



EutecTrode 690 SF

For difficult-to-weld steels

Description

Specifically designed for joining and buttering a wide range of steels which are either of unknown composition or considered "difficult-to-weld" and where matching electrodes do not exist. These steels include: air hardening steels, high carbon and alloyed steels, 12-14% manganese steel (Hadfield steel) and certain wear plate materials which require crack resistant high strength deposits.

Also ideal for the "buttering" of higher carbon and alloy steels prior to final hard overlays.

A rutile coated electrode providing highly alloyed deposits tolerant to dilution effects. The dual phase microstructure of delta ferrite in an austenitic matrix optimises hot crack resistance and high tensile strength whilst minimising the risk of hydrogen embrittlement in the heat affected zone.

This is particularly important when joining alloy steels in dissimilar combinations.

Many steels may be welded using reduced preheat levels. Deposits will, under impact conditions, work harden to over 300 HV. Also suitable for buttering layers on components which are to be subsequently wear faced.

Deposits also offer resistance to oxidation and scaling at elevated temperatures for surfacing applications. However, for joining applications, service temperatures must not exceed 450°C.

Offers easy contact weldability and exceptional deposition qualities using either AC or DC for flat, horizontal and vertical up positions. Diameters up to and including 3.2 mm are suitable for positional work.

The slag releases easily exposing clean, uniform and finely rippled weld beads, and produces minimal spatter losses.

Technical data

Standard

DIN 8556 E 1.4337 R 23

Mechanical properties

Tensile strength R_m : 780-860 N/mm²

Yield strength $R_{p0.2}$: 620 N/mm²

Elongation A_5 : 25%

Hardness: 200-250 HV₃₀

Approval

DB Nr 30.024.04

Procedure for use

Preparation

Areas to be welded or overlaid should be free from oil, grease and other contaminants. For some repair applications, defects and cracks can be removed using ChamferTrode 03/04 gouging electrodes prior to final preparation.

Preheating

Suitable for welding a wide range of high strength steels with reduced preheat levels. Where higher preheats are preferred, ensure that a maximum interpass temperature of 450°C is not exceeded. Where preheat is applied, parts should be heated to a uniform temperature and maintained throughout the complete welding operation.

Do not preheat 12-14% manganese steels (Hadfield steel). This steel is prone to embrittlement and cracking if overheated. Therefore adopt a balanced welding sequence to reduce heat input and localised overheating.

Welding technique

Maintain a near vertical electrode angle to the line of joint and a short arc length.

Ensure that each weld deposit is thoroughly cleaned and free from slag entrapment. Parts which have been preheated should be cooled evenly down to room temperature, i.e. avoid chilling effects and draughts.

Welding parameters

Current = (+) / ~

Ø Electrode (mm)	Amperage (A)
2.0	30-50
2.5	40-70
3.2	60-100
4.0	90-130
5.0	110-180

Storage and handling

Safely stack and store electrodes in a dry location to avoid humidity pick up or coating damage. Should electrodes become damp, the following re-drying conditions before use are recommended: 350 °C/1hr or 300°C/2 hr.

Hinweise für die Arbeitssicherheit

Die nationalen Richtlinien und Vorschriften über Arbeitssicherheit sind zu beachten.

Allgemeine Arbeitnehmerschutzverordnung (AAV), Arbeitnehmerschutzgesetz (ASchG).

Die in dieser Information genannten technischen Produkteigenschaften basieren auf Eutectic+Castolin-Qualitätsstandards und Verarbeitungsrichtlinien. Davon abweichende Verarbeitung oder Verwendung kann die Eigenschaften und Ergebnisse beeinflussen.

Änderungen, die dem technischen Fortschritt dienen, behalten wir uns vor.



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