



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

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

Certificato nr. MEST026567 / 2022 /  
 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: 112009184 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: EI21015646  
 Werks/Our Order/Ref nr.

Qualità: 316/316L  
 Werks/Off/Grade/Nuance

Punzone del Collaudatore:  
 Stempel des Werksachverständigen  
 Inspector's stamp/Pointon de l'assesseur



Avviso di Spedizione: D-VI22010608  
 Lieferanzeige/Packing list/B.L.

Marca: APLM  
 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 2021 S31600/03 A (0)        | (0)Section II Part A 2021 EDITION (For products machined directly from bar refer to ASME SA479. |
| ASME SA193 2021 B8M CLASS 1 (1)        | (1)Section II Part A 2021 EDITION   |
| ASME SA276 2021 S31600/03 A (2)        | (2)Section II Part A 2021 EDITION   |
| ASME SA320 2021 B8M CLASS 1 CLASS1 (3) | (3)Section II Part A 2021 EDITION   |
| ASME SA479 2021 S31600/03 A (4)        | (4)Section II Part A 2021 EDITION   |
| ASTM A182 2021 S31600/03 A (5)         | (5)For products machined directly from bar refer also to ASTM A479.                             |
| ASTM A193 2020 B8M CLASS 1             |   |
| ASTM A262 PR. E 2015 316/316L (6)      | (6)Reapproved 2021  |
| ASTM A276 2017 S31600/03 A             |   |
| ASTM A314 2019 S31600/03               |   |
| ASTM A320 2018 B8M CLASS 1 CLASS1      |   |
| ASTM A370 2021 .                       |   |
| ASTM A473 2021 S31600/03 (7)           | (7)Chemical analysis only.  |
| ASTM A479 2021 S31600/03 A             |   |
| MIL-S-862 B/1 316/316L                 |   |
| NACE MR0103 2015 S31600/03 A (8)       | (8)ANSI/NACE MR0103/ISO 17945 November 23, 2015   |
| NACE MR0175 2015 S31600/03 A (9)       | (9)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015                                 |
| QQ-S-763 F 316/316L A                  |   |

Tolleranza: ASTM A484-21 TABLE 3 4

Toleranz/Allowance/Tolerance

| Pos. nr.<br>Pos. nr.<br>Item nr.<br>Nr. de poste | Oggetto<br>Gegenstand<br>Product description<br>Descrip. du produit | Dimensioni - In<br>Abmessungen<br>Dimension<br>Dimension | Lunghezza - In<br>Länge<br>Length<br>Longueur | Colata<br>Schmelze<br>Heat<br>Coulée | Pezzi<br>Stückzahl<br>Pieces<br>Pieces | Peso - LB<br>Gewicht<br>Weight<br>Poids | Lotto nr.<br>Losnr.<br>Lot nr.<br>Lot nr. |
|--|---|--|---|--------------------------------------|--|---|---|
| 0030   | Round   | 15,0000  | 84/ 84  | 288299                               |  | 4.367                                   | 129519740                                 |

Provided by CPA

www.flowconditioner.com,info@cpacl.ca



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MR

Avviso di Spedizione: D-VI22010608  
 Lieferanzeige/Packing list/B.L.

Marca: APML  
 Markenbezeichnung  
 Brand / Nuance

Punzonatura: 316/316L  
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 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

1) L=longitudinale/längs, T=transversale/quer, Q=Tangenziale/tangential

| TEST   | Provetta/ Probe<br>Specimen/Éprouvette<br>Leg. diam. Spess.<br>Breite Diam. Dicke<br>Width Diam. Thickness<br>Larg. diam. épais<br>mm | °F | Posiz. Saggio<br>Position<br>Localor<br>Emplacement<br>° | Snervamento<br>Streckgrenze<br>Yield Stress<br>Limite élastique<br>Rp 0,2%<br>k.s.l. | Snervamento<br>Streckgrenze<br>Yield Stress<br>Limite élastique | Resistenza<br>Zugfestigkeit<br>Tensile strength<br>Resistance à traction<br>Rm<br>k.s.l. | Allungamento<br>Bruchdehnung<br>Elongation<br>Allongement<br>E 4d<br>% | Strizione<br>Einschnürung<br>Reduction of area<br>Striction<br>RA<br>% | Resilienza<br>Kerbschlagarbeit<br>Impact Value<br>Resilience | Durezza<br>Härte<br>Hardness<br>Dureté<br>HB |
|--|---|----|--|--|---|--|--|--|--|--|
| Valori richiesti<br>Anforderungen/Required values<br>Valeurs demandées | min<br>max  |    |  | 30   | -   | 75<br>115  | -<br>40  | -<br>50  | -  | 140<br>223                                   |
| A  | 12,5  | 68 | L  | 39   |   | 81   | 66   | 74   |  | 171  |

### 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 |     | 1   |

Mechanical properties according to ASTM A370.

### Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Colata /Heat<br>Schmelze/Coulée | min -<br>max | 0,03C | 1,00 | 1,25<br>2,00 | 16,50<br>18,00 | 2,00<br>3,00 | 1,00  | 10,00<br>14,00 | 0,040 | 0,023<br>0,032 | 0,100 | - | - | - |
|---------------------------------|--------------|-------|------|--------------|----------------|--------------|-------|----------------|-------|----------------|-------|---|---|---|
|                                 | C %          | Si %  | Mn % | Cr %         | Mo %           | Cu %         | Ni %  | Co %           | P %   | S %            | N %   |   |   |   |
| 288299                          | 0,016        | 0,34  | 1,81 | 16,61        | 2,06           | 0,52         | 10,05 | 0,124          | 0,029 | 0,026          | 0,092 |   |   |   |

### 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 = 9,6 : 1  
 Material annealed 1976°F for 8,5 h /water cooled.  
 Material is DFARS Compliant

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

Controllo antimiscelanza con tecnica XRF/QES portatile : OK  
 Verwechslungsprüfung: durch XRF/QES Gerät geführt.  
 Antimixing testing performed with XRF/QES portable : OK  
 Contrôle antimélange svr technique XRF/QES portable : OK

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



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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.

WSPR/FA2E1912245744CD01/11/13/16/18