SHOCK LOAD – A force that results from the rapid application of a force (such as impacting and/or jerking) or rapid movement of a static load. A shock load significantly adds to the static load.

DESIGN (SAFETY) FACTOR – An industry term denoting a product's theoretical reserve capability, usually computed by dividing the catalog Ultimate Load by the Working Load Limit. Generally expressed for blocks as a ratio of 4:1.

TACKLE BLOCK – An assembly consisting of a sheave(s), side plates, and generally an end fitting (hook, shackle, etc.) that is used for lifting, lowering, or applying tension.

SHEAVE / SHEAVE BEARING ASSEMBLY – Purchased by O.E.M. or end user to be used in their block or lifting system design.

Fitting Maintenance

Fittings, including hooks, overhaul balls, shackles, links, etc., may become worn and disfigured with use, corrosion, and abuse resulting in nicks, gouges, worn threads and bearings, sharp corners which may produce additional stress conditions and reduce system load capacity.

Grinding is the recommended procedure to restore smooth surfaces. The maximum allowance for reduction of a product's original dimension due to wear or repair before removal from service is:

1. Any single direction - No more than 10% of original dimension;
2. Two directions - No more than 5% of each dimension.

For detailed instructions on specific products, see the application and warning information for that product. Any greater reduction may necessitate a reduced Working Load Limit.

Any crack or deformation in a fitting is sufficient cause to withdraw the product from service.

Selection Guide

Some of the blocks shown in Crosby Group literature are named for their intended use and selection is routine. A few examples include the "Double Rig Trawl Block" used in the fishing industry, the "Well Loggers Block" used in the oil drilling industry, and the "Cargo Hoisting Block" used in the freighter boat industry and "Derrick and Tower Block" used for hoisting personnel. Others are more generally classified and have a variety of uses. They include snatch blocks, regular wood blocks, standard steel blocks, etc. For example, snatch blocks allow the line to be attached by opening up the block instead of threading the line through the block. This feature eliminates the use of rope guards and allows various line entrance and exit angles to change direction of the load. These angles determine the load on the block and/or the block fitting (See "Loads on Blocks."). Snatch blocks are intended for infrequent and intermittent use with slow line speeds.

A tackle block sheave assembly is one element of a system used to lift, change direction or drag a load. There are other elements in the system including the prime mover (hoist, winch, hand), supporting structure, power available, etc. All of these elements can influence the type of tackle block or sheave required. When selecting a block or sheave for the system in your specific application, you should consider the other elements as well as the features of the blocks and sheaves shown in Crosby Group literature.

To select a tackle block or sheave to fit your requirements, consider the following points:

1. Are there regulations which could affect your choice of blocks or sheaves, such as federal or state, OSHA, elevator safety, mine safety, maritime, insurance, etc.?
2. What is the weight of the load, including any dynamics of impacts that add to load value? You must know this to determine the minimum required Working Load Limit value of the block or load on sheave.
3. How many parts of line are required? This can be determined given the load to be lifted and the line pull you have available. As an alternative, you could calculate the line pull required with a given number of parts of line and a given load weight. (See "How to Figure Line Parts.")
4. What is the size of line to be used? Multiply the available line pull by the desired safety factor for Wireline to determine the minimum catalog Wireline breaking strength; consult a Wireline catalog for the corresponding grade and diameter of Wireline to match. You should also consider fatigue factors that affect Wireline life (See "Sheave Size & Wireline Strength").
5. What is the speed of the line? This will help you determine the type of sheave bearing necessary. There are several choices of bearings suitable for different applications, including:
   A. Common (Plain) Bore for very slow line speeds and very infrequent use (high bearing friction).
   B. Self Lubricating Bronze Bushings for slow line speeds and infrequent use (moderate bearing friction).
   C. Bronze Bushing with pressure lubrication for slow line speeds and more frequent use at greater loads (moderate bearing friction).
   D. Anti-friction Bearings for faster line speeds and more frequent use at greater loads (minimum bearing friction).
6. What type of fitting is required for your application? The selection may depend on whether the block will be traveling or stationary. Your choices include single or multiple hooks with or without throat latches and shackles, which are the most secured load attachment. You should also decide whether the fitting should be fixed, swivel or swivel with lock. If it is a swivel fitting, then selection of a thrust bearing may be necessary. There are plain fittings with no bearings for positioning at no load, bronze bushed fittings for infrequent and moderate load swiveling, and anti-friction bearing equipped fittings for frequent load swiveling.
7. How will the block be reeved and does it require a dead end becket? (See "The Reeving of Tackle Blocks.")
8. How will the block be reeved and does it require a dead end becket? (See "The Reeving of Tackle Blocks.")
9. If the block is to be a traveling block, what weight is required to overhaul the line? (See "How to Determine Overhaul Weights.")
10. What is the fleet angle of the Wireline? Line entrance and exit angles should be no more than 1-1/2 degrees.
11. How will the block or sheave be maintained? Do conditions in your application require special maintenance considerations? (See "Tackle Block and Sheave Maintenance," and "Fitting Maintenance.")
12. Reference current edition of "Wireline Users Manual" for additional sheave design and maintenance information.