

ROPE CHECKLIST

Strength	Ruggedness in shape
Stretch with load	Temperature
Permanent stretch	resistance
Recovery from stretch	Friction melting
Length	Combustibility
Size	Sunlight resistance
Yardage	Marine growth
Floatability	resistance
Flexibility	Rot resistance
Twist direction and torque	Chemical resistance
Flex life in bending	Color
Slipperiness	Aging
Texture	Contamination
Water repellency	Uniformity
Hygroscopicity	Service Cost
	Toughness against wear

FIG 26-1—Factors that may be of significance when specifying rope for a specific use

melting point can be secured

Nylon, more than any other rope material, will absorb and store energy in the same manner as a spring. This energy, released at break, will make the moving ends as dangerous as a projectile. Caution must therefore be exercised when working lines around corners, capstans, timber heads, and the like.

Polyester makes probably the best general-purpose rope available, especially for critical uses. Polyesters stretch about half that of nylon, so energy absorption is also about half. It is not weakened by rot, mildew, or prolonged exposure to sea water. It retains its full strength when wet and shows little deterioration from long exposure to sunlight. It has good resistance to abrasive wear and to most alkalis and acids, except benzoic acid.

Polyolefin ropes, in general, are strong and inexpensive, they float and are unaffected by water. Polyolefins, like the polyesters, are not hygroscopic, therefore, they do not shrink or swell with water. The movement of crossed ropes, as well as other types of abrasion, must be avoided because of a very rapid friction sawing which even modest loads will cause. They are unaffected by rot, mildew, and fungus growth and are highly re-

sistant to a wide variety of acids (except nitric) and alkalis, as well as to alcohol-type solvents and bleaching solutions. They swell and soften with hydrocarbons, particularly at temperatures above 150 F. There are two types.

- **POLYPROPYLENE**, with a specific gravity of 0.91 and a softening point of 300 F, is made in several different size filaments and from film with or without longitudinal fracturing. Polypropylene rope is about 50 percent stronger than manila, size for size. Pure polypropylene ropes have relatively poor rendering properties.

- **POLYETHYLENE**, with a specific gravity of 0.95 and a softening point of 250 F, is characteristically slippery and has very little springiness. Stretch is low and strength is good. It has a comparative low softening point and low coefficient of friction.

Composite ropes (combining several types of synthetic fibers or synthetic and natural fibers) are available in all sizes. They result from attempts to give the surface of the rope or strand more wear resistance, internal tensile strength, or structural strength to resist deformation. Many of these ropes are made to match the requirements of specific jobs. These ropes can be expected to perform to the ends their makers declare.

Other types of rope are available, but enjoy only a small percentage of the market for reasons of cost, limited use, or short supply. These ropes include in various modifications: paper, glass, acrylic, rayon, polyvinyl chloride, fluorocarbon, rubber, cellulose acetate, and polyurethane.

Table 26-A lists breaking strengths and safe loads (working load limits) for manila and synthetic ropes. Fig 26-1 gives a checklist of factors that may be of significance in a specific application.

Inspection

New rope should be inspected along its entire length thoroughly, to determine that no part of it is damaged or defective, before being placed in service. Any irregularity in the uniformity of appearance is evidence of possible degradation.