

99976 (11")

PJSC DNIPROSPETSSTAL, YUZHNOYE SHOSSE 81, 69008 ZAPOROZHYYE, 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-10 GR 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: 7
QUALITY CERTIFICATE EN10204/3.1 Nr.278262
 PLANT ORDER № 8014901816



CUSTOMER
DSS INTERNATIONAL
 SA Switzerland

PRODUCT DESCRIPTION
 Bars and rods of corrosion-resistant (stainless) steel forged, peeled.
 Прутки из коррозионностойких (нержавеющих) сталей кованные, обточенные.
STEEL MAKING PROCESS: EAF+AOD
СПОСОБ ВЫПЛАВКИ: Электродуговая печь+АКР
 Round 11.000in/279.40 mm L=3.58m/11.738ft; L=4.205m/13.787ft
Grade: 316/316L/1.4404/1.4404

QUANTITY: 1bund Q-3959 lb/1796 kg
 (number of pcs) 1bund Q-4638 lb/2104 kg

Delivery condition
 solution annealed :1900°F(1040°C)water 30minutes
 термообработка:закалка в воду

ANALYSIS, %	C	Si	Mn	P	S	Cr	Ni	Mo	Al	Cu	V	W	Ti	Co	Nb	N ₂	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 Heat# № 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 ²) R0.2% R 1.0%		Tensile Strength, Rm, (N /mm ²)	Elongation		Reduction of area, Z % L	Brinell Hardness HB	Impact strength, KV, J	
	L	Q		A ₅ % L Q	In 2 inches (50mm) or 4D,min,% L			L	Q
REQUIRED	205	240	515-700	45 35	40	50	140-217	100	60
EFFECTIVE	273 264	305 300	570 570	59 54 58 56	57 57	73 75	167 167	253 250 241 242 237 239	61 61 61 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
3.0	2.0	2.0	1.0
0.0	0.0	0.0	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

Manufacturer: PJSC DNIPROSPETSSTAL
 Date: 17.11.13 Manager of quality assurance department - V. Kapaieva
 Signed:

Zaporozhye
 Made in Ukraine.

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

SV