

About Rope

A rope is a bundle of flexible fibers twisted or braided together to increase its overall length and tensile strength. The use of ropes for hunting, carrying, lifting, and climbing dates back to prehistoric times. Ropes were originally made by hand using natural fibers. Modern ropes are made by machines and utilize many newer synthetic materials to give them improved strength, lighter weight, and better resistance to rotting. More than half of the rope manufactured today is used in the fishing and maritime industries.

Although the origin of rope is unknown, the Egyptians were the first people to develop special tools to make rope. Egyptian rope dates back to 4000 to 3500 b.c. and was generally made of water reed fibers. Other Egyptian rope was made from the fibers of date palms, flax, grass, papyrus, leather, or camel hair. The use of such ropes pulled by thousands of slaves allowed the Egyptians to move the heavy stones required to build the pyramids. By about 2800 b.c., rope made of hemp fibers was in use in China. Rope and the craft of rope making spread throughout Asia, India, and Europe over the next several thousand years. By the fourth century, rope making in India had become so specialized that some makers produced rope intended only for use with elephants. [Leonardo da Vinci](#) (1452-1519) drew sketches of a concept for a rope making machine, and by the late 1700s several working machines had been built and patented. Rope continued to be made from natural fibers until the 1950s when synthetic materials such as nylon became popular. Despite the changes in materials and technology, rope making today remains little changed since the time of the ancient Egyptians.

Rope is sometimes generally referred to as cordage and can be divided into four categories based on its diameter. Cordage under 0.1875 inches (0.5 cm) in diameter includes twine, clothesline, sash cord, venetian blind cord, and paraline. These are not considered to be true rope. Cordage with a diameter of 0.1875 to 0.5 inches (0.5-1.3 cm) is a light-duty rope. Cordage with a diameter of 0.5 to about 1.5 inches (1.3-3.8 cm) is considered to be true rope. Cordage over about 1.5 inches (3.8 cm) in diameter is generally called a hawser and is used for mooring large ships.

Rope construction involves twisting fibers together to form yarn. For twisted rope, the yarn is then twisted into strands, and the strands twisted into rope. Three-strand twisted rope is the most common construction. For braided rope, the yarn is braided rather than being twisted into strands. Double-braided rope has a braided core with a braided cover. Plaited rope is made by braiding twisted strands. Other rope construction includes combinations of these three techniques such as a three-strand twisted core with a braided cover. The concept of forming fibers or filaments into yarn and yarn into strands or braids is fundamental to the rope-making process.