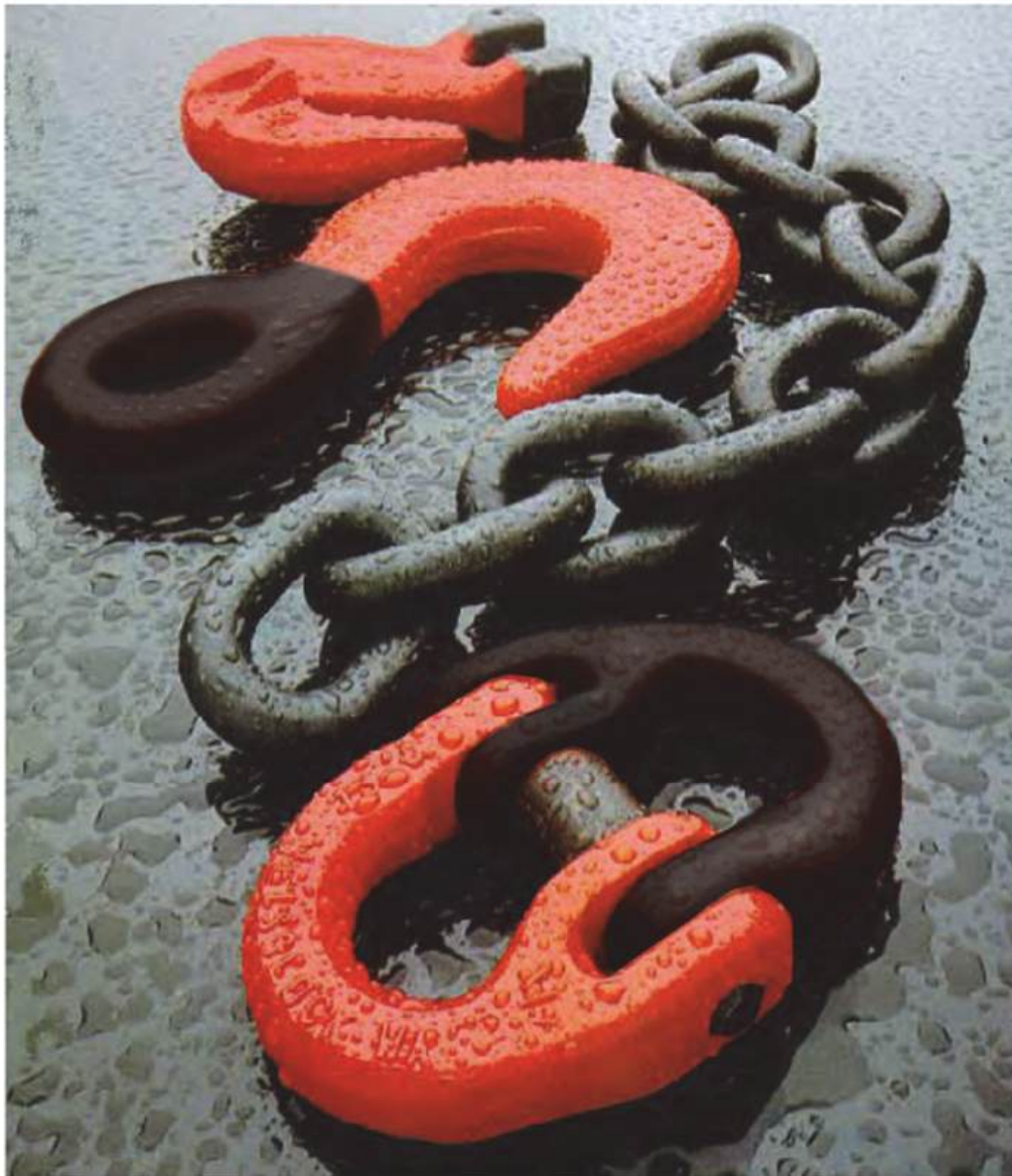




GRADE 80

GRADE 80 ALLOY LIFTING



GRADE 80



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VANGUARD STEEL LTD.

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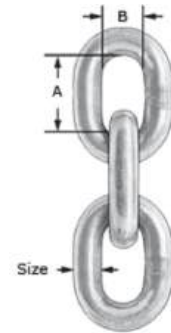
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Grade 80 VQ Alloy Lifting Chain

Produced to exceed the rigorous requirements of overhead lifting.
 This grade of lifting chain has good strength-to-weight ratio and excellent durability.
 Meets or exceeds all NACM & ASTM Standards



G 80 Chain Size	Nominal Dimension Inches		WLL (lbs)	Footage	Weight 100 ft	Product Code
	A	B				
Full Drums						
9/32"	0.88	0.41	3,500	800	72	38081016
5/16"	1.02	0.48	4,500	500	106	38081020
3/8"	1.22	0.57	7,100	400	150	38081024
1/2"	1.56	0.75	12,000	200	261	38081032
5/8"	1.93	0.92	18,100	150	361	38081040
3/4"	2.36	1.02	28,300	196	610	38081048
7/8"	2.60	1.13	34,200	164	720	38081056
1"	3.07	1.33	47,700	98	1025	38081100



Material	High grade Ni-Cr-Mo Alloy Chain
Finish	Special Black Epoxy.
Elongation	Min 20 %
Design Factor	4 : 1 In accordance with NACM Specifications

What is VQ

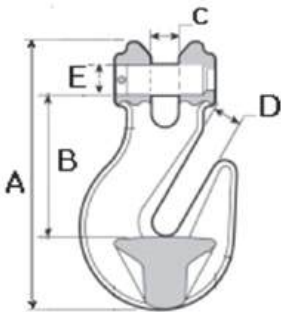


**WARNING: NEVER EXCEED WORKING LOAD LIMITS!
 LOAD RATINGS ARE FOR CHAINS IN 'NEW CONDITION'!
 INSPECT LIFTING CHAINS REGULARLY AND
 REPLACE ALL COMPONENTS SHOWING SIGNS OF WEAR!**



VGD Grade 80 Clevis Grab Hooks

Easily attaches to Grade 80 chain with pin and cotter.
 Approved for overhead lifting, when all components are grade 80.



Grab Hooks		Dimensions							
Grade 80		Inches							
Code	Chain Size	A	B	C	D	E	WLL lbs.	Lbs. Pc	Product Code
V-90	9/32-5/16"	3.62	1.97	0.41	0.41	0.39	4,500	0.73	395000161
V-91	3/8"	5.00	2.83	0.57	0.49	0.49	7,100	1.82	395000241
V-92	1/2"	5.98	3.54	0.67	0.65	0.63	12,000	3.52	395000321
V-93	5/8"	7.03	4.29	0.69	0.86	0.81	18,100	5.63	395000401
V-94	3/4"	8.25	5.04	0.94	0.98	0.98	28,300	8.58	395000481

Design Factor: 4 : 1

Spare Parts		Grab & Slip Hooks	
Code		Load Pin	Product Code
V-90		9/32"	395010161
V-91		3/8"	395010241
V-92		1/2"	395010321
V-93		5/8"	395010401
V-94		3/4"	395010481



Cotter Pin	Product Code
9/32"	395020161
3/8"	395020241
1/2"	395020321
5/8"	395020401
3/4"	395020481

WARNING: NEVER EXCEED WORKING LOAD LIMITS !
 Do not use lesser than Grade 80 components for any lifting application !
 Do not use chains or accessories with signs of wear or deformation !

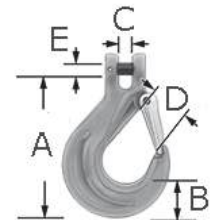


VGD Grade 80 Clevis Slip Hooks & Latch Kit

Easily attaches to Grade 80 chain with pin and cotter.
 Approved for overhead lifting, when all components are grade 80.
 All Hooks provided with latch kit assembled on the hook.



Slip Hooks		Dimensions							
Grade 80		Inches							
Code	Chain Size	A	B	C	D	E	WLL lbs.	Lbs. Pc	Product Code
V-80SU	9/32-5/16"	3.54	1.26	0.35	1.02	0.39	4,500	1.34	395110161
V-81SU	3/8"	4.44	1.40	0.47	1.22	0.49	7,100	2.24	395110241
V-82SU	1/2"	5.37	1.57	0.67	1.65	0.63	12,000	3.92	395110321
V-83SU	5/8"	6.79	1.98	0.75	2.05	0.81	18,100	9.72	395110401
V-84SU	3/4"	8.66	2.62	1.06	2.48	0.98	28,300	19.58	395110481



Design Factor: 4 : 1

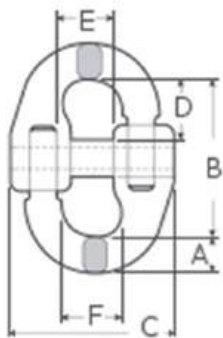
Replacement Cast Latch			
Grade 80			
Code	Chain Size	Weight lbs.	Product Code
V-80LKU	9/32-5/16"	0.08	396110161
V-81LKU	3/8"	0.10	396110241
V-82LKU	1/2"	0.12	396110321
V-83LKU	5/8"	0.35	396110401
V-84LKU	3/4"	0.40	396110481



WARNING: NEVER EXCEED WORKING LOAD LIMITS !
 Do not use lesser than Grade 80 components for any lifting application !
 Do not use chains or accessories with signs of wear or deformation !

VGD Grade 80 Connecting Links

Fast, easy assembly without the need for special tools or skills.
 Designed for attaching hooks, master links and other end fittings to Grade 80 alloy chain.
 Approved for overhead lifting, when all components are grade 80.



Con. Links Grade 80		Dimensions Inches								
Code	Chain Size	A	B	C	D	E	F	WLL lbs.	Lbs. Pc	Product Code
V-60	9/32"	0.46	2.17	2.12	0.97	0.75	0.87	4,500	0.44	395600161
V-61	3/8"	0.50	2.68	2.64	1.18	0.98	1.10	7,100	0.70	395600241
V-62	1/2"	0.65	3.34	3.07	1.48	1.04	1.28	12,000	1.50	395600321
V-63	5/8"	0.82	4.17	4.09	1.85	1.38	1.65	18,100	2.43	395600401
V-64	3/4"	0.90	4.57	4.25	1.90	1.73	1.85	28,300	3.80	395600481
V-65	7/8"	1.02	5.24	5.28	2.01	1.93	2.17	33,000	4.85	395600561
V-66	1"	1.20	6.45	6.25	2.68	2.40	2.60	46,700	11.00	395601001

Design Factor: 4 : 1

Con. Links Grade 80		Collars
Code	Hook Size	Product Code
V-60	9/32"	395610161
V-61	3/8"	395610241
V-62	1/2"	395610321
V-63	5/8"	395610401
V-64	3/4"	395610481
V-65	7/8"	395010561
V-66	1"	395611001



Load Pins	
Hook Size	Product Code
9/32"	39504016
3/8"	39564024
1/2"	39564032
5/8"	39564040
3/4"	39564048
7/8"	39504056
1"	39564100



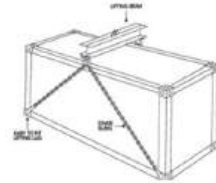
WARNING: NEVER EXCEED WORKING LOAD LIMITS !

Do not use lesser than Grade80 components for any lifting application !

Do not use chains or accessories with signs of wear or deformation !

Container Lifting Hook

Container lifting hooks are a grade 80 fitting, designed especially for the lifting purposes of containers. Container lifting hooks are supplied in either an angled lug, with configurations for both left and right, or a straight point lug, for a complete vertical lift. The Container Lifting Lugs lock into the Corner Castings of shipping containers



Features

- Forged special alloy steel, heat treated;
- It can be matched with sling and G80 chains which can meet the standard EN818-2;
- Each tested 2.5 times of working load limit;
- Sample test 20000 times of fatigue testing;
- Break testing for each batch;
- 100% magnetic powder flaw detection;
- Surface treatment: Powder Coated.

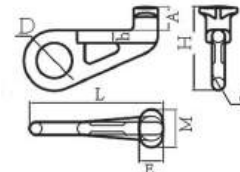
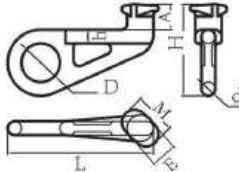
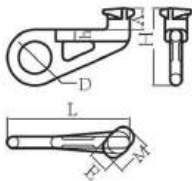


Material: Grade 80

Design factor 4:1

Container Lifting Hooks are intended for use as part of a spreader

Model		Dimensions (inches)								WLL (t)	Weight lbs/pc	Product Code
		A±	M±	H±	h±	E±	D±	d±	L±			
VL	Left Hand	1.81	2.95	6.54	0.98	1.89	2.75	0.98	10.43	12.5	8.8	39710003
VR	Right Hand	1.81	2.95	6.54	0.98	1.89	2.75	0.98	10.43	12.5	8.8	39710003
VS	Straight	1.81	2.95	6.54	0.98	1.89	2.75	0.98	10.43	12.5	8.8	39710003



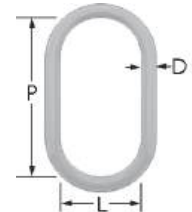
WARNING: NEVER EXCEED WORKING LOAD LIMITS !
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 Do not use chains or accessories with signs of wear or deformation !



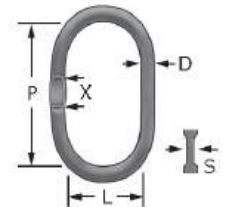
VGD Grade 80 Master Links

Design Factor 4 : 1

Approved for overhead lifting, when all components are grade 80.



Master Link		Nominal Dimensions										
No Flat Spot		Inches										
Code	Size	Chain Sling & Type				D	L	P	WLL lbs.	Weight lbs.	Product Code	
		Single	Double	Triple	Quad							
V-87-8	1/2"	9/32-5/16"	9/32"			1/2	2.75	4.72	6,100	0.80	395300322	
V-108-8	5/8"	3/8"	5/16"			5/8	3.15	5.50	7,750	1.55	395300402	
V-1310-8	3/4"	1/2"	3/8"	9/32-5/16"	9/32-5/16"	3/4	3.75	6.30	12,300	2.70	395300482	
V-1613-8	1"	5/8"	1/2"	3/8"	3/8"	1	4.33	7.50	20,800	5.30	395301002	
V-2016-8	1-1/4"	3/4"	5/8"	1/2"	1/2"	1-1/4	5.10	9.00	31,300	9.75	395301162	
V-2220-8	1-1/2"	7/8"	3/4"	5/8"	5/8"	1-1/2	5.90	10.80	49,000	18.00	395301322	
V-2622-8	1-3/4"	1"	7/8"	3/4"	3/4"	1-3/4	7.10	13.40	73,500	29.00	395301482	
V-3226-8	2"	1-1/4"	1"	7/8"	7/8"	2	7.50	13.75	88,900	38.00	395302002	



Master Link		Dimensions										
With Flat Spot		Inches										
Code	Size	Chain Sling & Type				D	L	P	S x X mm	WLL lbs.	Lbs. Pc	Product Code
		Single	Double	Triple	Quad							
VF-87-8	1/2"	9/32-5/16"	9/32"			1/2	2.75	4.72	8.0 x 25	6,100	0.80	39530032
VF-108-8	5/8"	3/8"	5/16"			5/8	3.15	5.50	8.0 x 25	7,750	1.55	39530040
VF-1310-8	3/4"	1/2"	3/8"	9/32-5/16"	9/32-5/16"	3/4	3.75	6.30	11.5 x 35	12,300	2.70	39530048
VF-1613-8	1"	5/8"	1/2"	3/8"	3/8"	1	4.33	7.50	14.5 x 45	20,800	5.30	39530100
VF-2016-8	1-1/4"	3/4"	5/8"	1/2"	1/2"	1-1/4	5.10	9.00	18.0 x 45	31,300	9.75	39530116

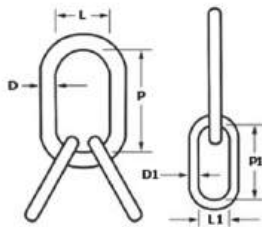
MASTER LINKS AND SUB-ASSEMBLIES (incl. sub links) INDIVIDUALLY PROOF TESTED PER ASTM 906/952 PRESCRIBED LOADS.

WARNING: NEVER EXCEED WORKING LOAD LIMITS !
 Do not use lesser than Grade 80 components for any lifting application !
 Do not use chains or accessories with signs of wear or deformation !



VGD Grade 80 Master Link Sub-Assembly

For Triple and Quad branch slings.
 Approved for overhead lifting, when all components are grade 80.



Master Link		Dimensions							WLL (lbs @ 60°)	Lbs. Pc	Product Code
Sub Assembly		Inches									
Code	Chain	D	L	P	D-1	L-1	P-1				
	Size	D	L	P	D-1	L-1	P-1				
V-7-8	9/32"	0.75	3.75	6.30	0.50	2.36	4.33	12,300	4.25	395400482	
V10-8	3/8"	1.00	4.33	7.50	0.75	3.75	6.30	20,800	12.75	395401002	
V13-8	1/2"	1.25	5.10	9.00	1.00	4.33	7.50	31,300	22.00	395401162	
V16-8	5/8"	1.50	5.90	10.80	1.13	5.10	9.05	49,000	33.00	395401322	
V20-8	3/4"	1.75	7.10	13.40	1.25	5.10	9.05	73,500	48.00	395401482	

Design Factor 4 : 1

MASTER LINKS AND SUB-ASSEMBLIES (incl. sub links) INDIVIDUALLY PROOF TESTED PER ASTM 906/952 PRESCRIBED LOADS.

WARNING: NEVER EXCEED WORKING LOAD LIMITS !
 Do not use lesser than Grade 80 components for any lifting application !
 Do not use chains or accessories with signs of wear or deformation !

VGD Grade 80 Self Locking SL Hooks

Easily attaches to Grade 80 chain with pin and cotter.

The latch on this hook automatically closes when pulling force is applied.

Approved for overhead lifting, when all components are grade 80.



SL Clevis		Dimensions							WLL	Lbs. Pc	Product Code
Grade 80		Inches									
Code	Chain	A	B	C	D	E	F	G	lbs.	Pc	Code
	Size										
VSC-7/8	9/32-5/16"	1.69	1.30	0.39	0.39	1.69	6.50	3.46	4,500	1.94	396200161
VSC-10	3/8"	2.20	1.89	0.49	0.47	2.20	8.15	4.33	7,100	3.69	396200241
VSC-13	1/2"	2.76	2.05	0.63	0.63	2.76	10.04	5.43	12,000	7.15	396200321
VSC-16	5/8"	3.23	2.68	0.79	0.73	3.23	11.81	6.93	18,100	13.20	396200401



Design Factor: 4 : 1

Trigger Kit	Product Code
SL Hook	

VSLG-7/8	396910161
VSLG-10	396910241
VSLG-13	396910321
VSLG-16	396910401

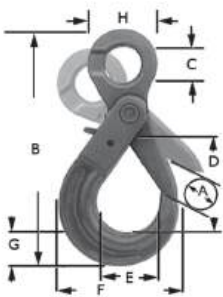


WARNING: NEVER EXCEED WORKING LOAD LIMITS !
 Do not use lesser than Grade 80 components for any lifting application !
 Do not use chains or accessories with signs of wear or deformation !



VGD Grade 80 Self Locking SL Hooks

Easily attaches to Grade 80 chain with shackle or connecting link.
 The latch on this hook automatically closes when pulling force is applied.
 Approved for overhead lifting, when all components are grade 80.



SL Eye		Dimensions										
Grade 80		Inches										
Code	Chain Size	A	B	C	D	E	F	G	H	WLL lbs.	Lbs. Pc	Product Code
VSC-7/8	9/32-5/16"	1.50	6.65	0.98	2.52	1.73	3.39	1.02	1.83	4,500	1.85	395800161
VSC-10	3/8"	2.05	8.62	1.24	3.03	2.28	4.33	1.42	2.46	7,100	3.47	395800241
VSC-13	1/2"	2.44	10.59	1.56	3.86	2.64	5.41	1.61	3.17	12,000	6.86	395800321
VSC-16	5/8"	2.95	12.60	1.97	4.53	3.39	6.89	2.17	3.82	18,100	13.00	395800401

Design Factor: 4 : 1



Trigger Kit SL Hook	Product Code
VSLG-7/8	396910161
VSLG-10	396910241
VSLG-13	396910321
VSLG-16	396910401

WARNING: NEVER EXCEED WORKING LOAD LIMITS !
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 Do not use chains or accessories with signs of wear or deformation !



VGD Grade 80 Self Locking Swivel SL Hooks

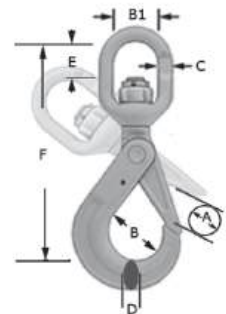
Easily attaches to Grade 80 chain with pin and cotter.

The latch on this hook automatically closes when pulling force is applied.

Approved for overhead lifting, when all components are grade 80.



SL Swivel		Dimensions							WLL	Lbs.	Product Code
Grade 80		Inches									
Code	Chain Size	A	B	B-1	C	D	E	F	lbs.	Pc	Code
VSC-7/8	9/32-5/16"	1.42	1.73	1.42	0.55	0.83	1.26	7.32	4,500	2.64	396900161
VSC-10	3/8"	1.65	2.20	1.65	0.65	1.10	1.63	8.90	7,100	4.95	396900241
VSC-13	1/2"	2.05	2.76	2.09	0.79	1.34	2.07	11.30	12,000	9.09	396900321
VSC-16	5/8"	2.60	3.23	2.40	0.91	1.61	1.97	13.23	18,100	16.83	396900401



Design Factor: 4 : 1

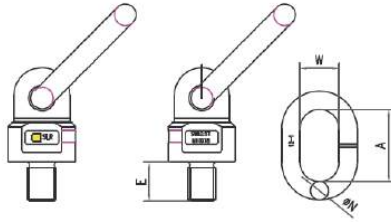
Trigger Kit SL Hook	Product Code
VSLG-7/8	396910161
VSLG-10	396910241
VSLG-13	396910321
VSLG-16	396910401



WARNING: NEVER EXCEED WORKING LOAD LIMITS !
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 Do not use chains or accessories with signs of wear or deformation !

SWIVEL HOIST RINGS (METRIC THREADS)

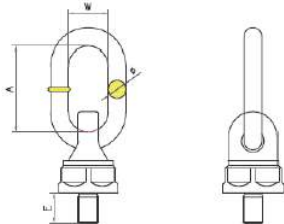
- Embossed with VGDM trace code
- WLL and nominal size to meet ASME B 30.26



Tap Size	Dimensions (mm)				WLL at Lift Angle (lbs)		Weight (lbs/pc)	Vanguard Code
	A	E	W	NØ	0 Deg.	90 Deg.		
1/4" - 20	55	13	30	14	1,213	606	0.90	2978 11613
5/16" - 18	55	13	30	14	1,323	661	0.92	2978 12013
3/8" - 16	55	18	30	14	1,984	1,102	0.95	2978 12418
7/16" - 14	55	18	30	14	2,205	1,102	0.96	2978 12818
1/2" - 13	55	20	30	14	2,205	1,102	0.98	2978 13220
5/8" - 11	55	20	30	14	4,409	2,469	1.05	2978 14020
3/4" - 10	70	30	35	16	8,818	4,409	2.11	2978 14830
7/8" - 9	70	30	35	16	11,023	5,512	2.45	2978 15630
1" - 8	85	30	40	18	13,889	6,945	3.11	2978 16430
1-1/4" - 7	115	50	50	25	26,015	17,637	8.00	2978 18050


SWIVEL HOIST RINGS (UNC THREADS)

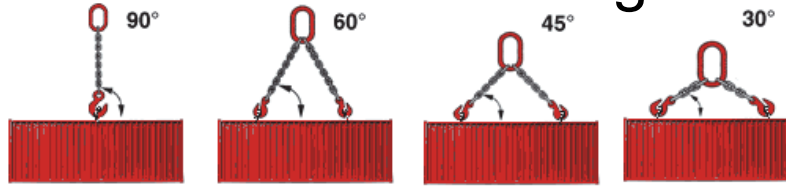
- Embossed with VGD trace code
- WLL and nominal size to meet ASME B 30.26



Tap Size	Dimensions (mm)				WLL at Lift Angle (tons)		Weight (lbs/pc)	Vanguard Code
	A	E	W	Ø	0 Deg.	90 Deg.		
M8	55	13	30	13	0.60	0.30	0.92	2978 20813
M8	55	18	30	13	0.60	0.30	0.95	2978 20818
M10	55	18	30	13	0.90	0.45	0.96	2978 21018
M10	55	25	30	13	0.90	0.45	1.11	2978 21025
M12	55	20	30	13	1.00	0.50	1.11	2978 21220
M12	55	27	30	13	1.00	0.50	1.11	2978 21227
M16	55	24	30	13	2.00	1.12	1.11	2978 21624
M16	55	30	30	13	2.00	1.12	1.12	2978 21630
M16	55	35	30	13	2.00	1.12	1.15	2978 21635
M20	85	30	40	18	4.00	2.00	2.14	2978 22030
M20	85	43	40	18	4.00	2.00	2.20	2978 22043
M24	85	30	40	18	6.30	3.15	3.22	2978 22430
M24	85	38	40	18	6.30	3.15	3.27	2978 22438
M30	115	35	50	25	10.60	5.30	4.81	2978 23035
M30	115	50	50	25	11.80	8.00	8.30	2978 23050
M36	115	54	50	25	11.80	8.00	8.65	2978 23654



Grade 80 Chain Working Load Limit



Chain Size	Single 90°	Double			Triple/Quad		
	90°	60°	45°	30°	60°	45°	30°
9/32"	3,500	6,100	4,900	3,500	9,100	7,400	5,200
3/8"	7,100	12,300	10,000	7,100	18,400	15,100	10,600
1/2"	12,000	20,800	17,000	12,000	31,200	25,500	18,000
5/8"	18,100	31,300	25,600	18,100	47,000	38,400	27,100
3/4"	28,300	49,000	40,000	28,300	73,500	60,000	42,400
7/8"	34,200	59,200	48,400	34,200	88,900	72,500	51,300
1"	47,700	82,600	67,400	47,700	123,800	101,000	71,500

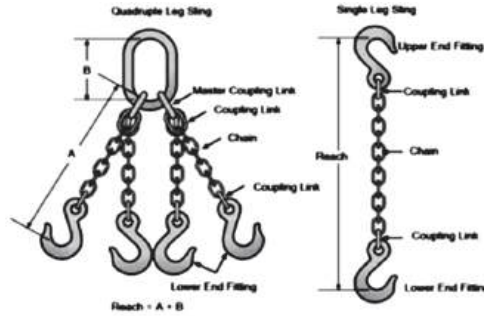
Grade 80 Component Selection Guide

Sling Type	Chain Size	Master Link		Coupling Link	Hooks			
		Oblong	Sub Ass		Grab	Slip	Eye Grab	Eye Sling

Single	9/32"	1/2"		9/32"	9/32"	9/32"	9/32"	9/32"
Double		1/2"						
Triple/Quad			3/4"					
Single	3/8"	3/4"		3/8"	3/8"	3/8"	3/8"	3/8"
Double		3/4"						
Triple/Quad			1"					
Single	1/2"	1"		1/2"	1/2"	1/2"	1/2"	1/2"
Double		1"						
Triple/Quad			1-1/4"					
Single	5/8"	1"		5/8"	5/8"	5/8"	5/8"	5/8"
Double		1-1/4"						
Triple/Quad			1-1/2"					
Single	3/4"	1-1/4"		3/4"	3/4"	3/4"	3/4"	3/4"
Double		1-1/2"						
Triple/Quad			1-3/4"					
Single	7/8"	1-1/2"		7/8"	7/8"	7/8"	7/8"	7/8"
Double		1-3/4"						
Triple/Quad			2"					
Single	1"	1-3/4"		1"	1"	1"	1"	1"
Double		2"						
Triple/Quad			2-1/4"					

Working Load Limit - 4 to 1 design factor

Various Styles of Chain Slings



Single Leg Type Slings



Double Leg Type Slings



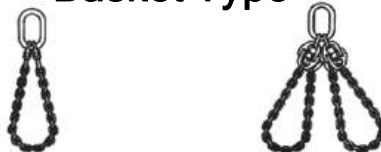
Triple Leg Type Slings



Quadruple Type Leg Slings



Basket Type



Calculate the WLL of lifting Chain angles

To determine the angle WLL of a lifting chain find the WLL at 90°

At 60°	Multiply by	0.8660	For Each leg x Number of legs for WLL of Sling
At 45°	Multiply by	0.7071	For Each leg x Number of legs for WLL of Sling
At 30°	Multiply by	0.5000	For Each leg x Number of legs for WLL of Sling



General Warnings

All Vanguard rigging products are sold with the express understanding that both the purchaser and the end user are thoroughly familiar with the safe, proper and acceptable applications of the products.

It is the responsibility of the end user to establish proper safety programs and to provide thorough training for all personnel prior to use. The training programs must meet any federal/provincial/state/local code requirements, existing plant/site safety rules and regulations, and all instructions provided in the applicable section of this catalogue.

Product failure can occur due to abuse, misapplication, lack of maintenance, use by unqualified personnel and improper inspection prior to use. **Any failure of rigging products may result in property damage, personal injury and even death!!!!**

Standards

There are numerous government and industrial standards that cover rigging products. This catalogue makes no attempt to reference all of them; it references to the standards that are most frequently asked about.

Working Load Limit (WLL) – Safe Working Load (SWL)

The Working Load Limits shown in this catalogue are applicable to products that are new or “in as new” condition. The Working Load Limits ratings refer to the maximum amount of force or load that the rigging product can carry under normal working/environmental conditions. The Working Load Limits and Design Factor can be affected by wear, misuse, overloading, shock loading, side loading, corrosion, deformation, product alteration and other use conditions. Inspection of rigging products prior to use is required to determine whether the product continues to meet the assigned WLL provided in this catalogue, should be used at a reduced rating or removed from service.

The WLL rating must never be exceeded!!!!



General information disclaimer

The contents contained in this publication are for general information only.

Although every effort has been made to assure the accuracy of the information at time of print, persons who use the Catalog should note that ratings, laws, rules, and policies change from time to time and that these changes may alter the information contained in this publication.

Vanguard Steel Ltd. assumes no liability for Catalog errors or omissions.

It is the responsibility of each person who uses this Catalog to ascertain current information that pertains to the individual lifting program, particularly with regard to satisfactory safety compliance requirements. Check your Provincial and Local safety standards before any operation or lift is attempted.

It is the responsibility of the person/operator to frequently search for updated reference information.

Do not use lesser than matching Grade components for any lifting application !

Do not use Slings, Chains or Accessories with signs of wear or deformation !

Inspections - Each day before being used, the sling and all fastenings and attachments shall be inspected for damage or defects by a competent person designated by the employer. Additional inspections shall be performed during sling use where service conditions warrant. Damaged or defective slings shall be immediately removed from service.