

IToolCo

User's Guide



**HOOK TYPE
ALUMINUM
SHEAVE**



BEFORE OPERATION OF THIS TOOL, READ AND UNDERSTAND ALL OF THE INSTRUCTIONS AND SAFETY INFORMATION IN THIS MANUAL



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SAFETY FIRST

Safety is essential in the use and maintenance of this tool. This instruction manual and any markings on the tool provide information for avoiding hazards and unsafe practices related to the use of this tool. Observe all of the safety information provided.

SAFETY ALERT SYMBOLS

This symbol is used to call your attention to hazards or unsafe practices that could result in injury or property damage. The three signal words, defined below, indicate the severity of the hazard. The message after the signal word provides the information for preventing or avoiding the hazard.



DANGER

Immediate hazards that, if not avoided, **WILL** result in severe injury or death.



WARNING

Hazards that, if not avoided, **COULD** result in severe injury or death.



CAUTION

Hazards or unsafe practices that, if not avoided, **MAY** result in injury or property damage.



IMPORTANT SAFETY INFORMATION FOR ITOOLCO

HOOK TYPE ALUMINUM SHEAVES



WARNING

Read and understand all instructions and safety information in this manual before operating or servicing this tool.
FAILURE TO OBSERVE THESE WARNINGS CAN RESULT IN SEVERE INJURY.



WARNING – PERSONAL SAFETY HAZARDS

Only qualified persons should use iTOOLCO Hook Type Aluminum Sheaves.
Do not use this tool while tired or under the influence of drugs, alcohol, or medication.
Always follow operating procedures.
FAILURE TO OBSERVE THESE WARNINGS CAN RESULT IN SEVERE INJURY.



WARNING – ENTANGLEMENT HAZARD

Do not operate this tool while wearing loose-fitting clothing. Retain long hair.
Keep hands away from roller bearings. Could pinch or crush a hand or body part.
FAILURE TO OBSERVE THESE WARNINGS CAN RESULT IN SEVERE INJURY.



WARNING – TOOL USE HAZARDS

Use this tool for manufacturer's intended purpose only. Use other than that which is described in this manual can result in injury or property damage.
FAILURE TO OBSERVE THESE WARNINGS CAN RESULT IN SEVERE INJURY.



WARNING – TOOL USE HAZARDS

Be aware that a cable puller may exert up to twice its rated capacity on any component in the puller set-up.

ALWAYS inspect the structural integrity of any supporting conduit, anchoring system, etc. that will hold the hook sheave during the pull. These supports should be able to withstand twice the maximum pulling force of the cable puller.

Rope must ALWAYS be pulled over a rotating sheave. If a sheave does not rotate, turn cable puller off immediately and determine the cause before continuing pull.

All instructions and safety information supplied with the cable puller must be read and understood. Failure to understand how to safely operate and service the cable puller could result in serious injury or death.

Hook sheaves are for use in cable pulling only. DO NOT use for lifting personnel or equipment. Failure to observe this warning could result in serious injury or death.

The angle of the pulling rope over the sheave will help you calculate the load being applied to the hook sheave and its support structure. Be sure to determine this load prior to making a pull and be certain the hook sheave and support structure can handle the load.

Read and understand the cable manufacturer's specifications for minimum bending radius for the cable being pulled. Using incorrect size sheaves can damage the cable.

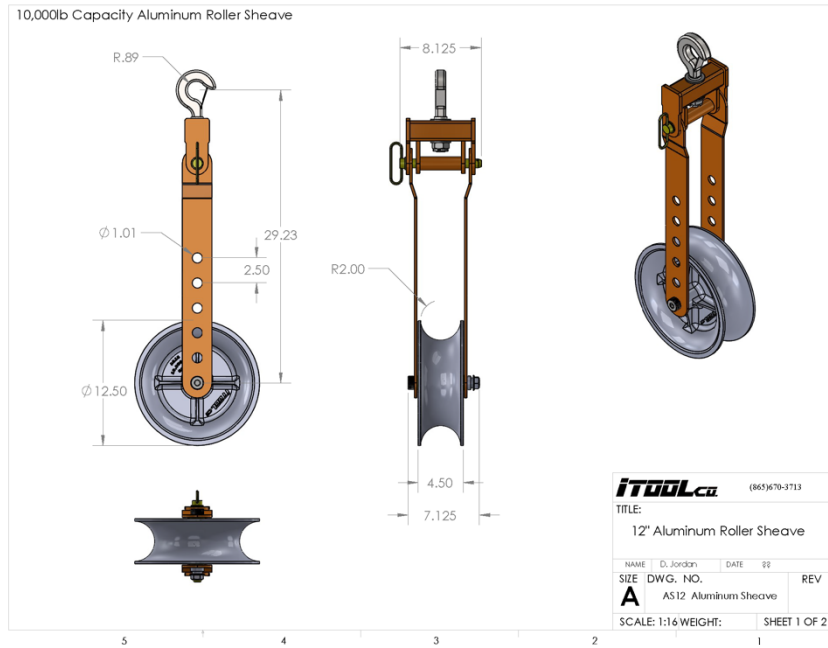
ALWAYS wear safety glasses. Failure to wear eye protection could result in eye injury from flying debris.

FAILURE TO OBSERVE THESE WARNINGS CAN RESULT IN SEVERE INJURY.

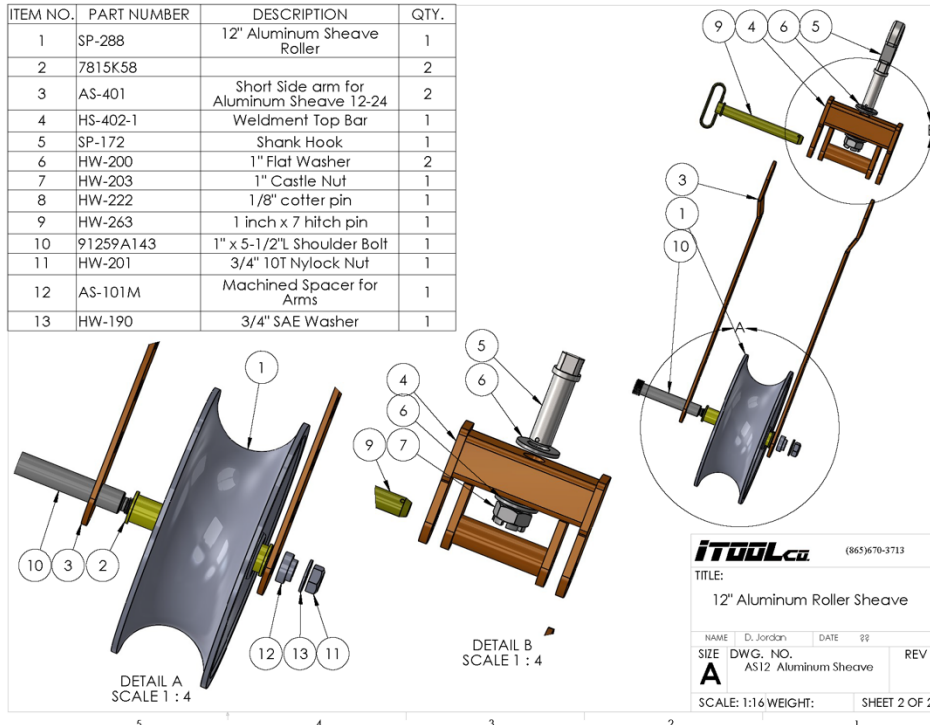


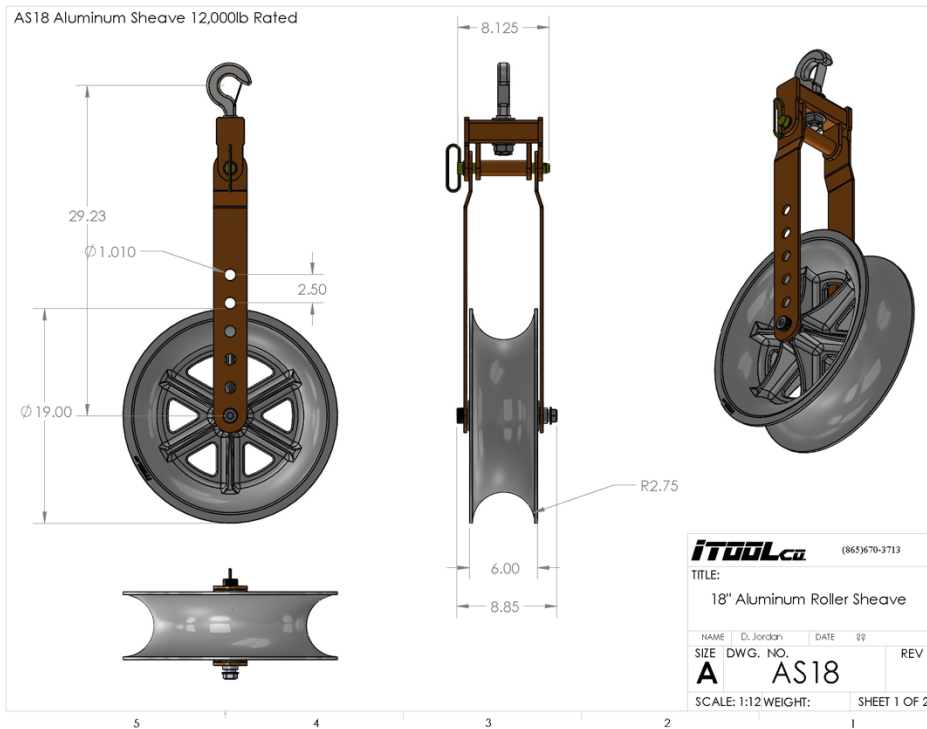
DESCRIPTION & IDENTIFICATION

Switch direction of rope or cable quickly *while* installing cable in conduit or raceway with iTOOLco's groundbreaking Hook Type Aluminum Sheaves. The unique design of these hook sheaves minimizes the need for cable splicing between beginning and end points of termination by allowing you to move cable from either side of the sheave without disconnecting the entire sheave from the hook assembly.

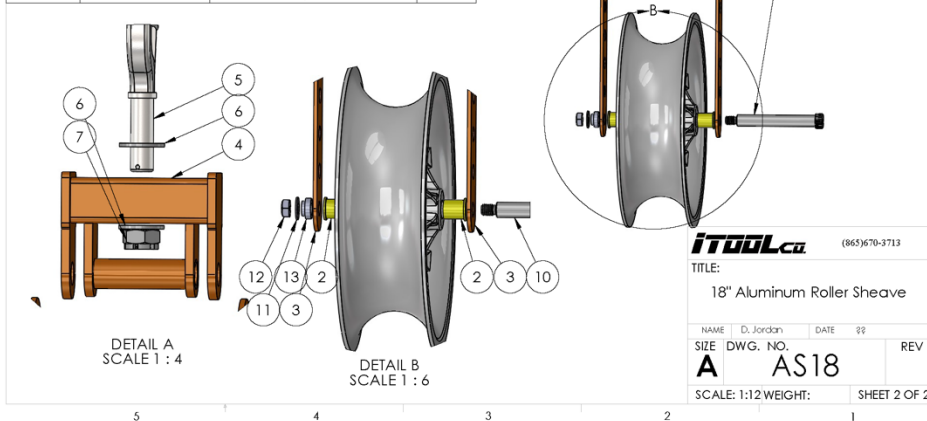


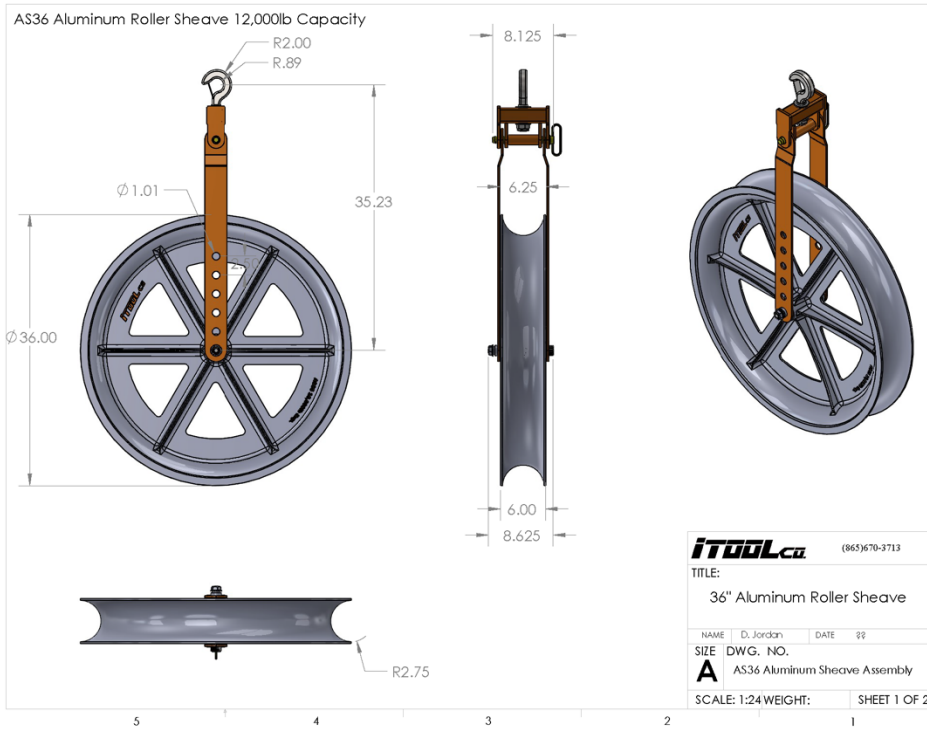
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	SP-288	12" Aluminum Sheave Roller	1
2	7815K58		2
3	AS-401	Short Side arm for Aluminum Sheave 12-24	2
4	HS-402-1	Weldment Top Bar	1
5	SP-172	Shank Hook	1
6	HW-200	1" Flat Washer	2
7	HW-203	1" Castle Nut	1
8	HW-222	1/8" cotter pin	1
9	HW-263	1 inch x 7 hitch pin	1
10	91259A143	1" x 5-1/2"L Shoulder Bolt	1
11	HW-201	3/4" 10T Nylock Nut	1
12	AS-101M	Machined Spacer for Arms	1
13	HW-190	3/4" SAE Washer	1



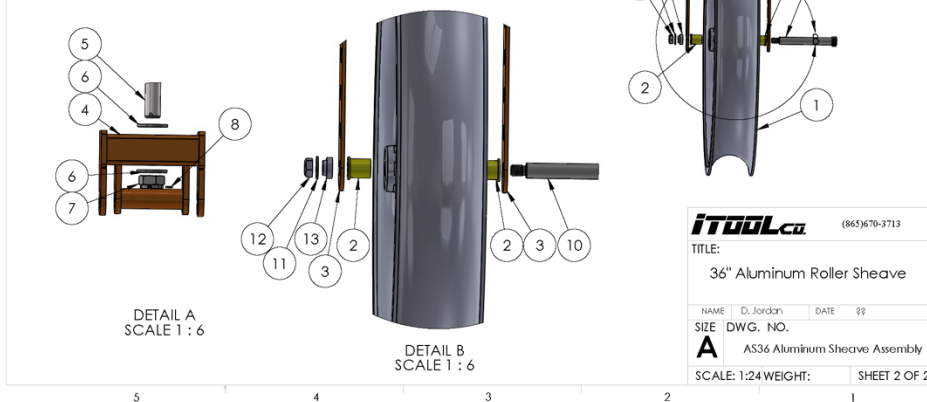


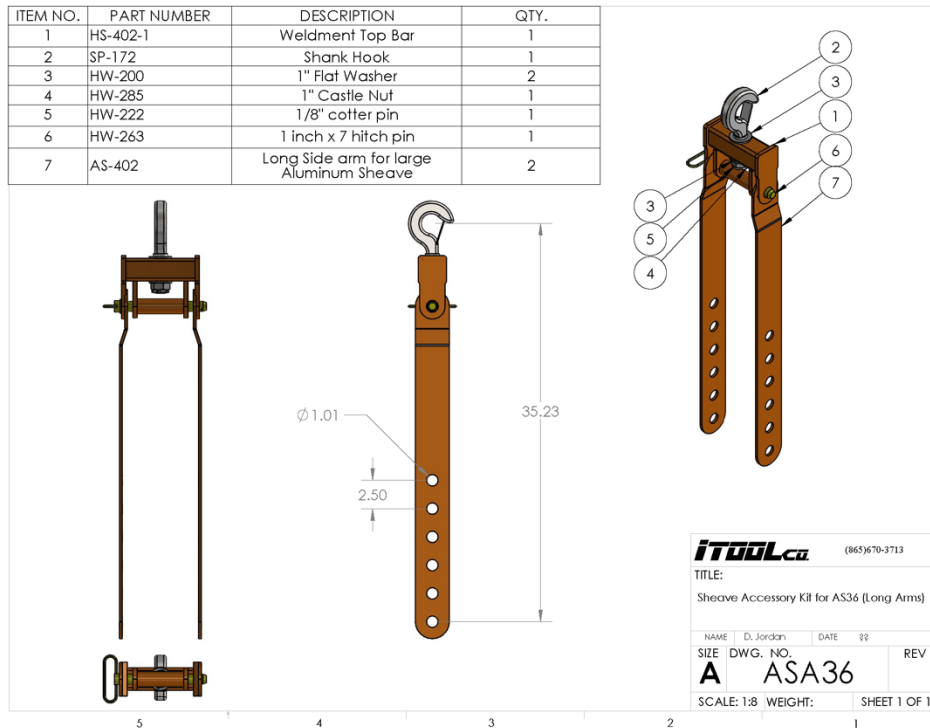
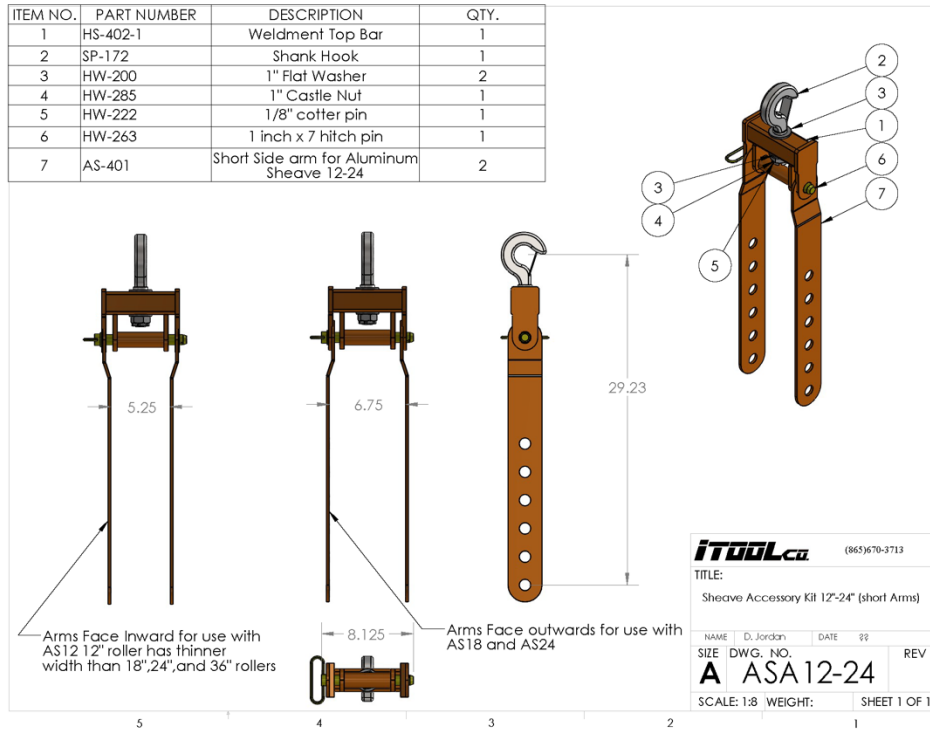
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	SP-289	18" Aluminum Sheave Roller	1
2	7815K58	1" ID Flanged Bearing	2
3	AS-401	Short Side arm for Aluminum Sheave 12-24	2
4	HS-402-1	Weldment Top Bar	1
5	SP-172	Shank Hook	1
6	HW-200	1" Flat Washer	2
7	HW-203	1" Castle Nut	1
8	HW-222	1/8" cotter pin	1
9	HW-263	1 inch x 7 hitch pin	1
10	HW-365	1" x 7" long Shoulder Bolt	1
11	HW-190	3/4" SAE Washer	1
12	HW-201	3/4" 10T Nylock Nut	1
13	AS-101M	Machined Spacer for Arms	1





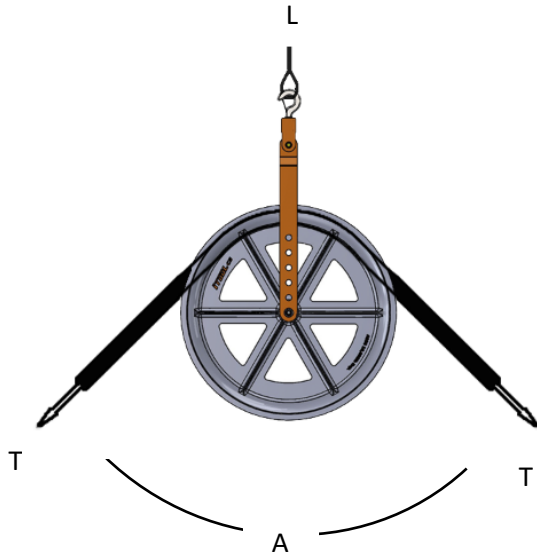
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	SP-291	36" Aluminum Sheave Roller	1
2	7815K58	1" ID Flanged Bearing	2
3	AS-402	Long Side arm for large Aluminum Sheave	2
4	HS-402-1	Weldment Top Bar	1
5	SP-172	Shank Hook	1
6	HW-200	1" Flat Washer	2
7	HW-203	1" Castle Nut	1
8	HW-222	1/8" cotter pin	1
9	HW-263	1 inch x 7 hitch pin	1
10	HW-365	1" x 7" long Shoulder Bolt	1
11	HW-190	3/4" SAE Washer	1
12	HW-201	3/4" 10T Nylock Nut	1
13	AS-101M	Machined Spacer for Arms	1





DETERMINING HOOK LOAD

The tension (T) on both sides of a rope as it crosses over a sheave add together to generate the load on a hook and its anchoring and structural supports. This load (L) varies depending on both the angle of the rope as it crosses over the sheave.



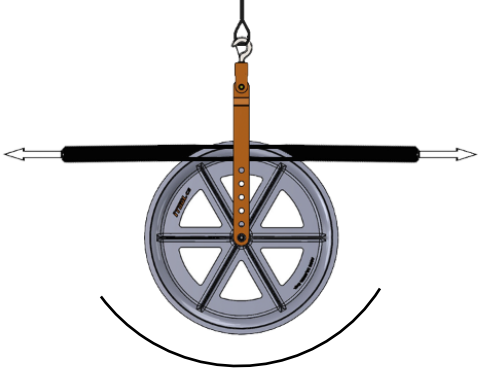
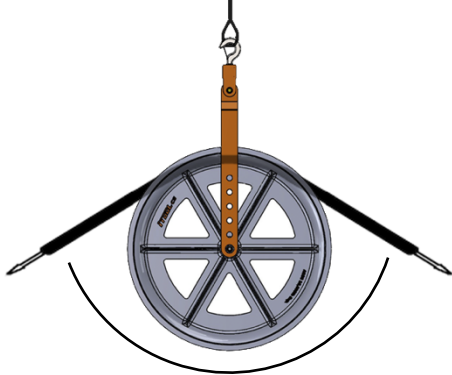
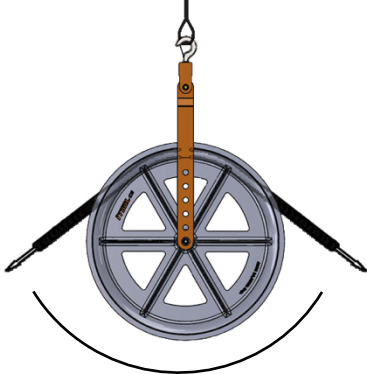
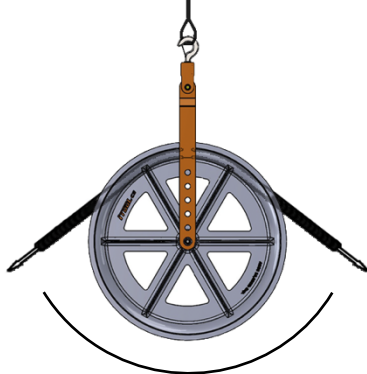
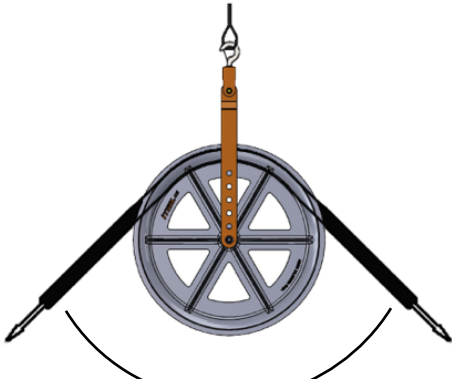
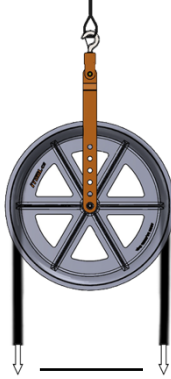
L = the load which is exerted on the hook and all its anchor points and structural supports

A = the angle made between the rope as it crosses over the sheave

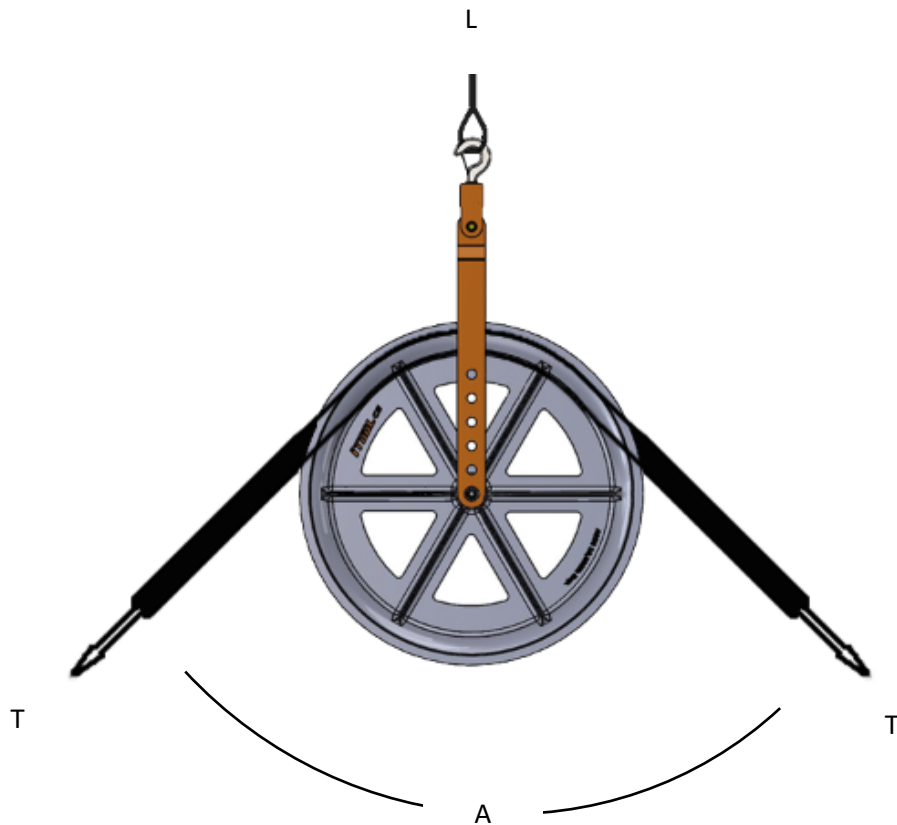
T = the tension on the rope created by the cable puller

L = 0		L = 1.41		L = 2	
A = 180°		A = 90°		A = 0°	
ANGLE	LOAD	ANGLE	LOAD	ANGLE	LOAD
180°	0	90°	1.41 X T	0	2 X T
150°	.52 X T	60°	1.73 X T		
135°	.77 X T	45°	1.85 X T		
120°	1 X T	30°	1.93 X T		

HOOK LOAD ILLUSTRATIONS

 <p style="text-align: center;">180°</p> <p>A straight rope on the sheave exerts no load on the hook.</p>	 <p style="text-align: center;">150°</p> <p>A rope at an angle of 150° exerts a hook load equal to 1/2 of the pulling force.</p>
 <p style="text-align: center;">135°</p> <p>A rope at an angle of 135° exerts a hook load equal to 3/4 of the pulling force.</p>	 <p style="text-align: center;">120°</p> <p>A rope at an angle of 150° exerts a hook load equal to the pulling force.</p>
 <p style="text-align: center;">90°</p> <p>A rope at an angle of 90° exerts a hook load equal to 1-1/2 time the pulling force.</p>	 <p style="text-align: center;">0°</p> <p>A rope at an angle of 135° exerts a hook load equal to 2 times the pulling force.</p>

HOOK LOAD CALCULATIONS



SINGLE ATTACHMENT POINT

$$L = 2 \times T \times \sin\left[\frac{(180-A)}{2}\right]$$

WHERE:

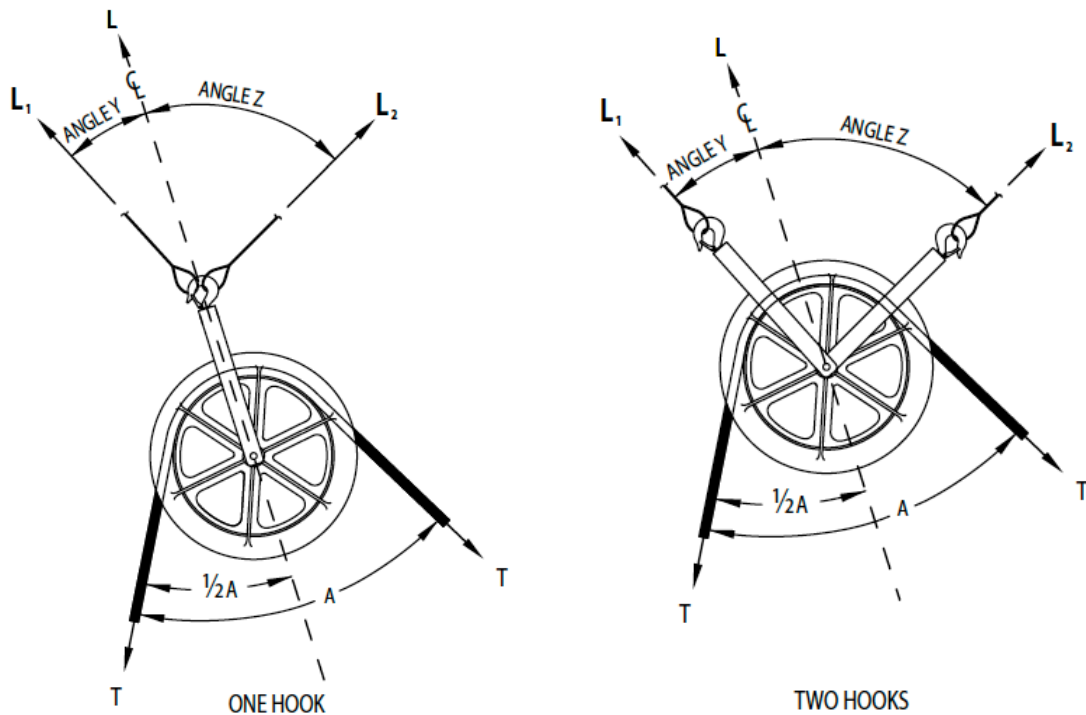
L = the load which is exerted on the hook and all its anchor points and structural supports

A = the angle made between the rope as it crosses over a sheave

T = the tension on the rope created by the cable puller

NOTE: Weight of sheave must be added to the calculated load (L) for total load on support structure.

HOOK LOAD CALCULATIONS



TWO ATTACHMENT POINTS (WITH EITHER ONE OR TWO HOOKS)

STEP 1
CALCULATE LOAD AT CENTERLINE

$$L = 2 \times T \times \sin[(180-A)/2]$$

WHERE:

L = the load which is exerted at the centerline

A = the angle made between the rope as it crosses over a sheave

T = the tension on the rope created by the cable puller

STEP 2
CALCULATE LOAD AT LEFT (L₁)

$$L_1 = \frac{L}{\cos Y + \sin Y / \tan Z}$$

WHERE:

L₁ = the load at the left hook or left support

L = the load which is exerted at the centerline

Y = the angle made between the left hook or support and the centerline.

Z = the angle made between the right hook or support and the centerline

STEP 3
CALCULATE LOAD AT RIGHT (L₂)

$$L_2 = \frac{L}{\cos Z + \sin Z / \tan Y}$$

WHERE:

L₂ = the load at the right hook or right support

L = the load which is exerted at the centerline

Y = the angle made between the left hook or support and the centerline.

Z = the angle made between the right hook or support and the centerline

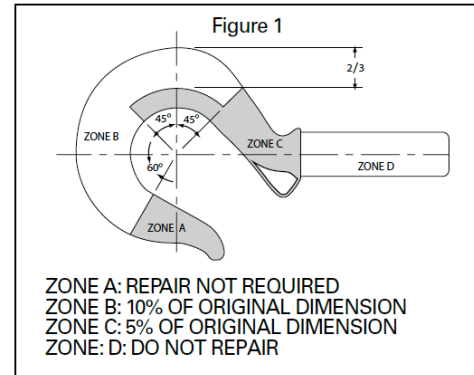
NOTE : WEIGHT OF SHEAVE MUST BE ADDED TO THE CALCULATED LOADS IN ALL CASES



HOIST HOOK WARNING & APPLICATION INSTRUCTIONS

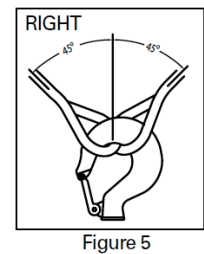
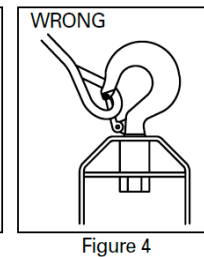
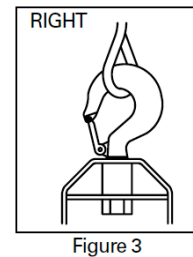
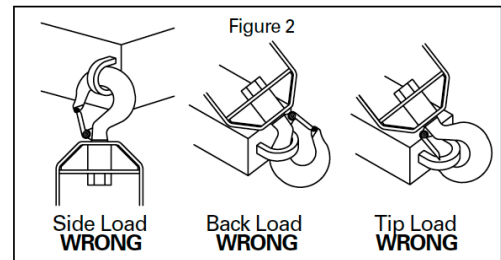
WARNING

- Loads may disengage from hook if proper procedures are not followed.
- A falling load may cause serious injury or death.
- Hook must always support the load. The load must never be supported by the latch.
- Read and understand these instructions before using hook.



IMPORTANT SAFETY INFORMATION – READ AND FOLLOW

- A visual periodic inspection for cracks, nicks, wear, gouges and deformation as part of a comprehensive documented inspection program, should be conducted by trained personnel in compliance with the schedule in ANSI B30.10. Refer to ANSI B30.10 – hooks for additional information.
- Never use a hook whose throat opening has been increased, or whose tip has been bent more than 10 degrees out of plane from the hook body, or is in any other way distorted or bent. **Note: A latch will not work properly on a hook with a bent or worn tip.**
- Never use a hook that is worn beyond the limits shown in Figure 1.
- Remove from service any hook with a crack, nick, or gouge. Hooks with a nick or gouge shall be repaired by trained personnel by grinding lengthwise, following the contour of the hook, provided that the reduced dimension is within the limits shown in Figure 1. Contact Crosby Engineering to evaluate any crack.
- Never repair, alter, rework, or reshape a hook by welding, heating, burning, or bending.
- Never side load, back load, or tip load a hook.
- (Side loading, back loading and tip loading are conditions that damage and reduce the capacity of the hook). (See Figure 2.)
- Always make sure the hook supports the load. (See Figure 3). The latch must never support the load (See Figure 4).
- When placing two (2) sling legs in hook, make sure the angle from the vertical to the outermost leg is not greater than 45 degrees, and the included angle between the legs does not exceed 90 degrees (See Figure 5). For two legged slings with angles greater than 90 degrees, use an intermediate link such as a master link or bolt type shackle to collect the legs of the slings. The intermediate link can be placed over the hook to provide an in-line load on the hook. This approach must also be used when using slings with three or more legs.

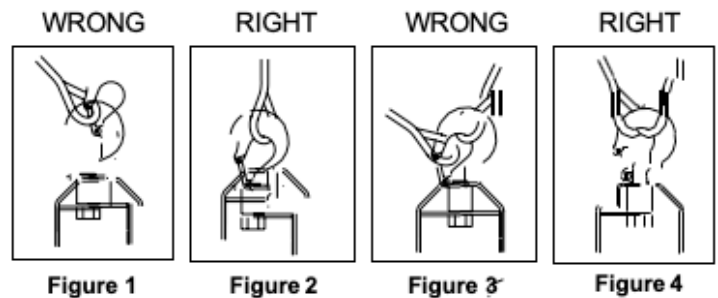


HOOK LATCH KIT WARNING & APPLICATION INSTRUCTIONS

WARNING

- Loads may disengage from hook if proper procedures are not followed.
- A falling load may cause serious injury or death.
- Hook must always support the load. The load must never be supported by the latch.
- DO NOT use this latch in applications requiring non-sparking.
- Read and understand these instructions before using hook.

- Always inspect hook and latch before using.
- Never use a latch that is distorted or bent.
- Always make sure spring will force the latch against the tip of the hook.
- Always make sure hook supports the load. The latch must never support the load. (See Figure 1 & 2.)
- When placing two (2) sling legs in hook, make sure the angle between the legs is less than 90° and if the hook or load is tilted, nothing bears against the bottom of the latch. (See Figure 3 & 4.)
- Latches are intended to retain loose sling or devices under slack conditions.
- Latches are not intended to be an anti-fouling device.





LIMITED WARRANTY: ITOOLCO HOOK TYPE ALUMINUM SHEAVES

iTOOLCo warrants all new Hook Type Aluminum Sheaves covered by his agreement, when properly used, to be free from defects in material and workmanship under normal use and service for which it is intended for a period of one year from date of delivery by the dealer. Date of delivery shall be the date product is placed in possession of the user. NORMAL WEAR FROM USE IS NOT PART OF THIS WARRANTY. This limited warranty is extended to the original user only and is not transferrable to, nor enforceable by any other person.

iTOOLCo will replace free of charge any part(s) of the product found to be defective when such part(s) is returned to iTOOLCo at the address shown below, freight prepaid. If the part(s) is found to be defective, iTOOLCo will refund freight charges paid by you in returning the defective part(s) and prepay replacement part(s) freight charges. iTOOLCo will not be responsible for more than replacement of any defective part(s) and standard freight charges (parcel post or UPS ground rate) of any part(s) found to be defective.

THIS IS THE EXCLUSIVE REMEDY. ITOOLCO SHALL NOT BE RESPONSIBLE OR LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY DEFECTS COVERED BY THIS WARRANTY OR ANY IMPLIED WARRANTY APPLICABLE TO THE PRODUCT INCLUDING, BUT NOT LIMITED TO, PROPERTY DAMAGE, LOSS OF USE OF PRODUCT, LOSS OF TIME, LOSS OF PROFITS, INCONVENIENCE, COMMERCIAL LOSS, LABOR COSTS, SERVICE TRIPS, AND MILEAGE.

Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you.

Dealer/Distributor Warranty Claim Procedure

1. All warranty claims must be pre-approved by iTOOLCo Warranty Department PRIOR to starting any warranty work. Warranty work performed without prior approval will not be considered.
2. All claims must be handled through dealer/distributor.
3. Written approval must be received from iTOOLCo before return of merchandise. A Return Authorization is to be returned with the merchandise which is sent back.
4. All parts must be returned to iTOOLCo at the address shown below, freight prepaid.
5. The serial number of the product and the date of delivery must accompany the part(s) being returned.
6. If the part(s) is found to have failed because of a defect in material or workmanship, replacement will be made on a no-charge basis, and the part(s) returned, freight prepaid. Standard freight charges (parcel post or UPS ground rate) incurred in returning the part(s) will be refunded.
7. For reasons of expediency, replacement and/or repair part(s) may be shipped as soon as possible and billed to the dealer/distributor. When part(s) is returned, if it is covered under warrant, credit will be issued for the part(s) and freight charges.
8. All parts found to be defective shall be retained by and shall become the property of iTOOLCo. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Corporate Address: iTOOLCo
1325 Carden Farm Drive



Clinton, TN 37716