



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

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

Certificato nr. MEST454961 / 2019 /  
 Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client  
 VALBRUNA CANADA LTD  
 8724 FOLGATE 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: 901007296 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: EI19000380  
 Werks/Our Order/Ref. nr.

Qualità: 316/316L  
 Werkstoff/Grade/Nuance

Punzone del Collaudatore:  
 Stempel des Werksachverständigen  
 Inspector's stamp/Pompon de l'essayeur

MR

Avviso di Spedizione: D-VI19023610  
 Lieferanzeige/Packing list/B.L.

Marca: APM L  
 Markenbezeichnung  
 Brand / Nuance

Punzonatura: 315/316L  
 Kennzeichnung  
 Marking  
 Marquage

### SPECIFICHE :

Note:

Anforderungen / Requiriments / Exigences

Anzeichnungen / Notes / Notes

VSI 0 316/316 L  
 AISI 316/316L  
 AMS 5548 M S31600 A  
 AMS 5553 H S31603 A  
 AMS-QQ-S-763 D 316/316L A  
 ASME SA182 2017 S31600/03 A (0)  
 ASME SA193 2017 B8M CLASS 1 (1)  
 ASME SA276 2017 S31600/03 A (2)  
 ASME SA320 2017 B8M CLASS1 (3)  
 ASME SA479 2017 S31600/03 A (4)  
 ASTM A182 2019 S31600/03 A (5)  
 ASTM A193 2017 B8M CLASS 1  
 ASTM A262 2015 PRACTICE E  
 ASTM A276 2017 S31600/03 A  
 ASTM A314 2019 S31600/03  
 ASTM A320 2017A B8M CLASS1  
 ASTM A370 2019  
 ASTM A473 2001 S31600/03 (6)  
 ASTM A479 2018 S31600/03 A  
 MIL-S-862 B/1 316/316L  
 NACE MR0103 2015 S31600/03 A (7)  
 NACE MR0175 2015 S31600/03 A (8)  
 QQ-S-763 F 316/316 L

(0)Section II Part A 2017 EDITION For products machined directly from bar refer to ASME SA479.

(1)Section II Part A 2017 EDITION

(2)Section II Part A 2017 EDITION

(3)Section II Part A 2017 EDITION

(4)Section II Part A 2017 EDITION

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

(6)Chemical analysis only.

(7)ANSI/NACE MR0103/ISO 17945 November 23, 2015

(8)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

Tolleranza: ASTM A484-16A TABLE 3

Tolerance/Allowance/Tolérance

Pos. nr. Pos. nr. Item nr. Nr. de piece	Oggetto Gegenstand Product description Design. 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. Losnr. Lot nr. Lot no.
0060	Round	8.5000	219/ 230	280905	2	7.434	827010000

*P120682 R159138 509378 280905 875*

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

Vicenza, 05/09/19 VCC052 - MEST454961	Direzione Qualità Qualitätsmanagement/Quality Management/Gestion Qualité <i>Bertelli</i> R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit <i>P. Messori</i> P.MESSORI	Pagina 1 di 3
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*ANS*



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Nach/According to/Selon:

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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. EI19000380  
Werkstoff/Order/Ref. nr.

Qualità: 316/316L  
Werkstoff/Grade/Nuance

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

MR

Avviso di Spedizione: D-VI19023610  
Lieferanzeige/Packing list/B.L.

Marca: APML  
Markenbezeichnung  
Brand / Nuance

Punzonatura: 316/316L  
Kannzeichnung  
Marking  
Marquage

### TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüfung auf lieferbarem Produkt / Test à l'état de fourniture / Prueba sobre el material así como entregado

TEST	Provetta/ Probe/Stub Specimen/Éprouvette Lug./d. am. Spec. Brin. Diam. Dicks. Weld Jct. Thickness Lug. Elem. spec. mm	°F	Posiz. Saggio Prüfung Lage/Anlage Endposition	1) L=lunghezza/longitud. T=traverso/trasv. Q=Taggerzielle/longitudinal		Resistenza Zugfestigkeit Tensile strength Résistance à traction	Allungamento Bruchdehnung Elongation Allongement	Strizione Einschränkung Reduction of area Striction	Resilienza Kerbschlagarbeit Impact Value Resilience	Durezza Härte Hardness Dureté HB
				Sneramento Streckgrenze Yield Stress Rp 0,2%	Sneramento Streckgrenze Yield Stress Limite élastique					
Valori richiesti Anforderungen/Required values Valeurs demandées		min		30	-	75	40	-	50	140
		max				115				223
A	12,5	68	L	38		80	56		69	174

### TEST ALLO STATO DI FORNITURA

Test on delivery condition / Prüfung auf lieferbarem Produkt / Test à l'état 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

Colata / Heat Schmelze/Coulée	min - max	0,030	1,00	1,25	16,50	2,00	10,00	0,040	0,020	0,030	0,100	-	-	-	-
	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %	-	-	-	-
280905	0,016	0,47	1,85	16,70	2,03	0,88	10,06	0,105	0,029	0,029	0,089	-	-	-	-

### 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 spindles (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  
Material annealed 1940°F for 4h/water cooled.  
Reduction ratio = 7,6 : 1  
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 fourni conforme aux exigences

Controllo antimiscelanza: OK  
Verwechslungsprüfung: spektroskopisch durchgeführt  
Anti-mixing testing performed: OK  
Contrôle antimélange fait: r.a.s.

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

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 : 2015, IATF 16949 : 2016, AS 9100D

Vicenza, 05/09/19 VCC032 - MEST454961	Direzione Qualità Qualitätsmanagement/Quality Management/Direction Qualité R. BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Direction Produit P. MESSORI	Pagina 2 di 3
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# Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.  
Telefono 0444.968211 - Fax 0444.963838  
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37  
Telefono 0471.924111 - Fax 0471.924497

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Melting process  
Mode d'elaboration

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



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The Quality Management System is also Certified according Pressure Equipment Directive 2014/68/EU Annex 1, chap.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.

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

Vicenza, 05/09/19

Direzione Qualità  
Qualitätsmanagement/Quality Management/Gestion Qualité

Direzione Prodotto  
Produktmanagement/Product Management/Direction Produit

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VCC052 - MEST454961

R.BERTELLI

P.MESSORI

Provided by: CINQUE MILLE