



MILL TEST CERTIFICATES

CUSTOMER : AMARI METALS B.V.

P4

PRODUCT : STAINLESS STEEL TUBES #320 FINISH, AS PER ASTM A269/A213 TP316L TO

L/C NO. NLNLINL05M014843

ASTM A269/A213 TP316L, PRIME QUALITY, PLIAN END

INVOICE NO : STNL405701T23

Steel Grade	Heat No.	Lot No.	Dimensions			Quantity		Process	Delivery Condition	Macroscopic Inspection	
			O.D.(mm)	W.T.(mm)	Length(mm)	Meter	Weight(kg)			End Cut	Appearance
TP316L	J0506-166	05-07-28	20	2.0	6000	2178	1888	Cold-Drawn	Solution-Treated and Pickled	OK	OK
TP316L	J0506-166	05-07-28	20	3.0	6000	558	688	Cold-Drawn	Solution-Treated and Pickled	OK	OK

Chemical Composition (W.T.%)

Elements	C	Mn	P	S	Si	Cr	Ni	Mo	Ti
Requirements	≤0.035	≤2.00	≤0.045	≤0.030	≤1.00	16.0-18.0	10.0-14.0	2.00-3.00	—
Heat Analysis	0.014	0.65	0.032	0.001	0.42	16.25	12.23	2.02	—
Product Analysis	0.020	0.65	0.031	0.001	0.42	16.30	12.25	2.02	—
Product Analysis	0.022	0.64	0.032	0.001	0.42	16.30	12.23	2.02	—

Mechanical Properties

Test Items	Rp0.2 Y.S.(MPa)	Rm T.S.(MPa)	A50mm EL.(%)	Z (%) Reduction of Area	Hardness	Cold Bend Test	Flaring Test	Flattening Test	Flange Test
Requirements	≥170	≥485	≥35	—	HRB≤90	—	Yes	Yes	—
Test Results	270	580	64	—	73	—	OK	OK	—
Test Results	260	580	64	—	72	—	OK	OK	—

N.D.T.

Test Items	Eddy Current Test	Ultrasonic Test	Hydrostatic Test	Inter-granular Corrosion Test	Remark:
Requirements	—	—	Yes	—	
Test Results	—	—	OK	—	
Test Results	—	—	OK	—	

We hereby certify that the material described herein has been made and tested completely in accordance with the above specification and with the requirements of the purchase order or contract.

Prepared by:

Approved by:

C. K. Wang

104x K1242 BA + BB 20 JAN. 2006

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VERIFIED TRUE COPY OF ORIGINAL DOCUMENTS

AMARI METALS B.V.