



**ACCIAIERIE BERTOLI SAFAU**  
ABSOLUTE STEEL QUALITY

**ACCIAIERIE BERTOLI SAFAU SpA**

Via Buttrio n.28 - Frazione Cargnacco - 33050 Pozzuolo del Friuli (UD)  
Tel. +39 0432 613211 - Fax +39 0432 613209 - www.absacciai.it

# CERTIFICATO DI COLLAUDO

Inspection Certificate 3.1/Certificat de reception 3.1/  
Abnahmeprüfzeugnis 3.1

N. 255779 / 1

Data 04.03.2020

COLATA N. 260873  
Heat-Coulée-Schmelze

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<b>CLIENTE</b> Customer-Client-Besteller	ARAMETAL OILFIELD EQUIPMENT INDUSTR	<b>ORDINE</b> Order-Commande-Bestellung	ARAFPO939(REV-0)
<b>PROFILO</b> Shape-Section-Profil	FORGED ROUND BARS TURNED 431,8 MM - 17"	<b>STATO DI FORNITURA</b> SupplyCondition-Etat de livraison	QUENCHED AND TEMPER.
<b>ACCIAIO</b> Steel-Acier-Stahl	AISI 4145 MOD. 125KSI	<b>COMESSA/POS</b> Sales Order/Pos:	1064414/40

**CAPITOLATO ABS:** Technical Specification: ABS  
**CAPITOLATO DI ANALISI:** Material Specification: ARAMETAL AISI 4145 MOD. 125 KSI ARA/TS-02 REV.3 24.9.2018 MIN. 32-36HRC  
**CAPITOLATO DI FORNITURA:** Technical Delivery Requirements:

## COMPOSIZIONE CHIMICA DI COLATA %

CAST ANALYSIS % - COMPOSITION CHIMIQUE DE COULEE % - SCHMELZE CHEMISCHE ANALYSE %

	C	Mn	Si	P	S	Cr	Ni	Mo	Al (T)	Cu	Sn	Ti
<b>Min</b>	0,420	1,00	0,15			1,00		0,30				
<b>Max</b>	0,490	1,25	0,35	0,025	0,025	1,30	0,25	0,45	0,300	0,40	0,100	0,0500
<b>Colata/Heat</b>	0,468	1,21	0,24	0,013	0,002	1,25	0,22	0,42	0,024	0,20	0,011	0,0038
	<b>B (T)</b>	<b>V</b>	<b>Nb</b>	<b>As</b>	<b>Ca</b>	<b>Sb</b>	<b>Co</b>	<b>O/ppm</b>	<b>H/ppm</b>	<b>P+S</b>		
<b>Min</b>												
<b>Max</b>	0,0008	0,100	0,060	0,100	0,1000	0,100	0,300	20,00	2,00	0,025		
<b>Colata/Heat</b>	0,0001	0,008	0,005	0,006	0,0012	0,001	0,011	7,00	0,70	0,015		

## CARATT. MECCANICHE

MECHANICAL PROPERTIES - CARACTERISTIQUES MECANIQUE - MECHANISCHE EIGENSCHAFTER

TENSILE/IMPACT TEST ON PRODUCT

TRATTAMENTO TERMICO HEAT TREATMENT

**TRAZIONE**  
TENSILE TEST

ATTACHED MECHANICAL PROPERTIES  
ACC. TO ASTM A370; AMS-H-6875, ASTM 2750

## INCLUSIONI NON METALLICHE

NON METALLIC INCLUSION - INCLUSIONS NON METALLIQUES - PRUFUNG NICHEMETALLISCHE EINSCHLUSSE

	Tipo A Type A	Tipo B Type B	Tipo C Type C	Tipo D Type D
<b>Fine Thin</b>	1	1,5	0	1
<b>Grosso Heavy</b>	0,5	0,5	0	1

MICROINCLUSIONS : METHOD METHOD "A"  
MICROINCLUSIONS: STANDARD ASTM E45

## GRANO

GRAIN - GRAIN - KORNGROSSE

AUSTENITIC GRAIN : STANDARD ASTM E112  
AUSTENITIC GRAIN: METHOD B.BEAUJARD  
TEMPERATURE AUSTENITIC GRAIN 850  
AUSTENITIC GRAIN SIZE 8

## ALTRE PROVE

OTHER TESTS - AUTRES ESSAIS - SONSTIGE PRUFUNGEN

BANDING: LEVEL ABSENT  
BANDING: STANDARD UNI 8449

## NOTE

SURFACE DEFECTS: 100% SURFACE CONTROL  
INTERNAL DEFECT METHOD UT 100%  
INTERNAL DEFECTS INSPECTION AND CALIBRATION AS PER ASTM A388  
INTERNAL DEFECTS UT TESTED 100% FULL LENGHT AFTER COMPLETION OF HEAT TREATMENT  
INTERNAL DEFECTS ACC.TO ASTM A388/API 7-1  
INTERNAL DEFECTS PERSONNEL QUALIFIED "SNT-TC-1A"  
INTERNAL DEFECTS ACC. TO API6A CLAUSE 7.4.2.3.15 (CALIBRATION WITH AVG CURVE)  
. NO WELD REPAIR  
ANTIMIX 100 %



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R/R = 6

TEST CERTIFICATE ISSUED ACCORDING TO: EN 10204/3.1

ACC.TO API 7-1

COUNTRY OF ORIGIN : ITALY

FULLY KILLED .

FINE GRAIN STEEL .

ELECTRIC ARC FURNACE STEEL .

VACUUM DEGASSED STEEL .

- Material free from lead, mercury, cadmium and hexavalent chromium (dir. 2000/53/CE - dir. 2011/65/UE as amended)
- Material with radioactivity not exceeding 0,1Bq/g (d.lgs. 230/1995 as amended)

### CONTROLLO QUALITA'

QUALITY CONTROL - CONTROLE DE QUALITE - QUALITÄTSSTELLE

Company with a management system certified by IGQ to  
ISO 9001 and IATF 16949

Verif.:Giovanna Rojatti

SPECIMEN COPY-MTL NOT SOLD



**ACCIAIERIE BERTOLI SAFAU**  
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Heat	260873
Odv	1064414
Pos	40

Certificate n°	255779/1-A-
Date	04/03/2020

**MECHANICAL PROPERTIES**

POSITION TEST	YS0,2%(KSI) (lim: ≥ 110)	TS (KSI) (lim: ≥ 135)	E% 4 (lim: ≥ 13)	R.A. % (lim: ≥ 40)	Kv +23°C [Joule] long. (lim: ≥ 42 avg, ≥ 42 individual)			avg	Kv -20°C [Joule] long. (lim: m.v.)			avg	Kv -32°C [Joule] long. (lim: m.v.)			avg
					63	67	68		21	28	26		17	19	19	
Half Radius	115	142	13,3	58	63	67	68	66	21	28	26	25	17	19	19	18
					Exp. Lat. (mm) (lim: > 0,38 mm)			Exp. Lat. (mm) (lim: m.v.)			Exp. Lat. (mm) (lim: m.v.)					
					0,57	0,62	0,65				0,15	0,21	0,20			
Shear Area (%) (lim: m.v.)					49	50	50				10	15	15			

HBW (on surface) = 327 (lim: 285/341)

HBW (mid radius) = 290 (lim: 285/341)

MECHANICAL PROPERTIES OBTAINED FROM PROLONGATION OF THE BAR ACC. TO ASTM A370

Austenitized 1580°F x 780' water, Tempered 1094°F x 1380' air

Quench Water Temperature: before 86°F , after 114°F

Quality Control

Name ROJATTI GIOVANNA

ACCIAIERIE BERTOLI SAFAU S.p.A.  
Servizio Clienti Qualità