

Technical Specification

1. **Material specification** : Wrought Nickel-Iron Soft Magnetic alloy
2. **Standard specification** : ASTM A 753-21
3. **Alloy type (UNS No.)** : N14080
4. **Supply condition** : Hot Rolled, annealed & proof machined
5. **Form** : Rods
6. **Chemical composition:**

Elements	% by weight	
	Minimum	Maximum
Manganese	--	0.8
Silicon	--	0.5
Carbon	--	0.05
Molybdenum	3.5	6
Nickel	79	82
Copper	--	0.3
Phosphorus	--	0.02
Sulphur	--	0.01
Chromium	--	0.3
Cobalt	--	0.5
Iron	Balance	

7. **Mechanical properties in annealed condition:**

Yield strength (Mpa)	Ultimate tensile strength (Mpa)	Percentage elongation (% in 50.8 mm elongation)	Max permeability
220	580	40	1,75,000

8. 100 % Ultrasonic Inspection as per AMS 2630 E Class A1 (For Dia > 12.5 mm)
9. ASTM E1019 test methods should be used for determination of Carbon and Sulphur content.
10. ASTM A773/A 773M test method should be used for dc Magnetic properties test.
11. Other tests: Visual examination and Dimensional inspection to be completed.
12. **Sizes and quantities required:** As per given in table below

Sl.No.	Size	Qty (Nos.)
1	Ø 130 mm x 500 mm	8
2	Ø 140 mm x 500 mm	3

13. Terms and conditions:

- 13.1 Material should be Iron-Nickel Soft Magnetic alloy or equivalent grade as technical specification mentioned in Annexure-I. Supplier should furnish source/manufacturer of the material in their offer.
- 13.2 Party should supply qualified material from a reputed manufacturer, without any defects and warpage within a period of 3 months from the dated order.
- 13.3 Material should be supplied in hot rolled, annealed & machined condition to the specified size and length as mentioned in Annexure-I.
- 13.4 100% ultrasonically tested and cleared material as per AMS 2630 E class A1 should be supplied along with reports.
- 13.5 Material test certificate Showing chemical composition, mechanical properties, magnetic properties and ultrasonic inspection etc. tested by government approved third party agency should be supplied along with the consignment.
- 13.6 Party should send copies of mill certificates and third party's test report to IISU for verification & acceptance, prior to dispatch of the item.
- 13.7 Tolerance on diameter can be + 2.0 mm/-0 mm.
- 13.8 10% shipping tolerance can be permitted.
- 13.9 Quotation which does not contain the filled compliance sheet will be rejected.**

14. Report to be submitted by the party:

- Dimensional reports
- Mechanical properties test report
- Chemical composition test report
- Magnetic permeability test report.
- Non –destructive testing (Ultrasonic)

15. Each of the above report shall contain the information like, Purchase order No. and date, Material, Heat /Lot No., Size, Quantity, Supply Condition etc.

16. Identification and marking: Material shall be marked or engraved with the following information:

- Alloy designation and supply condition
- Heat No., Batch No and identification Number
- Size and quantity
- Manufacturer / supplier name