



PRODUCT STANDARD

HYDRO TURBINE ENGINEERING

HT 10499

Rev. 02

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STANDARD SUPPLEMENTARY REQUIREMENTS FOR STEEL PLATES TO ASTM A 516 GRADE ~~60~~ / 70

Requirement	Standard	Remarks
Condition	Normalised	
Thickness and size	As per PO	
Charpy V-notch impact test on longitudinal specimen (See Fig.-1 of ASTM A 370 reproduced at page-2)	ASTM A 20/ A 20M (At temperature specified in Table A2.15)	For all plates of PO
Charpy V-notch impact test on transverse specimen (See Fig.-1 of ASTM A 370 reproduced at page-2)	ASTM A 20/ A 20M (Temperature of testing shall be 10°C above the minimum temperature specified in Table A2.15 for longitudinal tests.)	Only for plates identified in PO
Dimensions and tolerances	ASTM A 20/ A 20M	
Ultrasonic testing	ASTM A578/ A 578M	Acceptance standard is Level-B unless otherwise stated in PO
Through thickness tension testing to Quality class Z35	DIN EN 10164	Only for plates identified in PO
Bend test (Longitudinal direction)	ASTM A 20	Only for plates identified in PO
Inspection documents as per results of tests for- - Chemical Analysis, - Mechanical Properties, - Heat treatment, - NDT, - Impact testing, - Through thickness tension test, - Bend test	As per ASTM A 20 and relevant standards as applicable	
Microstructure examination for inclusions: The examination of cleanliness must be performed in one plate per lot. It should be conducted after heat treatment. The microstructure must be uniform and free from porosity, excessive segregation and in-homogeneities. Inclusion content as per ASTM E 45/Method A 'Thin series' inclusions : Type A, B, C, D (Max. severity level 2) 'Heavy series' inclusions : Type A, B, C, D (Max. severity level 1.5)	As per ASTM E45 - 13	Only for plates identified in PO
Inspection Agency		As per PO

* ~~Test applicable for plate thickness 25mm and above.~~

Rev. No.	Date of Rev.	Remarks	Approved	Checked	Date of issue (Rev.00)
01	16.02.2008	UT acceptance standard modified.	J.S.Hanspal, AGM (HOD)-HTE		
02	12.08.2016	Completely reviewed and page-2 added.	Prepared Anuj Raizada Dy. Mgr. - HTE	A.Mandal AGM - HTE	04.01.2006
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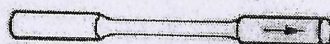
STANDARD SUPPLEMENTARY REQUIREMENTS FOR STEEL PLATES TO ASTM A 516 GRADE 60 / 70



LONGITUDINAL SPECIMEN



LONGITUDINAL FLAT TENSION TEST



LONGITUDINAL ROUND TENSION TEST

LONGITUDINAL
BEND TEST



→ INDICATES ROLLING DIRECTION
OR EXTENSION.



LONGITUDINAL
IMPACT TEST



TRANSVERSE SPECIMEN

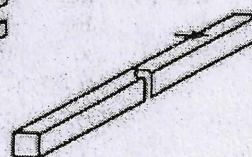


TRANSVERSE FLAT
TENSION TEST

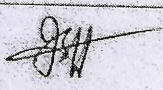
TRANSVERSE
BEND TEST



TRANSVERSE
IMPACT TEST



Relation of test coupons and test specimens to
rolling direction of steel plates
(Fig.-1 of ASTM A 370 reproduced above)

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