

② Parallel Lay Rope (Super-Rope)

After the end of the war, the industries of Japan rapidly became mechanized and more efficient, in all fields, and ropes with an even higher performance than the conventional lay ropes came into demand.

In order to meet this demand, this company started full-scale production of the Super-Rope (the product name for the parallel lay rope of this company) from around 1953. The demand for this rope was greater than expected and Super-Rope was established as the ideal rope for high performance and high efficiency machines and, ever since, its reputation has grown.

At first, of the basic types of Super-Rope, such as the Seale type, Warrington type and Filler type, the Filler type was mainly used.

However, later, as the range of uses widened the semi-Seale type which is a combination between the cross lay and the parallel lay was developed.

And, to meet the demand for even higher performance, the Seale filler type and the Warrington Seale type which are combinations of the basic types were developed.

In particular, the balance of each wire diameter composing the strand for the Warrington Seale type is good and, as it is rich in flexibility and fatigue resistance nature, it is being widely used at present.

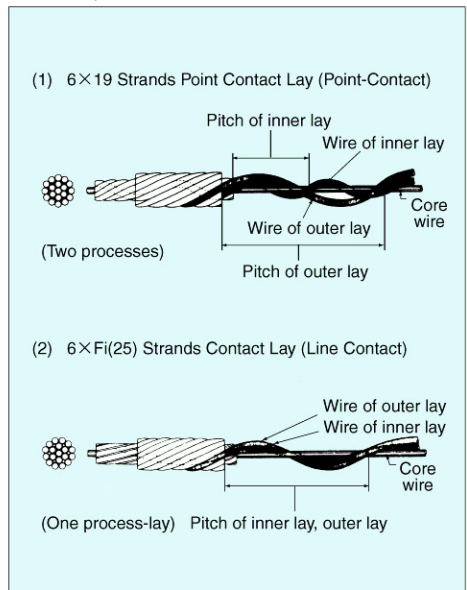
■ Characteristics

(a) For the conventional cross lay rope, the pitch differed as the wires of each strand were either outer lay or inner lay. Therefore, the wires of each layer were in point contact and in cross lay while, for the Super-Rope, the outer lay and the inner lay have the same pitch and so the wires of each lay are in linear contact.

(See Fig. 1)

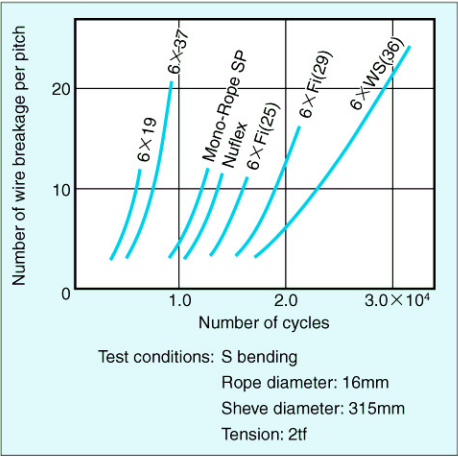
(b) As can be seen in the cross sectional drawing, in Fig. 1(2), as the outer layer wire fits in between the inner lay wires, the strands are tightly bound and the rope is not deformed easily.

Fig. 1 ● Comparison of the cross lay rope and the Super Rope



(c) As mentioned above, as the wires are in linear contact with each other, fatigue and breakage of the wire due to inner wear and secondary bends, are low and as the pitches are closer together, compared to the cross lay rope, it will display its merits at the condition where there is much bending fatigue. (See Fig. 2)

Fig. 2●Results of the fatigue tests by rope construction



- (d)As the strand is bound firmly, it does not loose its shape easily even when it receives a strong pressure and the stress is distributed evenly.
- (e)The cross section is larger than the cross lay rope and so has a high breaking load.

■ Selection Standard

There many kinds of ropes and the kinds of machines to which they are attached are almost infinite and so, including the Super-Rope, the best kind of rope to attach to a particular o machine, or equipment, cannot be decided easily. But, compared to the cross lay rope which was used up to now as a rigging, the standard for selecting the Super-Rope is generally as shown in the table below.

Conventional cross lay rope	Representative Super Ropes compared to the cross lay ropes
6 × 7	6 × Fi(17) 6 × S(19)
6 × 19	6 × Fi(21) 6 × Fi(25) 6 × WS(26)
6 × 24	6 × Fi(29) 6 × WS(31)
6 × 37	6 × Fi(29) 6 × WS(36) 6 × WS(41)

This is only a typical example. The required Super Rope should be selected according to the use.

A rope with a rope core (IWRC) should be selected if the rope is to be used in a very hot environment, if it is wound randomly on a small diameter drum, or if the rope is subject to strong sidewise pressure, or when a non-stretching rope is required.

This company is also making the Long Super-Rope which has a smaller torque nature than general ropes for cranes with a comparatively large lifting range.

■ Main Types and Uses

Construction symbol	Main uses
6 × S(19)	Ropeways, inclined shaft winches, fisheries industry use
IWRC 6 × S(19)	Fencing use, bulldozer use
6 × Fi(25)	Ropeways, inclined shaft winches, general crane use, forestry industry use
IWRC 6 × Fi(25)	Fencing use, heavy machinery use
6 × Fi(29)	Ropeways, general crane use
IWRC 6 × Fi(29)	General crane use, heavy equipment use
6 × WS(26)	General crane use, fisheries industry trawler use (trawl warp)
IWRC 6 × WS(26)	General crane use, bulldozer use
6 × WS(31)	General crane use, fisheries industry trawler use (trawl rope)
IWRC 6 × WS(31)	General crane use, heavy equipment use, bulldozer use
6 × WS(36)	Ropeway stay rope use, general crane use
IWRC 6 × WS(36)	General crane use, ship use
6 × WS(41)	General crane use
IWRC 6 × WS(41)	General crane use