

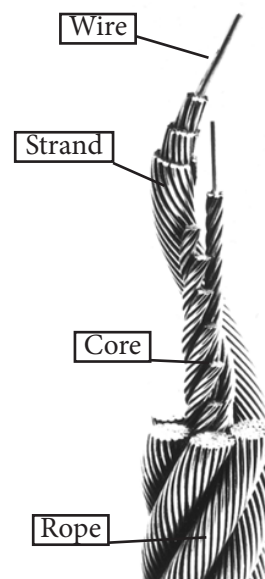
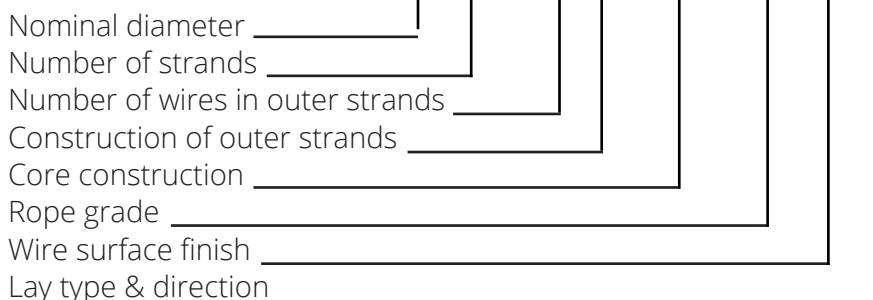
Steel Wire Rope Abbreviations (EN 12385-2) Explained

Scope

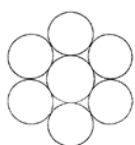
The international standard EN 12385-2 defines a steel wire rope designation system which is used to describe a steel wire rope in equipment manuals, on certificates, and inspection documents. This bulletin aims to provide background information to the user regarding the details and meaning of these descriptions.

Wire Rope Designation

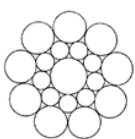
26 6 x 19 S - IWRC 1570 A sZ
 36 8 x 26 WS - IWRC 1770 B zZ
 32 18 x 7 - WSC 1960 U zS
 38 34 x 19 S - WSC 2160 B sS



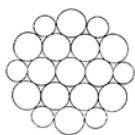
Nominal diameter of the rope in millimetres.
 Number of strands in the rope, which are spun around a centre/core.
 Number of wires in each of the outer strands and below are examples of the arrangement/construction of those wires within the strand;



Single layer strand which only contains one layer of wires
 i.e. 7 wires (1-6)



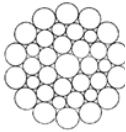
Parallel laid or Equal laPy strand, containing at least two layers of wires
Seale (S) construction, same number of wires in both layers
 i.e. 19 wires (1-9-9)



Parallel laid or Equal lay strand, containing at least two layers of wires
Warrington (W) construction, outer layer containing alternatively large and small wires, with the same number of wires in both layers
 i.e. 19 wires (1-6-6+6)



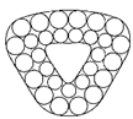
Parallel laid or Equal lay strand, containing at least two layers of wires
Filler (F) construction, outer layer containing twice the number of wires than the inner layer, with filler wires laid in the interstices between the layers same number of wires in both layers
 i.e. 25 wires (1-6+6F-12)



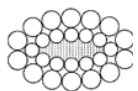
Parallel laid or Equal lay strand, containing at least three layers of wires spun in one operation
Warrington Seale (WS) construction, outer layer containing twice the number of wires than the layer below, the strand below being of a Warrington construction
 i.e. 36 wires (1-7-7+7-14)



Multiple operation lay strand, containing at least two layers of wires spun in more than one operation
Cross-lay (M) construction, all wires laid in the same direction, the wire of superimposed wire layers cross one another making a point



A strand with a perpendicular cross-section which is approximately the shape of a triangle
Triangular Strand (V) can have built up centres, e.g., 3x2+3F, K1V-6, K3/9, etc.



A strand with a perpendicular cross-section which is approximately the shape of an ellipse (oval) is called an **Oval Strand (Q)**

Construction of Strands		
Construction Type	Examples of Strand Constructions	
	Non - Dyform ®	Dyform ®
Single Layer Strand	7 (1-6)	K7 (1-6)
Parallel or Equal Lay; Seale (S) Warrington (W) Filler (F)	19S (1-9-9) 19W (1-6+6) 21F (1-5+5F-10) 25F (1-6+6F-12) 29F (1-7+7F-14)	K19S (1-9-9) K19W (1-6+6) K21F (1-5+5F-10) K25F (1-6+6F-12) K29F (1-7+7F-14)
Combined parallel or Equal Lay; Warrington Seale (WS)	26WS (1-5-5+5-10) 31WS (1-6-6+6-12) 36WS (1-7-7+7-14) 41WS (1-8-8+8-16) 46WS (1-9-9+9/18) 47WS (1-6/8-8+8-16) 52WS (1-6/9-9+9-18)	K26WS (1-5-5+5-10) K31WS (1-6-6+6-12) K36WS (1-7-7+7-14) K41WS (1-8-8+8-16) K46WS (1-9-9+9/18) K47WS (1-6/8-8+8-16) K52WS (1-6/9-9+9-18)
Multiple operation lay; Cross lay (M)	19M (1-6/12) 37M (1-6/12/18)	Generally cross lay strand constructions are none Dyform ®

Note; if after twisting the individual round wires together to form the strand, the strand is then Dyformed (compacted), then to denote that the strand has been Dyformed, the letter K is placed in front of the number of wires within the strand.

The core or centre of a rope supports the outer strands and may consist of natural or synthetic fibre, steel, polymer or a combination of these. The table below provides the designations for the various options of core used within steel wire ropes.

Wire Rope Core	
Single layer ropes; Fibre Core: Natural fibre core Synthetic fibre core Solid polymer core Steel Core: Wire strand core Independent wire rope core Independent wire rope core with compacted strands Independent wire rope core covered with a polymer	NFC SFC SPC WSC IWRC IWRC(K) EPIWRC
Parallel closed ropes; Parallel wire rope centre Parallel wire rope centre with compacted strands	PWRC PWRC(K)
Rotation resistant ropes; Central element: Fibre centre Wire strand centre Compacted wire strand centre	FC WSC KWSC

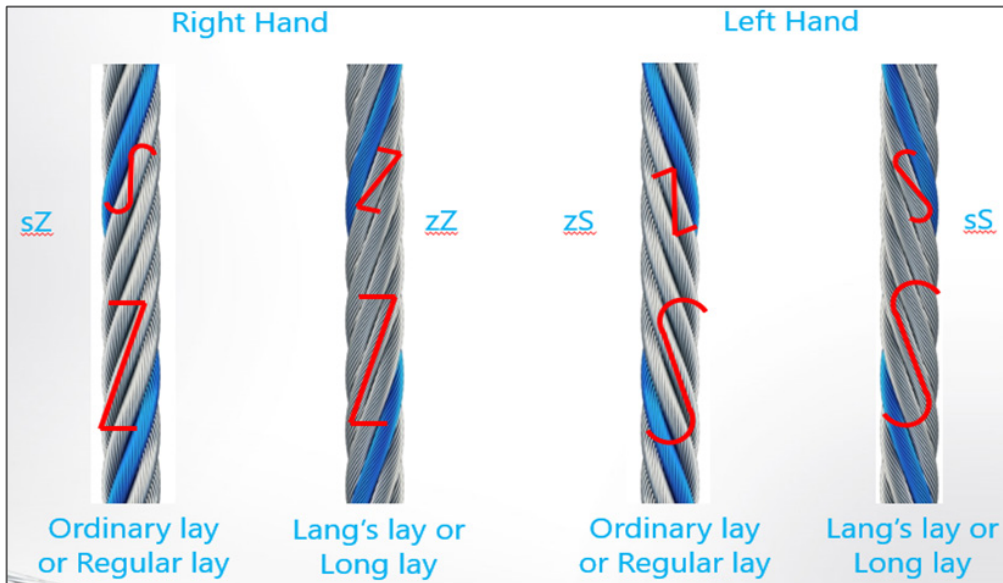
Rope grade is designated by a number (e.g. **1570, 1770, 1960, 2160**)

Wire surface finish (of the outer wires, but generally this applies to all wires which make up the rope) are designated using the following characters.

Uncoated / Un-Galvanised / Bright	U
Zinc coated / Galvanised class B (galvanised before final wire drawing)	B
Zinc coated / Galvanized class A (Wires galvanising after wire drawing)	A

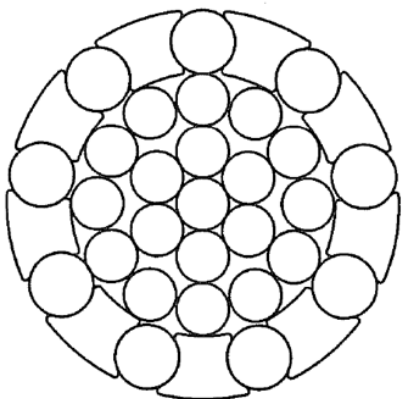
Lay type and direction is designed using the following characters. The first letter donates the direction of the wires in the strands and the second letter denotes the direction of the strands in the rope.

Ordinary / Regular lay - Right hand	sZ
Ordinary / Regular lay - Left hand	zS
Lang's lay - Right hand	zZ
Lang's lay - Left hand	sS

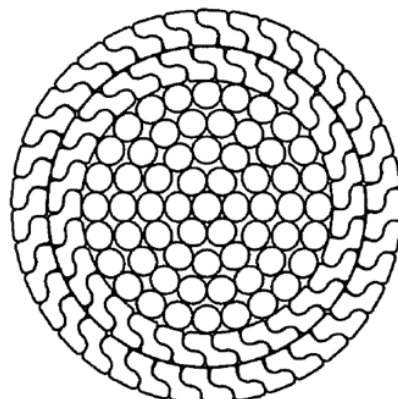


Examples of Bridon-Bekaert Steel Wire Ropes			
Brand Name	Rope Construction	Brand Name	Rope Construction
Blue Strand 6x19 Class	6x19M-IWRC 6x19S-IWRC 6x25F-IWRC 6x26WS-IWRC	Blue Strand 8x19 Class	8x19M-IWRC 8x19S-IWRC 8x25F-IWRC 8x26WS-IWRC
Blue Strand 6x36 Class	6x31WS-IWRC 6x36WS-IWRC 6x37M-IWRC 6x41WS-IWRC 6x46WS-IWRC 6x47WS-IWRC 6x52WS-IWRC	Blue Strand 8x36 Class	8x31WS-IWRC 8x36WS-IWRC 8x37M-IWRC 8x41WS-IWRC 8x46WS-IWRC 8x47WS-IWRC 8x52WS-IWRC
Dyform 6	6K19S-IWRC 6xK26WS-IWRC 6xK31WS-IWRC 6xK36WS-IWRC 6xK41WS-IWRC 6xK46WS-IWRC 6xK47WS-IWRC 6xK52WS-IWRC	Dyform 8	8xK19S-IWRC 8xK26WS-IWRC 8xK31WS-IWRC 8xK36WS-IWRC 8xK41WS-IWRC 8xK46WS-IWRC 8xK47WS-IWRC 8xK52WS-IWRC
Dyform 6PI Dyform Bristar 6	6xK19S-EPIWRC 6xK26WS-EPIWRC 6xK31WS-EPIWRC 6xK36WS-EPIWRC 6xK41WS-EPIWRC 6xK46WS-EPIWRC 6xK47WS-EPIWRC 6xK52WS-EPIWRC	Dyform 8PI Dyform Bristar 8	8xK19S-EPIWRC 8xK26WS-EPIWRC 8xK31WS-EPIWRC 8xK36WS-EPIWRC 8xK41WS-EPIWRC 8xK46WS-EPIWRC 8xK47WS-EPIWRC 8xK52WS-EPIWRC
Parallel / DSC Ropes			
		Dyform DSC 8	8xK26WS-PWRC 8xK31WS-PWRC

Parallel / DSC Ropes			
		Dyform DSC 8	8xK26WS-PWRC 8xK31WS-PWRC
Rotation Resistant Multi-Strand			
Endurance 17	17x7-FC	Dyform 18	18xK7-WSC
Endurance 18	18x7-FC	Dyform 18	18xK19-WSC
Endurance 18	18x7-WSC	Dyform 50DB	26xK7-WSC
Endurance 18	18x19-WSC	Dyform 50DB	26xK19S-WSC
Endurance 50DB	26x7-WSC	Dyform 34LR	34(W)xK7-WSC
Endurance 50DB	26x19S-WSC	Dyform 34LR	34(W)xK19S-WSC
Endurance 50DB	34(W)x7-WSC		
Endurance 50DB	34(W)x19S-WSC		
Endurance 35LS			
Endurance 35LS			
MAX / Swaged Ropes			
		Dyform 8PI MAX	K8xK19S-EPIWRC
		Dyform DSC 8	K8xK26WS-EPIWRC
		MAX	K8xK31WS-EPIWRC
		Dyform 34LR MAX	K8xK36WS-EPIWRC
			K8xK26WS-PWRC
			K8xK31WS-PWRC
			K34(W)xK7-WSC
Spiral Ropes			
Spiral Strand	Single Strand (Multiple layers of round wires)	Locked Coil Ropes	Half-Lock: Spiral Strand having an outer layer of alternate half-lock (H-shaped) and round wires. Full-Lock: Spiral Strand having an outer layer of full-lock (Z-shaped) wires.



Example of half-locked coil rope



Example of full-locked coil rope

Reference TB.000 Ed. 1 April 2022

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