

Thyssenkrupp PO# 79967 W# 6750 CPA 16 FQF40

-4 PCS
 OD .19.300"
 hb 2.750"



CARRS STAINLESS STEELS
 A Division of ELG Harrel Metals Ltd.
 Wadsley Bridge, Sheffield, S6 1LL, England

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Purchaser - Besteller - Acheteur ESP Specialty Steel Products 7404 Railroad Lane Houston TX 77068 USA	Inspection Certificate: Abnahmeprüfung: Certificat de réception: DIN 50049 3.1 EN 10204	Cert No: Zugfest Nr: Cert No: 142623	Date: Datum: Date: 28/03/15	
	Customer Order No. Kundenbestellnummer: No. de Commande Client: P03704	Product Description - Beschreibung der Erzeugnisse - Description du Product 19.125h Dia. x 17600 lbs Electric Melt & Vacuum Degassed Stainless Steel Solution Annealed Forged SS1 REV 5 316L/316F/316L ASTM A276-15a, A479-14, A192-14b, A484-14a, A193-14 B8M CL1 ASME SA192, ASME SA479, ASME SA193 B8M CL1 SAE AMS-QQ-S-783B, AMS 5653, AMS 5648, NACE MR0175, NACE MR 0103		17165 LB 7766 Kgs.
	Our Order No. Unsere Auftr.-Nr.: notre Comm. No: 53672 W145570/00			

Chemical Analysis - Chemische Analyse - Analyse Chimique													
Cast No Schmelznummer No. de Caille	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	N	Co		
CD24893	.021	.35	1.38	.037	.023	17.04	2.03	10.1	.37	.053	.20		

Heat Treatment - Wärmebehandlung - Traitement Thermique: Solution annealed @ 1940 F for 5 hours & Water Quenched

Mechanical Properties - Mechanische Eigenschaften - Caracteristiques Mechanique									
Test No Probe Nr. No. d'Essai	Test dimension Probestaessung Dimension	Proof Stress Streckgrenze Limite d'Elasticite 0.2%	Rp L0%	Tensile strength Zugfestigkeit Resistance a la traction	Elong % A Dehnung % Allongement % L0.5D - 4D	Elong % Z Dehnung % Striction %	Impact Kerbschlagempfindl. Respecto	Hardness Hart Durete	
MP4510	19.125" L	284 MPa	309 MPa	539 MPa	60.5 %	67 %	76 %	130 HB	1

This report is a copy of the original
 Mill certificate and verifies that
 the product meets the requirements
 as originally ordered by
 ESP Specialty Steel Products
 Date: 4/23/15. Verified: [Signature]

Remarks - Bemerkungen - Remarques
 Ultrasonically tested to ASTM A368 and found satisfactory
 Inter-crystalline corrosion test to ASTM A262-E satisfactory
 Inter-crystalline corrosion test to ASTM A262-A satisfactory
 Grain size to ASTM E112 - 00
 Microstructure and macrostructure see attached sheet.
 No welding performed
 No contact with Mercury or radioactive elements
 Nominal Size is 19" dia
 Material produced by ELG Carrs Stainless Steels in the United Kingdom
 Hot Working Reduction - 2.7:1

The material detailed has been manufactured and tested in accordance with the Quality Assurance system ISO 9001:2008 and the requirements of the specification/order.

Signed: [Signature]
 Chris Syll - Quality Manager
 Approved signatory for ELG Carrs Stainless Steels

i-g Apr 25/16
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