



Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.
 Telefono 0444.968211 - Fax 0444.963836
 Stab.: 39100 BOLZANO (Italia) - Via A. Volta 4/37
 Telefono 0471.924111 - Fax 0471.924497

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

In conformità a: EN 10204 (2004), 3.1 / ISO 10474 (2013), 3.1
 Nach/according to/Selon

Certificato nr. MEST249606 / 2018 /
 Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
VALBRUNA CANADA LTD
 8724 HOLTGATE CRESCENT
 L5T 5Z1 - MILTON, ONT L5T 6Z1 - CA

Stato di fornitura: Forged - Annealed FORGED
 Lieferzustand
 Delivery state
 Etat de livraison

Produttore:
 Hersteller/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Ordine nr: 802036870 Replacement sto
 Bestel /
 Your order
 Commande

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

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



Conferma ordine nr: EI18002298
 Werks/Aur./Order/Ref. nr.

Qualità: 316/316L
 Werkstoff/Grade/Nuance

Punzone del Collaudatore:
 Stempel des Werkssachverständigen
 Inspector's stamp/Parce du l'assayeur

MR

Avviso di Spedizione: D-VI18014535
 Lieferanzeige/Packing ISVB.L.

Marca: APML
 Markenbezeichnung
 Brand / Nuance

Punzonatura: 316/316L
 Kennzeichnung
 Marking
 Marqueage

SPECIFICHE:	Nota:
Änderungen / Requirements / Exigences	Aufzeichnungen / Notes / Notes
VSI D 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 2017 S31600/03 A (C)	(C)Section II Part A 2017 EDITION For products machined directly from bar refer to ASME SA479.
ASME SA193 2017 B8M CLASS 1 (1)	(1)Section II Part A 2017 EDITION
ASME SA276 2017 S31600/03 A (2)	(2)Section II Part A 2017 EDITION
ASME SA320 2017 B8M CLASS1 (3)	(3)Section II Part A 2017 EDITION
ASME SA479 2017 S31600/03 A (4)	(4)Section II Part A 2017 EDITION
ASTM A182 2016 S31600/03 A (5)	(5)For products machined directly from bar refer also to ASTM A479.
ASTM A193 2016 B8M CLASS 1	
ASTM A262 2015 PRACTICE E	
ASTM A276 2017 S31600/03 A	
ASTM A314 2015 S31600/03	
ASTM A320 2017A B8M CLASS1	
ASTM A370 2017.	
ASTM A473 2001 S31600/03 (6)	(6)Chemical analysis only.
ASTM A479 2018 S31600/03 A	
MIL-S-862 B/1 316/316L	
NACE MR0103 2015 S31600/03 A (7)	(7)ANSI/NACE MR0103/ISO 17945 November 23, 2015
NACE MR0175 2015 S31600/03 A (8)	(8)ANSI/NACE MR0175/ISO 15156-3, third edition, November 23, 2015
QQ-S-763 F 316/316L A	

Tolleranza: ASTM A484-18 TABLE 3

Pos. nr.	Oggetto	Dimensioni - In	Lunghezza - In	Colata	Pezzi	Peso - LB	Lotto nr.
Pos. nr. Item nr. Nr. de piece	Oggetto Précédent (s) / articles Objet de la pièce	Abmessungen Dimension Dimension	Length Length Longueur	Schmelze Heat Coulée	Stückzahl Pieces Pieces	Gewicht Weight Poids	Lot n. Lot n. Lot n.
0070	Round	8,5000	233/ 233	277051	1	3.867	802510710

P.O.#: P119789
 R#: R155648
 ITEM#: 509378
 HEAT#: 277051
 BRANCH#: 875

Scanned 7/25/2019

ANS

Provided by: ENCORE METALS DIVISION OF RMC



Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.
 Telefono 0444.968211 - Fax 0444.963836
 Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
 Telefono 0471.924111 - Fax 0471.924497

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

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

Certificato nr. MEST249606 / 2018 /
 Prüfung/Feststellung

Cilente / Besteller/Purchaser/Cliant
VALBRUNA CANADA LTD
 8724 HOLTGATE CRESCENT
 L5T 5Z1 - MILTON, ONT L5T 5Z1 - CA

Stato di fornitura: Forged - Annealed FORGED
 Lieferzustand
 Delivery state
 Etat de livraison

Produttore:
 Hersteller/Usine producer

ACCIAIERIE VALBRUNA S.P.A.

Ordine nr: 802006870 Replacement stc
 Bestell
 Your order
 Commande

Tipo di Elaborazione: E+AOD
 Erhitzungsart
 Heating process
 Mode d'elaboration

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



Conferma ordine nr: E118002298
 Works/Our Order/Ref. nr.

Qualità: 316/316L
 Werkstoff/Grade/Nuance

Punzone del Collaudatore:
 Stempel des Werkstoffverständigen
 Inspector's stamp/Plaque of the Inspector

MR

Avviso di Spedizione: D-VI18014535
 Lieferanzug/Packing instr.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 à l'état de fourniture Prueba sobre el material así como entregado

TEST	Prova/ Probe Specimen/Éprouvette Leg. diam. Spess. Stipe Diam. Dicke Width Diam. Thickness Leg. diam. Spess. mm	°F	Posiz. Saggio Position Lageort Position	Snervamento Suochgnese Yield Stress Limite élastique Rp 0,2%	Snervamento Suochgnese Yield Stress Limite élastique	Resistenza Zugfestigkeit Tensile strength Résistance à traction Rm	Allungamento Bruchdehnung Elongation Allongement		Strizione Einschränkung Reduction of area Striction	Resilienza Kerbschlagarbeit Impact Value Resilience	Durezza Härte Hardness Dureté HB
							E 4d	RA			
Valori richiesti Anforderungen/Required values Valeurs d'imposition		min max		30	-	75 115	-	40	-	50	140 223
A	12,5	68 L		39		63		58		73	165

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

Colla / Heat Schmelz/Gaube	min - max	0,030	1,00	1,25 2,00	16,00 18,00	2,00 3,00	- 1,00	10,00 14,00	- -	0,040	0,020 0,030	- 0,100	- -	- -	- -
277051	C %	Si %	Mn %	C %	Mo %	Cu %	Ni %	Co %	P %	S %	N %				
	0,012	0,27	1,75	16,87	2,08	0,48	0,02	0,124	0,032	0,023	0,076				

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 = 7,6 : 1
 Annealing temperature : 1940° F for 4 h/water.
 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
 Antimixing testing performed: OK
 Contrôle antimélange fait: S.A.S.

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

Vicenza, 18/05/18

VCC008 - MEST249606

(Mod. MCE2) 1007102702/01/02/03/04/05/06/07/08/09/10/11/12/13/14/15/16/17/18/19/20/21/22/23/24/25/26/27/28/29/30/31/32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47/48/49/50/51/52/53/54/55/56/57/58/59/60/61/62/63/64/65/66/67/68/69/70/71/72/73/74/75/76/77/78/79/80/81/82/83/84/85/86/87/88/89/90/91/92/93/94/95/96/97/98/99/100

Il collaudatore di stabilimento / der Werkstoffverständige / Works Inspector / L'agent d'usine

M. RIZZOTTO

Pagina - 2 di 3



Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
 Telefono 0444.968211 - Fax 0444.968336
 Stab.: 38105 BOLZANO (Italia) - Via A. Volta, 4/37
 Telefono 0471.924111 - Fax 0471.924497

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

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

Certificato nr. MEST249606 / 2018 /

Nach/According to/Selon

Prüfung/Test/Essai

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

Stato di fornitura: Forged - Annealed FORGED
 Lieferzustand
 Delivery state
 Etat de livraison

Produttore:
 Hersteller/Werk/Usine producer

ACCIAIERIE VALBRUNA S.P.A.

Ordine nr: 802006870 Replacement sto
 Bestell
 Your order
 Commande

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

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



Conferma ordine nr: EI18002298
 Works/Our Order/Ref. nr.

Qualità: 316/316L
 Werkstoff/Grade/Nuance

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

MR

Avviso di Spedizione: D-VI18014535
 Lieferanzeige/Packing list/V.B.L.

Marca: APML
 Markenbezeichnung
 Brand / Nuance

Punzonatura: 316/316L
 Kennzeichnung
 Marking
 Marquage

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

The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1, s. 4.3 and 2014/68/EU 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.

Provided by: ENCORE METALS DIVISION OF RMCI

Vicenza, 18/05/18

VCC008 - MEST249606

(Mod. MCE2) WSP/EN 10204 3.1 / ISO 10474 3.1 (2013)

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

M. RIZZOTTO

Pagina - 3 di 3