

# A00386-10

C10438

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

Contract No.: 20002

TECHN PROTOCOL № 390-11 SPEC №2647/P032284-ED

DIN EN 10088-3-05; DIN EN 10272-08; DIN EN 10222-5-00; ASTM A 182/A 182M-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: 4

Sheet: 2

**QUALITY CERTIFICATE** EN 10204/3.1 Nr.281498  
 PLANT ORDER № 8014902647

### 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:** Электропудовая печь+АКР

Round 10.000in/254.00 mm L=4.310m/14.131ft L=4.460m/14.623ft

**Grade:** 316/316L/1.4401/1.4404

**CUSTOMER**  
**DSS INTERNATIONAL**  
 SA Switzerland



©MS Certified

**QUANTITY:**  
 (number of pcs) 1bund Q-3951 lb/1792 kg  
 1bund Q-4118 lb/1868 kg

**Delivery condition**  
 solution annealed : 1940°F (1060°C) water 30minutes  
 термообработка: закалка в воду

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		
C.A.S.T № A00386	.020	.46	1.32	.037	.027	16.88	10.20	2.08	.072	.26	.05	.10	.005	.08	.011	.036	.013	.001

DIN EN 10002-1, ASTM A370-09

MECHANICAL PROPERTIES	Yield Strength, (N/mm <sup>2</sup> ) R <sub>0.2%</sub> R <sub>1.0%</sub>	Tensile Strength, (N/mm <sup>2</sup> ) R <sub>m</sub>	Elongation		Reduction of area, Z %	Brinell Hardness HB	Impact strength, KV, J	
			A <sub>5</sub> %	In 2 inches (50mm) or 4D, min. %			L	Q
REQUIRED	205	515-690	45	35	40	140-223	100	60
EFFECTIVE	287 290	558 560	58.54 59.54	57 58	75 75	167 167	204 209	62 61

### TECHNICAL REQUIREMENTS:

Macrostructure – GOOD  
 GRAIN SIZE : 5 to ASTM E 112-96(2004)  
 Nonmetallic inclusions ASTM E 45-05 (Method A)  
 A thin thick thin thick thin thick  
 B 3.0 2.0 3.0 2.0 0.0 1.0  
 C thin thick thin thick thin thick  
 D 1.0 1.0 1.0 1.0 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

Manufacturer: PJSC DNIPROSPETSSTAL  
 Date: 28.02.14      Manager of quality assurance department - V. Kapaieva  
 Signed:

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

Zaporozhye  
 Made in Ukraine.