



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

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

Certificato nr. **MEST717927 / 2021 /**
 Prüfung/Test/Essai

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

Stato di fornitura: **Hot rolled Polished Annealed**
 Lieferzustand: **Peeled**
 Delivery state:
 Etat de livraison:

Produttore:
 Hersteller/Item/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Ordine nr: **102008506 Stock - Canada**

Tipo di Elaborazione: **E+AOD**

Marchi di Fabbrica:



Bestell
 Your order
 Commande

Erschmelzungsart
 Melting process
 Mode d'elaboration

Zeichen des Lieferwerkes
 Trade marks
 Sigles de l'usine productrice

Conferma ordine nr: **EI21001675**

Qualità: **316/316L**

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

MR

Avviso di Spedizione: **D-VI21008746**
 Lieferanzeige/Packing list/B.L.

Marca: **MVAPML (MAXIVAL)**
 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 2020 S31600/03 A (5)
 ASTM A193 2019 B8M CLASS 1
 ASTM A262 PR. E 2015 316/316L
 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

Tolleranza: ASTM A484-20B TABLE 7

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 | Coletta Schwabe Heat Cuide | Pezzi Stückzahl Pieces Pieces | Peso - LB Gewicht Weight Poids | Lotto nr. Lose Lot nr. Lot nr. |
|--|--|--|---|-------------------------------------|--|---|---|
| 0060 | Round | 3,7500 | 144/ 169 | 285081 | 6 | 3.038 | 104017490 |

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

| | | | |
|---|--|--|------------------|
| Vicenza, 13/04/2021 VQQ052 - MEST717927 | Direzione Qualità Qualitätsmanagement/Quality Management/Qualité Qualité R.BERTELLI | Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI | Pagina 1 di 3 |
|---|--|--|------------------|



C307058

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 Werkstoff/Grade/Nuance

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MR

Conferma ordine nr: **EI21001675**
 Werks/Our Order/Ref nr.

Avviso di Spedizione: **D-VI21008746**
 Lieferanzeige/Packing list/B.L.

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 Markenbezeichnung
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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/Eproben Larg./diam. Bread. Stoke Diam. Dicke Width Diam. Thickness Larg. diam. epais | °F | Posiz. Saggio Positioning Location Emplacement | Snervamento Stressing Yield Stress Limite elastique Rp 0,2% k.s.l. | Snervamento Stressing Yield Stress Limite elastique | Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm k.s.l. | Allungamento Bruchdehnung Elongation Allongement E 4d % | | Strizione Einschnürung Reduction of area Striction RA % | Resilienza Herschlagarbeit Impact Value Resilience | Durezza Härte Hardness Dureté HB |
|--|--|----|---|---|--|--|--|-----|--|---|--|
| | | | | | | | min | max | | | |
| Valori richiesti Anforderungen/Required values Valeurs demandées | | | | 30 | - | 75 115 | - | 40 | - | 50 | 140 223 |
| A | 12,5 | 68 | L | 43 | | 87 | | 56 | | 68 | 168 |

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 | | 6 |

Mechanical properties according to ASTM A370.

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

| Coletta /Heat Schmelze/Coude | min - max | 0,030 | 1,00 | 1,25 2,00 | 16,50 18,00 | 2,00 3,00 | 1,00 | 10,00 14,00 | 0,040 | 0,020 0,030 | 0,100 | - | - | - | - |
|---------------------------------|--------------|-------|------|--------------|----------------|--------------|-------|----------------|-------|----------------|-------|---|---|---|---|
| | C % | Si % | Mn % | Cr % | Mo % | Cu % | Ni % | Co % | P % | S % | N % | | | | |
| 285081 | 0,014 | 0,57 | 1,55 | 16,69 | 2,06 | 0,58 | 10,04 | 0,159 | 0,032 | 0,026 | 0,059 | | | | |

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

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

Controllo antimiscelanza con tecnica XRF/OES portatile : OK
 Verwechslungsprüfung: durch XRF/OES Gerät geführt.
 Antimixing testing performed with XRF/OES portable : OK
 Contrôle antimélange svt 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 dimensionnel: satisfaisant

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