

 ASOForge Steeled for the future		INSPECTION CERTIFICATE / Werkzeugnis Acc. To EN 10204 - ISO 9001		MADE IN ITALY mod. Q.P9.02.b - rev.5	
ASOForge srl, Via Verginello 29/31 Castegnato BS(ITALY) - Tel. 030/6841011 Fax. 030/6841012			Certificate Nr./Zeugnis Nr. 5968/2020		Rev. 0
CUSTOMER					
Cliente / Kunde Client Order Nr. / Ordine Nr. / Bestell Nr. P06069 ASO ORDER / Ordine Aso / Auftrags Nr. 8200747					
REFERENCE STANDARDS Standard di Riferimento / Referenzstandards			SS1 rev. 5.3 - 2016 éd. / ASTM A276, A479, A182/SA 182, ASTM A262 Practice E, A484, ASME SA479, SA193/A193 B8M CL1, SAE AMS-QQ-S-763B, AMS 5653, AMS 5648, NACE MR0175-ISO 15156, NACE MR0103, ASTM A320/A320M, ASME SA320/SA320M		
Client Item / Artikel Nr. 197		Heat N° / Schmelze 115692		STEEL GRADE / Stahl F316 / F316L - UNS S31600 - UNS S31603	
Melting process / Schmelzprozess		Steel produced by electric furnace and refine in AOD / Elektrotlichtbogenofen und Ausbau in der AOD-Konverter			
Chemical Analysis / Chemische Analyse					


 ASONEXT Steeled for the future		CERTIFICATO DI ANALISI CHIMICA E METALLOGRAFICA Chemical analysis and metallographic certificate. Certificat d'analyse chimique et métallographique. Werkstoffprüfbericht über die chemische Analyse und Metallkundeprüfung			Azienda con sistema di gestione certificato secondo ISO 9001: ISO 14001: OHSAS 18001.		Manuale QAS Rev: 0 Data: 01/10/2020												
CLIENTE: ASOForge S.R.L. UNIPERSONALE Purchaser / Client / Besteller		ORDINE N.: 8313486 Purchase order no. / Commande nr. / Bestellnr.		ORDINE ASO N.: 9201708 ASO order confirmation no. / ASO ordine de recepzione nr. / Bestellbestätigung		DOCUMENTO DI CONTROLLO TIPO: 3.1 3.2 2.2 (EN 10204) Document Control Type / Type de document de contrôle / Typensatz / Dokument		STATO DI FORNITURA: <input checked="" type="checkbox"/> LINGOTTI GREZZI Delivery supply condition / Etat de fourniture / Lieferbedingung											
ACCIAIO PRODOTTO AL FORNO ELETTRICO ED AFFINATO IN AOD - Steel produced by electric furnace and refined in AOD - Acier produit au four électrique et affiné en AOD - Edelstahl hergestellt und affinit in der AOD-Konverter																			
COLATA N.: 115692 Heat no. / Gussnr. / Schmelznr.		ACCIAIO F316L Steel / Acier / Stahl		SPECIFICA/NORMA: SS1 REV.5.3 Designated steel / Acier designé / Vorkennzeichnung		<input type="checkbox"/> ACCIAIO DEGASATO SOTTOVUOTO <input checked="" type="checkbox"/> ACCIAIO NON DEGASATO Not degassed steel / Acier non dégazé / Nicht Vakuumstahl													
PROFILO: 8500 Size / Section / Profil		PEZZI n.: 2 Pieces number / Nombre de pièces / Anzahl Stücke		ANALISI CHIMICA - Chemical analysis - Analyse chimique - Chemische Zusammensetzung															
C	Mn	Si	P	S	Cu	Cr	Ni	Mo	Sn	Al	V	Nb	Ti	B	As	Sb	Co	Ce	
0.013	1.78	0.34	0.032	0.025	0.44	16.65	10.26	2.08	0.008	0.005	0.060	0.031	0.003	0.0027	0.005	0.0030	0.132		
ANALISI GAS Gas analysis / Analyse des gaz / gas analysis		TEMPERATURA Temp. / Température / Temp.		INCLUSIONI NON METALLICHE: Inclusions / Inclusions / Einschlüsse															
		680		0.0007		0.060													
TEMPRABILITA' JOMINY UNI EN ISO 642		Temp. / Température / Temp.		mm 1,5 3 5 7 9 10 11 13 15 20 25 30 35 40 45 50		HRC													
GRANO AUSTENITICO: SCALA ASTM E-112= 3,5		Grain size / Taille des grains / Korngröße		INCLUSIONI NON METALLICHE: SCALA		A B C D T= H= T= H= T= H= T= H=													
The content is correct and accurate and all test results are in compliance with the material specification										STABILIMENTO DI Ospitaletto Italy 04-12-2020									
NOTE: Remarks / Anmerkungen		- 1100023 - ASTM A276, A479, A182/SA182, A262 Practice E, A484, ASME SA479, SA 193/A193 - No wetting spiral have been performed. The material is verified to be free of radioactive contamination. - Radioactivity Co.60Co, 1 Bq/g.		RESPONSABILE GARANZIA DI QUALITA' Quality Service - Responsable service Qualité - Qualitätssicherung DANIELE RINALDI <i>Daniele Rinaldi</i>				Certificato / Certificate / Zertifikat 5968 / 2020 Revision / Révision / Revision 0											

Statement confirming that all the operation have been performed in accordance with the Quality manual Rev. 00 dated 01/10/2020 /
 Erklärung, die bestätigt, dass alle Operationen in Übereinstimmung mit dem Quality manual Rev. 00 dated 01/10/2020 durchgeführt wurden
 (ASO-Qualitäts-Handbuch)

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 ASOFORGE Steeled for the future	INSPECTION CERTIFICATE / Werkzeugeignis Acc. To EN 10204 - ISO 9001		MADE IN ITALY mod. Q.P9.02.b - rev.6
			CERT. TYPE 3.1
ASOFORGE srl, Via Verginello 29/31 Castegnato BS(ITALY) - Tel. 030/6841011 Fax. 030/6841012		Certificate Nr./Zeugnis Nr. 5968/2020	Rev. 0
CUSTOMER Cliente / Kunde			
Client Order Nr. Ordine Nr. / Bestell Nr.		P06069	
ASO ORDER Ordine Aso / Auftrags Nr.		8200747	
REFERENCE STANDARDS Standard di Riferimento / Referenzstandards		SS1 rev. 5.3 - 2016 ed. / ASTM A276, A479, A182/SA 182, ASTM A262 Practice E, A484, ASME SA479, SA193/A193 B8M CL1, SAE AMS-QQ-S-763B, AMS 5653, AMS 5648, NACE MR0175-ISO 15156, NACE MR0103, ASTM A320/A320M, ASME SA320/SA320M	
Client Item / Artikel Nr.	Heat N° / Schmelze	STEEL GRADE / Stahl	CONDITION Trattamento / Waermebehandlung
19"	115692	F316 / F316L - UNS S31600 - UNS S31603	Solution Annealing

VDH: Visual, Dimensional and Surface Hardness / Visibilitaet, Dimension Oberflaechen.Haerte.

Bar Nr	Nominal section ["]	Real section ["]	Length[mm]	Weight [Kg]	Forging Reduction	Hardness test (HB)
						140 - 241
6	19"	19,21"	5030	7490	3,14:1	164 - 162

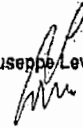
Material must be of European origin. According to ISO 9001:2008 - ISO 9002 - 1987 EN 29002 1987 Approval.
STAINLESS STEEL FORGED ROUND BARS

This report is a copy of the original
 Mill certificate and verifies that
 the product meets the requirements
 as originally ordered by
 ESP Specialty Steel Products LLC
 Date 3-5-21 Verified MR

No Welding Performed, Mercury Free, Radioactivity Co.60 < 0,1 Bq/g. VISUAL INSPECTION: Satisfactory. Free from cracks, 100% anti-mix-test, free from toxic contamination. Mercury free. According to NACE MR0103. "Emesso in accordo con TUV di Monaco (Giugno 2011)"

Ingot type / Blockart Polygonal 11000	Country of origin / Ursprungsland ITALY
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Material description / Materialbeschreibung Forged steel bar

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ASOForge
Steel for the future

**INSPECTION CERTIFICATE /
Werkszeugnis Acc. To EN 10204 - ISO 9001**

**MADE IN ITALY mod.
Q.Pg.02.b - rev.6**

CERT. TYPE 3.1

ASOForge srl, Via Verginello 29/31 Castegnato BS(ITALY) - Tel.
030/6841011 Fax. 030/6841012

Certificate Nr./Zeugnis Nr.
5968/2020

Rev: 0

CUSTOMER Cliente / Kunde	
Client Order Nr. Ordine Nr. / Bestell Nr.	P06069
ASO ORDER Ordine Aso / Auftrags Nr.	8200747
REFERENCE STANDARDS Standard di Riferimento / Referenzstandards	SS1 rev. 5.3 - 2016 ed. 7 ASTM A276, A479, A182/SA 182, ASTM A262 Practice E, A484, ASME SA479, SA193/A193 B8M CL1, SAE AMS-QQ-S-763B, AMS 5653, AMS 5648, NACE MR0175-ISO 15156, NACE MR0103, ASTM A320/A320M, ASME SA320/SA320M
Client Item / Artikel Nr.	Heat N° / Schmelze
19"	115692
	STEEL GRADE / Stahl
	F316 / F316L - UNS S31600 - UNS S31603
	CONDITION Trattamento / Waermebehandlung
	Solution Annealing

Heat Treatment / Waermebehandlung

Lot - Nr. / Fertigungsauftr. Nr. TT008036	Heating Temperature 1050°C, Holding time 8h:49min. Cooling in Water
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Furnace temperature monitoring by thermocouple: method A (atmosphere). Furnace calibration according to API 6A Annex M.

Mechanical Properties / Mechanische Eigenschaften

Mechanical testing on a plottongation from the forged bar after quality heat treatment

Test One - bar size	19"						
Tensile test / Zugversuch	Lot nr. / Fertigungsauftr. Nr.				-	Direction	Trans. - D/4 B.S.
	Temperature	Rm [Mpa]	Rp 0.2% [Mpa]	A2 [%]	Z [%]		
Required	20°C	> 515	> 205	> 30	> 50		
Obtained		519	220	56	72		


Impact test / Schlagbiegeversuch	Lot nr. / Fertigungsauftr. Nr.				-	Direction and position	Trans. - D/4 B.S.
	Temperature	Kv [joule]	Kv Av. [joule]			Hard. / HB	
Required	20°C	inf.	inf.				
Obtained		102 - 97 - 99	99,33			153 - 153 - 152	

Remarks / Notes / Anmerkungen:

According to ASTM A182

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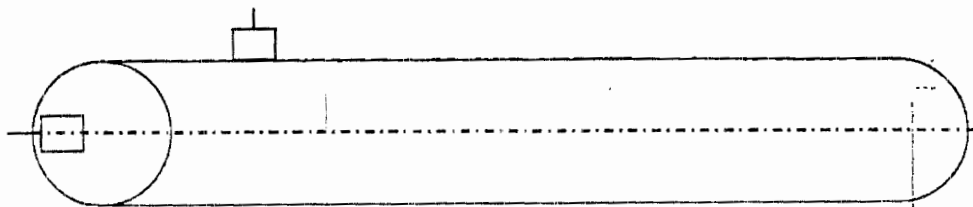
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	INSPECTION CERTIFICATE / Werkzeugnis Acc. To EN 10204 - ISO 9001		MADE IN ITALY mod. Q.P9.02.b - rev.6
			CERT. TYPE 3.1
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Client Item / Artikel Nr.	Heat N° / Schmelze	STEEL GRADE / Stahl	CONDITION Trattamento / Waermebehandlung
19"	115692	F316 / F316L - UNS S31600 - UNS S31603	Solution Annealing

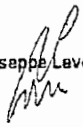
Ultrasonic Inspection / Ultraschallprüfung

Reference Standard / Referenzstandards	ASTM A388 (6,4mm F.B.H. max)		
Test method / Ausführungsverfahren	DGS / AVG	Instrument / Ausrüstung	USN60
Test technique / Prüftechnik	pulse - echo - method	Reference block / Testkörper	V1
Transducers / Prüfkopftyp	31S	Test frequency / Prüffrequenz	1 Mhz
Surface condition / Oberflächenzustab	Machined	Testing scope / Prüfumfang	100% of the surface
Sensitivity / Empfindlichkeit	6,4mm F.B.H.	Coupling / Kupplung	Couplant 333
Qualification operator / Prüfer. Controleur	UT 2 level - EN ISO 9712	Test result / Beachtung	Conform to : ASTM A388
Indications detect / Hinweise gefunden	Bar Nr. 6, No indications detect		

Bar Sketch - Stabform



The content is correct and accurate, all test results are in compliance with the material specification.
"Vedi Allegato Certificato di Analisi chimica e metallografica Nr 5968/2020" / "See annex Certificate of chemical analysis and metallographic Nr 5968/2020".

21/01/2021 Issued / Date	Castellino Giuseppe Level II UNI EN ISO 9712  Werksachverständiger / Quality Control	Only for Cert. 3.2 Stamp and Signature Surveyor
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