

# **HARD FACING**

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# EutecTrode 2

## Manual Metal Arc Electrode For Protective Coatings Against Impact, Abrasion and Pressure.

### DESCRIPTION

The weld deposit of EutecTrode 2 consists of a hard, fine grained structure containing Cr, Mn and Mo, producing excellent resistance to abrasion, impact and pressure combinations suitable for protective overlays on steels including plain carbon steel, carbon-manganese steels and low alloy steels.

### Product Details

- Deposits exhibit good cracking resistance
- If deposits are not annealed, machining is only possible by grinding
- The deposit hardness can be further optimized by heat treatment or nitriding
- Easy slag removal
- Deposits are heat treatable

### APPLICATIONS

For dragline, bucket teeth, crusher hammers, stamping dies, excavator parts, tractor treads.

### PROCEDURE FOR USE

**Preparation:** Prepare surface areas to be welded by removing all contaminants, oxides etc., also damaged and fatigued base material using ChamferTrode04. It is also recommended that sharp corners and edges are prepared to form a radius to minimize dilution effects.

### Preheating: Depends on the steel's Carbon

Equivalent and the workpiece size, thickness and the geometry. Castolin Eutectic 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 the workpiece temperature during welding should be kept below 250.C.

### Welding:

Maintain a near vertical electrode angle and employ a short arc length, deposit either as stringer beads. When welding in the vertical position maintain the electrode at right angles to the base material plane.

Where large depth build-up applications exist use CastoDur N 102. For intermediate layers to austenitic manganese steels use XHD 646.

Parts which have been preheated should be allowed to cool slowly down to room temperature.

### TECHNICAL DATA

Typical Hardness : 57-62 HRC

Current polarity: AC/DC (+)

DIAMETER	AMPERAGE
2.5mm	50-80
3.2mm	80-130
4.0mm	100-160

**Note:** For optimum result use the lowest amperage practical

# EutecTrode 700

## Manual Metal Arc Electrode For Combined Abrasion, Moderate Impact And Metal-Metal Friction

### DESCRIPTION

High metal recovery manual electrode (%130) developed for wearfacing against abrasion, moderate impact and metal-metal friction.

### Product Details

- Very stable arc.
- Easy removal slag.
- Excellent weldability even at low amperage.
- Resistant against wear under high pressure, impacts and abrasion.
- Smooth deposit to favor gliding of abrasives.
- Very soft fusion.

### APPLICATIONS

For applications where resistance to intense abrasion moderate impact and metal-metal friction is required on work parts like for example:

- Buckets of dredges
- Hammers of crushers
- Excavator teeth
- Concrete Walls
- Rotors of pumps
- Chain conveyors
- Wear Plates

### TECHNICAL DATA

Typical Hardness : 62-65 HRC

Current polarity: AC/DC (+)

DIAMETER	AMPERAGE
2.5mm	50-80
3.2mm	90-120
4.0mm	130-160

**Note:** For optimum result use the lowest amperage practical

### PROCEDURE FOR USE

#### Preparation

For best results, remove contamination, cracks and worn metal from weld area. This may be achieved by using ExoTrode 04.

**Preheating:** Temperature depends on steel Carbon Equivalent (CE), work piece dimensions, the thickness and geometry. Castolin Eutectic suggests:

CE < 0,2: preheating not necessary

CE 0,4- 0,2: preheating at °200-100C.

CE 0,8- 0,4: preheating at °350-200C.

# ChromCarb N<sup>\*</sup> 6006

Unique Chromium-Carbide Bearing Electrode With Superior Abrasion And Impact Properties

## DESCRIPTION

ChromCarb N6006 is an electrode for the overlay and protection of carbon, alloy and manganese steels. A high chromium carbide content makes it especially favorable against coarse particle abrasion, moderate gouging impact and mild corrosion in any number of service conditions.

## Product Details

- For use on most carbon, low-alloy and manganese steels
- Resistant to coarse particle abrasion with moderate impact
- Provides dense, smooth, easy to clean deposits

**Post-welding:** Allow parts to slow cool in still air. High carbon steels and air hardenable steels should be covered with a heat-retardant blanket.

## TECHNICAL DATA

Typical Hardness 57-60 HRC

Current polarity: AC/DC (+)

## APPLICATIONS:

Muller tires, Anvils, Dredger parts

Bucket arms, Pug mill paddles

Hot pressing dies and hot hardness dies, etc.

## PROCEDURE FOR USE

Preparation: Clean weld area of scale and/or oxide. A nominal preheat of 150°F is advised if part is below 40°F or over 1" thick. For higher carbon steels higher preheats will be needed. Check the Reference Section for information regarding specific preheating levels for specific steel grades.

**Note:** Do not preheat Hadfield manganese steel castings above 400°F as this will cause time-temperature embrittlement.

**Technique:** For base metals with high hardenability a buffer layer is highly recommended prior to application of ChromCarb N6006. For Manganese steels, use EutecTrode 40; for air-hardenable steels, use EutecTrode 680 and for cast irons, Xuper 2233N. Only one pass of ChromCarb N6006 should be used on cast irons.

Maintain a medium arc and incline the electrode at a 45 angle in the direction of travel. Excessive weaving (more than 2 times the electrode diameter) is not advised as wide beads can cause excessive base metal overheating and degrade the weld deposit wear properties. Back whip craters to reduce crater-cracking tendencies.

DIAMETER	AMPERAGE
3.2mm	90-130
4.0mm	120-160
5.0mm	150-210

**Note:** For optimum result use the lowest amperage practical

# XHD AbraTec N\*6715

## Manual Metal Arc Electrode For Anti-Wear Protective Coatings At High Temperatures

### DESCRIPTION

High efficiency welds containing a maximum percentage of hard constituents with Nucleo-C elements which offer excellent resistance to high temperature abrasion and erosion in gas media. Suitable for overlaying a wide range of steels including low alloy steel and %14-12 austenitic manganese steels.

An alloy of complex carbides producing excellent abrasion resistance up to 650.C. Deposition speeds are high and arc striking is made with comparative ease, ideal for wear pattern formations. Deposits are extremely smooth with little or no ripple formation, ideal where resistance to fine mineral particles is required. No slag residues due to the complete consumption of core wire and flux coating.

### Product Details

- Non-hygroscopic coating
- Ease of arc striking and restriking
- Positional weldability
- High deposition speeds
- High metal recovery (%230)
- Very thick single pass deposit
- Low dilution with base metal
- No slag residues

### APPLICATIONS:

#### Main applications

For sinter plant ventilators.

#### Other applications

Crusher bars, agglomeration fans, blast furnace hoppers and bells, mixer screws and heads in the ceramics industry.

### PROCEDURE FOR USE

Preparation: Remove all damaged and fatigued weld metal from areas to be welded and remove sharp edges. Where compression or medium impact factors exist deposit into prepared grooves. Prepare grooves 3-5 mm wide, 6 mm in depth using ExoTrode 04 and deposit two passes using XHD 6715.

Preheating: Preheating depends on the steel's Carbon Equivalent and the workpiece size, thickness and the geometry. Castolin Eutectic recommends:

CE < 0.2 : preheating not essential.

CE 0.2 -0.4 : preheating 100-200.C

CE 0.4 -0.8 : preheating 200-350.C.

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

### Cladding and Intermediate layers

For 12-14% austenitic manganese steels apply an intermediate layer using EutecTrode 646XHD.

### Welding

Maintain a short arc length, and hold a near vertical electrode angle, in the direction of travel. To complete each weld bead -travel back over the deposit approximately 10 mm and lengthen the arc. For heavy deposits, intermediate layers using EutecTrode 646XHD is recommended.

Depending upon thickness and alloy content of the component, slow cooling after welding may be advisable.

### TECHNICAL DATA

Typical Hardness 65-69 HRC

Current polarity: AC/DC (+)

Hardness(HRC).....64-69

DIAMETER	AMPERAGE
3.2mm	120-170
4.0mm	140-220

**Note:** For optimum result use the lowest amperage practical

# XHD AbraTec N<sup>\*</sup>6710

## Manual Metal Arc Electrode For Anti-Wear Protective Coatings

### DESCRIPTION

High efficiency electrode for TeroCotecoatings on alloyed and non-alloyed steels, austenitic steels with %14-12 manganese. Deposit with a high content of hard constituents of Nucleo-C elements, resistant to intense abrasion under pressure and moderate impact.

### Product Details

- High resistance to wear from combined abrasion, pressure and impact
- High deposition speed
- Very thick single pass deposits
- Very high weld yield (~%250)
- Minimal dilution with the base metal
- Virtually slag free
- Non-hygroscopic coating
- Easy striking and restriking

### APPLICATIONS

#### Main applications

For dragline buckets.

#### Other applications

For protective, antiwearcoatings of scraper blades and mixers, sludge pumps, hammers and crushers, conveyor chains, teeth, edges of buckets, etc.

### PROCEDURE FOR USE

Preparation: Remove all damaged and fatigued metal from areas to be overlayed, and remove sharp edges where compression or medium impact factors exist. Deposit into prepared grooves. Prepare grooves 3 mm to 5 mm wide, 6 mm depth, using ExoTrode 04, and deposit two passes using XHD 6710.

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

CE < 0.2 : preheating not essential.

CE 0.4- 0.2 : preheating 200-100.C

CE 0.8- 0.4 : preheating 350-200.C.

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

Intermediate layer

On %14-12 austenitic manganese steel, hardened or self-hardening steel, deposit an intermediate layer with XHD 646.

### Welding

Maintain medium arc with electrode nearly vertical. Deposit «stringer» beads. To complete each bead travel back over the deposit by about 10 mm to fill craters before breaking the arc. As the intrinsic properties of the deposit are obtained in the first pass, one pass will be adequate for most applications. Should a thicker overlay be required, build up to required dimensions with XHD 646 finishing with EuteTrode6710XHD.

### TECHNICAL DATA

Typical Hardness : 63-69 HRC

Current polarity: AC/DC (+)

DIAMETER	AMPERAGE
3.2mm	100-170
4.0mm	140-220

**Note:** For optimum result use the lowest amperage practical

# XHD AbraTec N<sup>\*</sup>6777

Special Electrode For Severe Abrasive Wear At Elevated Temperature

## DESCRIPTION

An advanced electrode for overlaying of carbon steels & low alloy steels for applications involving abrasion and erosion at elevated temperatures. The weld deposit contains high percentage of refractory carbides, enabling abrasion at elevated temperature..

## Product Details

- Carbides of Cr, Mo, Nb, W, V, Fe-Cr-C in eutectic matrix.
- Excellent resistance to wear upto 650 C.
- Easy handling with rapid deposition rate.
- Very high metal recovery.

## APPLICATIONS:

Sinter star breakers, tip casting, coke pusher shoes, billet conveyer guide, hot slag conveyers, augers and clinker grinders.

Sinter cast rollers and table buttoning.

## TECHNICAL DATA

Typical Hardness 65-68 HRC

Current polarity: AC/DC (-)

DIAMETER	AMPERAGE
3.2mm	100-140
4.0mm	140-160

**Note:** For optimum result use the lowest amperage practical

## PROCEDURE TO USE:

Remove all damaged and fatigued weld metal and clean weld area. Maintaining short to medium arc length, deposit stringer and weaved beads. For medium carbon steels, preheat upto 250°C. Use EutecTrode 2B as cushion alloy if more build-up is required.

# EutecTrode 2B

## A Machinable, Impact-Resistant Electrode With High Compressive Strength

### DESCRIPTION

EutecTrode 2B is principally formulated to resist severe impact on plain carbon steels, low-alloy steels, and many construction steels. Deposits have high compressive strength that makes them ideal for re-builds involving a cushion layer followed by a harder final layer.

### Product Details

- Excellent cushioning alloy
- Deposits exhibit high compressive strength
- Resists severe impact on plain carbon, low-alloy and construction steels

### APPLICATIONS

- Build-up prior to hardfacing
- Slideways
- Wheel Crowns
- Guides and Couplings
- Rope Winches
- Brake Drums

### PROCEDURE FOR USE

#### Preparation

Clean weld area of scale and/or oxide. A nominal preheat of °150F is advised if part is below °40F or over 1" thick. For higher carbon steels higher preheats will be needed. Check the Reference Section for information regarding specific preheating levels for specific steel grades.

#### Welding Technique

Deposit stringer beads or 2 times to 3 times weave beads. Excessive weaving is not advised as wide beads can cause excessive base metal overheating and degrade the weld deposit wear properties. Back whip craters to reduce crater-cracking tendencies. When de-slagging make sure to thoroughly remove slag at the weld deposit toes.

#### Post Welding

Allow parts to slow cool in still air. High carbon steels and air hardenable steels should be covered with a heat-retardant blanket. When machining is needed use tool set-up and speeds typically used with fine-grained pearlitic steels.

### TECHNICAL DATA

Typical Hardness :28-32 HRC

Current polarity: AC/DC (+)

DIAMETER	AMPERAGE
3.2mm	90-110
4.0mm	120-180
5.0mm	205-245

**Note:** For optimum result use the lowest amperage practical



# EutecTrode 400

## A Versatile Electrode With Excellent Resistance To Impact

### DESCRIPTION

A ferrous base electrode with additions of Ni, Mn & other elements to improve welding properties. Ideal Cushion layer before hardfacing on Mn steel, low carbon steel, low alloy steel.

### Product Details

- Tough overlay on manganese steel and alloy steel.
- For severe impact, shock and hammering applications.
- Frigid arc coating for lowest possible amperage.
- Work hardens in service.

### APPLICATIONS:

Crusher hammer, wobblers, frogs, sprockets, bucket teeth, wear parts, shovel track pads, under carriage components, scraper blades.

### PROCEDURE FOR USE

Clean weld area. Use Eutec- ExoTrode electrode to remove damaged metal. Do not preheat manganese steels. Maintain a short to medium arc length. On Mn steel keep bead length 75-100 mm at a time. Inter-pass temperature should be maintained below 150 C for Mn steel by following back-step technique. Skip welding is recommended on large parts. Peening while hot reduces residual stresses. Cool slowly.

### TECHNICAL DATA

Typical Hardness

As deposited: 25-30 HRC  
Work hardened: 37-42 HRC

Current polarity: AC/DC (+)

DIAMETER	AMPERAGE
3.2mm	90-130
4.0mm	120-160
5.0mm	150-210

**Note:** For optimum result use the lowest amperage practical

# XHD 646

## Manual Metal Arc Electrode For Intermediate Layers And Rebuilding

### DESCRIPTION

High efficiency, austenitic manual electrode for intermediate layers and rebuilding 13 % manganese steel, alloyed steels and hardenable steels.

### Product Details

- Very high resistance to impact
- Easy slag removal
- High work-hardening rate
- Machinable with tungsten carbide tip tool
- Corrosion resistance
- Smooth even appearance
- High metal recovery (%150)

CE < 0.2 : preheating not essential.

CE 0.4- 0.2: preheating 200-100.C

CE 0.8- 0.4: preheating 350-200.C.

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

### TECHNICAL DATA

Tensile strength: 680 N/mm<sup>2</sup> (98,000 psi)

Typical Hardness

As deposited: 90-100 HRB

Work hardened: 37-42 HRC

### APPLICATIONS

Electrode for E+C TeroCote anti-wear protective coating of drive gears, lower guides and rollers of caterpillar tractors, conveyor rollers, rails and rail points, bearing plates, grading screens, gyratory crusher cones, drills, cylinder crushers, etc.

Current polarity: AC/DC (+)

DIAMETER	AMPERAGE
2.5mm	70-120
3.2mm	90-170
4.0mm	120-240

### PROCEDURE FOR USE

#### Preparation

Remove all damaged and fatigued metal from areas to be overlaid and remove sharp edges. For large areas and where parts are subjected to high impact, prepare grooves 3 mm to 5 mm wide, approx. 6 mm depth, using ExoTrode

**Note:** For optimum result use the lowest amperage practical

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

# EutecTrode 6717

## A Unique Titanium Carbide Alloy System For Wear-Facing Against Severe Impact & Abrasion

### DESCRIPTION

Unique martensitic Ti-C alloy designed for surfacing of carbon steel and manganese steel components, subjected to high impact combined with severe pressure and abrasion.

### Product Details

- Finely and evenly dispersed titanium carbides in martensitic matrix.
- Crack-free multilayer deposit.
- Consistency in hardness irrespective of number of layers, Ideal for thick, multi-pass, protective coatings.
- High resistance to impact, pressure & abrasion.

### APPLICATIONS:

Clinker breaker hammers, blow bars, roller press rolls, cane knives, shovel buckets, shredders, augers, scraper blades, tamping tools etc.

### PROCEDURE TO USE

Remove all damaged and fatigued metal and clean the weld area. Maintain short to medium arc length. Use stringer beads to deposit.

### TECHNICAL DATA

Typical Hardness : **55-59 HRC**

Current polarity: AC/DC (+)

DIAMETER	AMPERAGE
3.2mm	75-100
4.0mm	100-140
5.0mm	130-170

**Note:** For optimum result use the lowest amperage practical

# EutecTrode 6450

## Manual Metal Arc Electrode For Anti-Wear Coatings

### DESCRIPTION

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

### Product Details

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

### Welding

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

### TECHNICAL DATA

Tensile strength: 830 N/mm<sup>2</sup> (120,000 psi)

Typical Hardness

As deposited: 20-23 HRC

Work hardened: 37-42 HRC

### APPLICATIONS

Stamping, pressing, drawing and cutting tools; machining steels; hot and cold trimming tools; chisels, forging tools; clutch forks, valves, cams, grabs, mixer blades, feed screws.

Current polarity: AC/DC (+)

### 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 the geometry. Castolin Eutectic recommends:

CE < 0.2 : preheating not essential.

CE 0.4- 0.2 : preheating 200-100.C

CE 0.8- 0.4 : preheating 350-200.C.

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

DIAMETER	AMPERAGE
3.2mm	100-160
4.0mm	120-180

**Note:** For optimum result use the lowest amperage practical

# ToolTecTic 6 NHSS

## Manual Metal Arc Electrode For Anti-Wear Coatings

### DESCRIPTION

Special quench-hardening electrode providing great hot hardness and thermal oxidation resistance. ToolTecTic 6NHSS is a High-Speed Steel electrode for applications requiring hardened surfaces as welded, which can retain a cutting edge. Heat treatment ensures exceptional mechanical properties in the deposit, with remarkable hot hardness and resistance to high temperature oxidation, making this electrode ideally suited for protection of tool and die steel components. It can also be used for fabrication of cutting tools using medium carbon or low-alloy steels.

### Product Details

- Increased service life of coated parts.
- Excellent hot hardness and high temperature oxidation resistance.
- High edge retention characteristics.
- Highly crack resistant.
- Welds in all positions.
- Damaged tools can be repaired rapidly.
- Economic way to manufacture high performance cutting tools from low-cost steel.

### APPLICATIONS

Stamping, pressing, drawing and cutting tools; machining steels; hot and cold trimming tools; chisels, forging tools; clutch forks, valves, cams, grabs, mixer blades, feed screws.

### PROCEDURE FOR USE

**Preparation:** Clean the weld area of scale and/or oxide and degrease. Dry penetrant test to locate cracks. Prepare the cracks by grinding to generate a "U" profile. Medium arc. Hold the electrode almost vertical. Preheat slowly according to the grade and heat treated condition of the base material.

### TECHNICAL DATA

Typical Hardness : 60-62 HRC

Current polarity: AC/DC (+)

DIAMETER	AMPERAGE
2.5mm	55-70
3.2mm	85-125
4.0mm	115-155

**Note:** For optimum result use the lowest amperage practical

# EutecDur N 9060

## Manual Metal Arc Electrode For Cobalt Based Wear Resistant Coatings

### DESCRIPTION

EutecDur N 9060 shows a coarse microstructure. Because of the much lower content of Chromium, Tungsten and Carbon, the alloy offers a high ductility. EutecDur N 9060 shows that in addition to its qualities in respect of impact, a moderate resistance to pressure and abrasion and excellent resistance to corrosion and heat.

### Product Details

- Exceptional resistance to heat giving high hot hardness values
- Good all-round resistance to wear
- Good arc characteristics
- Dense deposit with excellent bead formation

### APPLICATIONS:

Handling equipment for hot steel, shear lades (hot or cold), dies, steam and chemical valve seats, etc.

### PROCEDURE FOR USE

**Preparation:** Ensure all areas to be welded are free from contaminants and where possible radius all sharp corners and edges.

**Preheating:** Preheating will depend upon type, size and mass of base material, it is essential that complexed shaped components. high carbon equivalent steels and low alloy steels be preheated, cast Iron components will usually require a thorough even temperature throughout the mass. Slow even heating is strongly recommended in order to reduce both distortion effects and cracking tendencies.

**Welding:** Hold a near vertical electrode angle and maintain as short an arc length as possible. Deposit as stringer beads ensuring sufficient overlap between each weld in order to minimize weld metal dilution and the risk of slag entrapment, avoid weaving. Ensure that each weld deposit is thoroughly cleaned (use a stainless steel wire brush) free from slag, etc., prior to depositing a further weld. Welds should be made in a continuous manner using the largest diameter of electrode as possible for overlay applications, for building up edge applications use smaller diameter electrodes and ensure that sharp edges and corners have been removed.

When breaking the arc increase the speed of travel in order to reduce the size of the weld crater and clean thoroughly prior to commencing a further deposit.

It is recommended that components which have been welded are cooled slowly down to room temperature, in all cases avoid rapid and irregular cooling.

### TECHNICAL DATA

Typical Hardness : 40-42HRC

Current polarity: AC/DC (+)

DIAMETER	AMPERAGE
3.2mm	70-120
4.0mm	100-150

**Note:** For optimum result use the lowest amperage practical

# EutecDur N 6070

## Manual Metal Arc Electrode For Protective Maintenance Coatings

### DESCRIPTION

A high efficiency complex carbide alloy electrode containing controlled percentages of hard constituents producing, extremely hard deposits resistant up to 650°C.

This alloy produces a deposit of fine metallurgical structure by Dispersion Hardening, which gives excellent resistance to abrasion and erosion by both fine and coarse mineral particles, particularly the former, from ambient to elevated temperature. Additionally, its superior oxidation resistance, very effectively hinders the phenomenon of accelerated abrasive wear which often occurs in very high temperature applications. Excellent metal recovery rates are obtained. The arc characteristics are of the «spray type» producing smooth, ripple-free deposits.

### Product Details

- Exceptional abrasion resistance
- Extremely hard deposits
- Fine metallurgical structure
- Contains ultra-hard complex carbides
- Very stable arc
- Minimal slag residues
- For use with AC or DC power source

Maintain an arc length equal to the electrode diameter and a near vertical electrode angle. Limit each deposit length between 100-50 mm and employ a balanced welding technique.

### TECHNICAL DATA

Typical Hardness 68-70 HRC

Current polarity: AC/DC (+)

### APPLICATIONS

For protecting components against abrasion and erosion, especially where both fine and coarse grain mineral particles are present. Suitable for a wide range of steels including medium carbon steel, low alloy steels and austenitic manganese steels. For extrusion screws, hoppers and chutes, bulldozer blades, scrapers.

DIAMETER	AMPERAGE
3.2mm	135-165
4.0mm	185-215

**Note:** For optimum result use the lowest amperage practical

### PROCEDURE FOR USE

**Preparation:** Remove all damaged and fatigued base material and where possible remove sharp corners from areas to be welded by using ExoTrod 04.

**Welding:** Select lowest possible amperage setting from the recommended range when depositing direct to the base material.

EutecTrod 690X may be used as initial or intermediate layers especially on large or heavy build-up applications.

For applications where impact and pressure is present deposit into pre-prepared grooves at a pitch not less than the width of the groove (two layers should be deposited into the grooves).

# EutecDur N 9080

## Manual Metal Arc Electrode For Anti-Wear Protective Coatings On Hot Working Tools

### DESCRIPTION

EutecDur N 9080 is a cobalt-based electrode for use on medium-carbon, hardening and air-hardening, alloy and manganese steels, as well as nickel alloys.

#### Product Details

- Excellent resistance to thermal cycling.
- Superior resistance to heat and scaling up to 1000.C.
- Good creep resistance, no structural modification.
- Low friction coefficient for metal/metal sliding properties.
- Work-hardens up to %60 higher than as welded.
- Ductile deposit resistant to tempering.
- High resistance to chemical corrosion.
- High crack resistance.
- Easily machinable by normal cutting tools.
- Weldable in all positions.

#### APPLICATIONS:

The numerous properties of EutecDur N 9080 open a large range of possible applications. This electrode should be used particularly where workpieces are submitted to various wear phenomena. It is especially suited for protective coatings on hot working tools like forging and trimming tools, wire drawing dies, shear blades, tongs, plungers, etc.

- Application areas where strong resistance to wear and corrosion are needed like, Extrusion screws, press and drawing tools, sealing surfaces and valves seats, slide valves, etc.
- The easy machinability of the deposit is an advantage when rebuilding such workpieces.

#### PROCEDURE FOR USE

##### Preparation

Remove any worn metal with ExoTrode 04. Clean the surfaces.

##### Preheating

Advisable in relation to the type of base metal and its thickness (follow instructions of base metal

#### Intermediate layer (preventive coating)

Depending on the base metal, it is advisable in certain service conditions to deposit an intermediate layer. Use Xuper NucleoTec 2222 or Xuper 686 For manganese steels use XHD646-, and for stainless steels, CastInox D.

#### Build-up

Build up on medium carbon and air-hardening steels with EutecDur N 6200 or Castolin Xuper 686 on manganese steels with XHD646- and on stainless steels with CastInox D.

#### Welding

Keep the electrode almost vertical, with a short arc. Procedure B is the most advisable. Remove any slag before proceeding with a second pass.

#### TECHNICAL DATA

Typical Hardness

As deposited: 32-34 HRC

Work hardened: 48-50 HRC

Temperature : 1000.C.

Current polarity: AC/DC (+)

DIAMETER	AMPERAGE
3.2mm	70-120
4.0mm	90-150

**Note:** For optimum result use the lowest amperage practical



# EutecDur N 9120

## Manual Metal Arc Electrode For Cobalt Based Wear Resistant Coatings

### DESCRIPTION

EutecDur N 9120 shows a fine grain microstructure. It contains a percentage of Chromium, Tungsten and Carbon which falls between those of the other two alloys. CastoDur N 9120 shows a relative resistance with increased deposit hardness.

#### Product Details

- Exceptional resistance to heat giving high hot hardness values.
- Good all-round resistance to wear.
- Good arc characteristics.
- Versatility: use with AC or DC (electrode positive or negative).
- Dense deposit with excellent bead formation.

#### APPLICATIONS

Hot pressing dies and hot hardness dies, etc.

#### PROCEDURE FOR USE

**Preparation:** Ensure all areas to be welded are free from contaminants and where possible radius all sharp corners and edges.

**Preheating:** Preheating will depend upon type, size and mass of base material, it is essential that complexed shaped components.

high carbon equivalent steels and low alloy steels be preheated, cast Iron components will usually require a thorough

even temperature throughout the mass. Slow even heating is strongly recommended in order to reduce both distortion effects and cracking tendencies.

**Welding:** Hold a near vertical electrode angle and maintain as short an arc length as possible. Deposit as stringer beads ensuring sufficient overlap between

each weld in order to minimise weld metal dilution and the risk of slag entrapment, avoid weaving. Ensure that each weld deposit is thoroughly cleaned

(use a stainless steel wire brush) free from slag, etc., prior to depositing a further weld. Welds should be made in a continuous manner using

the largest diameter of electrode as possible for overlay applications, for building up edge applications use smaller diameter electrodes and ensure that sharp edges and corners have been removed.

When breaking the arc increase the speed of travel in order to reduce the size of the weld crater and clean thoroughly prior to commencing a further deposit.

It is recommended that components which have been welded are cooled slowly down to room temperature, in all cases avoid rapid and irregular cooling.

#### TECHNICAL DATA

Typical Hardness 48-52 HRC

Current polarity: AC/DC (+)

DIAMETER	AMPERAGE
3.2mm	70-120
4.0mm	100-150

**Note:** For optimum result use the lowest amperage practical

# EutecTrode 6800

## Manual Metal Arc Electrode For Anti-Wear Protective Coatings At High Temperatures

### DESCRIPTION

EutecTrode6800 is a special nickel alloy containing Cr, Mo, W giving excellent thermal properties for service in a wide range of high temperature environments and corrosion resistance against oxidizing acids, mixed acids, salts, etc.

A high alloyed electrode for cladding where corrosion and/or abrasion and heat resistance combined with impact is required, on a wide range of base materials including high nickel and chromium molybdenum steels.

### Product Details

- Non-hygrosopic coating
- Ease of arc striking and restriking
- Positional weldability
- High deposition speeds
- High metal recovery (%230)
- Very thick single pass deposit
- Low dilution with base metal
- No slag residues

### APPLICATIONS: Main applications

For sinter plant ventilators.

### Other applications

Crusher bars, agglomeration fans, blast furnace hoppers and bells, mixer screws and heads in the ceramics industry.

### PROCEDURE FOR USE

**Preparation:** Remove all damaged and fatigued weld metal from areas to be welded and remove sharp edges. Where compression or medium impact factors exist deposit into prepared grooves. Prepare grooves 3-5 mm wide, 6 mm in depth using ExoTrode 04 and deposit two passes using XHD 6715.

**Preheating:** Preheating depends on the steel's Carbon Equivalent and the workpiece size, thickness and the geometry. Castolin Eutectic recommends:

CE < 0.2 : preheating not essential.

CE 0.2 -0.4 : preheating 100-200.C

CE 0.4 -0.8 : preheating 200-350.C.

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

Cladding and Intermediate layers

For 12-14% austenitic manganese steels apply an intermediate layer using EutecTrode 646XHD.

### Welding

Maintain a short arc length, and hold a near vertical electrode angle, in the direction of travel. To complete each weld bead -travel back over the deposit approximately 10 mm and lengthen the arc. For heavy deposits, intermediate layers using EutecTrode 646XHD is recommended.

Depending upon thickness and alloy content of the component, slow cooling after welding may be advisable.

### TECHNICAL DATA

Tensile strength: 780 N/mm<sup>2</sup> (113,000 psi)

Typical Hardness

As deposited: 25-28 HRC

Work hardened: 40-42 HRC

Current polarity: AC/DC (+)

DIAMETER	AMPERAGE
3.2mm	120-170

**Note:** For optimum result use the lowest amperage practical

# Xuper DrilTec 8800

## Premium Tungsten Carbide Rod With High Abrasion Resistance

### DESCRIPTION

Xuper DrilTec 8800 is a torch alloy manufactured under rigorous conditions which prevent loss of de-oxidizers and Diamax particle erosion. The alloy formulation consists of hard Diamax particles dispersed throughout a copper-base alloy that forms the matrix. 8800 alloys also include the most advanced, ATMOSIN containing XFC flux coatings for maximum deoxidizing and cleansing action during deposition. Improved weldability permits bonding at a temperature well below the critical temperatures of ferrous metals. Recommended for use on steels and cast iron.

### APPLICATIONS

- Augers: Reamers
- Bucket Teeth: Pilots
- Burning Shoes: Junk Bits
- Composite Drills : Earth Moving Equipment
- Cutters: Rotary Cutting Bits
- Drills : Rotary Cutters
- Masonry Drills: Rotary Cutting Shoes
- Plowshares: Drill Nuts

### PROCEDURE FOR USE

Clean and degrease the surface. Use the “pure matrix” end where pre-tinning is required. Use a neutral flame with a large tip size to achieve a broad flame. Heat tinned area to melting temperature, then direct flame onto rod until flux melts and alloy begins to flow out. Continue heating the work slightly ahead of the melting flux and alloy. Rotating the rod assures uniform distribution of Diamax particle. Avoid working in too closely with inner flame cone to avoid overheating.

### TECHNICAL DATA:

#### Typical Hardness

Hardness (Diamax Particles) : 89 - 91 HRA

Hardness (Matrix): 200 HB

Bonding Temperature:: 1400 - 1600°F (760 - 870°C)

Tensile strength : 680 N/mm<sup>2</sup> (98,000 psi)

Yield strength : 430 N/mm<sup>2</sup> (62,000 psi)

Elongation : 30%

Typical Hardness : 175 HB

Current Polarity: AC/DC (+)

DIAMETER
1.6mm
3.2mm
5.0mm
6.4mm

# Xuper XHD 6868

**For Joining, Cladding, Disimilar And Galvanized Steels**

## DESCRIPTION

High-performance alloyed electrode designed for industrial maintenance welding applications. It features a specially formulated flux coating and alloy core wire, resulting in a deposit with a grain-refined, binary-phased microstructure that maintains mechanical properties despite variable dilution effects.

## Product Details

Superior tensile strength and high crack resistance  
Compatible with most types of steels  
All positional capability and DC/AC performance to prevent magnetic arc blow effects  
Electrode flux coating resists overheating, allowing for easy contact weldability  
Produces clean, uniform weld beads with minimal spatter

## APPLICATIONS

Maximum safety margin repairs of cracks in castings, machine housings, frames, chassis, springs, etc.  
Joining dissimilar or unknown grades of steel  
Machinable build-up and overlays to resist wear by friction, impact, or pressure on gears, shafts, bearings, etc.  
Cushion layer for E+C TeroCote alloys can be used to join extension pieces to electric poles, signal post, support and fixtures to protect against corrosion in the open air.

## PROCEDURE FOR USE

**Preparation:** According to the thickness of the part, chamfer in a «V», «U» or an «X» to 80-90° angle with ExoTrode 04 or grind. Remove all sharp corners and cracks.

### Preheating:

CE < 0.2: preheating not essential

CE 0.2 - 0.4: preheating 100-200°C

CE 0.4 - 0.8: preheating 200-350°C

Do not preheat austenitic-manganese steels; keep them cool.

**Welding:** Maintain a medium arc length with the electrode held near vertical to the direction of travel. Weaving should be limited to 2 x electrode diameter. Electrode contact welding can be used in the flat position and in fillet joints. Retardant material to help with slow cooling.

## TECHNICAL DATA

Tensile strength: 803 N/mm<sup>2</sup> (116,000 psi)

Typical Hardness

As deposited: 24-26 HRC

Work hardened: 35-37 HRC

Current polarity: AC/DC (+)

DIAMETER	AMPERAGE
2.0mm	75-90
2.5mm	90-120
3.2mm	120-170
4.0mm	150-240

**Note:** For optimum result use the lowest amperage practical

# EutecTrode XHD 6804

## Manual Metal Arc Electrode For Coating High And Low Alloy Steels And Tool-Steels

### DESCRIPTION

EutecTrode 6804XHD is a unique formulation and, owing to a judicious combination of carefully dosed alloy additives, this electrode offers the following properties:

### Product Details

- Exceptional weldability, stable arc, perfect metal transfer
- Easy to use, smooth flow without spatters
- Excellent wetting
- Slag readily removed
- Good appearance with perfectly regular beads
- Efficiency yield %130
- Solid, dense deposit, free of porosity or micro cracks
- No risk of cracking with multiple pass welds
- Contact heat quickly removed
- Maximum hardness after one pass
- Retained hardness independent of thermal cycles up to 500.C
- Excellent resistance to metal/metal friction up to 500.C
- Extensive overlays possible without any risk of overheating
- Very tough and creep resistant
- Bonding layer normally not necessary
- Very good resistance to oxidation.

### APPLICATIONS

Principal applications  
Draw plates, chucks, plungers for hot-extrusion.  
Other uses Spinning rotors for glass-wool production. Stamping and trimming dies. Kiln parts. Pump shafts. Industries involved in high temperature metal processing Extrusion of hollow profiles. Metal drawing. Forming. Cropping. Industries involved in cold metal processing Automobiles. Cutting of thin sections. Chemicals. Foundries. Forming. Textiles. Steel. Power stations. Stamping. Petrochemicals. Rolling mills.

### PROCEDURE FOR USE

**Preparation:** Remove worn metal using ExoTrode 04 or prepare by mechanical means to obtain a sound surface.

**Preheating:** Preheating depends on the steel's Carbon Equivalent and the workpiece size, thickness and the geometry. Castolin Eutectic recommends:

CE < 0.2 : preheating not essential.

CE 0.4- 0.2 : preheating 200-100.C

CE 0.8- 0.4 : preheating 350-200.C.

**Welding:** Electrode almost vertical, short arc. Before breaking the arc to halt welding, draw back the electrode until the weld crater is filled.

### TECHNICAL DATA

Typical Hardness : 48-50 HRC

Current polarity: AC/DC (+)

DIAMETER	AMPERAGE
2.5mm	60-90
3.2mm	180-140
4.0mm	120-180

**Note:** For optimum result use the lowest amperage practical

# Cavitec SMA

## Manual Metal Arc Electrode Highly Resistant To Cavitation And Corrosion

### DESCRIPTION

Specialized, low heat input manual arc electrode for depositing a proprietary alloy system engineered to resist severe cavitation attack and corrosion. Formulation was developed, tested and patented by Hydro-Quebec under the trade name Ireca and exclusively licensed by Eutectic+Castolin for manufacture and distribution under the designation Cavitec. Cavitec represents a new alloy system concept around a high strength cobalt alloyed austenitic stainless steel for combating intense cavitation damage and corrosion often occurring in hydraulic engineering fields such as Francis, Kaplan and pump turbines. Over a decade of practical service trials by Hydro-Quebec, Montreal, Canada, has clearly confirmed the superior performance of Cavitec on hydraulic equipment parts as originally demonstrated by different laboratory tests.

### Product Details

The ferrous based Cavitec alloy system uses a precise balance of Cr, Co, Si, Mn, N element additions to promote the formation of micro crystalline grains characterized by low stacking fault energies. This means that energy absorbing mechanisms such as planar slip, grain twinning, and rapid strain hardening are favored within the atomic lattice structure thus effectively dampening the intense shock wave impulses generated by cavitation.

The special basic flux coating facilitates weldability in position to give smooth, regular bead deposits which are easily machined or ground to final dimensions.

### APPLICATIONS

Mainly for preventive and repair coatings on Francis, Kaplan and pump turbines as well as other hydraulic machine parts subject to wear by cavitation in the following industries: Water pumping, irrigation, water treatment plants. Desalination plants and heat exchangers. Thermal power stations. Chemical pump rotors, casings, valves. Marine, ship propellers. Paper mills. Sugar mills.

### Machining

Machinable with carbide tipped tools, easily grindable to polish finish and may be plasma cut.

### TECHNICAL DATA

Typical Hardness

As deposited: 26-28 HRC

Work hardened: 43-45 HRC

Current polarity: AC/DC (+)

### PROCEDURE FOR USE

**Preparation:** The welding area should be cleaned to remove all traces of contamination by rust, oxides, grease, paint etc. All fatigued or damaged metal, cracks or prior deposits should be removed by grinding or by using ExoTrode 4 to leave rounded edges.

**Preheating:** Generally, not needed. If used, should be adapted to suit the supplier's recommendations of the base material, size of work piece and coating thickness requirements.

### Buttering layer

Generally, not needed. In certain cases, depending on the base metal composition and coating thickness required, a buttering layer of CP 33700 will improve the ductility of the Cavitec deposit.

DIAMETER	AMPERAGE
2.5mm	80-100
3.2mm	100-140
4.0mm	140-180

**Note:** For optimum result use the lowest amperage practical

# Xuper Abratec 6088

## Manual Metal Arc Electrode For Wear Resistant Coatings

### DESCRIPTION

Thanks to high density and good distribution of hard DIAMAX particles in a hard nickel-based matrix, the deposit obtained with Xuper AbraTec 6088 is highly resistant to abrasion, erosion and to corrosion at high temperatures.

### Product Details

This electrode welds at a low current which results in very little dilution as well as minimal deformation of the base metal including those of stainless steels and nickel alloys. Optimal wear resistance is reached with a single layer deposit.

### APPLICATIONS

Stamping, pressing, drawing and cutting tools; machining steels; hot and cold trimming tools; chisels, forging tools; clutch forks, valves, cams, grabs, mixer blades, feed screws.

### TECHNICAL DATA

Typical Hardness

Hardness Ni base matrix : 56 HRC

Hardness Diamax (HV10): up to 2300

Current polarity: AC/DC (+)

### PROCEDURE FOR USE

#### Preparation

Remove all damaged and fatigued weld metal from areas to be welded and remove sharp edges. Where compression or medium impact factors exist deposit into prepared grooves. Prepare grooves 5-3 mm wide, 6 mm in depth using ChamferTrode 04 and deposit two passes using Xuper AbraTec 6088.

#### Preheating

Preheating depends on the steel's Carbon Equivalent and the workpiece size, thickness and the geometry. Castolin Eutectic recommends:

CE < 0.2 : preheating not essential.

CE 0.4- 0.2 : preheating 200-100.C

CE 0.8- 0.4 : preheating 350-200.C.

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

#### Welding

Maintain a short arc length, and hold a near vertical electrode angle, in the direction of travel. For heavy deposits, intermediate layers using XHD 646 is recommended.

Depending upon thickness and alloy content of the component, slow cooling after welding may be advisable.

DIAMETER	AMPERAGE
5.0mm	100-140

**Note:** For optimum result use the lowest amperage practical



# SugarTec MAX 45

**CA-CC (+) Special Electrode For Lateral Protection Of Mill Liner Flanges To Increase Extraction And Mill Productivity**

## Description:

Electrode specially developed for plating, ensuring greater extraction and protection of the mill. EC SugarTec MAX 45 - A new solution to increase mill "grip"!

## Product Details

Superior wear resistance - 2 to 3 times more than normal plaster;

- Highest Cr content on the market;
- High abrasion resistance and high hardness structure;
- Greater adherence to the mill - new formulation with elements that activate the electric arc

**Base metals:** Grey or nodular cast iron or coated liners.

## PROCEDURE FOR USE

Application procedure: With the mill operating at its normal speed and without reducing the juice, proceed to apply deposits to the side walls of the friezes. Keep the electrode in contact and inclined 30° in relation to the surface and in the direction of movement of the jacket, and you can also work with the electrode immersed in the juice, if

necessary. Welding position

Ideal source for plastering:

PowerMax 4000i

400 A @ 60%

310 A @ 100%

## TECHNICAL DATA

Typical Hardness : 52-63 HRC

Current polarity: AC/DC (+)

DIAMETER	AMPERAGE
4.0mm	100-120
5.0mm	140-200
6.0mm	200-240
7.0mm	220-260

**Note:** For optimum result use the lowest amperage practical



# Eutectrode EC 6010

## Repair And Build-Up Of Drop Forging Tools And Damaged Profiles

### DESCRIPTION

Build-up on all drop forging tools. Repair of worn out or damaged profiles. Salvage scrapped undersized die-blocks by total re-build with weld metal. Overlaying of complicated profiles requiring combination of high hardness and toughness combined with good machinability such as gear pinion teeth.

#### Product Details

- Superior deformation resistance at high temperatures.
- Excellent compatibility with die block steels.
- Machinable with tungsten carbide tool.
- All position weldability.

#### APPLICATIONS:

Drop forging dies, punches, inserts.

### PROCEDURE FOR USE

Clean weld area. Remove all cracked or fatigued metal with EutecChamferTrode. Pre-heat job to 400°450°C and maintain throughout welding. Deposit with short gap, keeping electrode perpendicular to welding direction. Peening of deposits is essential. Chip slag between passes. After completing deposition, air-cool the job to 200°C to develop uniform hardness. Then transfer to a furnace at 550°C-600°C and temper for 12-16 hours. Remove into still air and cool.

### TECHNICAL DATA

Typical Hardness : 40-45 HRC

Current polarity: AC/DC (+)

Diameter	Amperage
3.2mm	90-130
4.0mm	120-160
5.0 mm	150-160

**Note:** For optimum result use the lowest amperage practical

# Eutectrode EC 6011

## High Strength Electrode For Joining And Repair Of Cast Steels And Hsla Steels

### DESCRIPTION:

Joining, build-up and repair of new, worn-out or cracked steel structures, machinery components and other heavy duty equipment & welding of cast steels, fabrication of microalloyed and H.S.L.A. steels including automotive applications. Specially suited for repair of forging equipment like columns, sow blocks

### Product Details

Non-hygroscopic flux coating.  
Strong, stable arc.  
Self releasing slag.  
No temper embrittlement of weld deposit.

### APPLICATIONS:

Hammer bases, columns, rams, sow blocks, keyways, kiln shell.

### PROCEDURE FOR USE

Clean weld area. Remove fatigued or cracked metal. Bevel all edges 60°. For heavy sections, pre-heat 250° - 300° C. Weld with short arc gap and electrode tilted 10° in travel direction. Use 'stringer bead' deposition, chip slag between passes and peen weld beads. After completion, retard cooling by covering with sand, asbestos etc. For large assemblies and for forging equipment, stress relieving at 550°C-600°C for one hour per inch job thickness recommended.

### TECHNICAL DATA

Tensile Strength: 660 N/mm<sup>2</sup> (96,000 psi).

Current polarity: AC/DC (+)

Diameter	Amperage
3.15mm	90-130
4.0mm	120-160
5.0 mm	150-190

**Note:** For optimum result use the lowest amperage practical

# EutecTrode 7020

**All-Position, Tubular Hardfacing Electrode Combats Severe Abrasion And Medium Impact**

## DESCRIPTION

EutecTrode 7020 is a highly alloyed composition suitable for severe abrasion with medium impact and maintains deposit hardness up to °1000F (°538C). This all-position, tubular electrode has a high deposition rate for increased efficiency, productivity, coverage and usability. When used at low amperage, dilution is minimized and the key wear resistant properties are maintained. EutecTrode 7020 possesses built-in moisture resistance.

## Product Details

- Designed for maximum efficiency and productivity
- Maintains high temperature hardness to °1000F (°538C)
- Slag-free weld deposits
- Low operating current and low heat input

## APPLICATIONS

- Pug Mill Augers: Raw material Processing
- Muller Tires: Iron and Steel Works
- Dozer Teeth: Various
- Sheepsfoot Tampers: Construction
- Cage Crushers: Fertilizer Industry
- Asphalt Mixer Paddles: Civil Eng. / Construction
- Fan Blades :Various

## PROCEDURE FOR USE:

**PREPARATION:** Clean weld area of scale and/or oxide. A nominal preheat of 150°F (65.5°C) is advised if the part is below 40°F (4°C) or over 1" thick. For higher carbon steels higher preheats will be needed.

*Note: Do not preheat Hadfield manganese steel castings above 400°F (204°C) as this will cause time-temperature embrittlement.*

**TECHNIQUE:** Maintain a medium-to-short arc and incline the electrode at a 45° angle in the direction of travel. Excessive weaving (more than 2x the electrode diameter) is not advised as wide beads can cause excessive base metal overheating and degrade the weld deposit wear properties. Back whip craters to reduce crater-cracking tendencies.

**Do not deposit more than two layers.**

**POST WELDING:** Allow parts to slow cool in still air. High carbon steels and air hardenable steels should be covered with a heat-retardant blanket..

## TECHNICAL DATA

Typical Hardness :55 - 60 HRC  
Carbide Hardness: 1100 - 1200 VPN (M7C3)  
Carbide Content: Medium

Current Polarity: AC/DC (+/-)

DIAMETER	AMPERAGE
6.4mm	85-135
9.5mm	130-190
12.7mm	200-430

**Note:** For optimum result use the lowest amperage practical

# Eutectrode 7030

## All-Position, Tubular Hardfacing Electrode Combats Fine Partical Abrasion, 2-Body Abrasion And Light Impact

### DESCRIPTION

EutecTrode 7030 is specifically formulated to resist fine particle erosion, -2body abrasion and light impact while maintaining deposit hardness up to °1000F (°538C). This all-position, tubular electrode has a high deposition rate for increased efficiency, productivity, coverage and usability. When used at low amperage, dilution is minimized and the key wear resistant properties are maintained. EutecTrode 7030 possesses built-in moisture resistance.

### Product Details

- Designed for maximum efficiency and productivity
- Maintains high temperature hardness to °1000F (°538C)
- Slag-free weld deposits
- Low operating current and low heat input

### APPLICATIONS

- Ripper Shanks: Quarrying
- Impeller Bars : Mining / Quarrying
- Stripper Bars : Quarrying
- Grizzly Bars: Cement Works
- Drag Chain Links : Mining
- Cement Chutes : Cement Works
- Clinker Belt Links : Cement Works
- Skip Car Lips : Deep Mining
- Discharge Chutes : Cement /Quarrying
- Cone Crusher Rolls: Quarrying
- Fan Blades : Various

### PROCEDURE FOR USE:

#### PREPARATION:

Clean weld area of scale and/or oxide. A nominal preheat of 150°F (65.5°C) is advised if the part is below 40°F (4°C) or over 1" thick. For higher carbon steels higher preheats will be needed. Note: Do not preheat Hadfield manganese steel castings above 400°F (204°C) as this will cause time-temperature embrittlement.

**TECHNIQUE:** Maintain a medium-to-short arc and incline the electrode at a 45° angle in the direction of travel. Excessive weaving (more than 2x the electrode diameter) is not advised as wide beads can cause excessive base metal overheating and degrade the weld deposit wear properties. Back whip craters to reduce crater-cracking tendencies. Do not deposit more than two layers.

**POST WELDING:** Allow parts to slow cool in still air. High carbon steels and air hardenable steels should be covered with a heat-retardant blanket.

### TECHNICAL DATA

Typical Hardness :55 - 60 HRC  
Carbide Hardness: 1100 - 1200 VPN (M7C3)  
Carbide Content: Medium to high

Current Polarity: AC/DC (+/-)

DIAMETER	AMPERAGE
6.4mm	85-135
9.5mm	130-190
12.7mm	200-430

**Note:** For optimum result use the lowest amperage practical

# EutecTrode 7040

## All-Position, Tubular Hardfacing Electrode Combats Severe Abrasion And High Temperature Erosion And Medium Impact

### DESCRIPTION

EutecTrode 7040 is formulated to resist severe abrasion and high temperature erosion up to °1500F (°815.5C). This all position, tubular electrode has a high deposition rate for increased efficiency, productivity, coverage and usability. When used at low amperage, dilution is minimized and the key wear resistant properties are maintained. EutecTrode 7040 possesses built-in moisture resistance.

### Product Details

- Designed for maximum efficiency and productivity
- Maintains high temperature hardness to °1500F (°815.5C)
- Slag-free weld deposits
- Low operating current and low heat input

### APPLICATIONS

- Ash Conveyor Links :Various
- Feeder Screws:Various
- Rotor & Impeller Bars: Various
- Dust Collector Fans: Cement Works
- Ash Conveyor Elbows: Various
- Sintering Plant Augers :Iron/Steel Works
- Kiln Flights: Cement Works
- Fan Blades: Various

### PROCEDURE FOR USE

**PREPARATION:** Clean weld area of scale and/or oxide. A nominal preheat of 150°F (65.5°C) is advised if the part is below 40°F (4°C) or over 1" thick. For higher carbon steels higher preheats will be needed.

**Note:** Do not heat Hadfield manganese steel castings above 400°F (204°C) as this will cause time-temperature embrittlement.

**TECHNIQUE:** Maintain a medium-to-short arc and incline the electrode at a 45° angle in the direction of travel. Excessive weaving (more than 2x the electrode diameter) is not advised as wide beads can cause excessive base metal overheating and degrade the weld deposit wear properties. Back whip craters to reduce crater-cracking tendencies.

**Do not deposit more than two layers.**

**POST WELDING:** Allow parts to slow cool in still air. High carbon steels and air hardenable steels should be covered with a heat-retardant blanket.

### TECHNICAL DATA

Typical Hardness : 55 - 60 HRC  
Carbide Hardness: 1100 - 1200 VPN (M7C3)  
Carbide Content: Medium

Current Polarity: AC/DC (+/-)

Diameter	Amperage
6.4mm	85-135
9.5mm	130-190
12.7mm	200-430

**Note:** For optimum result use the lowest amperage practical

# EutecTrode XHD 6395N

## Nanoalloy® Electrode For Manual Wearfacing Applications

### DESCRIPTION

Eutectrode XHD 6395N is based on the science and engineering of Nanotechnology. Weld deposits have a high volume fraction of ultra-hard, complex borocarbides distributed evenly in a unique, semi-amorphous iron alloy matrix. Easy to use and welder-friendly, 6395N offers a higher caliber of abrasion resistance reinforced by a tough, ductile matrix for added impact resistance. 6395N outperforms chromium and complex carbides by up to 6395 !%40N's wear resistance is equal to that of a %35 tungsten carbide alloy at a lower cost..

### Product Details

- Unique NanoAlloy structure for unmatched abrasion and erosion resistance
- Produces tough uniform 67 HRC single and double pass weld deposits
- Wears like tungsten carbide at a fraction of the cost
- Outlasts chrome carbide and complex carbide alloys
- Ensures enhanced productivity and cost savings
  - Smooth ripple-free weld surface
  - High efficiency metal recovery
  - Precision grindable deposits
  - Stress relieving cracks
  - Easy striking and restriking for anti-wear patterns
  - Retains high hardness properties at elevated temperatures
  - Single pass attains close to maximum hardness
  - With stands thermal cycling up to °1200F (°650C)

EutecTrode 6395N is not recommended for applications beyond a 2 pass maximum. For best results apply EutecTrode XHD 6395N with as little heat as possible, allowing parts to cool between layers.

Eutectrode XHD 6395N Should Not Be Used On Manganese/ Hadfield Steels As It Will Not Bond!

### TECHNICAL DATA

Typical Hardness as deposited :67-70 HRC

Current Polarity: AC/DC (+)

DIAMETER	AMPERAGE
3.2mm	120-150
4.0mm	150-175

**Note:** For optimum result use the lowest amperage practical

### APPLICATIONS

Bucket Teeth/ Lips: Mining  
Crusher Bar: Earth Moving  
Shredders/Knives:Waste/Recycling  
Feed Screw: Pulp And Paper  
Roller Crusher: Iron And Steel  
Dredging Teeth: Construction

### PROCEDURE FOR USE

**PREPARATION:** Remove all “old” cracked or spalled material down to a sound base. Clean any residual oxides, coatings, spatter or residue. For steels with higher alloy content or which require build-up greater than ¼” a -2pass buffer layer of Eutectrode 680 is strongly recommended.

*Pioneering Industrial Sustainability*  
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