



# 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

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

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

Certificato nr. MEST670380 / 2021 /  
 Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client  
**VALBRUNA CANADA LTD.**  
 8724 HOLTGATE CRESCENT  
 L5T 5Z1 - MILTON, 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: 101008422 RELIANCE PROGRA  
 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: EI21000219  
 Werks/Our Order/Ref nr.

Qualità: 316/316L  
 Werkstoff/Grade/Nuance

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



Avviso di Spedizione: D-VI21001529  
 Lieferanzeige/Packing list/B.L.

Marca: APML  
 Markenbezeichnung  
 Brand / Nuance

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

**SPECIFICHE :**

Anforderungen / Requirements / Exigences

**Note:**

Auzeichnungen / Notes / Notes

- VSI 0. 316/316L A
- AISI 316/316L
- AMS 5648 M S31600 A
- AMS 5653 J S31603 A
- AMS-QQ-S-763 D 316/316L A
- ASME SA182 2019 S31600/03 A (0)
- ASME SA193 2019 B8M CLASS 1 (1)
- ASME SA276 2019 S31600/03 A (2)
- ASME SA320 2019 B8M CLASS 1 CLASS1 (3)
- ASME SA479 2019 S31600/03 A (4)
- ASTM A182 2020 S31600/03 A (5)
- ASTM A193 2019 B8M CLASS 1
- ASTM A262 2015 PRACTICE E
- ASTM A276 2017 S31600/03 A
- ASTM A314 2019 S31600/03
- ASTM A320 2018 B8M CLASS 1 CLASS1
- ASTM A370 2020. (6)
- ASTM A473 2019 S31600/03 (7)
- ASTM A479 2020 S31600/03 A**
- MIL-S-862 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 2019 EDITION For products machined directly from bar refer to ASME SA479.
- (1)Section II Part A 2019 EDITION
- (2)Section II Part A 2019 EDITION
- (3)Section II Part A 2019 EDITION
- (4)Section II Part A 2019 EDITION
- (5)For products machined directly from bar refer also to ASTM A479.
- (6)2019E1
- (7)Chemical analysis only.
- (8)ANSI/NACE MR0103/ISO 17945 November 23, 2015
- (9)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

P.O.#:	P123166
R#:	R167835
ITEM#:	523266
HEAT#:	284570
BRANCH#:	875

Tolleranza: ASTM A484-20B TABLE 3.

Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrnp. du produit	Tolleranza/Allowance/Tolerance		Lunghezza - In Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pièces	Peso - LB Gewicht Weight Poids	Lotto nr. Lose Lot nr. Lot nr.
		Dimensioni - In Abmessungen Dimension Dimension						
0010	Round	16,0000		155/ 155	284570		9.021	127509510

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

Vicenza, 26/01/2021 VCQ052 - MEST670380	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité <b>R.BERTELLI</b>	Direzione Prodotto Produktmanagement/Product Management/Direction Produit <b>P.MESSORI</b>	Pagina 1 di 3
--	--	--	------------------

Provided by CPA



# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.  
 Telefono 0444.968211 - Fax 0444.968836  
 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. **MEST670380 / 2021 /**

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

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

Produttore:  
 Hersteller/Hersteller producer

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

Ordine nr: **101008422 RELIANCE PROGRA**

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

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



Bestell  
 Your order  
 Commande

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

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

**MR**

Conferma ordine nr: **EI21000219**

Works/Our Order/Ref nr.

Avviso di Spedizione: **D-VI21001529**

Lieferanzettel/Packing list/B.L.

Marca: **APML**

Markenbezeichnung  
 Brand / Nuance

Punzonatura: **316/316L**

Kenzeichnung  
 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 Specimen/Eprovette Long. diam. Spess. Bohle diam. Dicke Width diam. Thickness Läng. diam. epess. mm	°F	Post. Seggio Provetta location Epoette position li	1) Le longitudinale/long. T=transversale/quer, Q=Tangenziale/tangential		Snervamento Stoichgrenze Yield Stress Limite elastico Rp 0,2% k.s.k.	Snervamento Stoichgrenze Yield Stress Limite elastico k.s.k.	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm k.s.k.	Allungamento Buechelung Elongation Allongement E 4d %	Stirzione Einziehung Reduction of area Section %	RA %	Resilienza Kerbschlagarbeit Impact Value Resilience	Durezza Härten Hardness Dureté HB
				min	max								
Valori richiesti Anforderungen/Required values Valeurs demandées				30	-	75	-	40	-	50	-	140	
A	12,5	68	L	38		115		64		74		223	
						80						166	

### 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/Gießte	min - max	0,030	1,00	1,25 2,00	16,60 16,00	2,00 3,00	1,00	10,00 14,00	-	0,040	0,030	0,100	-	-	-	-
284570	C %	SI %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %					
	0,016	0,46	1,87	16,53	2,09	0,52	10,10	0,152	0,031	0,028	0,085					

### 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 = 4,3 : 1  
 Material annealed 1940°F for 7h/water cooled.  
 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 fourni conforme aux exigences

Controllo antimiscelanza con tecnica XRF/OES portatile : OK  
 Vanechlungprüfung: durch XRF/OES Gerät getührt.  
 Antimixing testing performed with XRF/OES portable : OK  
 Contrôle antimélange est technique XRF/OES portable : OK

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

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

Vicenza, <b>26/01/2021</b> VCC052 - MEST670380	Direzione Qualità Qualitätsmanagement/Quality Management/Direction Qualité <b>R.BERTELLI</b>	Direzione Prodotto Produktmanagement/Product Management/Direction Produit <b>P.MESSORI</b>	Pagina 2 di 3
---	--	--	------------------



# Acciaierie Valbruna S.p.A.

38100 VICENZA (Italia) - Viale della scienza, 25 z.l.  
Telefono 0444.968211 - Fax 0444.968386  
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. MEST670380 / 2021 /

Nach/According to/Selon

Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client  
VALBRUNA CANADA LTD  
8724 HOLTGATE 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: 101008422 RELIANCE PROGRA

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

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



Bestell  
Your order  
Commande

Qualità: 316/316L  
Werkstoff/Grade/Nuance

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

MR

Conferma ordine nr: EI21000219

Werk/Our Order/Ref. nr.

Avviso di Spedizione: D-VI21001529

Lieferanzeige/Packtag list/V.L.

Marca: APLM  
Markenbezeichnung  
Brand / Nuance

Punzonatura: 316/316L

Kennzeichnung  
Marking  
Marquage

Melted, poured 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 by the portal system when it leaves the production plant.

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.

MEST670380/2021

Provided by CPA  
www.flowconditioner.com, info@cpa.cl

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D			
Vicenza, 26/01/2021 VCQ052 - MEST670380	Direzione Qualità Quality Management/Quality Management/Gestion Qualité R. BERTELLI	Direzione Prodotto Product Management/Product Management/Direction Produit P. MESSORI	Pagina 3 di 3