Steels

Pioneering Industrial Sustainability
www.castolin.com

Xuper 660NH

Manual Metal Arc Electrode With Double Coating For Joing Of Structural Steel

DESCRIPTION:

Special maintenance and repair welding electrode with advanced bypherical coating offering the benefits of a rutile and of a basic coating. The deposit is smooth and regular. Very stable arc with transfer in fine droplets with low spatters. Good penetration. Adapted to contact welding. Approved for applications between - °40C and °350C.
Its mechanical properties are higher than most of structural steels.

- Low heat and hydrogen input that minimizes harmful base metal transformations.
- Exceptional all- position weldability
- Crack-free welding deposits
- Quick freezing easy slag removal
- High energy arc concentration for good penetration even in M&R condition
-

Product Details

- Manual Metal Arc Electrode with double coating.

PROCEDURE FOR USE

Preparation: Clean the area to be welded. Adapt the size of the electrode and amperage to the size of the part.
Preheating :Depends on the steel›s Carbon Equivalent and ti workpiecet size, thickness and the geometry. Castolin Eutect recommends:

CE < 0.2 : preheating not essential.
CE 0.4 - 0.2: preheating °200-100C
CE 0.8 - 0.4 : preheating °350-200C.
Note that %14-12 Mn steels should never be preheated and that the workpiece temperature during welding should be kept below °250C.

Welding:Employ a near vertical electrode angle and maintain a short arc length. (Avoid too long arc which could result in weld porosity). When re-striking the arc, commence approximately 12-10 mm back from the previous weld crater and progress forward, thus ensuring complete coverage of the crater area. Deposit either as stringer beads or minimum weaving.

Clean each weld bead thoroughly, removing all slag residues prior to commencing subsequent deposits. Do not attempt to use electrodes if suspected of being damp or electrodes with damaged flux coatings.
Welding parameters: Welding current: = (+) / ~

Welding positions

PA, PB, PC, PD, PE, PF,according to ISO 6947

TYPICA L APPLICATIONS:

For joining of non or low alloyed steel and high resistance fine grained steels. The typical application are: tack welding. in situ ,workshop or repair welding in machine construction and shipyards. for containers and pressure vessels.

TECHNICAL DATA:

- Tensile Strength: 655 N/mm2 (95,000 psi)
- Yield Strength: 448 N/mm2 (65,000 psi)
- Current & Polarity: AC/DC (+)

DIAMETER	AMPERAGE
2.5mm	70-90
3.2mm	100-130
4.0mm	130-170
5.0mm	200-235

Note: For optimum result use the lowest amperage practical

EutecTrode 670

A High Alloy Content Electrode For Welding Steels Of Unknown Composition And Dissimilar Steels

DESCRIPTION:

EutecTrode 670 has been specially formulated to meet the critical metallurgical demandswhen joining stainless and mild steels of unknown composition. Its composition also makes it an ideal candidate product when welding dissimilar steels and when such steels need scaling resistance up to °1800F.

- Fully Austenitic structure helps retain mechanical properties
- Excellent in Salt-rich environments
- Corrosion Resistance: High resistance to corrosion and spalling
- Current: Suitable for DCEP (+) and AC currents
- Temperature Resistance: Effective in environments with high temperatures up to °1800F

Product Details

- High alloy content electrode, used for welding steels of unknown composition and dissimilar steel

APPLICATIONS:

Use in marine applications such as salt-water discharge pumps, desalination equipment, furnace baskets that work in both carburizing and reducing environments, salt baths used in drawing and tempering operations.

TECHNICAL DATA:

- Tensile Strength: 655 N/mm2 (95,000 psi)
- Yield Strength: 448 N/mm2 (65,000 psi)
- Current & Polarity: AC/ DC (+)

PROCEDURE FOR USE

- Preparation: Clean weld area of scale and/or oxide. Angle prepping normally involves close-butts and infrequently bevel preparations. If needed, a °60 bevel is acceptable. Preheat and inter-pass temperatures will depend on the grade of steel, if known. Unknown grades should be nominally preheated within a -200 °300F range.
- Technique: A short, non-contact technique is recommended for both fillet and butt welding. Use a slightly longer arclength for bead-on-plate welding. Deposit stringer beads or 2x to 3x weave beads. Do not weave more than three times the electrode diameter otherwise slag interference will be encountered.
- Post-welding: Parts which have been preheated should be wrapped or covered with heat – retardant material to help with slow cooling.

DIAMETER	AMPERAGE
3.2mm	70-100
4.0mm	110-150

Note: for optimum results use the lowest amperage practical.

EutecTrode 680

Specially Formulated High-Alloy Electrode For Welding Dissimilar, Unknown And Problem Steels

DESCRIPTION:

EutecTrode 680 is a high-alloy electrode designed for critical maintenance and repair applications. It is suitable for a wide range of high alloy steel components, providing maximum repair reliability and extended part service life. The electrode is known for its superior crack resistance and high mechanical properties, ensuring an excellent in-service Maximum Safety Margin (MSM).

- Repairs to most high alloy steel components
- Maximum repair reliability
- Extended part service life
- Reduced inventory carrying costs
- Improved capital & equipment management

Product Details

- Manual Metal Arc Electrode, specially formulated for welding dissimilar, unknown, and problem steels

APPLICATIONS

- Repairs to most high alloy steel components
- Jigs, molds, dies, leaf springs
- High-strength repairs to earthmoving, mining, and constructional equipment chassis
- Undercarriage repairs, composite die fabrications, manganese steel components

PROCEDURE FOR USE

Preparation: Clean weld area of scale and/or oxide. Angle prepping normally involves close-butts and infrequently bevel preparations. If needed, a °60 bevel is acceptable. Preheat and inter-pass temperatures will depend on the grade of steel, if known. Unknown grades should be nominally preheated within a -400 °500F range.

Technique: A short, non-contact technique is recommended for both fillet and butt- welding. Use a slightly longer arc length for bead-on-plate welding. Deposit stringer beads or 2x to 3x weave beads. Do not weave more than three times the electrode diameter otherwise slag interference will be encountered.

Post Welding: Parts which have been preheated should be wrapped or covered with heat-retardant material to slow cool parts...critical for Tools & Dies.

TECHNICAL DATA:

Tensile strength:830 N/mm2 (120,000 psi)

Yield strength: 545 N/mm2 (**79,000 psi)**

Current polarity:AC/DC (+)

DIAMETER	AMPERAGE
2.5mm	55-70
3.2mm	75-95
4.0mm	90-115
4.8mm	135-190

Note: For optimum result use the lowest amperage practical

Xuper 680 CGS

High-Alloy Electrode For Welding Dissimilar, Unknown And Problem Steels

DESCRIPTION: Xuper 680 CGS is a high-alloy electrode designed for critical maintenance and repair applications. It is suitable for a wide range of high alloy steel components, providing maximum repair reliability and extended part service life. The electrode is known for its superior crack resistance and high mechanical properties, ensuring an excellent in-service Maximum Safety Margin (MSM).

Product Details

- Repairs to most high alloy steel components
- Maximum repair reliability
- Extended part service life
- Reduced inventory carrying costs
- Improved silicon content for grain size control and weldability

High-Alloy Electrode for welding dissimilar, unknown, and problem steels

APPLICATIONS

- Repairs to most high alloy steel components
- Jigs, molds, dies, leaf springs
- High-strength repairs to earthmoving, mining, and constructional equipment chassis
- Undercarriage repairs, composite die fabrications, manganese steel components

PROCEDURE FOR USE

Preparation: Clean weld area of scale and/or oxide. Angle prepping normally involves close-butts and infrequently bevel preparations. If needed, a °60 bevel is acceptable. Preheat and inter-pass temperatures will depend on the grade of steel, if known. Unknown grades should be nominally preheated within a °500-400F range.

Technique: A short, non-contact technique is recommended for both fillet and butt- welding. Use a slightly longer arc length for bead-on-plate welding. Deposit stringer beads or 2x to 3x weave beads. Do not weave more than three times the electrode diameter otherwise slag interference will be encountered.

Post WeldinG: Parts which have been preheated should be wrapped or covered with heat-retardant material to slow cool parts...critical for Tools & Dies.

TECHNICAL DATA

Tensile strength:830 N/mm2 (120,000 psi)

Yield strength: 545 N/mm2 (**79,000 psi)**

Current polarity: AC/DC (+)

DIAMETER	AMPERAGE
1.6mm	25-40
2.0mm	35-50
2.5mm	55-70
3.2mm	75-95
4.0mm	90-115
5.0mm	135-190

Note: For optimum result use the lowest amperage practical

XHD 2222

Manual Metal Arc Electrode For Joining Thick Sections Of Hardenable Steels

DESCRIPTION:XHD 2222 is a high-alloy nickel-based electrode designed for critical maintenance and repair applications. It is suitable for a wide range of high alloy steel components, providing maximum repair reliability and extended part service life. The electrode is known for its superior crack resistance and high mechanical properties, ensuring an excellent in-service Maximum Safety Margin (MSM).

Product Details

- Manual Metal Arc Electrode For joining thick sections of hardenable steels

APPLICATIONS

Protective coatings and/or joining: flame hardening equipment, heat treating trays, pipe flanges, barrels, gate valves, hooks, baskets, gas plants, steel mill roll ends, carbon dioxide equipment, guides, tongs, heat treating racks, and related equipment.
Suitable for use on all steel alloys, nickel alloys, and for joining combinations of dissimilar alloys.

PROCEDURE FOR USE

Preparation: Remove fatigued or damaged metal, and grind the surface. For joining, or the repair of cracks in heavy-section parts, make a «U» groove chamfer with ExoTrode.

Preheating: For the joining or overlaying of high nickel alloys, preheating is not normally required. Preheating will be required for air hardening, higher carbon, and low alloy steels. Particular care should be taken when joining ferritic steels to nickel alloys to avoid overheating the nickel side.

Welding Technique: For heavily-constrained sections, start with a buttering layer on both faces of the chamfer to reduce the effects of dilution by the base metal. Where there is a high risk of producing hardened structures in the base metal, weld the first pass with 2.5 mm electrodes. Fill the chamfer with 3.2 mm or 4 mm diameter electrodes, according to the size of the job, and hammer peen to relieve contraction stresses.

TECHNICAL DATA

Tensile strength : 650 N/mm2(95000 psi)
Yield strength : 398 N/mm2 (58000 psi)
Elongation: 35%

Current polarity: AC/DC (+)

DIAMETER	AMPERAGE
2.5mm	80-120
3.2mm	100-160
4.0mm	130-200
5.0mm	200-250

Note: For optimum result use the lowest amperage practical

Xuper NucleoTec 2222

Manual Metal Arc Electrode For Joining Thick Sections Of Hardenable Steels

DESCRIPTION: xuper NucleoTec 2222 is a low heat input electrode with a proprietary basic flux-coating formulation and a high purity, fully alloyed core wire. It is designed specifically for joining thick sections of hardenable steels with lower preheat procedures and Maximum Safety Margin. The electrode provides a fully austenitic solid-solution nickel-chromium-manganese-iron alloy deposit, which offers reliable, radiographic quality deposits with outstanding mechanical, metallurgical, physical, and chemical properties.

Product Details

- Manual Metal Arc Electrode for joining thick sections of hardenable steels

APPLICATIONS

Cement kiln rings, rollers, and shells
Ball mill crusher trunnions and casings
Forging, extrusion, and metal working machines
Liquid gas vessels or equipment
Chemical and petroleum installations
Heat exchangers and steam power transition joints
Joining thick sections of difficult-to-weld steels
Alloy steels of unknown specification
Nickel bearing steels for sub-zero service temperatures
Dissimilar joints between stainless and ferritic steels
Nickel alloys of NiCrFe, NiCrMnFe type
Joining deoxidized copper to nickel alloys or steels

PROCEDURE FOR USE:

Preparation:Ensure that areas to be joined are free from contaminants, oxides, defects etc, especialy with high nicke alloys, where final degreasing operations may pe necessant Adopt standard joint design depending upon type, size, service requirements or dissimilar combination of alloys.
Preheating: For the joining or overlaying of high nickel alloys preheating is not normally required. Preheating will be required however for air hardening, higher carbon and low alloy steels Particular care should be taken when joining ferritic steels to nickel alloys when preneung & required, that the nickel side is not allowed to overheat. For carbon and alloy steels the prehear temperature will depend upon type, size and carbon equivalent of the base material.
welding:Select lowest amperage as possible and employ an electrode angle between 80-70 to the direction of travel for downhand joints, and near vertical to the line of joint for vertical up pasitions, 45ª to the line of joint for fillet welds. Maintain an are length as short as possible and deposit as stringer beads lavoid weaving wherever possible especially on dissimilar combination Joints). Remove ali slag to avoid inclusions between passes followed by a thorough wire brushing tuse a stainless stee, wite brush)

TECHNICAL DATA

Tensile strength : 690 N/mm2(100,000 psi)
Yield strength : 420 N/mm2 (61,000 psi)
Elongation: 45%

Current polarity: AC/DC (+)

DIAMETER	AMPERAGE
2.5mm	50-90
3.2mm	70-110
4.0mm	90-140
5.0mm	110-170

Note: For optimum result use the lowest amperage practical

Eutectrode EC 6821

Electrode For High Strength Joining Of Mn Steel, Low Alloy Steel & Medium Carbon Steel.

Description

High chrome manganese alloy electrode for TeroCote protective coatings and cushion layers on carbon steels, low or high alloy steels, and manganese steels.

- Maximal resistance to impact and pressures.
- Very work-hardenable deposit.
- Excellent AC/DC weldability.
- Machinable with cutting tools.
- Can be contact welded.
- Easy slag removal.
- Excellent crack resistance by absorption of internal stresses.
- Amagnetic deposit.

Product Details

- CrMn alloy electrod used for buffer layers and manganese steels

APPLICATIONS

- Buckets, boom, stick, C frame & undercarriage components of earthmoving equipment, Conveyor rollers ,Grading screens, Gyratory crusher cones
- Buffer layers for hardfacing

PROCEDURE FOR USE

Preparation: Obtain a good surface by removing worn metal with ExoTrode or by mechanical means.

Preheating: Depends on the steel's Carbon Equivalent and the workpiece size, thickness, and geometry.

CE < 0.2: Preheating not essential.
CE 0.4 - 0.2: Preheating °200-100C.
CE 0.8 - 0.4: Preheating °350-200C.

Note: 12-14% Mn steels should never be preheated and the workpiece temperature during welding should be kept below 250°C.

Welding: Keep a short arc, the electrode slightly sloping, possibility of contact welding. Follow welding procedures exactly.

TECHNICAL DATA

Tensile strength : 830 N/mm2(120,000 psi)
Yield strength : 520 N/mm2 (75,000 psi)

Current polarity: AC/DC (+)

DIAMETER	AMPERAGE
3.2mm	55-100
4.0mm	85-140
5.0mm	135-185

Note: For optimum result use the lowest amperage practical