
	<div>PLANT PURCHASING SPECIFICATION HYDERABAD</div>		HY 10576		
			REV. NO: 03		
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<div>HIGH HARDNESS, QUENCHED AND TEMPERED STEEL PLATES SUITABLE FOR WELDING</div>					
<div>1.0 GENERAL:</div> <div>This specification governs the quality requirements of high hardness, quenched and tempered, alloy / micro-alloy steel plates having high hardness of minimum 370 BHN suitable for welding.</div>					
<div>2.0 APPLICATION:</div> <div>For pulverising mills’ components which require high abrasion/ wear resistance.</div>					
<div>3.0 CONDITION OF DELIVERY:</div> <div>Plates shall be supplied in hot rolled, quenched and tempered condition with minimum hardness of 370 BHN.</div>					
<div>4.0 COMPLIANCE WITH STANDARDS:</div> <div>There is no National or International standard which meets the requirement of this standard.</div>					
<div>4.1 Equivalent grades:</div> <div>Hardox 400, XAR 400, Dillidur 400V etc. are equivalent grades.</div>					
<div>5.0 DIMENSIONS AND TOLERANCES:</div>					
<div>5.1 Dimensions:</div> <div>The dimensions shall be as specified in the order.</div>					
<div>5.2 Tolerances:</div> <div>The tolerance shall be as per ASTM A6 (the latest).</div>					
<div>6.0 MANUFACTURE:</div> <div>The steel shall be manufactured in open-hearth or basic electric furnace or by basic oxygen process. Any other method of manufacture of steel is acceptable subject to mutual agreement with the manufacturer.</div> <div>The steel shall be fully killed.</div>					
<div>7.0 CHEMICAL COMPOSITION:</div>					
<div>7.1</div> <div>Chemical composition is left to the discretion of the manufacturer. However, complete chemical composition of the melt shall be reported in the test certificate.</div>					
<div>7.2</div> <div>Carbon Equivalent, CE (%):</div> <div>a. For plates thickness upto 20mm (inclusive) = 0.46max.</div> <div>b. For plates above 20 - 32 mm (inclusive) thickness= 0.56max.</div> <div>c. For plates above 32mm, CE values shall be mutually agreed with BHEL</div> <div>The actual values of CE shall be reported in the test certificate.</div>					
Revisions: Revised Cl. 7.2 & Cl.11.0			Issued : STANDARDS ENGINEERING & IPR COORDINATION DEPARTMENT		
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**8.0 FREEDOM FROM DEFECTS:**

The plates shall be free from cracks, scabs, laminations and other harmful defects.

**9.0 HEAT TREATMENT:**

Suitable heat treatment (quenching and tempering) cycle shall be selected to achieve the hardness. The same shall be reported in the test certificate.

**10.0 MECHANICAL PROPERTIES (Hardness):**

The plates shall conform to the minimum hardness of 370 BHN. Each plate shall be tested for hardness and the hardness values shall be reported in the test certificate.

**11.0 WELDING CHARACTERISTICS:**

11.1 Carbon equivalent (CE) shall be as per Cl. 7.2 of this specification.

11.2 The suppliers shall furnish the bending details and full welding details including electrode composition (Brand & Make) preheating temperature, PWHT (if req.), etc. for each size of the plate offered, along with technical offer. These details will be reviewed by BHEL for its suitability.

**12.0 TEST CERTIFICATES:**

Five copies of the test certificate with the following details shall be furnished.

- a) BHEL Order No.
- b) HY10576 Rev.03
- c) Name of the Mill
- d) Size & Weight
- e) Heat No.
- f) Heat treatment details
- g) Results of chemical analysis
- h) Results of hardness test on each plate.

**13.0 MARKING:**

Each plate shall be identified (hard punched/ stenciled) with the following details:

- a) BHEL Order No.
- b) HY10576 Rev. 03
- c) Heat/Melt No.
- d) Supplier’s name & trade mark

**14.0 REJECTION AND REPLACEMENT:**

In the event of any plate proving defective during the course of further processing or testing, such material shall be rejected and the supplier shall make immediate arrangements to replace the same at free of cost.