99353 · (11")

C088293

PJSC DNIPROSPETSSTAL, YUZHNOYE SHOSSE 81, 69008 ZAPOROZHYE, UKRAINE

Contract No.: 50005
TECHN.PROTOCOL № 390-11 SPEC.№0231/P030022-ED
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:2 **Sheet: 2**
QUALITY CERTIFICATE EN10204/3.1 **Nr.274329**
PLANT ORDER № 8014900231

QMS Certified

CUSTOMER
DSS INTERNATIONAL
SA Switzerland

PRODUCT DESCRIPTION
Bars and rods of corrosion-resistant (stainless) steel forged, peeled.Прутки из коррозионностойких (нержавеющих) сталей кованые, обточенные.
STEEL MAKING PROCESS: EAF+AOD
СПОСОБ ВЫПЛАВКИ:Электродуговая печь+АКР
Round 11.000in/279.40 mm L=3.600m/11.803ft L=4.250m/13.934ft
Grade: 316/316L/1.4401/1.4404

QUANTITY: **1bund Q-3977 lb/1804 kg**
(number of pcs) **1bund Q-4696 lb/2130 kg**

Delivery condition
solution annealed :1900^{0}F(1040^{0}C)water 18minutes
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 № 99353	.024	.48	1.30	.034	.027	16,89	10.14	2.11	.064	.29	.05	.10	.005	.08	.04	.025	.011	.001

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 A_5% L Q	Elongation In 2 inches (50mm) or 4D,min,% L	Reduction of area, Z % L	Brinell Hardness HB	Impact strength, KV, J L	Impact strength, KV, J Q
REQUIRED	205	240	515-690	45 35	40	50	140-223	100	60
EFFECTIVE	259 261	283 293	528 525	58 48 56 48	52 53	75.5 74	152 152	273 277 271 268 270 275	112 116 113 110 107 114

Mechanical properties tested in state of delivery

TECHNICAL REQUIREMENTS:
Macrostructure – GOOD
GRAIN SIZE : 3 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
2.0	1.5	1.5	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

US - testing	yes	Results: ASME SA-388/SA-388M-10(ASTM A 388/A 388M-09)-FBH1/8";EN 10228-4 type 1a;class 3:OK

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

Manufacturer:PJSC DNIPROSPETSSTAL
Date: 01.07.13 **Manager of quality assurance department** - V. Kapaieva
Signed:

Zaporozhye
Made in Ukraine.