA330	HA9	HA504	—
1 1/4	1.260	32.0	HA350	HA11	HA505	—

Care, use and inspection

The life and strength of CM Herc-Alloy 800 chain slings depend on proper inspection, maintenance and use. For additional information, refer to ANSI B30.9 and OSHA 1910.184.

Care

Chain requires careful storage and regular maintenance.

- Store chains on an A frame in a clean, dry place.
- To avoid corrosion, oil chains before prolonged storage.
- Do not heat CM Herc-Alloy 800 chain; this will alter its thermal treatment.
- Do not plate or change surface finish of chain. Contact CM for special requirements.

Use

To protect both operators and materials, observe these precautions when using chain slings:

- Before use, inspect chain and attachments following the instructions under “Inspection” below.
- Do not exceed working load limit. Any of the factors listed here can reduce the load the chain will hold:
  - Acceleration in rate of load application—can produce dangerous overloading.
  - Variation in the angle of the load to the sling—as the angle decreases, the working load of the sling will increase.
  - Twisting, knotting or kinking—subjects links to unusual loading, decreasing the working load of the sling.
  - Use for purposes other than those for which slings are intended—can reduce the working load of the sling.
- Free chain of all twists, knots and kinks.
- Center load in hook(s); hook latches must not support load.
- Avoid sudden jerks when lifting and lowering.
- Balance all loads; avoid tipping of loads.
- Use pads around sharp corners.
- Do not drop load on chains.
- Match the size and working load limit of attachments such as hooks or rings to the size and working load limit of the chain.
- For overhead lifting, use only alloy chain and attachments (grade 80).

Inspection

It is important both to inspect chain slings regularly and to keep a record of all chain inspections. Follow this guide for such an inspection system.

- Before inspecting, clean chains with a non-acid/non-caustic solvent so that marks, nicks, wear and other defects are visible.
- Inspect each link for these conditions:
  - Twists or bends.
  - Nicks or gouges.
  - Excessive wear at bearing points.
  - Stretch.
  - Distorted or damaged master links, coupling links or attachments, especially spread in throat opening of hooks.
- Mark plainly with paint each link or attachment showing any of the conditions listed here to indicate rejection; remove from service until properly repaired.

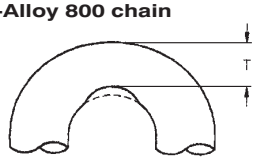
***⚠WARNING**

- Do not exceed working load limit.
- Use only alloy chain and attachments for overhead lifting.

Care, use and inspection (continued)

Wear allowances of CM Herc-Alloy 800 chain

Measure cross section at link ends to determine wear. If chain is worn to less than the minimum allowable thickness, remove from service.



Chain size		Minimum allowable thickness (T)	
Inches	mm	Inches	mm
7/32	5.5	0.185	4.7
9/32	7.0	0.239	6.1
3/8	10.0	0.335	8.5
1/2	13.0	0.435	11.1
5/8	16.0	0.536	13.6
3/4	20.0	0.669	17.0
7/8	22.0	0.744	18.9
1	26.0	0.870	22.1
1 1/4	32.0	1.071	27.2

Note: For sizes not listed, the Minimum Allowable Thickness can be calculated as 85% of the original material diameter.

CM chain inspection programs

CM provides chain users with a wide range of informative materials and instructive programs on chain and chain inspection. Our colorful chain safety poster/chart and our fact-filled booklet, "CM Lifting, Pulling & Binding Products Manual PMC-10," are available on request.

CM Chain seminars on proper chain use, care and inspection are conducted at our headquarters in Amherst, New York, and in plants across the country. Video cassette training programs, slide and film presentations and in-plant chain sling inspections are also available.

CM education programs are designed to promote the proper use of all CM products, and to assist users in complying with OSHA regulations.

Use of chain under extreme temperature conditions

When the chain itself is subjected to temperatures shown here, working load limits should be reduced as indicated.

Temperature of chain (°F)	Working load limit while at temperature[1]	Permanent reduction in working load limit[2]
<-40	not recommended	none
-40 to 400	100%	none
>400 to 600	0.9	none
>600 to 750	75%	10%
>750	not recommended	Contact CM rep.

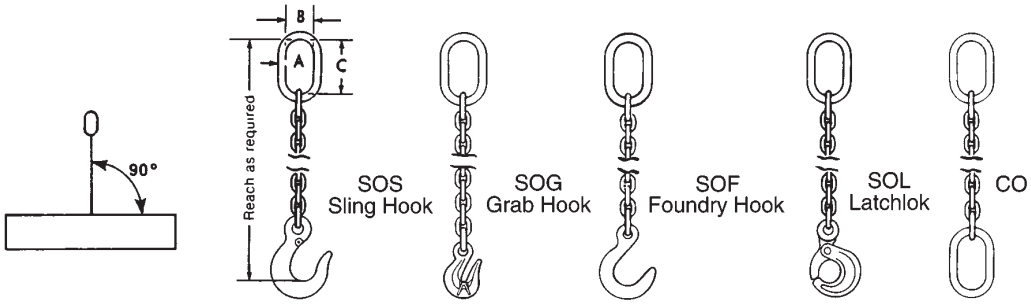
[1] While chain is at temperature shown in first column.
[2] When chain is used at room temperature after having been subjected to temperatures shown in first column.

Certificate of test and identification

The identification tag found on the master coupling link of each chain sling contains this information:

- Grade
- Size
- Reach
- Type
- Working load limit (at a specific angle of lift)
- Serial number

CM single chain sling type S & C



Chain size		Working load limit (lbs.)*	Oblong master link				Approx. weight (lbs.)
				Dimensions (inches)			
(in.)	(mm)		Master link number	Diameter material A	Inside width B	Inside length C	Type SOS 5 ft. reach
7/32	5.5	2,100	HA40	13/32	1 1/2	3	4
9/32	7	3,500	HA50	1/2	2 1/2	5	5
3/8	10	7,100	HA75	3/4	2 3/4	5 1/2	10
1/2	13	12,000	HA100	1	3 1/2	7	18
5/8	16	18,100	HA100	1	3 1/2	7	25
3/4	20	28,300	HA125	1 1/4	4 3/8	8 3/4	38
7/8	22	34,200	HA150	1 1/2	5 1/4	10 1/2	54
1	26	47,700	HA175	1 3/4	6	12	76
1 1/4	32	72,300	HA200	2	7	14	116