



Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.
 Telefono 0444.963211 - 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. MEST475846 / 2019 / Prüfung/Tests/Essai

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

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

Produttore:
 Hersteller/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Ordine nr. 909007688
 Bestell
 Your order
 Commande

Tipo di Elaborazione: E+AOD
 Erhmelungsart
 Making process
 Mode d'elaboration

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



Conferma ordine nr. EI19007813
 Works/Our Order/Ref. n.

Qualità: 316/316L
 Werkstoff/Grade/Numéro

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

MR

Avviso di Spedizione: D-VI19027754
 Lieferanzeige/Sending Invoic.

Marca: APLM
 Markenbezeichnung
 Brand / Nuance

Punzonatura: 316/316L
 Kennzeichnung
 Marking
 Marquage

SPECIFICHE:

Anforderungen / Requiraments / Exigences

Note:

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 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 2018 B8M CLASS1
- ASTM A370 2019 - (6)
- ASTM A473 2001 S31600/03 (7)
- ASTM A479 2018 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 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)2019E1
- (7)Chemical analysis only.
- (8)ANSI/NACE MR0103/ISO 17845 November 23, 2015
- (9)ANSI/NACE MR0175/ISO 15156-3, third edition November 23,2015

Tolleranza: / STM A484-18A TABLE 3

Pos. nr. Pos. nr. Item No. No. de piece	Oggetto Component Product description Design. du produit	Tolleranza: / STM A484-18A TABLE 3		Lunghezza - in Länge Length Longueur	Colata Schmelz Melt Coulée	Pezzi Stücken Pieces Pièces	Peso - LB Gewicht Weight Poids	Lotto nr. Lot No. Lot No. Lot No.
		Dimensioni - in Abmessungen Dimensions Dimensions	Tolleranza					
0010	Round	11,0000		144/ 144	281223		4.008	912710250

P.O.#: P120458
 R#: R158470
 ITEM#: 509382
 HEAT#: 281223
875

ANS

Provided by: ENCORE METALS DIVISION OF RMCL



Acciaierie Valbruna S.p.A.

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

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

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

Certificato nr. MEST475846 / 2019 /
 Prüfung/Test/Essai

Produttore:
 Hersteller/Item/Usine procurante

ACCIAIERIE VALBRUNA S.P.A.

Ordine nr. 909007688
 Bestell / Your order / Commande

Tipo di Elaborazione: E-AOD
 Erhitzungsprozess
 Heating process
 Mode d'elaboration

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



Confirma ordine nr. EI19007813
 Wunsch/Order/Refirm.

Qualità: 316/316L
 Werkstoff/Grade/Nuance

Punzone del Collaudatore:
 Stempel des Werkstoffverständigen
 Inspector's stamp/Pointon du l'essayeur

MR

Avviso di Spedizione: D-VI19027754
 Lieferfrist/Fracht/Exp. d. B.V.L.

Marca: APM L
 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	Provvista / Provided / Fourni / Entregado Spessore/Thickness / Stärke/Epaisseur / Épaisseur / Espesor mm	°F	Posiz. Soglia / Position / Position / Position mm	Snervamento / Yield strength / Limite elastic / Rp 0,2% N/mm²	Snervamento / Yield stress / Limite élastique N/mm²	Resistenza / Tensile strength / Resistencia a tracción Rm N/mm²	Allungamento / Elongation / Elongation / Allongement E 4d %	Strizione / Elongation / Reduction of area / Strain RA %	Resilienza / Kerschlagarbeit / Impact Value / Resilience J	Durezza / Härte / Hardness / Dureté / HB
Valori richiesti / Required values / Valeurs demandées	min			30	-	75	40	-	50	140
A	12,5	68	L	39		82	63	76		223

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												
Element	max	1,25	10,50	2,00	10,00	10,00	10,00	10,00	10,00	0,040	0,020	0,100
Element	max	0,030	1,00	2,00	18,00	3,00	1,00	14,00	0,040	0,020	0,030	0,100
	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	N %	
281223	0,020	0,47	1,79	13,55	2,04	0,47	10,11	0,114	0,029	0,022	0,095	

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 = 4,2 : 1
 Material annealed 1940°F for 5h/water cooled.
 Material is DFARS Compliant

Sono state soddisfatte tutte le condizioni richieste
 Die gestellten Anforderungen sind L. 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
 Antikling testing performed: OK
 Contrôle antimélange fait: o.k.

Controllo visivo e dimensionale: soddisfa le esigenze
 Beachtung 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 radio active 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, 21/10/19 VCQC52 - MEST475846	Direzione Qualità Qualitätsmanagement/Quality Management/Dirección Qualitá R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Dirección Producto P.MESSORI	Pagina 2 di 3

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

Certificato nr. MEST475846 / 2019 /
Prüfung/Test/Éssai

Cliente / Besteller/Purchaser/Client
 VALBRUNA CANADA LTD
 6724 HOLTGATE CRESCENT
 L5T 5Z1 - MILTON, ONT L5T 5Z1 - CA

Stato di fornitura: Forged - Annealed Peeled
Lieferzustand
 Delivery state
 Estado de suministro

Produttore:
Hersteller/Usine productrice

ACCIAIERIE VALBRUNA S.P.A.

Ordine nr. 909007688
Bestell
 Your order
 Commande

Tipo di Elaborazione: E-AOD
Erneuerungsart
 Making process
 Mode d'élaboration

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



Confirma ordine nr. E119007813
Werk-/Our Order/Retr.

Qualità: 316/316L
Werkstoff/Grade/Nuance

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

MR

Avviso di Spedizione: D-VI19027754
Lieferanzugs/Packing list/D.L.

Marca: APML
Markenbezeichnung
 Brand / Nuance

Punzonatura: 316/316L
Kennzeichnung
 Marking
 Marquage

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

Provided by: ENCORE METALS, DIVISION OF RMCL

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2015, IATF 16949 : 2016, AS 9100D			
Vicenza, 21/10/19 VCQ052 - MEST475846	Direzione Qualità Qualitätsmanagement/Quality Management/Section Qualité R.BERTELLI	Direzione Prodotto Produktmanagement/Product Management/Dirección Producto P.MESSORI	Pagina 3 di 3