



What is the difference between wire rope classification and wire rope construction? It seems that there is some confusion between the two terms in the field. Let's take a moment to see how these terms are used to exactly define a wire rope.

CLASSIFICATION AND CONSTRUCTION DEFINED

There are mainly two classifications for elevator wire rope. They are:

6x19 classification: These are ropes consisting of 6 strands with anywhere from 15 to 26 wires in each strand.

8x19 classification: These are ropes consisting of 8 strands with anywhere from 15 to 26 wires in each strand.

However, the description of rope construction is a bit more complex (and accurate) and consists of the following:

Rope constructions: Seale, Warrington or Filler Wire (see the diagrams in Table 1).

Rope diameter: Given in fractions of an inch or millimeters.

The number of strands: 6 or 8.

The number of wires in each strand: 19, 21 or 25.

Rope lay: Right Regular Lay or Right Lang Lay (Right Regular Lay is the standard lay and is provided unless Lang is specified - virtually all modern elevator ropes are Right Lay).

Surface of the wires: Bright or galvanized (bright is the standard unless galvanized is specified).

Rope grade: Iron, Traction or EHS (Extra High Strength) Traction.

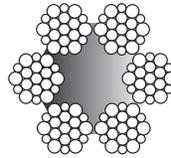
Preforming: Preformed rope is the standard.

Rope core: Natural Fiber Core (NFC, e.g. sisal), Synthetic Fiber Core (SFC, e.g. polypropylene), Independent Wire Rope Core (IWRC) or Mixed Core (e.g. steel-reinforced natural fiber).

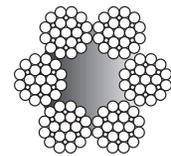
As you can see, *classification* is only a simple way of describing a rope. A full description of the *construction* is the only way to correctly specify a wire rope.

Table 1: Cross-sections of common wire rope constructions with natural fiber core:

6X19 CONSTRUCTIONS

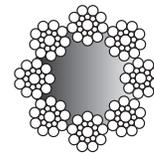


6x19 Warrington

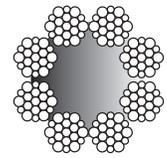


6x25 Filler Wire

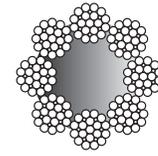
8X19 CONSTRUCTIONS



8x19 Seale



8x19 Warrington



8x25 Filler Wire

ROPE CLASSIFICATION: A BRIEF HISTORY

Elevator wire rope evolved from the ropes used by the logging industry in the 19th century to drag trees straight to a staging area. (To be convenient to loggers, most wire rope manufacturers were located on the rivers that were used to transport the cut timber.) The most popular ropes were constructions of six strands consisting of 19 wires, simply called 6x19 rope. This style of rope was very resistant to abrasion but not very flexible.

Later on, pulleys and sheaves were used to change the direction of the ropes as the trees were being pulled through the woods. This increased amount of bending under load caused the 6x19 rope to fail faster than when it was used to pull logs in a straight line. Rope manufacturers improved the 6x19 design by adding smaller wires that filled the gaps between the larger diameter wires. These "filler wires" increased the wire count to 25. What these 6x25 ropes lost in abrasion resistance was more than made up for in fatigue resistance.