



# 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. **MEST831890 / 2021 /**  
Prüfung/Text/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/Item/Usine productrice

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

Ordine nr: **109008975 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: **EI21011652**  
Werkst/Our Order/Ref nr.

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

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

**MR**

Avviso di Spedizione: **D-VI21027016**  
Lieferanzfolge/Packing list/B.L.

Marca: **APML**  
Markenbezeichnung  
Brand / Nuance

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

### SPECIFICHE :

### Note:

Anforderungen / Requirements / Exigences

Aufzeichnungen / 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 2021 S31600/03 A (5)  
ASTM A193 2020 B8M CLASS 1  
ASTM A282 PR. E 2015 316/316L (6)  
ASTM A276 2017 S31600/03 A  
ASTM A314 2019 S31600/03  
ASTM A320 2018 B8M CLASS 1 CLASS1  
ASTM A370 2020  
ASTM A473 2021 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)Reapproved 2021  
(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

Tolleranza: ASTM A484-20B TABLE 3

Tolerance/Allowance/Tolerance

Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descript. du produit	Dimensioni - In Abmessungen Dimension Dimension	Lunghezza - In Länge Length Longueur	Colata Schmelze Heat Coutée	Pezzi Stückzahl Pieces Pièces	Peso - LB Gewicht Weight Poids	Lotto nr. Losst. Lot nr. Lett. nr.
0040	Round	<b>11,0000</b>	144/ 144	<b>286973</b>		7.915	116712630

P.O.#: PIA3924  
 R#: R171254  
 ITEM#: 509382  
 HEAT#: 286973  
 BRANCH#: 875

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

Vicenza, **04/11/2021**  
VCQ052 - MEST831890

Direzione Qualità  
Qualitätsmanagement/Quality Management/Qualité Qualité  
**R.BERTELLI**

Direzione Prodotto  
Produktmanagement/Product Management/Direction Produit  
**P.MESSORI**

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# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.  
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Telefono 0471.924111 - Fax 0471.924497

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Certificato nr. MEST831890 / 2021 /

NachAccording to/Selon

Prüfung/Ins/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/Hersteller/Usine productrice

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

Ordine nr: 109008975 RELIANCE PROGRA  
Bestell  
Your order  
Commande

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

Marchi di Fabbrica:  
Zeichen des Lieferanten  
Trade marks  
Siglas de la Usina productiva



Conferma ordine nr: EI21011662  
Works/Our Order/Ref nr.

Qualità: 316/316L  
Werkstoff/Güte/Nuance

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

MR

Avviso di Spedizione: D-VI21027016  
Lieferanweisung/Packing instr.L.

Marca: APLM  
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/ Spezimen/Éprouvette Lung./Dim. Eprouv. Wech Dim. Éprouvées Lug. dim. éprouv. mm	°F	Posiz. Soglia Position Limit Position mm	Snervamento Biegegrenze Yield Stress Limite élastique Rp 0,2% k.s.l.	Snervamento Biegegrenze Yield Stress Limite élastique	Resistenza Zugfestigkeit Tensile strength Résistance à traction Rm k.s.l.	Allungamento Biegeziehung Elongation Allongement		Strizione Einziehung Reduction of area Striction RA %	Resilienza Kerbschlagenergie Impact Value Resilience	Durezza Härte Hardness Dureté HB	
							E 4d %					
Valori richiesti Anforderungen/Required values Valeurs demandées		min max		30	-	75 115	-	40	-	50	-	140 223
A	12,5	68	L	37		81		62		71		169

### 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		4

Mechanical properties according to ASTM A370.

### Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Elemento / Atome Substance/Éléments	min - max	0,099	1,00	1,25 2,00	16,50 18,00	2,00 3,00	1,00	10,00 14,00	-	0,048	0,039	0,100	-	-	-	-
	C %	SI %	Mn %	Cr %	Mo %	Cu %	NI %	Co %	P %	S %	N %					
286973	0,016	0,58	1,69	16,68	2,05	0,68	10,00	0,152	0,029	0,028	0,091					

### 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 1976°F for 6,5h/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 livré conforme aux exigences

Controllo antimiscelanza con tecnica XRF/OES portatile : OK  
Verwachsungprüfung: durch XRF/OES Gerät gelöst.  
Antimixing testing performed with XRF/OES portable : OK  
Contrôle antimélange svr technique XRF/OES portable : OK

Controllo visivo e dimensionale: soddisfa le esigenze  
Besichtigung und Ausmessung: ohne Beanstandung  
Visual inspection and dimensional checks: 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, 04/11/2021  
VCQ052 - MEST831890

Direzione Qualità  
Quality Management/Qualität  
R.BERTELLI

Direzione Prodotto  
Product Management/Direktion Produkt  
P.MESSORI

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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 producer

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

**Ordine nr:** 109008976 RELIANCE PROGRA  
Bestell  
Your order  
Commande

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

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



**Conferma ordine nr:** EI21011652  
Works/Our Order/Ref. nr.

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

**Punzone del Collaudatore:**  
Stempel des Werkstoffversuchsingen  
Inspector's stamp/Plaqueon de l'essayeur

MR

**Avviso di Spedizione:** D-VI21027016  
Lieferanzalge/Packing list/B.L.

**Marca:** APML  
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.

90FC08DF10410373949F7E38359A-02162

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

Vicenza, 04/11/2021  
VCO052 - MEST831890

Direzione Qualità  
Qualitätsmanagement/Quality Management/Gestion Qualité

R.BERTELLI

Direzione Prodotto  
Produktmanagement/Product Management/Direction Produit

F.MESSORI

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