



# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.  
 Telefono 0444.968211 - Fax 0444.963836  
 Stab.: 39100 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**

Certificato nr. **MEST249606 / 2018 /**  
 Prüfung/Tess/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/Werks/Usine productrice

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

Ordine nr: **802006870 Replacement sto**  
 Bestel /  
 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: **E118002298**  
 Werks/Our Order/Ref. nr.

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

Punzone del Collaudatore:  
 Stempel des Werksachverständigen  
 Inspector's stamp/Planch de l'essayeur

**MR**

Avviso di Spedizione: **D-VI18014535**  
 Lieferanzeige/Packing invoice

Marca: **APML**  
 Markenbezeichnung  
 Brand / Nuance

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

SPECIFICHE :	Nota:
Anforderungen / Requirements / Exigences	Aufzeichnungen / Notes / Notes
VSI 0 316/316L A	
AIISI 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)	(0)Section II Part A 2017 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2017 B8M CLASS 1 (1)	(1)Section II Part A 2017 EDITION
ASME SA276 2017 S31600/03 A (2)	(2)Section II Part A 2017 EDITION
ASME SA320 2017 B8M CLASS1 (3)	(3)Section II Part A 2017 EDITION
ASME SA479 2017 S31600/03 A (4)	(4)Section II Part A 2017 EDITION
ASTM A182 2016 S31600/03 A (5)	(5)For products machined directly from bar refer also to ASTM A479.
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)	(6)Chemical analysis only.
ASTM A479 2018 S31600/03 A	
MIL-S-862 B/1 316/316L	
NACE MR0103 2015 S31600/03 A (7)	(7)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 2015 S31600/03 A (8)	(8)ANSI/NACE MR0175/ISO 15159-3, third edition November 23, 2015
QQ-S-763 F 316/316L A	

Tolleranza: ASTM A484-18 TABLE 3

Pos. nr.	Oggetto	Dimensioni - In	Lunghezza - In	Colata	Pezzi	Peso - LB	Lotto nr.
Pos. nr. Item nr. Nr. de partie	Oggetto Product description Description du produit	Abmessungen Dimension Dimension	Länge Length Longueur	Schmelze Heat Goutte	Stückzahl Pieces Pièces	Gewicht Weight Poids	Lotnr. Lot nr. Lettre
0070	Round	8,5000	233/ 233	277051	1	3.867	802510710

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

Provided by: ENCORE METALS DIVISION OF RMCI

Scanned 7/25/2019

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Certificato nr. MEST249606 / 2018 /  
 Prüfung/Fesselsst

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**VALBRUNA CANADA LTD**  
 8724 HOLGATE CRESCENT  
 L5T 5Z1 - MILTON, ONT L5T 5Z1 - CA

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

Produttore:  
 Hersteller/Item/Usine productrice

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

Ordine nr: 802006870 Replacement sto  
 Bestell / Your order / Commande

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

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 Werkstachvorständigen  
 Inspector's stamp/Poinçon de l'assyneur

MR

Avviso di Spedizione: D-VI18014535  
 Lieferanzelge/Packing tsUVB.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 a l'etat de fourniture Prueba sobre el material asi como entregado

TEST	Prova/ Probe	°F	Post. Saggio Position Lieu	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2%	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Résistance à la traction Rm	Allungamento Bruchdehnung Elongation Allongement E 4d		Strizione Einschränkung Reduction of area Striction RA	Resilienza Kerbschlagarbeit Impact Value Resilience	Durezza Härte Hardness Dureté HB
	Spezimen/Specimen Lieg. diam. Spess. Bore Diam. Thickness Lieg. diam. epais. diam.						min	max			
Valori richiesti Anforderungen/Required values Valeurs demandées		min		30	-	75	-	40	-	50	140
A	12,5	68	L	39	-	83	-	58	-	73	165

### TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüfung auf lieferbarem produkt / Test a l'etat de fourniture / Prueba sobre el material asi 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	16,50	2,00	10,00	1,00	0,040	0,020	0,100
Schmelz/Coulee	0,030	2,00	18,50	3,00	18,50	3,00	14,00	1,00	0,040	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 in Anlage erfüllt The material has been furnished in accordance with the requirements Le matériel a été trouvé conforme aux exigences	Controllo antimescolanza: OK Verwechslungsprüfung: spektralanalytisch durchgeführt Antilixing testing performed: OK Contrôle antimélange fait: s.r.l.s.	Controllo visivo e dimensionale: soddisfa le esigenze Basisprüfung und Ausmessung: ohne Beanstandung Visual inspection and dimensional checks: satisfactory Contrôle visuel et dimensionnel: satisfaisant
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 Stempel des Werksachverständigen  
 Inspector's stamp/Pointon de l'essayeur

MR

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

Marca: APLM  
 Markenbezeichnung  
 Brand / Nuance

Punzonatura: 316/316L  
 Kennzeichnung  
 Marking  
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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 [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 Va plus 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/21/2012/1/10/01/0001/01/2013/02/01

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

M. RIZZOTTO

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