



## WIRE ROPE END FITTINGS

### FORGED FOR CRITICAL APPLICATIONS

The proper performance of forged clips depends on proper manufacturing practices that include good forging techniques and accurate machining. Forged clips provide a greater rope bearing surface and more consistent strength than malleable cast iron clips. Fist Grip clips provide a saddle for both the "live" and the "dead" end. Fewer forged clips are required for each termination than with malleable cast iron clips. Forged clips reduce the possibility of hidden defects that are sometimes present in malleable cast iron clips. Malleable cast iron clips should only be used in non-critical applications. ASME, OSHA, and ASTM recommend only forged clips for critical applications.

#### Questions to ask your rigging provider

*Is the clip forged?*

*Is an adequate cradle provided in the clip base for the wire rope?*

Malleable cast iron clips are sometimes improperly used as replacements for forged clips.

#### Why choose Crosby

Crosby forged Red U-Bolt® Clips and forged Fist Grip clips meet or exceed Federal Specification Number FF-C-450E and are considered the industry standard.

### FULL LINE

The proper application of forged clips requires that the correct type, size, number, and installation instructions be used (See APPLICATION INFORMATION below for more information). Availability of a full range of sizes of forged U-bolt clips and forged Fist Grip clips are essential for design flexibility.

#### Questions to ask your rigging provider

*Do they have both Fist Grip and U-bolt clips available?*

*Do they have a full range of forged wire rope clip sizes?*

Malleable No competitor has the full line of forged U-Bolt clips and Fist Grip clips that Crosby has.

#### Why choose Crosby

Only Kito Crosby provides forged Red U-Bolt® Clips from 1/8" to 2-1/2" and forged Fist Grip clips from 3/16" to 1-1/2".

\* The 2-3/4" and 3-1/2" base is a steel casting.

### IDENTIFICATION

The clip's size, manufacturer's logo, and a traceability code should be clearly embossed in the forging of the clip. These three elements are essential in developing total confidence in the product.

#### Questions to ask your rigging provider

*Is the manufacturer's name and size of clip clearly marked?*

*Do they have a traceability system that is actively used in the manufacturing process?*

Most do not have a traceability system.

#### Why choose Crosby

Kito Crosby clearly embosses the Crosby logo, the size, and the Product Identification Code (PIC) into all Crosby Red U-bolt® Clip bases and Fist Grip clips. Our traceability system is actively used throughout the manufacturing of forged clips. The material analysis for each heat of steel is verified within our own laboratory.

### APPLICATION INFORMATION

Detailed application information will assist you in the proper installation of wire rope clips. This information is most effective when provided at the point of application, as well as in supporting brochures and engineering information. The manufacturer must provide this specific information.

Generic information will not provide all the needed application instructions. A formal application and warning system that attracts the attention of the user, clearly informs the user of the factors involved in the task, and informs the user with the proper application procedures as needed.

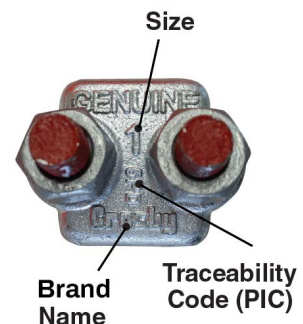
#### Questions to ask your rigging provider

*Does each clip have the application and warning information?*

Most competitors do not have application and warnings information with each clip.

#### Why choose Crosby

Kito Crosby provides detailed application and warning information for all forged clips. Each clip is individually bagged or tagged with the application and warning information. Testing and evaluation of special applications can be performed upon special request.



## CROSBY VALUE ADDED

- **Full line:** Kito Crosby provides both forged Crosby Red U-Bolt Clips and forged Fist Grip Clips.
- **Forged:** Crosby Red U-Bolt Clips have forged bases on all sizes, except 2-3/4" and 3-1/2" base is a steel casting. The entire clip is galvanized to resist corrosive and rusting action. Clip sizes 1/8" through 1-1/2" have U-Bolts with rolled threads which enhance the strength of the material and fatigue properties.
- **Forged:** Fist Grip Clips are forged, and the entire clip is galvanized. The double saddle design eliminates the possibility of incorrect installation. Designed as an integral part of the clip, the bolts are opposite one another (see G-429 example below). As result, the nuts can be installed in such a way as to enable the operator to swing the wrench in a full arc for ease of installation.
- **Application information:** Application and warning information is available for both Crosby Red U-Bolt Clips and Fist Grip Clips. The Crosby Warning System is designed to attract the attention of the user, clearly inform the user of the factors involved in the task, and provide the user with proper application procedures. Each Crosby Red U-Bolt Clip and Fist Grip Clip is either bagged or tagged with appropriate application and warning information, thus ensuring that the information is available at the point of application for each and every clip during installation.
- **Material analysis:** Kito Crosby can provide certified material (mill) analysis for each production lot, traceable by the Product Identification Code (PIC). Kito Crosby, through its own laboratory, verifies the analysis of each heat of steel.
- **Testing:** Kito Crosby periodically audits the termination efficiencies of the Red U-Bolt Clips and Fist Grip Clips. Upon special request, Kito Crosby will determine the efficiencies of clip assemblies when applied to special rope constructions and special applications.

G-450



G-429



S-421T



S-423T



G-416



G-417



S-409



S-505



S-501



S-502



G-411

