



# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.  
 Telefono 0444.968211 - Fax 0444.968836  
 Stab.: 36100 BOLZANO (Italia) - Via A. Volta 4/37  
 Telefono 0471.924111 - Fax 0471.924497

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

In conformità a: EN 10204 (2004), 3.1 / ISO 10474 (2013), 3.1  
 Nach/According to/Selon

Certificato nr. MEST249606 / 2018 /  
 Prüfung/Trial/Essai

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

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

Produttore:  
 Hersteller/Item/Usine productrice

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

Ordine nr: 802006670 Replacement sto  
 Bestell: 802006670  
 Your order: 802006670  
 Commande: 802006670

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

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



Conferma ordine nr: EI18002298  
 Werkz/Auftr./Order/Ref. nr.

Qualità: 316/316L  
 Werkstoff/Grade/Usine:

Punzone del Collaudatore:  
 Stempel des Werkstoffverständigen  
 Inspector's stamp/Pointeur de l'assesseur

MR

Avviso di Spedizione: D-VI18014535  
 Lieferanweisung/Packing instr./L.

Marca: APM L  
 Markenbezeichnung:  
 Brand / Nuance

Punzonatura: 316/316L  
 Kennzeichnung:  
 Marking:  
 Marque

**SPECIFICHE :**

Anforderungen / Requirements / Exigences

Nota:

Aufzeichnungen / Notes / Notes

- VSI 0 316/316L A
- ANSI 316/316L
- AMS 5848 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 2015 S31600/03 A (5)
- ASTM A193 2016 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 15459 November 23, 2015
- (8)ANSI/NACE MR0175/ISO 15159-3, third edition November 23, 2015

Tolleranza: ASTM A484-16 TABLE 3

Tolerance/Allowance/Tolerances

Pos. nr. Pos. nr. Item no. Nr. de poste	Oggetto Gegenstand Product description Description du produit	Dimensioni - In Abmessungen Dimension Dimension	Lunghezza - In Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces	Peso - LB Gewicht Weight Poids	Lotto nr. Ladung Lot no. Lettre
0070	Round	8,5000	233/ 233	277051	1	3,867	302510710

P.O.#: P119789  
 R#: R155648  
 ITEM#: 509378  
 HEAT#: 277051  
 BRANCH#: 875

Vicenza, 18/05/18

VCC008 - MEST249606

(Mod. MCE2) 10/17/2017 15:45:00 (MEST/2018/05)

Il collaudatore di stabilimento / der Werkstoffverständige / Works Inspector / L'agent d'usine

M. RIZZOTTO *M. Rizzotto*

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*ANS*

Scanned 7/25/2019

Provided by: ENCORE METALS DIVISION OF RMCI



# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 26 z.l.  
 Telefono 0444.968211 - Fax 0444.963836  
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 8724 HOLTGATE CRESCENT  
 L5T 5Z1 - MILTON, ONT L5T 5Z1 - CA

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

Produttore:  
 Hersteller/Usine productrice

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

Ordine nr: 802006870 Replacement stc  
 Bestell  
 Your order  
 Commande

Tipo di Elaborazione: E+A0D  
 Erhitzungsart  
 Mating process  
 Mode d'elaboration

Marchi di Fabbrica:  
 Zeichen des Lieferanten  
 Trade marks  
 Signes de l'usine productrice



Conferma ordine nr: E118002298  
 Works/Our Order/Ref. nr.

Qualità: 316/316L  
 Werkstoff/Grade/Nuance

Punzone del Collaudatore:  
 Stempel des Werkstoffverständigen  
 Inspector's stamp/Plaque de l'inspecteur

MR

Avviso di Spedizione: D-VI18014535  
 Lieferanzug/Packing instr.L.

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 à l'état de fourniture Prueba sobre el material así como entregado

TEST	Prova/Prüfung Specimen/Éprouvette Leg. diam. Spess. Stärke Diam. Dicke Width Diam. Thickness Leg. diam. Spess. Stärke	°F	Posiz. Saggio Position Lage	Sneramento Zugversuche Yield Stress Limite élastique Rp 0,2%	Sneramento Zugversuche Yield Stress Limite élastique	Resistenza Zugversuche Tensile strength Résistance à traction Rm	Allungamento Bruchdehnung Elongation Allongement		Strizione Einschränkung Reduction of area Striction	Resilienza Kerbschlagarbeit Impact Value Resilience	Durezza Härte Hardness Dureté HB
							E 4d	RA			
Valori richiesti Anforderungen/Required values Valeurs d'imposition		min		30	-	75	-	40	-	50	140
		max				115					223
A	12,5	68	L	39		63		58		73	165

### TEST ALLO STATO DI FORNITURA

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

TEST	min	max
A Grain size for ASTM E112		4

Mechanical properties according to ASTM A370.

### Analisi chimica

Chemische Zusammensetzung / Chemical Analysis / Analyse chimique

Colla / Heat	min	max	1,25	16,50	2,00	10,00	0,020	0,020	0,100				
Schmelze/Coulée			2,00	18,00	3,00	14,00	0,030	0,030	0,100				
	C %	Si %	Mn %	C %	Mo %	Cu %	Ni %	Co %	P %	S %	N %		
277051	0,012	0,27	1,75	16,87	2,08	0,48	0,02	0,124	0,032	0,023	0,076		

### 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.  
 Micro and macro etch test: OK  
 Reduction ratio = 7,6 : 1  
 Annealing temperature : 1940° F for 4 h/water.  
 Material is DFARS Compliant

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

Controllo antimiscelanza: OK  
 Verwechslungsprüfung: spektralanalytisch durchgeführt  
 Antimixing testing performed: OK  
 Contrôle antimélange fait: S.A.S.

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

Vicenza, 18/05/18  
 VCO008 - MEST249606  
 (Mod. MCE2)

Il collaudatore di stabilimento / der Werkstoffverständige / Works Inspector / L'agent d'usine

M. RIZZOTTO

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36100 VICENZA (Italia) - Viale della scienza, 25 z.i.  
 Telefono 0444.968211 - Fax 0444.968336  
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 Erhmelzungsart  
 Melting process  
 Mode d'elaboration

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 Zeichen des Lieferwerkes  
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 Signes de l'usine productrice



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 Stempel des Werkssachverständigen  
 Inspector's stamp/Poinçon de l'essayeur

MR

Avviso di Spedizione: D-VI18014535  
 Lieferanzeige/Packing list/V.B.L.

Marca: APML  
 Markenbezeichnung  
 Brand / Nuance

Punzonatura: 316/316L  
 Kennzeichnung  
 Marking  
 Marque

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 [97/23/EC] Annex 1, s. 4.3 and 2014/68/EU by TÜEV 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.

Provided by: ENCORE METALS DIVISION OF RMCL

Vicenza, 18/05/18

VCC008 - MEST249606

(Mod. MCE2) WSP/01/2013 L. 01/01/2006 N° 19/2004/070

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

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