



C183342

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

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

Certificato nr. MEST041532 / 2017 /  
 Prüfung/Test/Essai

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

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

Produttore:  
 Hersteller/Item/Ursine productrice

**ACCIAIERIE VALBRUNA S.P.A.**

Ordine nr: 703006267 Stock - Canada

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: EI17003338

Werkz/Our Order/Ref nr.

Qualità: 316/316L  
 Werkstoff/Grade/Usunce

Punzone del Collaudatore:  
 Stempel des Werkstachverständigen  
 Inspector's stamp/Poligon de l'essayeur

MR

Avviso di Spedizione: D-VI17008343

Lieferanzeige/Packing list/B.L.

Marca: APLM  
 Markenbezeichnung  
 Brand / Nuance

Punzonatura: 316/316L  
 Kennzeichnung  
 Marquage

### SPECIFICHE :

Anforderungen / Requirements / Exigences

Notes:

Aufzeichnungen / 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 2015 S31600/03 A (0)  
 ASME SA193 2015 B8M CLASS1 (1)  
 ASME SA276 2015 S31600/03 A (2)  
 ASME SA320 2015 B8M CLASS1 (3)  
 ASME SA479 2015 S31600/03 A (4)  
 ASTM A182 2015 S31600/03 A (5)  
 ASTM A193 2015 B8M CLASS1  
 ASTM A262 2015 PRACTICE E  
 ASTM A276 2015 S31600/03 A  
 ASTM A314 2015 S31600/03  
 ASTM A320 2015A B8M CLASS1  
 ASTM A370 2015  
 ASTM A473 2001 S31600/03 (6)  
 ASTM A479 2015 S31600/03 A  
 MIL-S-862 B/1 316/316L  
 NACE MR0103 2010 S31600/03 A  
 NACE MR0175 2009 S31600/03 A (7)  
 QQ-S-763 F 316/316L A

(0)SECTION II PT.A 2015 EDITION For products machined directly from bar refer to ASME SA478.

(1)SECTION II PT.A 2015 EDITION

(2)SECTION II PT.A 2015 EDITION

(3)SECTION II PT.A 2015 EDITION

(4)SECTION II PT.A 2015 EDITION

(5)For products machined directly from bar refer also to ASTM A479.

(6)Chemical analysis only.

(7)ANSI/NACE MR0175/ISO 15156-3, second edition 2009-10-15 Technical circular 1:2011 Published 2011-08-14

Tolleranza: ASTM A484-16 TABLE 3

Tolleranza/Allowance/Tolerance

Pos. nr. Pos. nr. Eser. nr. No. de poste	Oggetto Gegenstand Product description Descript. de produit	Dimensioni - In		Lunghezza - In		Colata	Pezzi	Peso - LB	Lotto nr.
		Abmessungen Dimensionen Dimensions		Länge Length Longueur		Schmelze Heat Coulée	Stückzahl Pieces Pieces	Gewicht Weight Poids	Losev. Lot nr. Lot nr.
0030	Round	11,0000		141/ 142		272608		7.868	635613000

Vicenza, 17/03/17

VCQ008 - MEST041532

(Mod. MCE2)

Il collaudatore di stabilimento / der Werkstachverständige / Works inspector / L'agent d'usine

M. RIZZOTTO *[Signature]*

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# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.  
 Telefono 0444.968211 - Fax 0444.963836  
 Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37  
 Telefono 0471.924111 - Fax 0471.924497

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Marca: APML  
 Markenbezeichnung  
 Brand / Nuance

Punzonatura: 316/316L  
 Kennzeichnung  
 Marking  
 Marquage

### 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 Spectrom/Epruvada Long. diam. Spers. Endo. Diam. Size Width Diam. Thickness Long. diam. Spers. mm	°F	Post. Soglia Position Limit Treatment	Snervamento Streckgrenze Yield stress Limite élastique Rp 0,2% E.t.t.	Snervamento Streckgrenze Yield stress Limite élastique	Resistenza Zugfestigkeit Tensile strength Résistance à traction Rm E.t.t.	Allungamento Bruchdehnung Elongation Allongement		Strizione Einknickung Reduction of area Étriction	Resilienza Kerbschlagwert Impact Value Resilience	Durezza Härte Hardness Dureté HB	
							E 4d %	RA %				
Valori richiesti Anforderungen/Requiers values Valeurs requises		min max		30	-	75 115	-	40	-	50	-	140 223
A	12,5	68	L	38		80		62		74		168

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TEST	min	max
A Grain size for ASTM E112		3

Mechanical properties according to ASTM A370.

### Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata / Heat	min - max	0,050	1,00	1,25 2,00	16,50 16,00	2,00 3,00	1,00	10,00 14,00	-	-	0,020 0,030	-	-	-	-	-
Schmelze/Coude	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %					
272608	0,014	0,42	1,78	16,74	2,03	0,42	10,08	0,140	0,030	0,022	0,087					

### 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 II Ozone depleting substances.  
 Solution heat treated free from continuous carbide network.  
 Micro and macro etch test: OK  
 Reduction ratio = 4,6 : 1  
 Annealing temperature: 1940°F for 4,5 h/water.  
 Material is DFARS Compliant

Sono state soddisfatte tutte le condizioni richieste  
 Die gestellten Anforderungen sind in Anlage erfüllt  
 The material has been furnished in accordance with the requirements  
 Le matériel a été livré conforme aux exigences

Controllo antimescolanza: OK  
 Verwechslungsprüfung: spektroskopisch durchgeführt  
 Antimixing testing performed: OK  
 Contrôle antimeslange fait: r.a.t.

Controllo visivo e dimensionale: soddisfa le esigenze  
 Besichtigung und Ausmessung: ohne Beanstandung  
 Visual inspection and dimensional check: 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 : 2008, ISO/TS16949 : 2009, AS 9100C

The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1, s., 4.3 and 2014/68/EU 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.

Maximal 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.

Vicenza, 17/03/17

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