

High Temperature Alloys

ALLOY 22H HEAT RESISTANT AUSTENITIC STAINLESS STEEL

Alloy type

0.5%C-28%Cr-50%Ni-5%W cast high temperature alloy.

Materials to be welded

DIN: 2.4879 G-NiCr28W G-X45NiCrWSi 48 28

Proprietary cast alloys:

22H (Duraloy) Super 22H (Duraloy; +2%Co) Paralloy H48T (Doncasters Paralloy) Centralloy 4879 (Schmidt & Clemens – Centracero) Marker G4879 (Schmidt & Clemens) Pyrotherm G 28/48/5W (Pose-Marre) HR23 (Cronite) Lloyds T75 (LBA) Thermax 70 (Sheepbridge) Manaurite 50W (Manoir Industries) Thermalloy T75 (Manoir Electroalloys)

Applications

This electrode is designed to match similar high carbon cast alloys originating from Blaw-Knox (Now Duraloy) alloy 22H.

The high carbon 28%Cr-50%Ni-5%W matrix provides excellent hot strength and oxidation resistance at typical service temperatures of 950-1250°C. High nickel gives the alloy good resistance DATA SHEET C-80

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to carburisation and under oxidising conditions high chromium provides useful resistance to sulphidation.

Applications include highly stressed **furnace parts**, **sintering** and **calcining muffles**, **cement kiln components resistant** to **hot abrasion**, **radiant tubes** and **pyrolysis coils**.

Microstructure

The as-welded microstructure consists of high alloy austenite with primary eutectic and secondary carbides.

Welding guidelines

Preheat is often recommended owing to the low ductility of this alloy, coupled with high strength and residual stress levels of multipass welds. For thicker sections, preheat of 300°C or more may be advisable.

Related alloy groups

In an alternative alloy for similar applications about 15%Ni is replaced with cobalt, see data sheet C-70.

Products available

Process	Product	Specification
MMA	Thermet 22H	



Product description	All-positional basic MMA electrode designed to match similar cast alloys. Basic flux system with alloy additions on high purity NiCr core wire. Recovery is about 140% with respect to core wire, 65% with respect to whole electrode.											
Specifications	There ar	re no na	tional sp	pecificati	ions for th	nis electr	ode.					
ASME IX Qualification	QW432 F-No											
Composition	min	C	Mn	Si	S	Р	Cr	Ni	W	Fe		
(weid metal wt %)	max	0.40 0.60	0.5 1.5	0.5 1.2	0.020	0.030	30.0	47.0 54.0	4.0 6.0	 bal		
	typ	0.50	1	0.7	0.006	0.010	28	51	5	14		
All-weld mechanical	As welde	ed					min *	typical	**			
properties		strength			M	Pa	440	780				
	0.2% Pit	ion on 4	4		IVI	1Pa		590 7				
	Elongati	ion on 50	4			70 0/2		6				
	Reductio	on of are	a			%		6				
	Hardnes	SS			H	IV		270				
	*	Minimu	m value	s for DI	N 2.4879	castings	•					
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