



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

In conformità a: **EN 10204 (2004) , 3.1**
Nach/According to/Selon

Certificato nr. **MEST028268 / 2017 /**
Prüfung/Test/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/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Ordine nr: 702006191 Stock - Canada
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: **EI17001310**
Werks/Our Order/Ref nr.

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

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

MR

Avviso di Spedizione: **D-VI17005740**
Lieferanzelge/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 H S31603 A
AMS-QQ-S-763 D 316/316L A
ASME SA182 2015 S31600/03 A (0)
ASME SA193 2015 B8M CLASS1 (1)
ASME SA276 2015 S31600/03 A (2)
ASME SA320 2015 B8M CLASS1 (3)
ASME SA479 2015 S31600/03 A (4)
ASTM A182 2016 S31600/03 A (5)
ASTM A193 2016 B8M CLASS1
ASTM A262 2015 PRACTICE E
ASTM A276 2016 S31600/03 A
ASTM A314 2015 S31600/03
ASTM A320 2015A B8M CLASS1
ASTM A370 2015
ASTM A473 2001 S31600/03 (6)
ASTM A479 2016 S31600/03 A
MIL-S-862 B/1 316/316L
NACE MR0103 2010 S31600/03 A
NACE MR0175 2009 S31600/03 A (7)
QQ-S-763 F 316/316L A

(0)SECTION II PT.A 2015 EDITION For products machined directly from bar refer to ASME SA479.

(1)SECTION II PT.A 2015 EDITION

(2)SECTION II PT.A 2015 EDITION

(3)SECTION II PT.A 2015 EDITION

(4)SECTION II PT.A 2015 EDITION

(5)For products machined directly from bar refer also to ASTM A479.

(6)Chemical analysis only.

(7)ANSI/NACE MR0175/ISO 15156-3, second edition 2009-10-15 Technical circular 1:2011 Published 2011-06-14

Tolleranza: ASTM A484-16 TABLE 3

Tolleranza/Allowance/Tolerance

| Pos. nr. Pos. nr. Item nr. Nr. de poste | Oggetto Gegenstand Product description Descript. du produit | Dimensioni - In | | Lunghezza - In Länge Length Longueur | Colata Schmelze Heat Coulée | Pezzi Stückzahl Pieces Pièces | Peso - LB Gewicht Weight Poids | Lotto nr. Losnr. Lot nr. Lot nr. |
|--|--|---------------------------------------|--|---|--------------------------------------|--|---|---|
| | | Abmessungen Dimension Dimension | | | | | | |
| 0010 | Round | 11,0000 | | 132/ 142 | 272530 | | 7.626 | 632907650 |

Vicenza, 23/02/17

VCC012 - MEST028268

(Mod. MCE2) WERKSAFCE/INTP/INCE/ACCIAFORNED

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

M.RIZZOTTO

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 Erzeugnisart
 Milling process
 Mode d'elaboration

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



Conferma ordine nr: EI17001310
 Works/Our Order/Ref nr.

Qualità: 316/316L
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Punzone del Collaudatore:
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MR

Avviso di Spedizione: D-VI17005740
 Ueberanzelge/Packing BSVB.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 así como entregado | | | | | | | | | | | | |
| TEST | Provotta/ Probe/Specimen/Éprouvette Larg./diam Spec. Diam. Diam. Dico Wich Diam. Thickness Larg. diam. épais mm | °F | Posiz. Saggio Position Lieu | Snervamento Streckgrenze Yield Stress Limite élastique Rp 0,2% k.s.l. | Snervamento Streckgrenze Yield Stress Limite élastique | Resistenza Zugfestigkeit Tensile strength Résistance à traction Rm k.s.l. | Allungamento Bruchdehnung Elongation Allongement | | Strizione Einschnürung Reduction of area Striction | Resilienza Kerbschlagarbeit Impact Value Resilience | Durezza Härte Hardness Dureté HB | |
| | | | | | | | E 4d % | RA % | | | | |
| Valori richiesti Anforderung/Required value Valeurs demandées | | min max | | 30 | - | 75 115 | - | 40 | - | 50 | - | 140 223 |
| A | 12,5 | 68 | L | 38 | | 81 | | 62 | | 74 | | 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 | | | 3 |

Mechanical properties according to ASTM A370.

| Analisi chimica | | | | | | | | | | | | |
|--|-------|-------|------|-------|------|------|-------|-------|-------|-------|-------|---|
| Chemische Zusammensetzung/Chemical Analysis/Analyse chimique | | | | | | | | | | | | |
| Colata / Heat Schmelze/Coude | min | - | 1,25 | 16,50 | 2,00 | - | 10,00 | - | - | 0,020 | - | - |
| | max | 0,030 | 1,00 | 2,00 | 3,00 | 1,00 | 14,00 | - | 0,040 | 0,030 | 0,100 | - |
| | C % | Si % | Mn % | Cr % | Mo % | Cu % | Ni % | Co % | P % | S % | N % | |
| 272530 | 0,018 | 0,33 | 1,70 | 17,16 | 2,08 | 0,40 | 10,10 | 0,146 | 0,030 | 0,022 | 0,079 | |

| 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.
 Annealing temperature: 1940°F for 5 h/water.
 Micro and macro etch test: OK
 Reduction ratio = 4,6 : 1
 Material is DFARS Compliant

| | | |
|--|--|---|
| Sono state soddisfatte tutte le condizioni richieste Die gestellten Anforderungen sind lt. Anlage erfüllt The material has been furnished in accordance with the requirements Le matériel a été trouvé conforme aux exigences | Controllo antimiscelanza: OK Verwechslungsprüfung: spektralanalytisch durchgeführt Anmixing testing performed: OK Contrôle antimélange fait: r.s.s. | Controllo visivo e dimensionale: soddisfa le esigenze Besichtigung und Ausmessung: ohne Beanstandung Visual inspection and dimensional checks:satisfactory Contrôle visuel et dimensions: satisfaisant |
|--|--|---|



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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 : 2008, ISO/TS16949 : 2009, AS 9100C

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 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.