

MILL TEST REPORT

TA CHEN INTERNATIONAL, INC.

This MTR contains 1 page (Page# 1)

Customer: METROK PO#:RCK-64043 SO#:CEX392

MTR#:WLRBA1311290237.

Item:HB030100 Bundle:WL13072019 Heat#:4E200



INSPECTION CERTIFICATE

WALSH LITVA CORP. YENSHUI PLANT

CUSTOMER: TA CHEN INTERNATIONAL PTE CO., LTD.
 GRADE: Stainless Steel Cold Draw Hexagonal Bar (2)
 CHEMICAL NO: A1311290237

ORDER NO: 10210002/142435
 SPECIFICATION: 303

LC NO:
 SUPPLY CONDITION: CD
 DATE OF ISSUE: 2013/11/29

台南廠
 60-5-100 SHIP LANE, YEN SHUI PL.
 TAINAN CITY 700010, TAIWAN, R.O.C.
 TEL: 886-6-555-0011 FAX: 886-6-557-1011

Heat No	Thick (Inch)	Pos	R1	Chemical Composition(%)											Mechanical Property					BOLITE NO					
				C	SI	Mn	P	S	NI	Cr	Mo	Cu	N	TS	YS	RL	RA	HRB	HB						
Spec				x100	x100	x100	x100	x100	x100	x100	x100	x100	x100	x100	x100										
Heat				15	100	200	200	150	100	1000	1500														
4E200	22			780	4.7	25	102	25	28.6	833	1195	9	52	187											
Total:				780																					

METALS USA - MPLS
 SO NO 577141
 SOLD TO Deering Co
 PO NO 145009
 DATE 3-19-14

TOLERANCE: A484
 Acc. to ASTM A582-12 Cond.A.
 Acc. to ASTM MS 5840 type 1/MP-S-764.

LENGTH 101290237-0-50

Remark:
 This inspection certificate is issued acc. to EN 10204 2.2.
 Solution annealed treatment: Acc. to ASTM A484-12.
 Macro & micro structure: good, Grain size: Acc. to ASTM E112.
 Rolled manufactured: Patson / Improved machining.
 Microstructure free from continuous grain boundary
 carbide precipitation as per ASTM A262 A & B.
 1. We hereby certify that material described herein has been
 manufactured and tested with satisfactory results
 in accordance with requirement
 of the above material specification.
 2. We certify that the material is free from mercury
 and radiation contamination, qualification
 No. of Taiwan Atomic Energy Committee: 136
 3. The Above Testing Results Relate Only To The Items Tested.
 4. No Welding required

SUPPLY CONDITION:
 A: Annealed
 B: Shot Blasted
 C: As Casted
 E: Pre-Drum Pass
 H: Pre-Drum Hardening
 R: Hot Rolled
 S: Cold Rolled
 L: Polished
 M: Cold Rolled
 P: Pickled
 S: Shaped
 W: 2K
 X: Temper
 CD: Cold Draw
 Co: Centreflex Ground
 PL: Turned or Pealed

1. Laboratory accredited by ISO/IEC17025:2005
 Certificate No. 11562-118216
 2. Quality management system approval by: TUV
 ISO9001:2008 Certificate No. 011008225836
 PFD: 97/33/EC & 200808-3673241136/92
 Certificate No. 112012007-02-4016
 3. Production system approval: DNV Certificate No. AHD-5661
 4. Steel testing and heat-treated approval: LR
 Certification No. 3090/10637044/1
 5. Environment management system approval by: TUV
 ISO14001:2004 Certificate No. 411048328145
 6. OHSAS 18001:2007 Certificate No. 011130664411
 TOSHES Certificate No. CB07-109003-00
 TEST METHOD:
 CHEMICAL-ASTM E1806, E415, E1086, E1019
 Quality Assurance Responsible Personnel
 SZ Khan.

Acciaierie Valbruna S.p.A.



QUALITY MANAGEMENT SYSTEM
CERTIFIED BY LLOYD'S REGISTER

CERTIFICATO DI COLLAUDO
ABNAHMEPRUEFZEUGNIS
INSPECTION CERTIFICATE
CERTIFICAT DE RECEPTION
EN 10204 (2005) , 3.1

36100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Buyer/Purchaser/Clien
VALBRUNA STAINLESS INC.
2400 TAYLOR STREET WEST
46801-FORT WAYNE, IN 46801-US

Produttore: **ACCIAIERIE VALBRUNA S.P.A.**
Hersteller/Usine produceur

Avviso di Spedizione: D-VII 1024356
Lieferanfrage/Packing list/B.L.

Certificato nr: MEST084777/2011/
Prüfung/Test/Essai

Confirma ordine nr: EII1005872
Works/Our Order/Ref. nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine produceur



Stato di fornitura: - Annealed Cold Drawn
Lieferzustand/Delivery state/Etat de livraison

Tipo di Elaborazione: E+AOD
Erneuerungsverfahren/Manufact process/Mode d'elaboration

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

PO. RCK 57147

Specifiche:
Anforderungen / Requirements / Exigences

YSI 0 303 HS A,CF
AMS 5640 U TYPE1 A
ASTM A320 2010A B8F (1)
MIL-S-882 B/ 303

AISI 303
ASME SA320 2010 B8F (0)
ASTM A370 2010 .
QQ-S-764 B/2 303 A

AMS 5640 U S30300 A
ASTM A314 2008 S30300
ASTM A582 2005 S30300 A

(0) SEC.II PT.A 2010 EDITION
(1) Chemical analysis only.

(0) Chemical analysis only.

Qualità: 303HS
Werkstoff/Grade/Usance

Marca: MV188ZHS MAXIVAL
Markenbezeichnung/Brand/Usance

Punzonatura: 303HS
Kennzeichnung/Marking/Marquage

Pos. nr. Pos. nr. Item nr. Nr. de poste	Oggetto Gegenstand Product description Descrip. du produit	Dimensioni - in Abmessungen Dimension Dimension	Tolleranza Tolerance Allowance Tolerance	Lunghezza - in Länge Length Longueur	Colata Schmelze Heat Coulée	Pezzi Stückzahl Pieces Pièces	Peso - LB Gewicht Weight Poids	Lotto nr. Losnr. Lot nr. Lot nr.
0150	Hexagon	1,0000	484-09	144 / 151	254397		2.601	108304980

TEST ALLO STATO DI FORNITURA

TEST	Prova/Prüfung Specimen/Prüfung Lang. diam. Ø/mm Ø/mm Ø/mm Ø/mm Ø/mm Ø/mm	°F	Prova Prüfung Lang. diam. Ø/mm Ø/mm Ø/mm Ø/mm Ø/mm	Sneramento Bruchgrenze Yield Stress Überschneidung Rp 0,2% k.s.l.	Sneramento Bruchgrenze Yield Stress Überschneidung k.s.l.	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm k.s.l.	Allungamento Bruchdehnung Elongation Allongement E 4d %	Strizione Schnitzung Reduction of area Étirage RA %	Resilienza Kerbschlagarbeit Impact Value Resilience	Durezza Härte Hardness Dureté HB
Valori richiesti 1 Anforderungen/Required values Valeurs demandées		min max								140 255
A	12,5	68 L		73		102	42		53	240

TEST	min	max
A Grain size for ASTM E112		5

1) L=longitudinale/mg, T=transversale/quer, O=Temperaturwert/garant

Mechanical properties according to ASTM A370.

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata Heat Schmelze/Coulée	min 0,030 max 0,050	0,20 1,00	1,50 2,00	17,00 19,00	0,80	1,00	8,00 10,00	0,100	0,32	0,4000	-	-	-	-
	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	Zr %	-	-	-
254397	0,040	0,55	1,63	17,45	0,44	0,53	8,11	0,11	0,032	0,32	0,0067	-	-	-

Produced without class I-II Ozone depleting substances.
Solution heat treated free from continuous carbide network.
Annealing temperature: 1940°F for 1 h/water.
Micro and macro etch test: OK
Material is DFARS Compliant

Sono state soddisfatte tutte le condizioni richieste
Die gegebenen Anforderungen sind in Anbetracht erfüllt
The material has been finished in accordance with the requirements
Le matériau a été traité conforme aux exigences

Controllo antimiscelanza: OK
Verwechslungsprüfung: spezialanalytisch durchgeführt
Anbindeprüfung durchgeführt: OK
Controlle antimélange test: r.s.l.

Controllo visivo e dimensionale: soddisfatta le esigenze
Beobachtung und Ausmessung: ohne Beanstandung
Visual inspection and dimensional check: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.
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1, p., 4.3 by TUEV and LLOYD'S

Vicenza, 22/07/11 VCO006 (Mod. NCE2)	Il collaudatore di stabilimento / der Werkssachverständiger / Works inspector / L'agent d'usine M. Rizzotto	Pagina - 1 di 2
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Acciaierie Valbruna S.p.A.



QUALITY MANAGEMENT SYSTEM
CERTIFIED BY LLOYD'S REGISTER

**CERTIFICATO DI COLLAUDO
ABNAHMEPRUEFZEUGNIS
INSPECTION CERTIFICATE
CERTIFICAT DE RECEPTION
EN 10204 (2005) , 3.1**

38100 VICENZA (Italia) - Viale della scienza, 25 z.l.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Clients / Besteller/Purchaser/Client
VALBRUNA STAINLESS INC.
2400 TAYLOR STREET WEST
46801-FORT WAYNE, IN 46801-US

Produttore: **ACCIAIERIE VALBRUNA S.P.A.**
Hersteller/fabrik/Usine productrice

Stato di fornitura: - Annealed Cold Drawn
Lieferzustand/Delivery state/Etat de livraison

Avviso di Spedizione: D-V/11024356
Lieferanzeige/Packing list/B.L.

Ordine nr: 30759 STOCK CAROL STR
Bestell/Your order/Commande

Tipo di Elaborazione: E+AOD
Ernechtungsart/Meiting process/Mode d'elaboration

Certificato nr: MEST084777/2011/
Prüfung/Test/Essai

Confirma ordine nr: EI11005872
Werkz/Our Order/Ref nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice



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



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 law. 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.

METALS USA - MPLS
SO NO

SOLD TO Doering Co

PO NO 121039
DATE 7-18-12

Vicenza, 22/07/11
VCC008
(Mod. MCE2)

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

M. Rizzotto

Pagina - 2 di 2

Acciaierie Valbruna S.p.A.



QUALITY MANAGEMENT SYSTEM
CERTIFIED BY LLOYD'S REGISTER

CERTIFICATO DI COLLAUDO
ABNAHMEPRUEFZEUGNIS
INSPECTION CERTIFICATE
CERTIFICAT DE RECEPTION
EN 10204 (2005) , 3.1

39100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Clients / Besetzer/Purchaser/Clients
VALBRUNA STAINLESS INC.
2400 TAYLOR STREET WEST
48801-FORT WAYNE, IN 46801-US

Produttore: **ACCIAIERIE VALBRUNA S.P.A.**
Hersteller/fabrikant/Usine producer

Avviso di Spedizione: D-VH 1024356
Lieferanzeige/Posting letter/L

Certificato nr: MEST084776/2011/
Prüfung/Teil/Essai

Conferma ordine nr: EI11005872
Werk/Our Order/Ref. nr.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine producteur



Funzione del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Polign of l'essayeur



Stato di fornitura: - Annealed Cold Drawn
Lieferzustand/Delivery state/Etat de livraison

Tipo di Elaborazione: E+AOD
Erneinigungsart/Leitng process/Mode d'elaboration

P.O. ROL 57147

Specifiche:
Anforderungen / Requirements / Exigences

VSI 0 303 HS A,C,F
AMS 5640 U TYPE1 A
ASTM A320 2010A B8F (1)
MIL-S-862 B/1 303

AISI 303
ASME SA320 2010 B8F (0)
ASTM A370 2010 .
QQ-S-764 B/2 303 A

AMS 5640 U S30300 A
ASTM A314 2008 S30300
ASTM A562 2005 S30300 A

(0) SEC. II PT. A 2010 EDITION
(1) Chemical analysis only.

(0) Chemical analysis only.

Qualità: 303HS
Werkstoff/Grade/Qualité

Marca: MV188ZHS MAXIVAL

Punzonatura: 303HS
Kennzeichnung/Marking/Marqueage

Pos. nr. Pos. nr. Nr. de poste	Oggetto Object description Descr. du produit	Dimensioni - In Abmessungen Dimension Dimension	Tolleranza Toleranz Aflorance Tolerance	Lunghezza - In Länge Longueur Longueur	Colata Schmelze Fusil Coulée	Pezzi Stückzahl Pièces Pièces	Peso - LB Gewicht Poids Poids	Lotto nr. Lotnr. Lot nr. Lot nr.
0150	Hexagon	1,0000	484-09	144 / 150	253416		2,553	106805280

TEST ALLO STATO DI FORNITURA										
Test on delivery condition Prüfung auf Lieferbereitem produkt test à l'état de fourniture Prueba sobre el material así como entregado										
TEST	Provetta/Probende Beschreibg/Description Besch. Obj. / Dén. / Werk. Obj. / Tit. / Leng. / Dim. / mm	°F	Prova Saggio Essai Essai	Sneramento Biegeversuch Yield Stress Limite elastico Rp 0,2% k.s.l.	Sneramento Biegeversuch Yield Stress Limite elastico	Resistenza Zugfestigkeit Tensile strength Résistance à traction Rm k.s.l.	Allungamento Bruchdehnung Elongation Allongement E 4d %	Strizione Biegeprüfung Reduction of area Striction RA %	Resilienza Kerbschlagenergie Impact Value Resilience	Durezza Härte Hardness Dureté HB
Valori richiesti 1 Anforderungen/Required value Valeurs demandées		min								140
A	12,5	68	L	73		101	39	52		255
		max								238

TEST	min	max
A Grain size for ASTM E112		5

Mechanical properties according to ASTM A370.

1) L-Longitudinale/Längs, T-transversale/quer, Q-Tangenziale/tangentiel

Analisi chimica

Chemische Zusammensetzung/Chemical Analysis/Analyse chimique

Colata Heat Schmelze/Coûlée	min 0,030 max 0,050	0,20 1,00	1,50 2,00	17,00 18,00	- 0,80	- 1,00	8,00 10,00	- 0,100	0,32 -	- 0,4000	- -	- -	- -
	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	Co %	P %	S %	Zr %		
253416	0,037	0,38	1,81	17,45	0,57	0,54	8,12	0,11	0,030	0,32	0,0067		

Produced without class I-II Ozone depleting substances.
Solution heat treated free from continuous carbide network.
Annealing temperature: 1940°F for 1 h/water.
Micro and macro etch test: OK
Material is DFARS Compliant

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

Controllo antimiscelazione: OK
Verwechslungsprüfung: spezifikationsgerecht durchgeführt
Anmixing testing performed: OK
Contrôle antimélange test: r.s.s.

Controllo visivo a dimensionale: soddisfatte le esigenze
Beobachtung und Abmessung: ohne Beanstandung
Visual inspection and dimensional check/satisfactory
Contrôle visuel et dimension: 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.
The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1, p. 4.3 by TUEV and LLOYD'S

Vicenza, 22/07/11 VCC006 (Mod. MCE2)	Il collaudatore di stabilimento / der Werkssachverständige / Works Inspector / L'agent d'usine <i>M. Rizzotto</i>	Pagina - 1 di 2
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Acciaierie Valbruna S.p.A.



QUALITY MANAGEMENT SYSTEM
CERTIFIED BY LLOYD'S REGISTER

CERTIFICATO DI COLLAUDO ABNAHMEPRUEFZEUGNIS INSPECTION CERTIFICATE CERTIFICAT DE RECEPTION EN 10204 (2005) , 3.1

38100 VICENZA (Italia) - Viale della scienza, 25 z.i.
Stab.: 39100 BOLZANO (Italia) - Via A. Volta, 4

Cliente / Dealer/Purchaser/Cient
VALBRUNA STAINLESS INC.
2400 TAYLOR STREET WEST
46801-FORT WAYNE, IN 46801-US

Produttore: **ACCIAIERIE VALBRUNA S.P.A.**
Hersteller/Usine producer

Stato di fornitura: - Annealed Cold Drawn
Lieferzustand/Delivery state/Etat de livraison

Avviso di Spedizione: D-VII 1024356
Lieferanzeige/Packing list/E.L.

Ordine nr: 30759 STOCK CAROL STR
Bestell-/Your order/Commande

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

Certificato nr: MEST084776/2011/
Prüfung/Test/Essai

Conferma ordine nr: EI11005872
Werkz/Our Order/Ref. n.

Marchio di Fabbrica:
Zeichen des Lieferwerkes
Trade mark
Sigle de l'usine productrice



Punzone del Collaudatore:
Stempel des Werkssachverständigen
Inspector's stamp/Plaqueon de l'inspecteur



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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.

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METALS USA - MPLS
SD NO

SOLD TO *Doering Co*
PQ NO *121039*
DATE *7-18-12*

Vicenza, 22/07/11
VCO008
(Mod. MCE2)

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

M. Rizzotto
M. Rizzotto

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