

WERKSZEUG

 TEST REPORT
 nach / as per: EN

 Svenska Elektrod AB
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 SCHWEDEN

Nr. /No. : 1-2005-03-808249

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Bestell-Nr.	Order No.	45-54754	vom / of	09.03.2005	100052
Auftrags-Nr.	Works order	1001162524			
Lieferschein/Position	Dispatch note/position	2001242188 / 0010	vom / of	10.03.2005	
Prüfgegenstand	Test object	Stabelektrode / covered electrode			25090 Y2055A20
Handelsname	Trade designation	Thermanit 19/15 H			
Normbezeichnung	Standard classification	EN 1600: E 20 16 3 Mn N L B 22		AWS A5.4-92: E310-15 (mod.)	
Produktkennzeichnung	Marking of product				
Abmessung	Dimension	3,20 x 350 mm			
Serien-/Chargen-Nr.	Lot-/Heat No.	2111089			
Liefermenge	Quantity delivered	110 KG			
Anforderungen	Requirements				

Chemische Zusammensetzung in % Chemical composition in %		Reines Schweißgut / all-weld metal														
Serie/Charge Heat No.	C	Si	Mn	P	S	Cr	Mo	Ni	N2	Cu						
2111089	0.040	0.20	5.97	0.013	0.001	19.65	2.93	16.77	0.170	0.05						

Zugversuch Tensile test				nach according to				EN 10002-1				Probenvorbereitung Specimen preparation				EN 876			
	Prüftemp. T Test temp. °C	Streckgrenze R _{eh} Yield point MPa	Dehngrenze R _p Yield strength 0.2% MPa 1.0%	Zugfestigkeit R _m Tensile strength MPa	Dehnung A Elongation % Lo=5d	Einschnürung Z Reduction %	Bemerkung Remarks												
Minimum	20		430	450	650	30													
Maximum																			

Kerbschlagbiegeversuch Impact test			nach according to			EN 10045-1			Probenvorbereitung Specimen preparation			EN 875 VWT 0/b		
	Prüftemp. T Test temp. °C	Kerbschlagarbeit Mindestwerte KV Absorbed energy minimum values J	Mittelwert Average J	Lat. Breitung Lateral expansion mm	Kristalliner Bruchanteil Shear fracture %	Bemerkung Remarks								
	20	80												

 Bemerkung
 Remarks

 Ort / Town
 Datum / Date
 Hamm
 16.03.2005

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 Abnahmebeauftragter
 Authorized inspection representativ
 Groß

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 DEUTDEDE410 DE96 4107 0049

 Konto-Nr.
 0501 3149 01
 0066 0993 00

 Sitz der Gesellschaft
 Hamm HRB 2136
 USt-IDNr. DE 812113327

Thermanit 19/15 H

Basic covered electrode

Classifications	EN 1600	AWS A 5.4	Mat. No.
	E 20 16 3 Mn N L B 2 2	E316L-15 (mod.)	1.4455

Characteristics and field of use

Stainless; resistant to intercrystalline corrosion and wet corrosion up to 350 °C (662 °F). Corrosion resistant similar to low carbon CrNiMo(Mn,N) steels/cast steel grades. Seawater resistant, good resistance to nitric acid. Huey test in acc. ASTM A 262-64: 3.3 µ / 48 h max. (0.54 g/m²h), selective attack 200 µm max. Non magnetic (permeability in field of 8000 A/m 1.01 max.).

Particularly suited to corrosion conditions in urea synthesis plants for welding work on steel X 2 CrNiMo 1812 and the overlay side of Thermanit 21/17 E weld claddings. Well suited for joining and surfacing applications with matching austenitic CrNi(N) and CrNiMo(Mn,N) steels/cast steel grades.

Materials

TÜV certified parent metals
X2CrNiMoN17-13-3 (1.4429), X5CrNiN18-9,
X1CrNiMoTi18-13-2 (1.4561), 10CrNiTi18-10 (1.6903),
cryogenic 3.5 - 5 % Ni steels

Typical analysis in %

C	Si	Mn	Cr	Mo	Ni	N
<0.04	<0.50	6.0	20.0	3.0	16.5	0.18

Mechanical properties of the weld metal according to EN 1597-1 (min. values at RT)

Heat-treatment	Yield strength	Yield strength	Tensile strength	Elongation	Impact values
	0.2% N/mm ²	1.0% N/mm ²	N/mm ²	(L ₀ =5d ₀) %	in J CVN
AW	430	450	650	30	80

Structure

Austenite, part ferrite 0.6 % max.

Welding instruction

Materials	Preheating	Postweld heat treatment
Matching/similar steels CrNi(N) steels/cast steel grades and cryogenic CrNi(N) steels/cast steel grades	None	None
21-17E claddings/ high temperature steels/ cast steel grades	According to parent metal 150 °C (302 °F) max.	In case of excessive hardening of the parent metal, stress relieving at 510 °C (950 °F) 20 h max., annealing above 530 °C (986 °F) only prior to welding the last pass



Welding position

Polarity = +

Approvals

TÜV (Certificate No. 1813)
Stamicarbon
Snamprogetti
DB (Reg. form No. 30.132.12)

Packaging, weights and amperages	Dimensions (mm)	pcs./pack	kg/pack	Amperage A
	2.5 x 300	260	4.1	55- 75
	3.2 x 350	190	5.5	70-110
	4.0 x 350	120	5.3	90-140