

Technical Specifications for Wire Rope up to 14 MM

1.0 GENERAL FEATURES:

1.1 Manufacturer to possess valid API 9A/ IS 4521/ IS 2266 license and supply wire ropes with API 9A/ IS 4521/ IS 2266 (Latest Edition) monogram. Manufacture should submit the copy of valid certificate of 9A/ IS 4521/ IS 2266 (Latest Edition) along with the offer.

1.2. Material used for drawing wire shall be procured directly from Steel Mill and manufactured not beyond one year from the date of placement of NOA(Purchasing Documents along with all required Test Certificate shall be available at the time of Inspection).

2.0 TECHNICAL FEATURES:

2.1 Codes and Standards -The wire rope shall be designed, constructed and tested as per 9A/ IS 4521/ IS 2266 standard (Latest edition) manufacturing practices, suitable for the intended service. Conforming Codes & Standards (latest version).

2.2 Technical Parameters –

2.2.1 The wire ropes shall be suitable for operation with the minimum & maximum ambient temperature of - 6° C to 55° C and relative humidity up to 95%.

2.2.2 The finished wire rope shall be free from defects like loose wires in the strand and/or other visible irregularities. It shall be evenly laid and shall remain in condition when properly wound in or paying off a reel.

2.2.3 Entire rope shall have continuous diameter throughout its length without any joint.

2.2.4 Fibre core shall be free from salt and acid

2.2.5 Parameter:

S.no	Material	Material Description	Size (mm)	Strength	UoM	Core	Strand	Finish of Wire rope	Formation	Applicable Standard
1	062111003	STEEL WIRE ROPE 6MM DIA 6/19 CONSTRUCTI	6	1770 N/mm2	M	Fibre RHRL	6x7	Bright - Ungalvanized	Preformed	API 9A / IS 4521/ IS 2266
2	140334016	STEEL WIRE ROPE 8MM DIA 6/19 CONSTRUCTI	8	1770 N/mm2	M	Steel core RHRL	6X19F	Galvanized	Preformed	API 9A / IS 4521/ IS 2266
3	140334919	WIRE ROPE 10 MM	10	1770 N/mm2	M	Fibre RHRL	6X7	Bright - Ungalvanized	Preformed	API 9A / IS 4521/ IS 2266
4	062102105	WIRE ROPE 10MM GLV	10	1770 N/mm2	M	Fibre RHRL	6X19F	Galvanized	Preformed	API 9A / IS 4521/ IS 2266
5	140331529	WIRE ROPE 1/2"	12	1770 N/mm2	M	Fibre RHRL	6X31 WS	Bright - Ungalvanized	Preformed	API 9A / IS 4521/ IS 2266
6	140334067	WIRE ROPE GALVANISED 1/2" DIA, 6X19 CLAS	12	1770 N/mm2	M	Steel core RHRL	6x19F	Galvanized	Preformed	API 9A / IS 4521/ IS 2266
7	062111063	13MM 6X19 GLV WIRE ROPE	13	1770 N/mm2	M	Fibre RHRL	6x19 S	Bright - Ungalvanized	Preformed	API 9A / IS 4521/ IS 2266
8	062102104	WIRE ROPE 14MM	14	1770 N/mm2	M	Fibre RHRL	6X31 WS	Bright - Ungalvanized	Preformed	API 9A / IS 4521/ IS 2266

2.3 Constructional Features:

2.3.1 Tolerances - for lengths and diameter of wire rope and wire strands shall be conforming to API 9A/ IS 4521/ IS 2266 (Latest edition), as applicable.

2.3.2 Lubrication - Wire rope shall be lubricated and impregnated by a suitable compound during manufacturing process. This lubricant shall thoroughly protect the ropes both externally and internally to minimize rust, corrosion until the rope is put in service. The lubricant shall conform to the requirements of API 9A/ IS 4521/ IS 2266 (Latest edition).

2.3.3 Core Construction –

a. Fiber core for a given uniform diameter shall be conforming to API 9A/ IS 4521/ IS 2266 (Latest Edition)(whichever applicable).

2.3.4 Finish of Wire Rope: Bright-un galvanized finish of wire ropes shall be as per API 9A/ IS 4521/ IS 2266 (Latest edition) for Abrasion resistance, flexibility and resistance to crushing.

2.3.5 Tensile, Torsional and Reverse Bend Force: Tensile, torsional and reverse bend strength (if applicable) when tested shall meet the values conforming to API 9A/ IS 4521/ IS 2266 (Latest edition).

2.3.6 Mass and Breaking Load: The mass and breaking load/force for a given diameter and construction shall be as per API 9A/ IS 4521/ IS 2266 (Latest edition) . Test of Minimum Breaking Force shall be as per API 9A/ IS 4521/ IS 2266 (Latest edition)

3.0 NAME PLATE DETAILS: Following Information shall be legibly & securely stamped on a metallic plate tagged on the face of the Wire Rope reel:

3.1 Manufacturer's name/logo

3.2 API monogram marking/certification number

3.3 Reel/coil number

3.4 Tensile designation of wire

3.5 Year of manufacture

3.6 Nominal diameter of wire rope (MM)

3.7. Length of wire rope (m)

3.8. Type of construction

3.9. Type of core

3.10 Lay of the rope

3.11 Coating

3.12 ONGC's purchase order number & date

4.0 MISCELLANEOUS: Literature, manual, drawing etc.

4.1 Following documents shall be submitted along with the supply of material:

a. Certificates: Warranty & guarantee certificates, Performance test certificate / Reports, Material test certificates.

b. Certificate that the wire ropes have been designed, manufactured & tested to meet the specified requirement.

c Manufacturer to provide a certificate of material which has been put into use in course of job completion.

5.0 Dispatch & Packing details:

Finished wire rope shall be dispatched on substantial round head reel for wire ropes. Reels on which wire rope are to be dispatched should have:

- 1) The wire rope shall be suitably protected by a water resistant covering of built up material such as tar paper, burlap or similar material and finally by some suitable protection like wooden planks on the circumference of the reel to avoid any damage to the wire ropes.
- 2) When the reel is full of rope, there should be a clearance of not less than 51 mm (2”) between the full reel and the outside diameter of the flange. Flanges should be bolted (Minimum Four) together through the drum for the reinforcement.

6.0 Warranty & Guarantee: Manufacturer shall submit Warranty & Guarantee certificate for a period of 12 months along with the material as per ONGC Standard tender conditions.

7.0 Inspection & Testing: The Wire Rope shall be subjected to breaking test, tensile test, torsional test, reverse bend test(if applicable), pre-forming test , wrapping test (if applicable) confirming to latest applicable API 9A/ IS 4521/ IS 2266 standards(Latest edition) besides the other tests mentioned therein & also in the approved QAP.

Quality Assurance Plan (QAP) for Inspection by ONGC / ONGC Nominated Third Party Inspection Agency (TPIA)

For Wire Rope:

The specific scope of Inspection shall include the following but not limited to:

1. Inspection Agency shall perform inspection/ quality surveillance at manufacturer's/ sub-vendor's works.
2. Vendor shall arrange for Inspection Agency to undertake inspection and witness such test (s) which are required to ensure that the procured Item (s) conform to specifications and relevant code (s)/ standard(s) as mentioned herein.
3. Inspection Agency shall stamp the items inspected for material identification, wherever required.
4. Inspection Agency shall issue final acceptance certificate along with release note on conformance to the technical specifications and other PO conditions.
5. The Inspection Agency shall deploy sufficient number of inspection engineers/ inspectors and vendor shall facilitate the same.
6. The Inspection Agency shall use calibrated measuring instruments and equipment at the manufacturer's/ sub vendor's works at the time of inspection. Vendor to facilitate and ensure availability of all such instruments.
7. The Inspection Agency shall verify:
 - a) Material Test Certificate and traceability records to ensure the use of correct material.
 - b) Manufacture's/ sub vendor's internal QC records
 - c) Compliance with process parameters as per the relevant standards mentioned in the tender Technical Specification and as mentioned herein.
 - d) Qualification record of equipment, process and personnel for special process like Hydro Testing, Welding, NDE, Painting etc.
 - e) Various type of Test Certificate or any special certificate called for in the PO / Standards.
 - f) The inspection agency shall endorse all verified certificates / documents with comments (Witnessed or Verified) as per applicable document. Vendor to facilitate and ensure availability of all such documents, resources required by the Inspection Agency for above mentioned verifications.
8. Inspection shall be treated as complete only when final inspection report '**for acceptance**' is issued after completing all stages of inspection.
9. The accepted items shall be identified with seal, wherever applicable and reference of seal shall be given in the Inspection Report (IR) by the Inspection Agency.

10. After completion of inspection, the inspection agency shall issue report to the bidder/ manufacturer on the format provided along with records of inspection duly signed within 48 hours.
11. Inspection Report (IR) shall essentially contain the following information:
- a) Purchase Order No.
 - b) Inspection Report No.
 - c) Name of bidder and/ or manufacturer
 - d) Date(s) of inspection
 - e) Date of completion of inspection
 - f) Description of items.
 - g) Purchase Order Sl. No. of items
 - h) Reference of Quality Plan and other applicable documents referred for inspection
 - i) Quantity offered, accepted, reworked, rejected, cumulative quantity accepted and consumed in testing, if any
 - j) Inspection / Sampling plan followed
 - k) Inspection checks / test carried out
 - l) Deviation / Concession, if any
 - m) Any other information

It shall be ensured that all records of verification and inspection are enclosed with Inspection Release Note (IRN). This QAP for inspection is only indicative and not exhaustive. Criteria for Inspection shall be conformance with specifications and test reports.

A) Wire Rope:

Wire Rope			
Sl. No.	Activities of inspection	Remark	Scope of Work (TPIA / ONGC Inspector)
A)	General		
A.1	As per API 9A / IS 4521 / IS 2266 (as applicable): Registration No., date & its validity (including that of the sub-vendor, if any)	-----	R

A.2	Certificate of Authority to use the official API / IS Monogram: License No., date & its validity	-----	R
A.3	Calibration and verification of frequency of measuring instrument / equipment	As per API 9A / IS 4521 / IS 2266 (latest edition)	R
A.4	Inspection frequency for Wire Rope	As per API 9A / IS 4521 / IS 2266 (latest edition)	R
B)	Incoming Material		
B.1	Chemical Composition Test Certificate – by supplier of steel wire rod.	As per API 9A / IS 4521 / IS 2266 (latest edition)	R
C)	Wire		
C.1	Diameter (mm) – one sample from every 10 th coil – Test by QA Dept. of manufacturer.	As per API 9A / IS 4521 / IS 2266 (latest edition)	R
C.2	Tensile – one sample from every 10 th coil – Test by QA Dept. of manufacturer.	As per API 9A / IS 4521 / IS 2266 (latest edition)	R
C.3	Torsion– one sample from every 10 th coil – Test by QA Dept. of manufacturer.	As per API 9A / IS 4521 / IS 2266 (latest edition)	R
D)	Closing		
D.1	Diameter of rope	As per API 9A / IS 4521 / IS 2266 (latest edition)	WR
D.2	Lay direction	As per API 9A / IS 4521 / IS 2266 (latest edition)	WR
D.3	Lay length	As per API 9A / IS 4521 / IS 2266 (latest edition)	WR
D.4	Lubrication (visual)	As per API 9A / IS 4521 / IS 2266 (latest edition)	WR

D.5	Core (visual)	As per API 9A / IS 4521 / IS 2266 (latest edition)	WR
D.6	Breaking Load – one sample from each schedule	As per API 9A / IS 4521 / IS 2266 (latest edition)	Witness
E)	Documentation	-----	R
F)	Identification and Packing	-----	100% visual

Legend / Abbreviation:

W:	100% Witness for compliance as per above QAP, Standards, Process, Procedures, Specifications, Scope, as per PO etc.
WR:	Witness Random for compliance as per above QAP, Standards, Process, Procedures, Specifications, Scope, as per PO etc. Sample size 10% or as per API, whichever is higher.
R:	100% Review for compliance as per above QAP, Standards, Process, Procedures, Specifications, Scope, as per PO etc.
QAP	Quality Assurance Plan for Inspection as detailed above
