

## 2.25" Baker Male Adapter Ring

2 1/4 9cr1mo



SIDENOR

## MILL TEST CERTIFICATE



Azkoitia Plant

ISO 9001 - ISO/TS 16949

CUSTOMER: ENERGY ALLOYS	SALES ORDER: 194484-2	WORKS REFERENCE: 1358549
REFERENCE: 913216	VERSION: 103828	HEAT NUMBER: 73899
PRODUCT NR: 959		ROLLED: 20.06.2008

## REQUIRED PRODUCT

9%Cr 1%Mo ROUND BARS AS ROLLED Q+T+STRESS RELIEF 2.25" ASTM A-29 (2) 6.100/7.000 mm

RANDOM

EXPEDITION

DELIVERY: 80247365

WEIGHT (KG): 3.905

BUNDLES: 2

UNITS: 32

## MADE ACCORDING TO

ENERGY ALLOYS EA-600 0 28.03.2006 : EN 10204:2004 3.1

## CHEMICAL ANALYSIS OF HEAT

U: % HEAT NUMBER: 73899

	C	Mn	Si	P	S	Cr	Ni	Mo	V	Cu	Al
Min.	0,090	0,300	0,250			8,000		0,900			
Max.	0,150	0,600	1,000	0,020	0,010	10,000	0,500	1,100	0,100	0,250	
Cer.	0,100	0,430	0,690	0,012	0,010	8,500	0,100	0,973	0,027	0,097	0,010

## MECHANICAL PROPERTIES AS SUPPLIED (CONDITIONS)

Specimen Test location: At 1/2 radius : Temperature of: (1): Quenching 1.652 ; Cooling: (1): Oil 90/99  
 Temperature of: (2): Tempering 1.328 °F : Temperature of: (3): STRESS RELIEVED 1.112  
 Observations: CONVENTIONAL FURNACE

## MECHANICAL PROPERTIES AS SUPPLIED (TEST)

Tensile test specimen direction (Longitudinal): Longitudinal ; Tensile test Temperature (°F): 70 °F  
 Tensile Strength ( $\geq$  100.000 PSI): 106.000 PSI  
 Yield Strength (1) (Rp(0,2%)) 80.000/95.000 PSI: Rp(0,2%) 86.000 PSI  
 Yield Strength (2) ((0,5%)) PSI: (0,5%) 90.000 PSI ; Elongation ((4d)  $\geq$  20 %): (4d) 21,8 %  
 Reduction of Area ( $\geq$  40 %) : 65,6 % ; Notch impact sample direction (Longitudinal): Longitudinal  
 Notch Impact sample type (KV): KV ; Notch Impact test Temperature (32 °F): 32 °F ; K(1): 132 J  
 K(2): 138 J ; K(3): 143 J ; lateral expansion: 0,4 ; Brittle fracture: 4  
 Hardness at 1/2 radius (16/22 HRC): 20/21 HRC

## ADDITIONAL TESTS

Standard (ASTM E112-96- . 1996) ; Grain size: 7

## NON DESTRUCTIVE TESTS

Internal defects standard (ASTM A388-A388M032001)

## ADDITIONAL INFORMATION

Reduction ratio: 29 ; QUENCHED: 1652°F 75min. OIL. TEMPERED: 1328°F 150min.  
 EAF METHOD, V ACUUM DEGASSED. CONTINUOUS CASTING, BLOOM 310X240 mm.  
 MATERIAL IS FREE OF MERCURY CONTAMINATION ; NO WELD REPAIR PERFORMED ; COUNTRY OF ORIGIN: SPAIN

TECHNOLOGY &amp; QUALITY CERTIFIES THAT THE PRODUCT FULL FILLS THE ORDER'S SPECIFICATIONS

APPROVED BY: ANGEL FUNES EXPOSITO

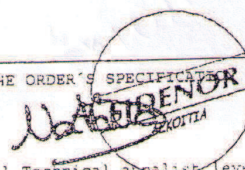
SIGN:

DATE: 14.10.2008

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Metallurgical Technical analyst Level II



16/73899

9/3216-2