



CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a: **EN 10204 (2004) , 3.1 / ISO 10474 (2013) , 3.1**

Certificato nr. **MEST408461 / 2019 /**

Nach/According to/Selon

Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
VALBRUNA CANADA LTD
 8724 HOLGATE CRESCENT
 L5T 5Z1 - MLTON, ONT L5T 5Z1 - CA

Stato di fornitura : **Forged - Annealed Peeled**
 Lieferzustand
 Delivery state
 Etat de livraison

Produttore :
 Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Ordine nr: **902007352 15384**
 Bestell
 Your order
 Commande

Tipo di Elaborazione: **E+AOD**
 Erschmelzungsart
 Melting process
 Mode d'elaboration

Marchi di Fabbrica:
 Zeichen des Lieferwerkes
 Trade marks
 Sigles de l'usine productrice



Conferma ordine nr: **E119001518**
 Werks/Our Order/Ref nr.

Qualità: **316/316L**
 Werkstoff/Grade/Nuance

Punzone del Collaudatore:
 Stempel des Werkssachverständigen
 Inspector's stamp/Poinçon de l'essayeur

MR

Avviso di Spedizione: **D-VI19013983**
 Lieferanzeige/Pack ng list/B.L.

Marca: **APML**
 Markenbezeichnung
 Brand / Nuance

Punzonatura: **316/316L**
 Kennzeichnung
 Marking
 Marquage

SPECIFICHE :

Note:

Anforderungen / Requirements / Exigences

Anzeichnungen / Notes / Notes

VSI 0 316/316L A
AISI 316/316L
AMS 5648 M S31600 A
AMS 5653 H S31603 A
AMS-QQ-S-763 D 316/316L A
ASME SA182 2017 S31600/03 A (0)
ASME SA193 2017 B8M CLASS 1 (1)
ASME SA276 2017 S31600/03 A (2)
ASME SA320 2017 B8M CLASS1 (3)
ASME SA479 2017 S31600/03 A (4)
ASTM A182 2018 S31600/03 A (5)
ASTM A193 2017 B8M CLASS 1
ASTM A262 2015 PRACTICE E
ASTM A276 2017 S31600/03 A
ASTM A314 2015 S31600/03
ASTM A320 2017A B8M CLASS1
ASTM A370 2017 .
ASTM A473 2001 S31600/03 (6)
ASTM A479 2018 S31600/03 A
MIL-S-862 B/1 316/316L
NACE MR0103 2015 S31600/03 A (7)
NACE MR0175 2015 S31600/03 A (8)
QQ-S-763 F 316/316L A

(0)Section II Part A 2017 EDITION For products machined directly from bar refer to ASME SA479.
 (1)Section II Part A 2017 EDITION
 (2)Section II Part A 2017 EDITION
 (3)Section II Part A 2017 EDITION
 (4)Section II Part A 2017 EDITION
 (5)For products machined directly from bar refer also to ASTM A479.
 (6)Chemical analysis only.
 (7)ANSI/NACE MR0103/ISO 17945 November 23, 2015
 (8)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

Tolleranza: ASTM A484-18A TABLE 3

Tolleranza/Allowance/Tolerance

Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descript. du produit	Dimensioni - In Abmessungen Dimension Dimension	Lunghezza - In Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pièces	Peso - LB Gewicht Weight Poids	Lotto nr. Lotnr. Lot nr. Lot nr.
0050	Round	15,0000	132/ 132	279461		6.808	829603850

ANS



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TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüfung auf lieferbarem produkt / test a l'etat de fourniture / Prueba sobre el material así como entregado

TEST	Provetta/ Probe Specimen/Eprovette Larg diam Spers Bore Diam. Dcke Wickl Diam. Thickness Larg diam. epais mm	°F	Posiz Saggio Profilage Location Emplacement ti	Snervamento Streckgrenze Yield Stress Rp 0,2% Limite elastique k.s.i.	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm k.s.i.	Allungamento Bruchdehnung Elongation Allongement E 4d %	Strizione Einschnürung Reduction of area Striction %	RA %	Resilienza Kerbschlagarbeit Impact Value Resilience	Durezza Härte Hardness Dureté HB
Valori richiesti				30	-	75	-	40	-	50	140
Anteferenzen/Required values Valeurs demandées						115					223
A	12,5	68	L	39		82		61		76	169

TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüfung auf lieferbarem produkt / Test a l'etat de fourniture / Prueba sobre el material así como entregado

TEST	min	max
A Grain size for ASTM E112		1

Mechanical properties according to ASTM A370.

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat Schmelze/Coulée	min - max	1,25 2,00	16,50 18,00	2,00 3,00	10,00 14,00	0,020 0,030	0,020 0,030	0,100						
	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %			
279461	0,019	0,32	1,77	16,78	2,07	0,54	10,10	0,107	0,028	0,022	0,093			

Corrosion test in 16% sulfuric acid and copper sulfate solutions

Test standard: ASTM A262-Practice E

Test	Heat treatment before test	Length of Period (h)	Test temp (°C)	Bend Angle (°)	Ø spindle (mm)	Result of visual inspection at 20 x magnification after bend test	Result
Intergranular corrosion	Sensitization	15	boil	180	5	Absence of cracks	SATISFACTORY

Produced without class I-II Ozone depleting substances.
 Solution heat treated free from continuous carbide network.
 Annealing temperature : 1940° F for 6.5 h/water.
 Micro and macro etch test : OK
 Reduction ratio > 4 : 1
 Material is DFARS Compliant

Sono state soddisfatte tutte le condizioni richieste
 Die gestellten Anforderungen sind erfüllt
 The material has been furnished in accordance with the requirements
 Le matières à été trouvée conforme aux exigences

Controllo antimescolanza: OK
 Verwechslungsprüfung: spectralanalytisch durchgeführt
 Anämikung testing performed: OK
 Contrôle antimélange: fait: r.a.s.

Controllo visivo e dimensionale: soddisfa le esigenze
 Besichtigung und Ausmessung: ohne Beanstandung
 Visual inspection and dimensional checks satisfactory
 Contrôle visuel et dimensions: satisfaisant



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Melted and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination through Portal System when it leaves the production plant.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D

The Quality Management System is Certified acc. Pressure Equipment Directive 2014/68/EU Annex 1, chapt.4.3 by TUEV and LLOYD'S
 Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.

Maxival and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.

The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/ or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded, at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

WSP18E020ME3034EFG4045JEC0478