



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

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

Certificato nr. MEST690081 / 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: 102008521 RELIANCE: PROGRA
 Bestell
 Your order
 Commande

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

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



Conferma ordine nr: EI21002169
 Werks/Our Order/Re' nr.

Qualità: 316/316L
 Werkstoff/Grade/Nuance

Punzone del Collaudatore:
 Stempel des Werkstoffverstarigen
 Inspector's stamp/Emplacement de l'essayeur

MR

Avviso di Spedizione: D-VI21004397
 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-753 D 316/316L A	
ASME SA182 2019 S31600/03 A (0)	(0)Section II Part A 2019 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2019 B8M CLASS 1 (1)	(1)Section II Part A 2019 EDITION
ASME SA276 2019 S31600/03 A (2)	(2)Section II Part A 2019 EDITION
ASME SA320 2019 B8M CLASS 1 CLASS1 (3)	(3)Section II Part A 2019 EDITION
ASME SA479 2019 S31600/03 A (4)	(4)Section II Part A 2019 EDITION
ASTM A182 2020 S31600/03 A (5)	(5)For products machined directly from bar refer also to ASTM A479.
ASTM A193 2019 B8M CLASS 1	
ASTM A262 FR. 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)	(6)2019E1
ASTM A473 2019 S31600/03 (7)	(7)Chemical analysis only.
ASTM A479 2020 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 A484-20B TABLE 3

Tolleranza/Allowance/Tolerance

Pos. nr. Pos. n. Item n. Nr. de piece	Oggetto Gegenstand Product description Description du produit	Dimensioni - In Abmessungen Dimension Dimension	Lunghezza - In Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pièces	Peso - LB Gewicht Weight Poids	Lotto nr. Losn. Lot nr. Lot nr.
0050	Round	8,5000	233/ 233	433836		3.871	127913400

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

Vicenza, 24/02/2021
 VCQ052 - MEST690081

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

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

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 Nach/According to/Selon Prufung/Test/Essai

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Ordine nr: **102008521 RELIANCE PROGRA**
 Bestell
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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: **EI21002169**
 Weiks/Our Order/Ref nr.

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

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

MR

Avviso di Spedizione: **D-VI21004397**
 Lieferanzeige/Packing list/B.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 asi como entregado

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

TEST	Provetta/ Probestab Specimen/Eprovette Larg diam Spec. Breite Diam. Dicke Width Diam. Thickness Larg. diam. epais mm	°F	Posiz. Saggio Richtung Lage Empfänger	Snervamento Streckgrenze Yield Stress Limite elastique Rp 0,2% k.s.i.	Snervamento Streckgrenze Yield Stress Limite elastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm k.s.i.	Allungamento Bruchdehnung Elongation Allongement E 4d %	Strizione Einschnürung Reduction of area Striction RA %	Resilienza Kerbschlagarbeit Impact Value Resilience	Durezza Härte Hardness Dureté HB		
Valori richiesti Anforderungen/Required values Valeurs demandées	min			30	-	75	-	40	-	50	-	140
	max					115						223
A	12,5	68	L	41		81		58		70		166

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		4

Mechanical properties according to ASTM A370.

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata /Heat Schmelze/Coulee	min - max	0.030	1.00	1.25 2.00	15.50 18.00	2.00 3.00	1.00	10.30 14.00	-	0.040	0.020 0.030	0.100	-	-	-
	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %				
433836	0,016	0,32	1,77	16,71	2,06	0,50	10,01	0,108	0,032	0,028	0,086				

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 II Ozone depleting substances.
 Solution heat treated free from continuous carbide network.
 Micro and macro etch test: OK.
 Reduction ratio = 7,0 : 1
 Material annealed 1940°F for 4h/water cooled.
 Material is DFARS Compliant

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

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

Controllo visivo e dimensionale: soddisfa le esigenze
 Beachtung und Ausmessung ohne Beanstandung
 visual inspection and dimensional checks satisfactory
 Contrôle visuel et dimensionnel satisfaisant

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Vicenza, 24/02/2021 VCQ052 - MEST690081	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P.MESSORI	Pagina 2 di 3
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