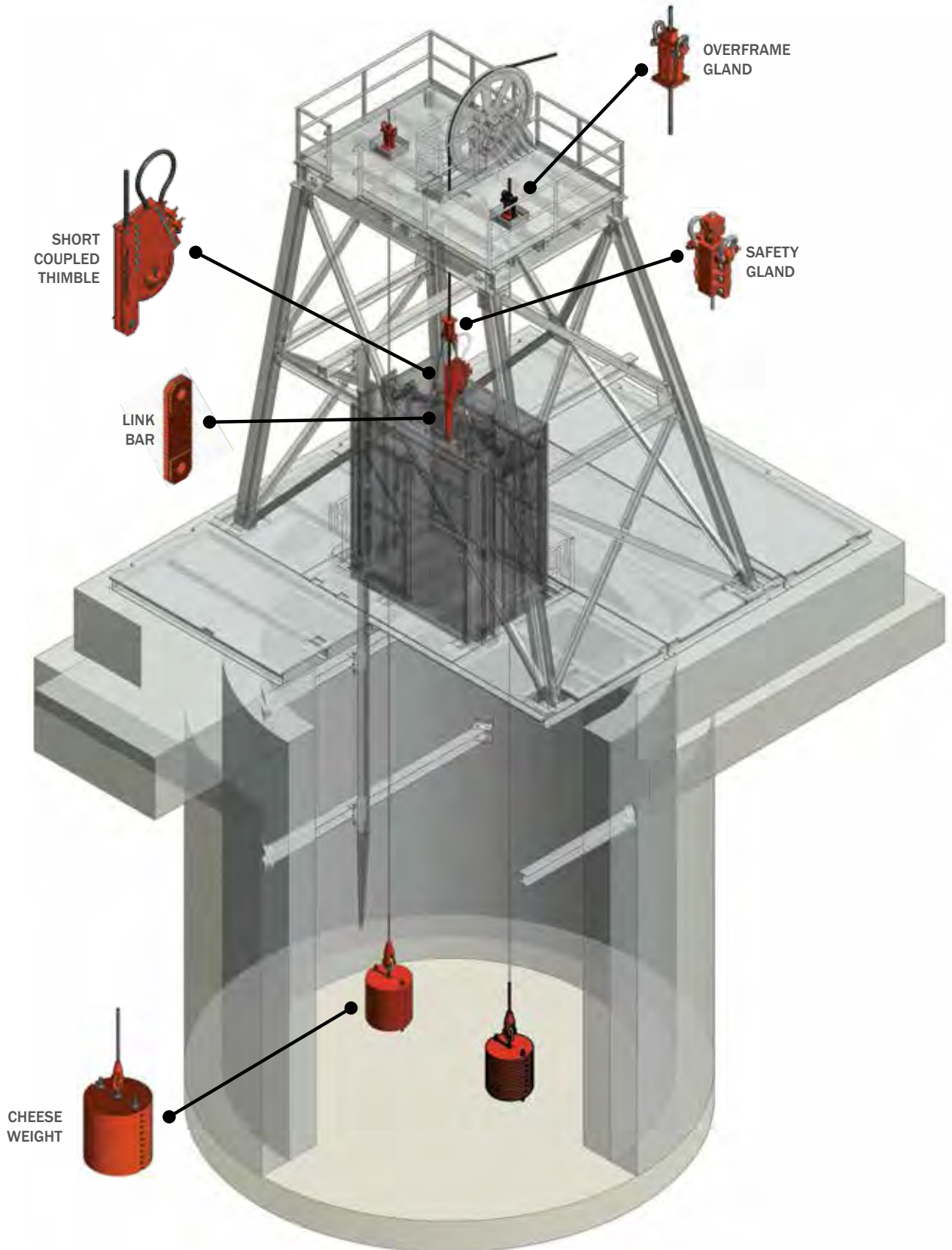


ROPE ATTACHMENTS





DESIGN. BUILD. INSTALL. SERVICE.

Since its founding in 1858, Lake Shore has upheld its enviable reputation as a manufacturer of quality mining equipment. Pooling the technical talents of its engineering staff and the capabilities of its manufacturing personnel, Lake Shore's unique ability to design and produce a broad line of mining equipment enables the company to tackle even the most unusual challenge.

FKC-Lake Shore can be your single source for complete underground mining systems including design, construction, and products such as Hoists, Skips, Skip

Loaders, Cages, Headframes, Sheaves, Feeders, Safety Devices, Guide Rollers, Rope Attachments, and Mine Cars.

FKC-Lake Shore serves the underground heavy civil and mining industries throughout North and South America. We offer design-build-install services for innovative hoisting, elevator, and vertical conveyance systems used to transport personnel and material. Our Field Services Division provides routine maintenance, inspections, wire rope NDT, and **24/7 emergency repair** of electrical and mechanical systems.



HEADFRAMES



CONTROLS



CAGES/
ELEVATORS



HOISTS



VERTICAL
BELTS



SKIPS



BRAKEMAN
CARS



SHEAVES



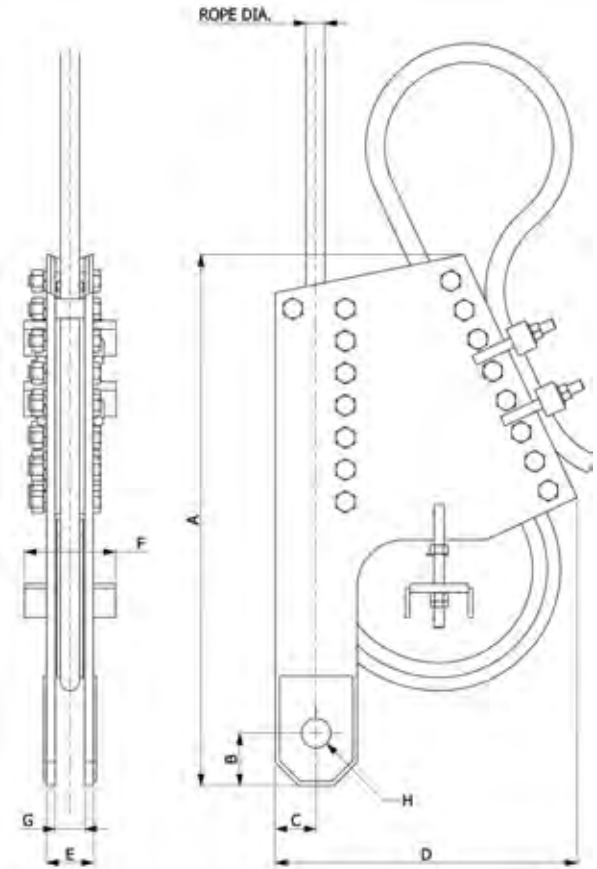
WIRE ROPE
NDT



FIELD
SERVICES

SHORT COUPLED THIMBLE

The Short Coupled Thimble is a compact design with decades of success in the mining industry. The rope is wrapped around a grooved inner thimble (wedge), which slides up into side plates where two, fixed rope liners are mounted. As the rope is tensioned, it is clamped tightly between the wedge and the fixed rope liners. The safety loop of rope gives a simple visual indication of any slipping within the thimble.



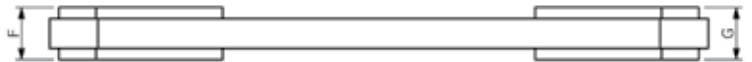
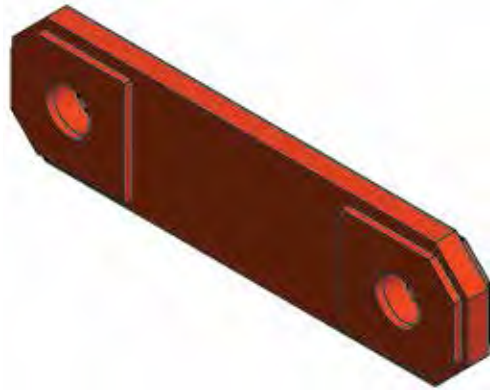
ROPE DIA. (in.)	PART NUMBER	SAFE WORKING LOAD ¹				APPROX. WEIGHT (lbs)	DIMENSIONS (in.)							
		MATERIAL ²		PERSONNEL ²			A	B	C	D	E	F	G	H
		lbs	tons	lbs	tons									
5/8	RA11-0001	16,000	8	8,000	4	95	21	2 3/4	2 3/8	13 1/4	2 1/2	5 3/4	1 1/2	1 3/4
3/4	RA11-0002	16,000	8	8,000	4	95	21	2 3/4	2 3/8	13 1/4	2 1/2	5 3/4	1 1/2	1 3/4
7/8	RA11-0003	16,000	8	8,000	4	95	21	2 3/4	2 3/8	13 1/4	2 1/2	5 3/4	1 1/2	1 3/4
1	RA11-0004	28,000	14	14,000	7	240	34 3/8	3	2 1/2	19 1/4	3	6 3/8	1 3/4	2
1 1/8	RA11-0005	34,000	17	17,000	8.5	300	34 3/8	3	2 1/2	19 1/4	4	7	2	2
1 1/4	RA11-0006	36,000	18	18,000	9	300	35 1/8	3	2 1/2	19 1/4	4	7	2	2 3/8
1 3/8	RA11-0007	40,000	20	20,000	10	330	36 3/8	3 1/2	3	19 3/4	4	7	2 1/4	2 3/8
1 1/2	RA11-0008	48,000	24	24,000	12	420	42	3 1/2	3	23 3/8	3 3/4	7 1/4	2 1/4	2 1/2
1 5/8	RA11-0009	48,000	24	24,000	12	420	42	3 1/2	3	23 3/8	3 3/4	7 1/4	2 1/4	2 1/2
1 7/8	RA11-0010	56,000	28	28,000	14	530	45 3/8	4 1/2	3 1/2	25 13/16	4 1/2	7 3/4	2 1/2	2 1/2
2	RA11-0011	64,000	32	32,000	16	740	50 1/2	4 1/2	4	27 13/16	5	8 1/4	2 1/2	3
2 1/8	RA11-0012	78,000	39	39,000	19.5	740	50 1/2	4 3/8	4	27 3/4	5	8 1/2	2 1/2	3
2 1/4	RA11-0013	84,000	42	42,000	21	740	50 1/2	4 1/2	4	27 3/4	5	8 1/2	2 1/2	3 1/4
2 1/2	RA11-0014	104,000	52	52,000	26	1040	60 1/8	5 1/2	5	32	5 1/4	9 3/4	3	3 1/2

*CUSTOM DESIGNS AVAILABLE UPON REQUEST FOR LARGER ROPE DIAMETERS

1. All Short Coupled Thimbles are proof load tested to two (2) times the safe working load.
2. Working loads based on a safety factor of 5:1 for material and 10:1 for personnel.

LINK BAR

Standard links are available for each rope size and custom configurations are available upon request. Links are manufactured with grain restrictions and tested for quality assurance and safety.

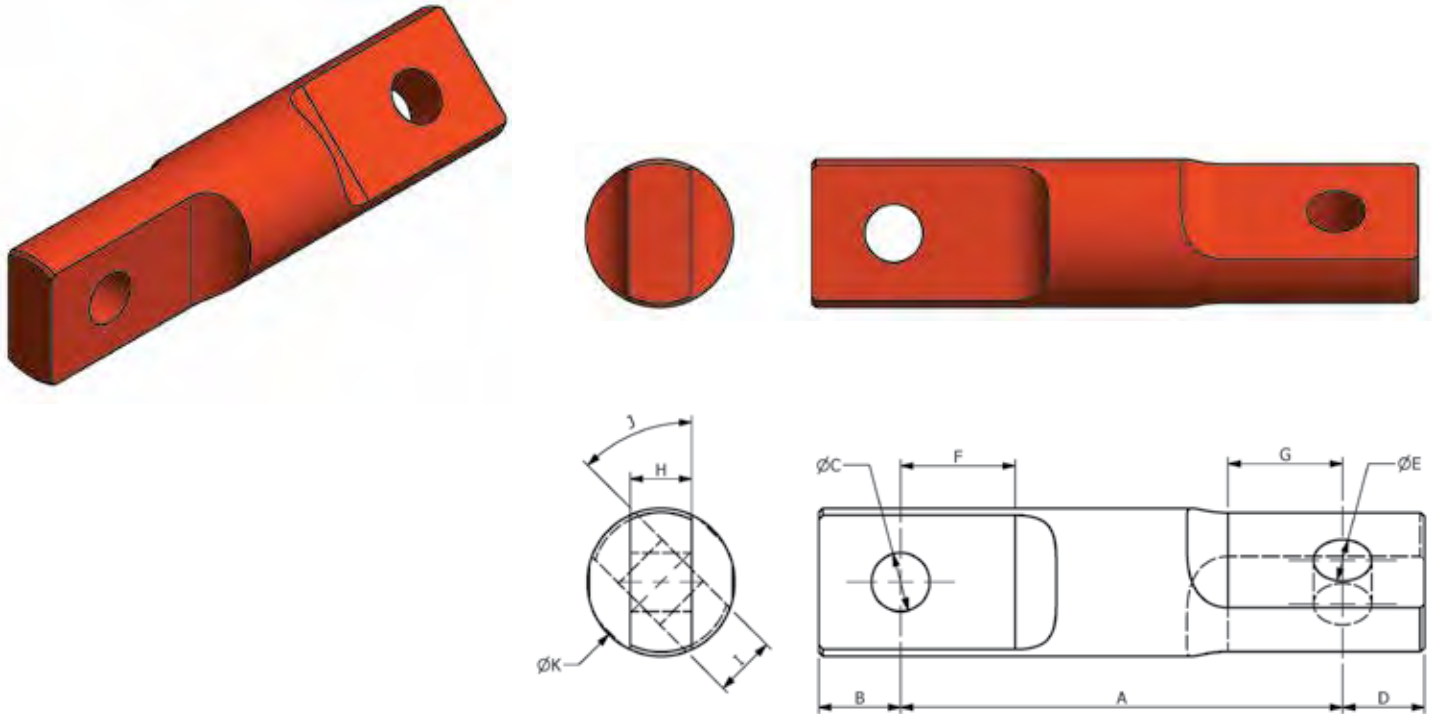


PART NUMBER	MATING SCT(s)	SAFE WORKING LOAD ¹				APPROX. WEIGHT (lbs)	DIMENSIONS (in.)						
		MATERIAL ¹		PERSONNEL ¹			A	B	C	D	E	F	G
		lbs	tons	lbs	tons								
RA05-0002	RA11-0001/2/3	29,000	14.5	14,500	7.25	30	14	2 3/4	1 3/4	2 3/4	1 3/4	1 3/8	1 3/8
RA05-0003	RA11-0004	31,000	15.5	15,500	7.75	36	16	3 1/16	2	3 1/16	2	1 1/2	1 1/2
RA05-0004	RA11-0005	36,000	18	18,000	9	44	16	3 1/16	2	3 1/16	2	1 3/4	1 3/4
RA05-0005	RA11-0006	44,000	22	22,000	11	62	19	3 11/16	2 3/8	3 1/16	2 3/8	1 3/4	1 3/4
RA05-0006	RA11-0007	50,000	25	25,000	12.5	68	19	3 3/4	2 3/8	3 3/4	2 3/8	2	2
RA05-0007	RA11-0008/9	57,000	28.5	28,500	14.25	82	20	3 3/8	2 1/2	3 3/8	2 1/2	2	2
RA05-0008	RA11-0010	68,000	34	34,000	17	96	20	3 7/8	2 1/2	3 7/8	2 1/2	2 1/4	2 1/4
RA05-0009	RA11-0011/12	78,000	39	39,000	19.5	128	24	4 1/2	3	4 1/2	3	2 1/4	2 1/4
RA05-0010	RA11-0013	88,000	44	44,000	22	155	26	4 7/8	3 1/4	4 7/8	3 1/4	2 1/4	2 1/4
RA05-0011	RA11-0014	106,000	53	53,000	26.5	204	28	5 5/16	3 1/2	5 5/16	3 1/2	2 3/4	2 3/4

1. Working loads based on a safety factor of 5:1 for material and 10:1 for personnel.

CHASE BLOCK

FKC-Lake Shore offers a full line of ancillary products to be used with rope attachments including Chase Blocks, Links, and Pins for hoisting applications. Chase Blocks are available with both jaw (open) ends and tang (closed) ends for applications requiring 45° and 90° of rotation. Custom angles and end configurations are available upon request. Chase Blocks are machined from a solid piece of material and tested for quality assurance and safety.

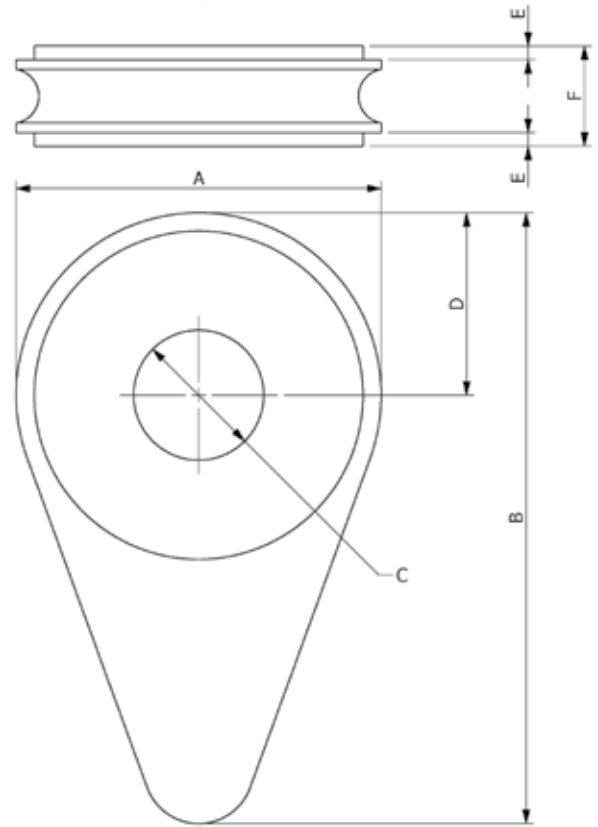
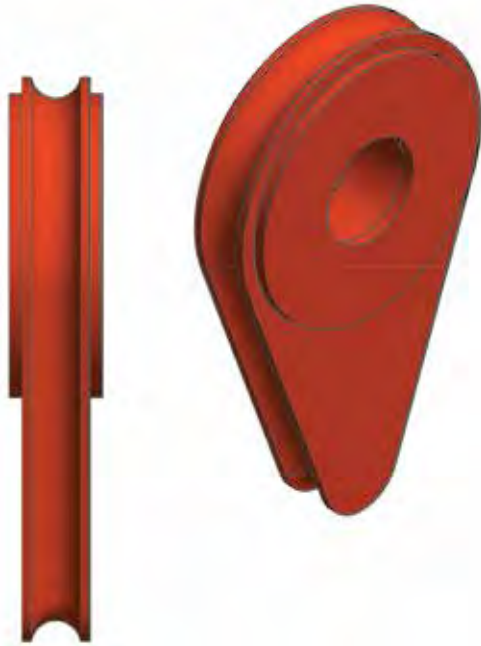


PART NUMBER	MATING SCT(s)	SAFE WORKING LOAD ¹				APPROX. WEIGHT (lbs)	DIMENSIONS (in.)										
		MATERIAL ¹		PERSONNEL ¹			A	B	C	D	E	F	G	H	I	J	K
		lbs	tons	lbs	tons												
RA06-0001	RA11-0001/2/3	29,000	14.5	14,500	7.25	44	14	2 ½	1 ¾	2 ½	1 ¾	3 ½	3 ½	1 ⅝	1 ⅝	45°	4 ½
RA06-0002	RA11-0004	31,000	15.5	15,500	7.75	58	15 ¼	2 ¾	2	2 ¾	2	4	4	1 ½	1 ½	45°	5
RA06-0003	RA11-0005	36,000	18	18,000	9	62	15	2 ¾	2	2 ¾	2	4	4	1 ¾	1 ¾	45°	5
RA06-0003	RA11-0006	44,000	22	22,000	11	92	17 ½	3 ⅝	2 ⅝	3 ⅝	2 ⅝	4 ¾	4 ¾	1 ¾	1 ¾	45°	6
RA06-0005	RA11-0007	50,000	25	25,000	12.5	98	17 ¾	3 ⅝	2 ⅝	3 ⅝	2 ⅝	4 ¾	4 ¾	2	2	45°	6
RA06-0006	RA11-0008/9	57,000	28.5	28,500	14.25	108	18	3 ½	2 ½	3 ½	2 ½	5	5	2	2	45°	6 ¼
RA06-0007	RA11-0010	68,000	34	34,000	17	114	17 ¾	3 ½	2 ½	3 ½	2 ½	5	5	2 ¼	2 ¼	45°	6 ¼
RA06-0008	RA11-0011/12	78,000	39	39,000	19.5	170	21	4 ⅝	3	4 ⅝	3	6	6	2 ¼	2 ¼	45°	7 ½
RA06-0009	RA11-0013	88,000	44	44,000	22	209	22 ¾	4 ½	3 ¼	4 ½	3 ¼	6 ½	6 ½	2 ¼	2 ¼	45°	8 ¼
RA06-0010	RA11-0014	106,000	53	53,000	26.5	267	23 ¾	4 ⅞	3 ½	4 ⅞	3 ½	7	7	2 ¼	2 ¼	45°	8 ¾

1. Working loads based on a safety factor of 5:1 for material and 10:1 for personnel.

THIMBLE

Thimbles can be used for a variety of purposes. They are most commonly used for balance ropes on multi-rope friction winders. The rope is looped around the thimble and then secured with rope clips.



ROPE DIA. (in.)	PART NUMBER	SAFE WORKING LOAD ¹				APPROX. WEIGHT (lbs)	DIMENSIONS (in.)					
		MATERIAL ²		PERSONNEL ²			A	B	C	D	E	F
		lbs	tons	lbs	tons							
5/8	RA01-0001	25,000	12.5	12,500	6.25	8	5	8 3/8	1 25/32	2 1/2	3/16	1 3/8
3/4	RA01-0002	31,000	15.5	15,500	7.75	14	6	10 3/8	1 25/32	3	N/A	1 3/8
7/8	RA01-0003	31,000	155	15,500	7.75	18	7	11 7/8	1 25/32	3 1/2	N/A	1 3/8
1	RA01-0004	36,000	18	18,000	9	28	8	13 3/8	2 1/2	4	N/A	1 5/8
1 1/8	RA01-0005	36,000	18	18,000	9	32	9	15 1/4	2 1/2	4 1/2	3/16	1 7/8
1 1/4	RA01-0006	50,000	25	25,000	12.5	40	10	17 1/4	2 13/32	5	N/A	1 5/8
1 3/8	RA01-0007	61,000	30.5	30,500	15.25	62	11	18 3/4	2 13/32	5 1/2	N/A	2
1 7/16	RA01-0008	64,000	32	32,000	16	67	11 1/2	19 3/4	2 17/32	5 3/4	N/A	2
1 1/2	RA01-0009	64,000	32	32,000	16	72	12	20 3/4	2 17/32	6	N/A	2
1 5/8	RA01-0010	65,000	32.5	32,500	16.25	84	13	22 1/4	2 17/32	6 1/2	3/16	2 3/8
1 3/4	RA01-0011	87,000	43.5	43,500	21.75	108	14	24 1/8	3 1/2	7	N/A	2 1/4
1 7/8	RA01-0012	86,000	43	43,000	21.5	119	15	25 5/8	3 1/2	7 1/2	N/A	2 1/4
2	RA01-0013	94,000	47	47,000	23.5	133	16	27 5/8	3 3/2	8	N/A	2 1/4
2 1/4	RA01-0014	124,000	62	62,000	31	213	18	31	3 13/32	9	N/A	2 3/4

1. Working loads based on a safety factor of 5:1 for material and 10:1 for personnel.



SOCKET

Wire rope sockets are one of the most common ways to attach a wire rope to a conveyance. They can be used for single rope and multi-rope systems depending on the application. The rope is secured in the socket using a resin kit, which hardens and prevents the rope from pulling back out of the socket.



Cheese Weight



Spring Tensioners

ROPE TENSIONING SYSTEM

FKC-Lake Shore offers two means of tensioning guide ropes: Cheese Weights and Spring Tensioners. Cheese Weights hang freely from the bottom of the guide rope to provide tension. They are simple to maintain and do not require adjustment based on rope stretch or temperature changes. Spring Tensioners are mounted in the Headframe structure and provide tension by applying spring forces to the rope. The tension is easily adjusted by turning a nut on the Spring Tensioner Assembly. These systems need to be checked and maintained periodically to ensure appropriate tensions are being developed in the guide ropes. Spring Tensioners are an excellent alternative to Cheese Weights when there is limited space available at the mine landing or in the sump.

SAFETY GLAND

These glands are used for applications where there is a single rope attached to the conveyance. The Safety Gland is clamped onto the rope above the primary attachment point. Two safety chains are connected between the Safety Gland and the top of the conveyance as a secondary safety device. They can also be used as a maneuvering gland to help in the installation and handling of wire ropes.



UNDERFRAME/OVERFRAME GLAND

These glands are used in guide rope applications to suspend the rope from the headframe or to anchor the rope underground. They work by using tapered wedges to grip the rope as the rope is pulled down into the gland.

SPHERICALLY SEATED GLAND

These glands are a modified version of the Underframe/Overframe glands which allow the guide rope to rotate. This is beneficial because it allows the guide rope to be rotated to ensure even wear, which extends the life of the rope.

FIELD SERVICES

FKC-Lake Shore Field Service Group offers a team of skilled, proven technicians who can perform many special tasks; including installing, upgrading, repairing, and maintaining system components such as Hoists, Skips, Skip Loaders, Cages, and Elevators. We offer services such as:

INSPECTION & REPAIR OF:

- Hoisting Systems
- Elevator Systems
- Vertical Systems
- Cages
- Skips
- Brakeman Cars
- Sheaves
- Electrical Components

PREVENTIVE MAINTENANCE PROGRAM:

- Certified Wire Rope NDT
- Vibration Analysis
- Thermal Imaging
- Inventory Control

THE GROUP ALSO OFFERS:

- Rope Changes
- Controls Systems Upgrades
- Misc. Emergency Repair Work



FKC-Lake Shore
1695 Allen Road
Evansville, IN 47710

1.877.554.8600
information@frontierkemper.com

www.frontierkemper.com

