



99976 (18.75")

097832

**PJSC DNIPROSPETSSTAL, YUZHNOYE SHOSSE 81, 69008 ZAPOROZHYE, UKRAINE**

	Contract No.: 50005 TECHN.PROTOCOL № 390-11 SPEC.№1816/P031589 DIN EN 10088-3-05,DIN EN 10272-08,DIN EN 10222-5-00;ASTM A182/A182M-10;ASME SA-182/SA-182M-10;ASTM A276-10;ASTM A314-08,ASTM A479/A479M-10;ASME SA-479/SA-479M-10;ASTM A484/A484M-10;AMS-QQ-S-763B-06 Cond.A;AMS 5648K-07;AMS 5653F-07;ASTM A193/A193M-10GR B8M,CL1; ASME SA-193/SA-193M-10 GR B8,CL 1 ;ASTM A320/A320M-08 GR B8M,CL 1;ASME SA-320/SA-320M-10 GR B8,CL1;NACE MR 0175-03;NACE MR 0103-10		Sheets:9 Sheet: 9 <b>QUALITY CERTIFICATE EN10204/3.1 Nr.278262</b> PLANT ORDER № 8014901816
	 QMS Certified	<b>CUSTOMER</b> DSS INTERNATIONAL SA Switzerland	<b>PRODUCT DESCRIPTION</b> Bars and rods of corrosion-resistant (stainless) steel forged, peeled. Прутки из коррозионностойких (нержавеющих) сталей кованные, обточенные. <b>STEEL MAKING PROCESS:</b> EAF+AOD <b>СПОСОБ ВЪПЛАВКИ:</b> Электродуговая печь+АКР Round 18.750in/476.25 mm L=2.82 m/9.246 ft; <b>Grade: 316/316L/1.4404/1.4404</b>

ANALYSIS, %	C	Si	Mn	P	S	Cr	Ni	Mo	Al	Cu	V	W	Ti	Co	Nb	N <sub>2</sub>	Sn	B
REQUIRED	<.030	<1.00	1.20-2.00	<.040	.015-.030	16.50-18.00	10.00-13.00	2.00-2.50	<.10	<.40	<.10	<.20	<.15	<.40	<.20	<.10		
CAST № 99976	.020	.32	1.32	.037	.023	16,88	10.29	2.05	.072	.29	.04	.11	.005	.08	.01	.030	.011	.0011

DIN EN 10002-1,ASTM A370-09

MECHANICAL PROPERTIES	Yield Strength, (N/mm <sup>2</sup> ) R0.2% R 1.0%		Tensile Strength, Rm, (N/mm <sup>2</sup> )	Elongation		Reduction of area, Z % L	Brinell Hardness HB	Impact strength, KV, J									
	A <sub>5</sub> % L	Q		In 2 inches (50mm) or 4D,min,% L	L			L	Q								
REQUIRED	205	240	515-700	45	35	40	50	140-217	100	60							
EFFECTIVE	295	330	572	56	48	54	73	170	219	219	219	61	61	61	61	61	61
	290	331	577	55	50	54	73	170	224	224	24	61	61	61			

**TECHNICAL REQUIREMENTS:**

Macrostructure – GOOD  
 GRAIN SIZE : 5 to ASTM E 112-96(2004)  
 Nonmetallic inclusions ASTM E 45-05 (Method A)  
 A B C D  
 thin thick thin thick thin thick thin thick  
 3.0 2.0 2.0 1.0 0.0 0.0 1.0 1.0  
 ICC-ASTM A262-08 (practice E)-test: O.K.  
 Dimension/surface defects test, anti-mixing test – OK

Mechanical properties tested in state of delivery

US - testing	yes	Results: ASME SA-388/SA-388M-10(ASTM A 388/A 388M-09)-FBH1/5";EN 10228-4 type 1a;class 3:OK
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Manufacturer: PJSC DNIPROSPETSSTAL  
 Date: 17.11.13  
 Manager of quality assurance department - V. Kapaieva  
 Signed:



Radiation free; mercury free. No Weld or Weld repair.

Zaporozhye  
 Made in Ukraine.