



# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 26 z.l.  
 Telefono 0444.963211 - 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  
 Nach/According to/Selon

Certificato nr. MEST475846 / 2019 /  
 Prüfung/Test/Essai

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

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

Produttore:  
 Hersteller/Usine productrice

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

Ordine nr. 909007688  
 Bestell  
 Your order  
 Commande

Tipo di Elaborazione: E+AOD  
 Erhmelzungsart  
 Making process  
 Mode d'elaboration

Marchi di Fabbrica:  
 Zeichen des Lieferwerkes  
 Trade marks  
 Siglas de fusino productiva



Conferma ordine nr. EI19007813  
 Works/Our Order/Ref. nr.

Qualità: 316/316L  
 Werkstoff/Grade/Numero

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

MR

Avviso di Spedizione: D-VI19027754  
 Lieferzeit/Shipping Adv.

Marca: APLM  
 Markenbezeichnung  
 Brand / Nuance

Punzonatura: 316/316L  
 Kennzeichnung  
 Marking  
 Marquage

### SPECIFICHE:

Anforderungen / Requirements / Exigences

Note:

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 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 2019 S31600/03 A (5)
- ASTM A193 2017 B8M CLASS 1
- ASTM A262 2015 PRACTICE E
- ASTM A276 2017 S31600/03 A
- ASTM A314 2019 S31600/03
- ASTM A320 2018 B8M CLASS1
- ASTM A370 2019 . (6)
- ASTM A473 2001 S31600/03 (7)
- ASTM A479 2018 S31600/03 A
- MIL-S-882 B/1 316/316L
- NACE MR0103 2015 S31600/03 A (8)
- NACE MR0175 2015 S31600/03 A (9)
- 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)2019E1
- (7)Chemical analysis only.
- (8)ANSI/NACE MR0103/ISO 17845 November 23, 2015
- (9)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2016

Tolleranza: / STM A484-18A TABLE 3

Pos. nr. Pos. nr. Item nr. Id. de piece	Oggetto Component Product description Descript. du produit	Tolleranza: / Allowance / Tolerance		Lunghezza - ln Length Longueur	Colata Schmelz Melt Coulée	Pezzi Stücken Pieces	Peso - LB Weight Poids	Lotto nr. Lot nr. Lot nr.
		Dimensioni - ln Abmessungen Dimensions Dimension						
0010	Round	11,0000		144/ 144	281223		4.008	912710250

P.O.#: P120458  
 R#: R158470  
 ITEM#: 509382  
 HEAT#: 281223  
875

Provided by: ENCORE METALS DIVISION OF RMCL

ANS



# Acciaierie Valbruna S.p.A.

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

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Certificato nr. MEST475846 / 2019 /  
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**VALBRUNA CANADA LTD**  
 8724 HOLGATE CRESCENT  
 L5T 5Z1 - MILTON, ONT L5T 5Z1 - CA

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

Produttore:  
 Hersteller/Fabrikant/Usine productrice

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

Ordine nr. 909007688  
 Bestell: 909007688  
 Your order: 909007688  
 Commande: 909007688

Tipo di Elaborazione: E-AOD  
 Erweichungsart: E-AOD  
 Milling process: E-AOD  
 Mode d'elaboration: E-AOD

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



Conferma ordine nr. EI19007813  
 Wirksam/Our Order/Ref. nr. EI19007813

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

Punzone del Collaudatore:  
 Stempel des Werkstoffsachverständigen:  
 Inspector's stamp/Pointon du Cassyeur

MR

Avviso di Spedizione: D-VI19027754  
 Usfranzseige/Packing list/v.a.L. D-VI19027754

Marca: APML  
 Markenbezeichnung: APML  
 Brand / Nuance: APML

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

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	Provotta/Proveita/Specimen/Éprouvette/Length/Spess./Brake Char. Data/Max Dim. Thickness/Long. dim. épais	°F	Poste/Sogge/Position/Lieu/Condition	Sneramento/Creckering/ Yield Stress/ Limite elastic/ Rp 0.2%	Sneramento/Creckering/ Yield Stress/ Limite elastic	Resistenza/ Zugfestigkeit/ Tensile strength/ Resistencia a traccion/ Rm	Allungamento/ Dehnung/ Elongation/ Allongement/ E 4d	Strizione/ Einweichung/ Reduction of area/ Striction/ RA	Resilienza/ Kerbschlagarbeit/ Impact Value/ Resilience	Durezza/ Härte/ Hardness/ Dureté/ HB
	Valori richiesti/Arforderungen/Required values/ Valeurs demandées	min		30	-	75	40	50	-	140
		max				115				
A	12,5	68	L	39		82	63	76		169

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												
Colore/Color/Schmelz/Schmelze	Heat	min	1,25	10,50	2,00	10,00	0,020	0,030	0,100			
max	0,030	1,00	2,00	18,00	3,00	14,00						
	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %	
281223	0,020	0,47	1,79	13,55	2,04	0,47	10,11	0,114	0,029	0,022	0,095	

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 = 4,2 : 1  
 Material annealed 1940°F for 5h/water cooled.  
 Material is DFARS Compliant

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

Controllo antimiscelanza: OK  
 Verwachsungsprüfung: spottfremdlos/disch durchgeführt  
 Anfranzung testing performed: OK  
 Contrôle anti-mélange fait: n.a.s.

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

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

We declare that the finished product is checked for radio active 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			
Vicenza, 21/10/19 VCQC52 - MEST475846	Direzione Qualità Qualitätsmanagement/Quality Management/Qualité Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 2 di 3

Provided by: ENCORE METALS DIVISION OF RMCL



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Lieferzustand  
 Delivery state  
 Etat de livraison

Produttore:  
Hersteller/Lieferant/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Ordine nr. 909007688  
Bestell  
 Your order  
 Commande

Tipo di Elaborazione: E-AOD  
Erweichungsart  
 Heat treatment  
 Mode d'elaboration

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



Conferma ordine nr. EI19007813  
Werk-/Our Order/Ref. nr.

Qualità: 316/316L  
Werkstoff/Grade/Nuance

Punzone del Collaudatore:  
Stempel des Werkstuchverständigen  
 Inspector's stamp/Plombon de l'essayeur

MR

Avviso di Spedizione: D-VI19027754  
Lieferanzugs/Packing list/US.L.

Marca: APM L  
Markenbezeichnung  
 Brand / Nuance

Punzonatura: 316/316L  
Kennzeichnung  
 Marking  
 Marquage

The Quality Management System is also Certified according Pressure Equipment Directive 2014/68/EU Annex 1, chapt. 4.3 by TÜV 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.

ISO 9001:2015 / IATF 16949:2016 / AS 9100D

Provided by: ENCORE METALS, DIVISION OF RMC

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D			
Vicenza, 21/10/19 VCQ052 - MEST475846	Direzione Qualità Qualitätsmanagement/Quality Management/Direction Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 3 di 3