

**TATA STEEL LIMITED, GLOBAL WIRES****TECHNICAL DELIVERY CONDITION - MIG WIRE (SPARK)**

TDC No.

MIG / 08

Revision

8

Date:

7-May-26

General Information**Quality Code**

SPARK

Description

Metal Inert Gas (MIG) welding wire

Specification referred to:

IS 6419: 1996 and AWS A5.18 - 2023 Grade ER70S-6.

Form of Supply

In layer wound spool or pale form

Surface Condition:

Copper coated

Chemistry (ER70S-6)

Chemical Properties	C, %	Mn, %	S, %	P, %	Si, %	Ni, %	Cr, %	Mo, %
	0.07-0.15	1.4-1.85	0.035 max	0.025 max	0.8-1.15	0.15 max	0.15 max	0.15 max
	V, %	Cu, %						
	0.03 max	0.5 max						

Wire dimensions and Mechanical Properties

Wire dimensions and Mechanical Properties	Dia, mm	Dia Tol, mm	Max Ovality, mm	UTS, Mpa	
				Min	Max
	0.8	0.76 - 0.78	0.015 max	1100	1550
	1	0.96 - 0.98	0.015 max	950	1400
	1.2	1.16 - 1.18	0.015 max	900	1300

Weld metal mechanical tests

Weld metal mechanical tests	Minimum Yield Strength, Mpa	Tensile Strength, Mpa	Minimum Elongation, % (@ 50 mm GL)	Minimum Impact Energy, Joules
				Charpy V-Notch @ - 30 oC
	420	500 - 640	22%	27

COPPER COATING

Coppering	Diameter, mm	Copper content, %	Uniformity	Quality
	0.8 - 1.2	0.06 - 0.12 (Aim: 0.08)	Uniform Matte finish (non shiny)	Shall be tightly adhered to wire surface

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CAST & HELIX (SPOOL)**CAST & HELIX
(SPOOL)****Diameter, mm****Cast diameter, mm $\pm$ 50 mm****Helix**

0.8

700

1

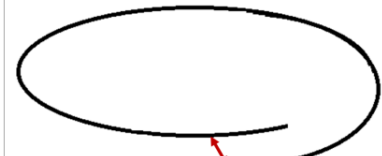
800

1.2

900

Dead Cast, with end
lifting < 10 mm, when
1 ring is kept on floor

Wire cast will be checked after taking out 2 wire turns from the spool.

**GOOD CAST****BAD CAST****BAD CAST****CAST & HELIX (DRUM)****CAST & HELIX
(DRUM)**

In case of drum pack, the wire will have a straight or big C cast (when checked over 1 meters of length from the drum pack machine) without waviness, S-type cast and wire lifting from floor within 10 mm.



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WIRE SURFACE

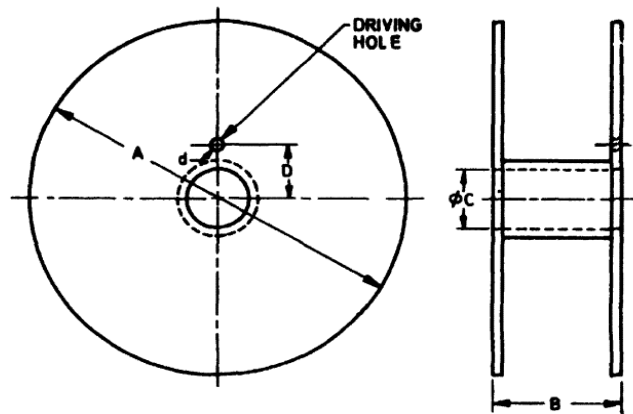
Wire Surface:

Wire surface shall matte finish and free from any contamination including dirt, dust and surface defects including cracks, scratches, die marks, black spots, rust, kink, bend etc.

Reeling on Spools and accumulation in drum

	Diameter	Spool Standard	Spool weight, g	Finished wire weight without spool, kg	Maximum flaring of finished spool flange, mm
	mm				
Reeling on Spools and accumulation in drum	0.8	SD270	590 - 610	12.5 - 12.55	2
	0.8	SD270	590 - 610	15 - 15.05	2
	0.8	SD300	600 - 645	15 - 15.05	2
	1	SD270	590 - 610	12.5 - 12.55	2
	1	SD270	590 - 610	15 - 15.05	2
	1	SD300	600 - 645	15 - 15.05	2
	1.2	SD270	590 - 610	12.5 - 12.55	2
	1.2	SD270	590 - 610	15 - 15.05	2
	1.2	SD300	600 - 645	15 - 15.05	2
	1.2	DRUM PACK		250	

REELING ON SPOOLS



All dimensions in millimetres

A	300 ± 5
B	103 - 3
C	50.5 +2.5
D	44.5 ± 0.5
d	10 + 1

Special Note:

(a) We don't recommend use of SD 270 spools as the wire feeding may not be as smooth as SD 300 spools. However, if we have to supply on SD 270 spools, it will be purely on no complaint basis in terms of wire feedability.

(b) In a spool, maximum 1 weld joint is allowed. The uncoated weld joint will be max 50 mm, in length and will have diameter / ovality as per the specification mentioned in wire diameter section.

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Care while handling and storage**Care while handling
and storage**

The MIG wire boxes must be handled gently and must not be thrown from height.

The boxes must be stacked at a place away from moisture and dusty environment.

The packaging must be opened just before usage and a spool must be completely consumed; as partially used spools may develop rust over time.

Tata Steel Limited**SWPC (ATW)**Issued by, Wire Technology
Group:

Approved by, Quality Assurance

(Signature of approving authority, below)

Amit Agarwal, Head TG

K S Jeggumantri, Head QA