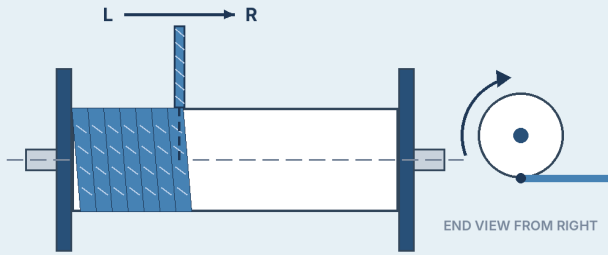


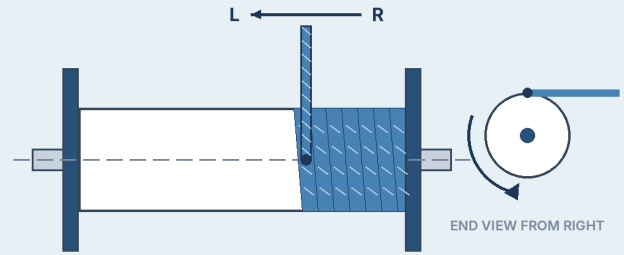
Drum Winding and Rope Lay Selection

Plain-faced drums



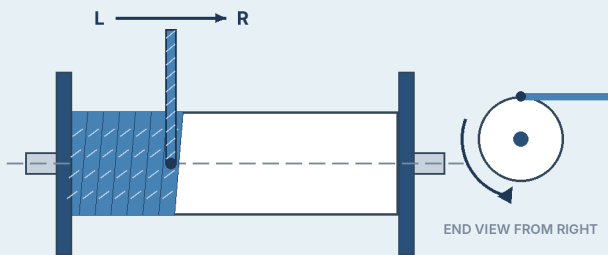
LEFT LAY ROPE

Underwind left to right | start rope at left flange



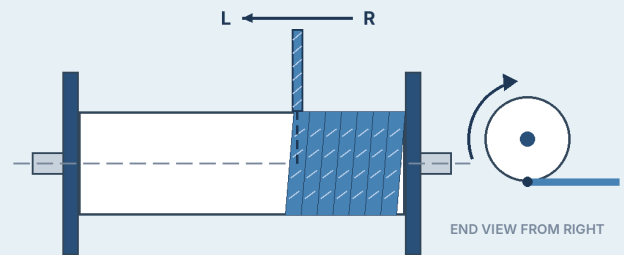
LEFT LAY ROPE

Overwind right to left | start rope at right flange



RIGHT LAY ROPE

Overwind left to right | start rope at left flange

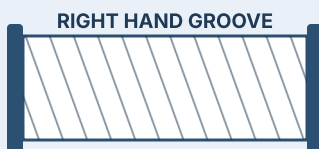


RIGHT LAY ROPE

Underwind right to left | start rope at right flange

craneropesolutions.com

Grooved drums



Right hand groove
takes left lay rope

Right hand groove: left lay rope.

Left hand groove: right lay rope.

Sight along the drum. The rope lay and the groove should run in opposite directions.

Finding the drum direction



Clockwise = right hand



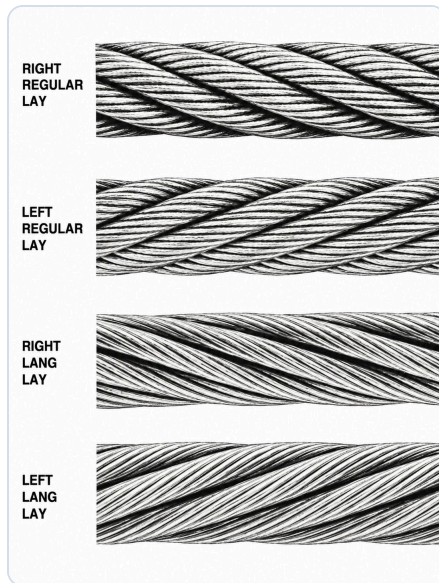
Counterclockwise = left hand

Stand on the drum axis and trace the rope from the anchor point, moving away from you. If your finger turns clockwise, it's a right hand drum. Counterclockwise is left hand.

Special cases

First layer used only as a guide layer: consider choosing the lay to suit the second layer.

Rotation-resistant hoist rope on a plain drum: either lay works, wherever the anchor sits, as long as fleet angles stay within limits.



The four lay types

Code	Name	Also known as
sZ	Right Regular Lay	RHRL, RRL, RHOL, ROL
zS	Left Regular Lay	LHRL, LRL, LHOL, LOL
zZ	Right Lang Lay	RHLL, RLL, RHL
sS	Left Lang Lay	LHLL, LLL, LHL

The lower case letter is the wire lay in the strand. The upper case letter is the strand lay in the rope.

How to spot it

Regular lay: wires and strands are laid in opposite directions, so the wires look nearly parallel to the rope axis.

Lang lay: wires and strands are laid in the same direction, so the wires run diagonally across the rope.

Regular lay

sZ / zS

Strengths: more resistant to twisting, though this alone does not qualify a rope as rotation resistant.

Inspection: reliably shows visible wire breaks on steel sheaves.

Limits: less flexible, lower bend fatigue life, and a smaller wire surface means more abrasion.

Lang lay

zZ / sS

Strengths: more flexible, longer bend fatigue life, and a larger wire surface that wears more evenly with less abrasion.

The trade-off: Lang lay holds up longer, then goes faster. Once it is worn or the first wires break, breaks build up more quickly than in regular lay. Tighten inspection intervals at the first sign.

Inspection: visible breaks are not a reliable discard signal on their own.

Limits: higher torque under load and more sensitive to twist. Both ends must be fixed against rotation.

Fleet angle limits

AT THE DRUM

0.5°
minimum

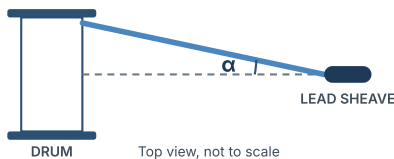
1.5°
max, smooth
drum

2°
max, grooved
drum

AT SHEAVES

4°
max, non-
rotation-
resistant

2°
max, rotation-
resistant



Below 0.5° at the drum the rope can climb the flange. Follow tighter OEM limits.

Where Lang lay is used: on multi-layer drums. **Never on single-layer drums** unless prescribed by the manufacturer and backed by magnetic rope testing.

Lang lay boom hoist on a multi-layer drum: twist the rope into the tight direction before securing it at the anchor point.