

## 1.0 SCOPE

- 1.1 This Technical Delivery Conditions specify the requirements in addition to IS:3589 for electrically welded (ERW \ SAW ) steel pipes.
- 1.2 The pipes are intended for water services (under Non-IBR piping system only).
- 1.3 The pipes shall conform to the size, grade and quantity as specified in the purchase order.

## 2.0 MATERIAL

- 2.1 The plates / coils used for pipe shall meet the requirements as per IS: 3589 Grade Fe 410 MPa including mechanical test requirements.

## 3.0 DIMENSIONAL TOLERANCES

- 3.1 The tolerances limits are:

OD:- Upto NB 1600 mm:  $\pm 4$  mm; Above NB 1600 mm:  $\pm 6$  mm

Thickness:- Upto 14mm :  $+1.3$  mm /  $-0.8$  mm; Above 14 mm :  $+1.4$  mm /  $-0.8$  mm.

Length:- for OD upto 1300 mm :  $+10$  mm /  $-0$  mm;

for OD above 1300 mm :  $\pm 50$  mm

Ovality ( Difference between major and minor inside diameter) : 0.5% maximum

Squareness of ends: The ends of pipe section shall not vary by more than 3 mm at any point from a true plane perpendicular to the axis of the pipe and passing through the center of the pipe at the end.

- 3.2 Other tolerances shall be as per IS: 3589

## 4.0 MANUFACTURING

- 4.1 The pipe shall be of longitudinally welded or spirally welded as indicated in the P.O.
- 4.2 The ends shall be edge prepared as indicated in the purchase order.
- 4.3 Circumferential seams shall be 1500 mm apart from each other and from ends.
- 4.4 All pipes shall be completely finished and free from surface, sub surface defects such as pits, cracks, weld spatters & laminations etc..

## 5.0 NDE

- 5.1 The spiral welds/butt welds of length 100 mm from both the ends of the pipe shall be radiographically tested.

## 6.0 HYDROSTATIC PRESSURE TEST

- 6.1 Each pipe shall be subjected to a hydraulic test pressure as per IS: 3589 .  
(i.e., using the formula  $P = 2ST / D$  )

## 7.0 INSPECTION

- 7.1 All pipes shall be inspected by the vendor prior to BHEL / Customers' Inspection. BHEL or BHEL authorized inspector / Customer will select the pipes at random and carryout the inspection. The necessary Material Despatch Clearance Certificate is to be obtained by the vendor prior to the despatch of material.

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## 8.0 PAINTING AND PACKING

- 8.1 Unless otherwise specified in the Purchase Order, all the pipes shall be coated with resin type translucent dry type rust preventive on the outside; pipes of diameter above NB 450 mm, shall be coated inside also.
- 8.2 Spiders are to be provided on both ends of the pipes as per the drawing - if indicated in the enquiry / Purchase Order.

## 9.0 MARKING

- 9.1 All pipes shall be paint stencilled, hard punched with the following details.

### Paint Stencil

- Specification
- Heat number
- Pipe number
- Manufacturer's identification
- Material Code
- Size

### Hard punch

- Specification
- Heat number
- Pipe number
- Manufacturer's identification

- 9.2 In addition to the above, for the pipes directly despatched to project site, the following details (furnished in the P.O. or separately) shall be **paint stencilled & hard punched** on both ends of the pipes

- |                 |          |                |
|-----------------|----------|----------------|
| ➤ Work order No | ➤ DU No  | ➤ Project name |
| ➤ Quantity      | ➤ Weight |                |

## 10.0 CERTIFICATES

- 10.1 Three original test certificates typed in English shall be submitted along with the Inspection report.

- 10.2 The test certificate shall furnish the following details.

- a. Purchase Order references.
- b. Test Certificate number.
- c. Specification, grade, size, quantity
- d. Heat number of plate (or pipe number with traceability to heat number)
- e. Chemical composition and mechanical properties
- f. Hydrostatic pressure test report
- g. RT Report.

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