G-TECH 35.45Nb

SMAW

HIGH TEMPERATURE ALLOYS
35.45

DESCRIPTION

Basic coated electrode

The weld deposit is high carbon 35Cr-45Ni-1Nb to match heat-resisting castings with great oxidation and carburization resistance for applications up to 1150°C. In the as-welded condition the multi-pass weld metal microstructure consists of austenite with primary eutectic and secondary precipitated carbides. For the thicker section materials a preheat may prove beneficial owing to the low ductility of the material. Typical applications include tubes for steam cracking pyrolysis transfer lines, pyrolysis furnace outlet lines and steam reformer headers in the petrochemical industry.

SPECIFICATIONS

EN ISO 3581-A	EZ 35 45 Nb B 32	**Shielding**	-
Positions	PA, PB, PC, PD, PE, PF	**Current**	DC+;
Packaging Type	Carton box		

PREN

35.165

CHEM. COMP. %	DEFAULT
C	0.45
Mn	0.9
Ni	46
Cr	35
Nb	0.9
Mo	0.05
Si	1.2
Ti	0.02

MECHANICAL PROPERTIES	PRODUCT
Tensile strength R_m MPa	760
Yield strength $R_{p0.2}$ MPa	540
Elongation A (L_0=5d_0) %	6

WELDING PARAMETERS	2.5 mm	3.2 mm	4.0 mm
Ampere	60A - 90A	80A - 110A	100A - 150A
Voltage	-	-	-
Packaging	55 pcs/kg	30 pcs/kg	19 pcs/kg
Packaging Type	Carton box	Carton box	Carton box

NOTES

Pcs/kg is indicative, actual number may vary ± 5%.

V 01/2024

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35.45

DESCRIPTION

APPLICATION

These alloys offer exceptional resistance to carburization and oxidation, surpassing alloys with a 25% Cr-35% Ni composition when used at temperatures up to 1150 °C. However, there is a slight decrease in creep resistance. **Main applications include use in pyrolysis coils and reformer tubes in the petrochemical industry.** For significant thicknesses, preheating is recommended due to the material's low ductility. Generally, no post-weld heat treatment (PWHT) is required.

ALLOY TYPE

High carbon 35Cr-45Ni-1Nb to match heat-resisting castings, which are often micro-alloyed with Ti and Zr.

MICROSTRUCTURE

In the as-welded condition the multi-pass weld metal microstructure consists of austenite with primary eutectic and secondary precipitated carbides.

MATERIALS

PROPRIETARY: Paralloy H46M (Doncasters Paralloy), Manaurite® XT, XTM (Manoir Industries), Centralloy® ET45 Micro (Schmidt + Clemens), Lloyds T80, Lloyds T75MA (LBA), E3545Nb-MA (Engemasa)

WELDING & PWHT

Queste leghe richiedono un controllo preciso dei parametri di saldatura per garantire cuciture di qualità. L'utilizzo di materiali di apporto appropriati e il mantenimento di un ambiente di lavoro pulito possono influenzare significativamente l'integrità della saldatura. È cruciale monitorare le temperature interpass e l'apporto di calore per mitigare potenziali problemi legati alla fessurazione a caldo e alla stabilità della microstruttura. In casi specifici, l'impiego di velocità di raffreddamento controllate e lente può migliorare le proprietà meccaniche finali delle saldature, proteggendo da distorsioni indesiderate e tensioni residue.

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