

C110277



CARRS STAINLESS STEELS

A Division of ELG Haniel Metals Ltd.
Wadsley Bridge, Sheffield, S6 1LL, England

Telephone: 0114 285 5856
Fax No.: 0114 285 4952
Website: <http://www.elgcarrs.co.uk>
e-mail: info@elgcarrs.co.uk

Purchaser - Besteller - Acheteur ESP Specialty Steel Products 7404 Railhead Lane Houston TX 77086 USA	Inspection Certificate: Abnahmeprüfzeugnis: Certificat de réception:	DIN 50049 3.1 EN 10204	Cert No: Zeugnis Nr: Cert No:	137355	Date: Datum: Date:	02/01/14
	Customer Order No: Kundenauftragsnummer: No. de Commande Client:	PO2879	Product Description - Beschreibung des Erzeugnisses - Description du produit: 19.125in Dia. x 11000 lbs Electric Mill & Vacuum Degassed Stainless Steel Solution Annealed Forged SS1 REV 5 316/316L/F316/F316L ASTM A276, A479, A192/SA182, A484, ASME SA479, SA193/A193.B8M CL1 SAE AMS-QQ-S-763B, AMS 5663, AMS 5648, NACE MR0175, NACE MR 0103			
Our Order No: Unsere Auftr.-Nr: notre Comm. No:	51466	W14123700				

Chemical Analysis - Chemische Analyse - Analyse Chimique													
Test No Schmelznummer No. de Cotee	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	N	Co		
CD23893	.012	.524	1.46	.024	.021	16.88	2.27	10.11	.183	.029	.141		

Heat Treatment - Wärmebehandlung - Traitement Thermique
Solution annealed @ 1940 F for 3 hours & Water Quenched

Mechanical Properties - Mechanische Eigenschaften - Caracteristiques Mechanique										
Test No Probe Nr No. d'Essai	Test dimension Probenabmessung Dimension	Proof Stress Streckgrenze Limite d'Elasticite 0.2%	Rp 1.0%	Tensile strength Zugfestigkeit Resistance a traction	Elong % A Bruchdehnung % Akomponent % Lo SD 4D	Red of Area % Z Bruchdehnung % Streckung %	Impact Kerbschlagzähigkeit Resilience	Hardness Harta Durete		
280765	19.125"	L	241 MPa	272 MPa	525 MPa	63 %	68 %	75 %	193 HB	1

Remarks - Bemerkungen - Remarques

Ultrasonically tested to ASTM A308 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 - Av2
 Microstructure and macrostructure see attached sheet.
 No welding performed
 No contact with Mercury or radioactive elements
 Nominal Size = 19" dia
 Hot Working Reduction - 3.19:1
 Material produced by ELG Carrs Stainless Steels in the United Kingdom

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:
 Chris Ryall - Quality Manager
 Approved signatory for ELG Carrs Stainless Steels