

DISCARD CRITERIA

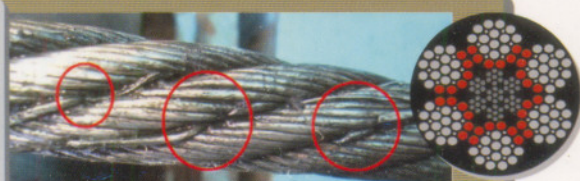
CRANE ROPES, must be removed from service, if the examination reveals, that the rope deterioration has exceeded limits of certain criteria. A general retirement plan states that any one of the factors listed below, severe enough, can cause rope discard. However, rope deterioration and decision to discard, almost always, is the results of cumulative effect of combination of these factors.

- Broken Wires
- Diameter Reduction
- Corrosion
- Deformation

Number & Characteristic of Broken Wire

Crane Rope must be considered for discard if number of visible broken wires reach or exceed the allowable limit. For 6 and 8 strand wire ropes, occurrence of wire breakages, to a large extent is on the outer surface, whereas for rotation-resistant wire ropes, majority of wire breakages are expected to occur internally and require specialized examination technique to reveal.

Wire Breakages
at VALLEY



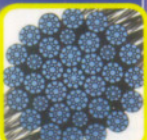
Wire breakages
at CROWN



The table below specifies the number of visible broken wires, which when reached or exceeded requires mandatory discard of ropes working on steel sheaves.

Product	Construction	No. of visible broken wires in wire rope length equals	
		6 x d	30 x d
Hyflex 4	4x39	2	04
Hyflex 6 / Powerform 6	6x25 F	5	10
	6x29 F	6	11
	6x26 SW	6	13
	6x31 SW	8	16
	6x36 SW	9	18
	6x41 SW	10	21
Hyflex 8 / Powerform 8	8x25 F	6	13
	8x26 SW	9	18
	8x31 SW	10	21
	8x36 SW	12	24
	8x41 SW	14	28
Hyflex 18 / Powerform 18	18x7	2	4
	18x19 S		
	18x26 SW		
Hyflex 35 / Powerform 35	35x7	2	4
	35x19 S		
	35x26 SW		

- Wire breaks in the strand valley, generally, indicate internal rope deterioration and require closer inspection of the rope. It should be considered for discard if there are two or more such breaks in a length of rope equal to 6 x d.
- Broken wires at, or adjacent to, the termination, require the termination to be remade by shortening the rope, otherwise the rope should be discarded.
- Concentrated close group of broken wires in a rope length of 6 x d or in any one strand, require discard of the rope even if the numbers given above are not reached.
- Complete fracture of one strand or collapse of core requires immediate discard of the wire rope.





Rope Diameter Reduction

Rope diameter may reduce due to one or a combination of these factors:

- Internal wear and /or wire indentation
- External wear due to abrasion of crowns of outer wires
- Deterioration or collapse of core (fibre / steel) or internal layers of multi-layer rotation-resistant ropes.

The rope should be discarded :

- If rope diameter reduction exceeds 7% of nominal rope diameter, only due to external wear.
- If rope diameter reduction exceeds 3% of nominal rope diameter for rotation resistant ropes and exceeds 10 % for other 6 and 8 strand wire ropes, due to reasons other than external wear.

Corrosion

Corrosion may occur on the outer surface of the wire rope, which can be detected visually, or on the internal layers of the wire rope, which is more difficult to detect. The following conditions justify immediate discard of wire rope:

- Wire slackness due to corrosion of external wires
- Confirmation of severe internal corrosion



Deformation

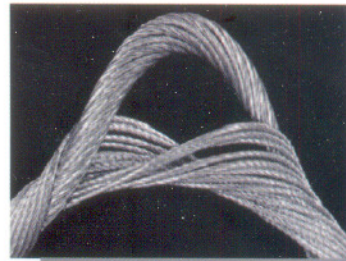
Permanent distortion from its original shape and orientation is termed as deformation.

The following common forms of distortion, require immediate discard of the wire rope:

- Birdcage or Basket formation



- Wire, Strand or Core Protrusion and/or Distortion



- Kink or Loop formation



- Localized diameter increase in excess of 5% of actual rope diameter
- Localized rope diameter reduction and lay length variation associated with severe waviness

The rope should be examined by a competent person who should always refer relevant code / recommendation / standard (like ISO:4309) for deciding rope discard.