LoTherme - 600

Co-Cr-W-alloy of Cobalt Grade 1 for surfacing to resist high temperature wear.

Characteristics :

LoTherme-600 welds well in the horizontal position. Soft arc, smooth seam surface. It still retains great hardness at high temperatures, even at red heat, and recovers its original hardness after cooling.

Applications:

LoTherme-600 is the hardest of the cobalt-containing alloys and is used mainly for severe friction wear, erosion and corrosion. It is very resistant to sliding stressing metal-to-metal, and is therefore recommended for pump bushes, screw conveyors, wear rings, guide rails, cutters, rolls.

Typical Mechanical Properties Of All Weld Metal:

AT ROOM TEMPERATURE	:	45-55 HRC
AT 600°C	:	43-48 HRC

Welding Instructions:

Re-dry the electrodes at 250°C for one hour before use. Clean the weld zone of rust, scale and grease. Bigger work pieces are preheated to about 300°C. Keep the amperage as low as possible, so as to fuse the parent metal as little as possible. Guide the electrode vertically, keeping the arc short. Weave only slightly. Cool slowly in an oven or under asbestos. Machinable only by grinding.

Current Conditions : DC(+)

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	150-190	120-160	80-120	60-90

Available in Filler Rod form also.

LoTherme - 601

Low heat input touch-weld electrode for machinable overlays on all ferrous metals Deposit in flame hardenable.

Characteristics :

LoTherme-601 is characterized by a soft and stable arc, which is easy to strike and restrike, smooth, crack free welds, good slag detachability.

The deposited weld metal has a high degree of toughness, excellent resistance to rolling and sliding friction and heavy impact loads.

Applications:

LoTherme-601 is a versatile electrode for hardfacing, overlay and inlay applications on all ferrous metals, components, machine parts requiring moderate hardness in combination with good machinability, such as tractor sprockets, gears, shafts, axles, pinion teeth, concrete and pan mixer blades, ropeway and tram car rails, and wheels, points and crossing, crane wheels, ropeway trolley wheels.

Weld Metal Hardness : 240 - 300 BHN

Welding Technique :

Clean the weld area. Use low current and a short arc length. Avoid weaving of the electrode. While surfacing on medium and high carbon steels, use LoTherme-352 for buffer layers in order to avoid chances of cracking. For surfacing on heavy sections and materials high in carbon, pre-heating of the part may be necessary.

Current Conditions : DC(+)

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	150-250	130-160	95-120	60-90

LoTherme - 602

Low heat input, touch-weld, low manganese electrode for moderately hard deposit to resist impact & frictional wear. It is a flame hardenable alloy.

Characteristics :

LoTherme-602 is characterised by a stable arc, which is easy to strike and restrike, good slag detachability and weld beads of fine appearance. It operates equally well on AC as well as DC in all conventional positions.

Applications:

LoTherme-602 is ideally suited for a number of applications, which demand good abrasion resistance, combined with fairly high degree of toughness. It can be used on mild steel, carbon steel, low alloy steels, etc., where hardness of 250-300 BHN is required. Some of the typical applications include gears, shafts, crane wheels, brake shoes, forging dies, drive sprockets, conveyor parts, cold punching dies, rail ends, log wheels, ploughshares, wobblers, etc.

Weld Metal Hardness : 280 - 380 BHN

Welding Technique :

The electrode should be stored dry. In case of moisture pick-up, Re-dry at 150°C for one hour before use. Use low current and short arc. Avoid excessive weaving. For base materials with carbon content of 0.3% and above, use buffer layers with LoTherme-352 before surfacing.

Current Conditions : DC(+)

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	160-190	130-160	95-120	55-75

LoTherme - 602 B

A basic electrode, with high recovery, for moderately hard deposit, especially on high tensile ferrous metals, that are heat treatable, well suited for difficult to weld steels in forging industries.

Characteristics :

LoTherme-602 B is characterised by a stable arc, good slag detachability and weld beads of fine appearance. It operates well on conventional positions.

Applications:

LoTherme-602 B is a highly crack resistant, even in multiple layer deposit, ideally suited for a number of applications, which demand good impact resistance, combined with high degree of toughness. It can be used on mild steel, carbon steel, low alloy steels, etc. where an as-welded hardness of 33-40 HRC is required. Some of the typical application include gears, shafts, crane wheels, brake shoes, forging dies, drive sprockets, conveyor parts, cold punching dies, rails ends, log wheels, ploughshares, wobblers, etc.

Weld Metal Hardness : 320 - 380 BHN (As Welded)

Welding Technique :

The electrode should be stored dry. Re-dry at 250°C for 1 hour before use. Use low current and short arc. Avoid excessive weaving. For base materials with carbon content of 0.30% and above, use buffer layers with LoTherme-352 before surfacing. When welding hardenable steels of large thickness, adequate care for preheating, slow cooling after welding & PWHT are recommended for best result.

Current Conditions : DC(+)

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	170-210	140-170	90-130	N.A.

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LoTherme - 603

Low heat input, basic coated versatile electrode for hard surfacing of widely varying machine parts and components.

Characteristics :

LoTherme-603 a hard surfacing electrode, operates well in all conventional positions. The deposited weld metal has exceptional abrasion and wear resistance in combination with resistance to heavy impact. Evenly rippled, porosity free weld deposits permit heavy build-up without danger of cracking. In most cases LoTherme-603 can be used direct on the job without the necessity of depositing buffer layers.

Applications:

LoTherme-603 core wire and flux formulation are so chosen as to make the electrode versatile in terms of surfacing applications on a large variety of machine parts, equipment, etc. Typical applications include surfacing chipper knives, conveyor bucket lips, shear blades, shovels dredger and elevator bucket lips rock crushers, rock drills, tractor grousers and paddlers. In crushing applications, LoTherme-603 is recommended as the final layer on 14 % manganese weld deposit to reduce the initial wear.

Weld Metal Hardness **:** 52 - 62 RC

Welding Technique **:**

Ensure that the electrodes are perfectly dry before use. In case of moisture pick-up, redry the electrodes at 200°C for one hour before use. Clean the weld area free of any surface contamination. Use AC or DC(+). Hold a short arc length and weld with stringer beads.

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350
Current Range (Amps)	170-210	140-170	100-130

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LoTherme - 603 R

Rutile-coated, touch-welding, H/F electrode for wear resistant surfacing on wide range of machine components.

Characteristics :

LoTherme-603 R has excellent welding properties, a homogeneous, finely rippled bead appearance due to the spray arc and very easy slag removal. This electrode is weldable with very low amperage settings (advantage for edge buildup).

Applications:

LoTherme-603 R is used for wear resistant buildups for abrasion and impact applications. Typical applications include surfacing chipper knives, conveyor bucket lips, shovels dredger and elevator bucket lips, rock crushers, rock drills, tractor grousers and paddlers.

Weld Metal Hardness : 55 - 60 HRC

Welding Instructions :

Preheat high-alloy tool steels to 400-450°C and maintain this temperature during the whole welding process. Hold electrode vertically with a short arc and lowest possible amperage setting. Machining only by grinding. Re-dry electrodes that have got damp for 1 hour at 100°C.

Current Conditions : AC / DC (±)

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	150-180	110-150	80-110	60-90

LoTherme

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LoTherme - 604

Unique graphite based low heat electrode for hard facing overlays on machine parts and components subject to high abrasion and moderate impact.

Characteristics :

LoTherme-604 yields hard and tough deposits, which have excellent resistance to abrasion in combination with friction, moderate impact.

Applications:

LoTherme-604 is ideally suited for surfacing machine parts subject to high stress grinding abrasion as also grouping abrasion on carbon steels, manganese steels, malleable iron and air hardenable alloy steels. Typical applications for abrasion resistance include excavator teeth, ploughshares, cultivators, impellers, excavator buckets, bucket teeth, cams, fan blades, exhaust blades, scraper bars, dredger buckets and oil expeller worms. LoTherme-604 is also well suited for coal crushing applications such as mill hammers, pulverizers and cement grinder rings.

Weld Metal Hardness : 56 - 62 HRC

Welding Technique :

Redry the electrodes at 200°C for one hour before use. Clean the weld area. Use short arc and avoid weaving of the electrode. While surfacing medium and high carbon steels use LoTherme-352 for buffer layers to avoid chances of cracking. Do not use more than two layers of LoTherme-604 at a time. For a heavy build-up, deposit a cushion layer of LoTherme-352 or LoTherme 607 followed by two layers of LoTherme-604.

Current Conditions : AC / DC (+)

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	165-190	120-160	90-120	70-90

LoTherme - 605

AC/DC Low heat input versatile electrode for depositing Chromium Carbide alloy to resist High Abrasion and impact along with mild corrosion.

Characteristics :

LoTherme-605 is a hard surfacing electrode, operates well in all conventional positions. The deposited weld metal has exceptional abrasion wear resistance in combination with resistance to impact & mild corrosion. Evenly rippled, porosity free weld deposits permit heavy build-up without danger of cracking. In most cases LoTherme-605 can be used direct on the job without the necessity of depositing buffer layers.

Applications:

LoTherme-605 core wire and flux formulation are so chosen as to make the electrode versatile in terms of surfacing applications on a large variety of machine parts, equipment, etc. Typical applications include surfacing Sugar Mill cane cutting knives, shredder & fibrizer hammers, anvil, chipper knives, conveyor bucket lips, shear blades, shovels dredger and elevator bucket lips rock crushers, rock drills, tractor grousers and paddlers. In crushing applications, LoTherme-605 is recommended as the final layer on 14% manganese weld deposit to reduce the initial wear.

Weld Metal Hardness **:** 55 - 60 HRC

Welding Technique **:**

Ensure that the electrodes are perfectly dry before use. In case of moisture pick-up, redry the electrodes at 200°C for one hour before use. Clean the weld area free of any surface contamination. Hold a short arc length and weld with stringer beads.

Current Conditions : DC (±) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350
Current Range (Amps)	150-180	120-160	95-120

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LoTherme - 606

Co-Cr-W-alloy of Cobalt Grade 6 hard-facing to resisting impact and wear.

Characteristics :

LoTherme-606 welds well in the horizontal position. Soft arc, smooth seam surface. High resistance to impact, corrosion and hardness at elevated temperature under alternating temperatures stressing.

Applications:

LoTherme-606 is used primarily on work-pieces exposed to high alternating temperatures and corrosion. Specific applications: valves and valve seats, sealing surfaces, hot shear blades, hot pressing tools, forging de-burrers, wire mill rolls and beaters for coke combustion.

Typical Mechanical Properties Of All Weld Metal:

AT ROOM TEMPERATURE	:	32-40 HRC
AT 600°C	:	30-35 HRC

Welding Instructions:

Clean the weld zone of rust, scale and grease. Bigger work pieces are preheated to about 300°C. Keep the amperage as low as possible, so as to fuse the parent metal as little as possible. Guide the electrode vertically, keeping the arc short. Weave only slightly. Cool slowly in an oven or under asbestos. Machinable with tungsten carbide tools.

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	160-200	120-160	80-120	60-90

Filler Wire also Available.

LoTherme - 607

Versatile low heat input welding and surfacing electrode producing a weld metal highly resistant to cracking, heavy impact, metal-to metal wear and deformation, with rapid work hardening.

Characteristics :

LoTherme-607 is characterised by excellent performance in all conventional positions, soft and stable arc which is easy to strike and restrike, good slag detachability and well rippled, uniform weld beads.

The electrode produces a unique weld metal chemistry and set of physical and mechanical properties which are highly favorable for obtaining crack free weld deposits having outstanding resistance to heavy impact, metal-to-metal wear and plastic deformation.

Applications:

LoTherme-607 is ideally suited for use on austenitic manganese steels. Typical applications include surfacing and building up of broken or worn out 14% manganese steel parts such as jaw and roll crushers, crusher hammers, excavator bucket teeth and lips, dredger buckets, dipper teeth, rail road trucks, frogs and switches and similar machine parts and components subject to heavy impact and high stresses.

Weld Metal Hardness:

160-200 BHN (As welded)

43-53 HRC (Work hardens under impact rapidly)

Welding Technique :

Dry electrodes at 250°C for one hour. Clean the weld area. Use low current, short arc, short and stringer beads. For joining or resurfacing of austenitic manganese steel, ensure that the inter-pass temperature does not exceed 100°C, by keeping the object submerged partially in a tank full of running water.

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	160-190	110-150	80-120	50-80

LoTherme

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LoTherme - 608

Versatile low heat input electrode for hard-facing and overlay applications on high speed steels and tool steels.

Characteristics :

LoTherme-608 is a versatile electrode for surfacing, inlay, overlay and hardfacing of a variety of machine tools and components for prolonged service life. The weld deposits are highly resistant to wear and retain hardness and toughness up to 600°C. This special feature enables the weld metal to retain its cutting edge and hardness even at elevated temperatures. Use of LoTherme-457 may be necessary as buffer layer on tool steels.

Applications:

LoTherme-608 has been specially designed for surfacing cutting tools, dies, punches, bamboo chipper knives, paper cutting knives, shearing blades, boring tools, and large number of other machine tools requiring high speed steel type deposit of appropriate hardness.

Weld Metal Hardness : 56 - 60 HRC

Welding Technique :

Keep the electrodes dry. In case of moisture pick-up, redry at 250°C for one hour before use. Clean the weld area free of any surface-contamination.

Pre- heating of hardenable steels, complicated parts and heavy sections at 200-300°C may be necessary depending upon the size and type of the job.

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	160-200	140-170	90-120	60-90

LoTherme - 609

A special formulated low hydrogen electrodes for hot shear blades.

Characteristics :

LoTherme-609 is a low heat input electrode depositing a C-W-Co-Cr-V alloy. The electrode has excellent operating characteristics and operates smoothly without posing any difficulty for the welders. The weld metal possesses good toughness and resistance to shock loads. The weld metal retains hardness even at elevated temperatures of 600°C and possesses good resistance to oxidation.

Applications:

LoTherme-609 is ideally suited for reclaiming hot shear blades and components of similar type where retention of elevated temperature hardness is important.

WELD METAL HARDNESS : 55 - 60 RC

Welding Technique :

For best results dry the electrodes at 250°C for one hour before use. Clean the weld area completely free of oil, grease, paints, rust of any other foreign matter. Use short arc and stringer bead technique.

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	160-200	130-160	90-120	60-90

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LoTherme - 610

An outstanding, low heat input electrode for hard-facing and applying buffer and cushion layers on a wide variety of austenitic manganese steel components, with progressive work hardening.

Characteristics :

LoTherme-610 yields a weld metal, which has high toughness and abrasion resistance in combination with excellent resistance to deformation and cracking. Ideally suited for depositing buffer layers on hard austenitic manganese steel surface.

Applications:

LoTherme-610 is ideally suited for hardfacing, overlay, buffer, and cushion layer applications on a variety of components on mild steel, carbon steel, low alloy steel and austenitic manganese steel. Typical applications include surfacing mining machinery, dredging equipment, excavator parts, mill hammers, cement mill air rings, crusher hammers, roll crusher, muller tyres, shovel tracks, coal mining cutters, tractor grousers, dipper teeth, sand pump impellers, value seats, etc.

Weld Metal Hardness : 280-380 BHN (As welded)

Work hardens under impact to : 480-550 BHN

Welding Technique :

For best results, dry electrodes at 250°C for one hour before use. Clean weld surface thoroughly free of any surface contamination. Use short arc and stringer bead technique.

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	160-190	110-150	80-100	50-70

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LoTherme - 611

Low heat input, versatile, hard-facing electrode having excellent resistance to abrasion accompanied by mild impact.

Characteristics :

LoTherme-611 is a versatile low heat input electrode producing a weld metal having exceptional resistance to heavy abrasion in combination with high compressive load and moderate impact even at temperatures up to 500°C. Soft and stable arc, which is easy to strike and restrike, easily detachable slag and smooth, regular weld bead are some of the pleasant features associated with the electrode.

Applications:

LoTherme-611 is ideally suited for hardfacing parts and components subject to heavy abrasion, erosion, metal-to-metal wear and moderately heavy impact. Typical applications include air rings, conveyor screws, dredger buckets, shovels, impellers, mill hammers, mixer blades, muller ploughs, dipper teeth, I.D. fans, etc. in steel mills, construction and earth moving machinery, power plants and cement industry.

Weld Metal Hardness : 55 - 58 HRC

Welding Technique :

Ready electrode at 250°C for one hour before use. Clean weld surface free of all surface contamination. Use short arc and stringer bead technique.

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	150-190	130-160	90-120	60-80

LoTherme - 612

Co-Cr-W-alloy of Cobalt Grade 12 hard-facing resisting heat, corrosion and wear.

Characteristics :

LoTherme-612 welds well in the horizontal position. Soft arc, smooth seam surface. Very high resistance to combined abrasion and impact stressing under high temperatures. Corrosion- resistant.

Applications:

LoTherme-612 is given preference where corrosion, abrasion and impact stressing are imposed simultaneously. Typical specific applications are cutters and tools for processing plastics, wood and paper, as well as highly stressed sealing and sliding surfaces.

Typical Mechanical Properties Of All Weld Metal:

AT ROOM TEMPERATURE	:	37-45 HRC
AT 600°C	:	35-40 HRC

Welding Technique:

Clean the weld zone of rust, scale and grease. Bigger work pieces are preheated to about 250°C. Keep the amperage as low as possible, so as to fuse the parent metal as little as possible. Guide the electrode vertically, keeping the arc short. Weave only slightly. Cool slowly in an oven or under asbestos. Machinable by grinding.

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	160-200	120-160	80-120	60-90

LoTherme - 613

An outstanding low heat input, hard-facing electrode having excellent resistance to abrasion, metal-to-metal wear at ambient as well as at high temperatures and good corrosion resistance.

Characteristics :

LoTherme-613 yields weld deposits, which have excellent resistance to abrasion and metal-to-metal wear in combination with good resistance to corrosion. The weld deposits possess hardness of 48-56 RC. Hardness is retained up to 550°C. A soft and stable arc, which is easy to strike and restrike, good slag detachability and smooth weld profile are some of the many pleasing features associated with LoTherme-613.

Applications:

Where conditions are highly abrasive and also corrosive e.g. flue gases, slurries, etc., LoTherme-613 is the most appropriate electrode.

The capacity to retain hardness at high temperatures, and excellent resistance to abrasion make LoTherme-613 ideally suited for surfacing blast furnace bells and hoppers, conveyor screws, coke, chutes, steel mill grinders, pump impellers, valves, etc.

Weld Metal Hardness : 48 - 55 RC

Welding Technique :

For best result, bake the electrodes at 200°C for one hour before use. Clean weld surface thoroughly free of all surface contamination. Use short arc and stringer bead technique.

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350
Current Range (Amps)	180-220	140-170	100-130

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LoTherme - 615

An electrode for resisting extreme abrasion, erosion & metal to metal wear severe impact.

Characteristics :

LoTherme-615 is a specially designed complex Titanium Carbide alloy, in martensitic matrix, designed to resist extreme abrasion, erosion, metal to metal wear and high impact loads while handling minerals. A crack free multilayer deposit is obtained.

Applications:

LoTherme-615 is specially designed for heavy compressive loads and severe impact experienced especially in roller press, scraper blades, coal crusher rolls, pulverize rolls, blow bars, impact arm, shovel buckets, clinker breaker hammers, etc.

Weld Metal Hardness : 51-58 HRC (As Welded on Multilayer)

Welding Technique :

For best result, dry the electrodes at about 250°C for 1 hour before use. Remove all the damaged and fatigued metal and clean weld area. Use short arc and stringer bead technique. For high carbon steels use preheat up to 300°C.

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	160-220	120-160	100-140	70-90

LoTherme - 616

Electrode for resisting high abrasion wear with moderate impact at 450°C.

Characteristics :

LoTherme-616 is a high Niobium-Chromium Carbide alloy specially designed to resist high stress grinding abrasion wear with moderate impact, even at elevated temperature of 450°C. The deposit will exhibit surface relief checks.

Applications:

It is suitable for welding of conveyor screws, VRM tyres, Coke chutes, coal mill exhaust fan blades, table liners, screens, oils expeller screws, etc.

WELD METAL HARDNESS : 56 - 62 HRC

Welding Technique :

Remove all the damaged and fatigued metal and clean weld area. Use short arc and stringer bead technique. For High Carbon Steels use preheat up to 300°C. For austenitic manganese steels do not allow the temperature of parts to exceed 150°C and use LoTherme-457 as cushioning layers. Slow cool after welding.

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	170-220	130-160	110-140	70-90

LoTherme - 617

Low heat input, hardfacing electrode having excellent resistance to high stress abrasion, severe erosion at moderate temperature.

Characteristics :

- A versatile electrode producing a weld metal having exceptional resistance to wear from combined abrasion, erosion and moderate impact.
- Soft and stable arc which is easy to strike and restrike.
- Electrode deposits high rate of weld metal with little slag.
- Thick single pass deposits give high yield.

Applications:

LoTherme-617 is ideally suited for hardfacing machine parts and components subject to combination of heavy abrasion, erosion, and moderate impact. Typical applications include surfacing carbon steels, austenitic manganese steels like drag line bucket walls, scraper blades, crushing blades, crushing hammers, conveyor chains, etc.

Weld Metal Hardness : 57-62 HRC

Welding Technique :

Remove all damaged and fatigued metal before deposition. Use short arc and stringer bead technique. One pass overlay is normally recommended. If more build-up is required, use cushion layer of LoTherme-602 for steels, LoTherme-457 for 14% manganese steels.

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	150-180	120-150	80-110	70-90

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LoTherme - 618

Low heat input hardfacing electrode having outstanding abrasion, erosion resistance at high temperatures.

Characteristics :

- Specially formulated to retain abrasion, erosion resistance up to 650°C.
- Excellent resistance to wear due to high temperature Abrasion & Erosion.
- Soft and stable arc which is easy to strike and re-strike.
- Easy handling with rapid deposition rate.
- Thick single pass deposits give extra high yield.

Applications:

LoTherme-618 is a specially designed for hard-facing carbon steel and austenitic manganese steels for applications encountering abrasion and erosion at elevated temperatures. The typical applications include clinker conveyor chains, sinter handling equipment, coke pusher shoes, augers, slurry pumps, billet conveyor guide, hot slag conveyors, etc.

Weld Metal Hardness : 57-63 RC

Welding Technique :

Remove all damaged and fatigued metal and clean weld area. Use short arc and stringer bead technique. For high carbon steels, hardfacing use preheat upto 275°C. For austenitic manganese steels do not allow temperature of parts to rise more then 150°C and use LoTherme-457 as a cushion layer. Slow cool after welding. Pre-dry electrodes to 200°C before use.

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	180-220	140-160	120-140	70-90

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LOTHERME

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LoTherme - 618 S

"Spray" electrode for roughening the cast-iron cane crushing rolls in the SUGAR industry. Equally efficient in both Wet & Dry arcing.

Characteristics :

LoTherme-618 S has an aggressive "spray" type arc with excellent penetration to allow application while the mill is in operation. By attaching the earth clamp to the gearbox housing, arcing in the bearing area is avoided. It has been developed to resist the extreme load produced during crushing. The deposit is highly abrasion-resistant and also corrosion-resistant.

Applications:

The application of LoTherme-618 S electrode on sugar mill rollers improves the grip on the cane, increases the quantity of sugar care crushed and, consequently, results in a higher sugar recovery.

Weld Metal Hardness on the Carbide :

ON CARBON STEEL	:	55 - 60 HRC
ON CAST IRON	:	58 - 62 HRC

Welding Instructions :

Hold electrode vertical to work piece. Keep stable arc on moving roll for full spraying effect.

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	170-200	140-170	100-140	70-100

LOTHERME

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LoTherme - 619

Low heat input hard-facing electrode for reconditioning of worn-out MM steel and Gr. 90A points and crossings for use in high traffic density routes.

Characteristics :

LoTherme-619 has been formulated to produce strong, tough, easy work hardening and highly abrasion resistible austenitic 15Cr-15Mn-2Ni weld metal. The electrode possesses pleasing operating characteristics and produces smooth, well-rippled weld beads, with easy slag detachability.

Applications:

LoTherme-619 is ideally suited for welding high manganese steel such as rail crossings, Bulletproof steel plates, Crushing blades, Crushing hammers etc.

Weld metal Hardness	:	240-250 BHN (As welded)
After work hardening	:	400-470 BHN

Welding Instructions :

Keep the electrode dry. In case of moisture pick up, they should be rebaked at 250°C for min. one hour. Clean the weld area thoroughly free of any foreign matter, Use low current, short arc and stringer beads,

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	160-200	140-180	100-140	70-90

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LoTherme - 621

Specially designed Electrodes produces cobalt base grade 21 weld metal with Mo for Impact, Pressure & Abrasion at elevated temperature.

Characteristics :

LoTherme-621 has excellent welding properties and a homogeneous, finely rippled bead due to spray arc. Very easy slag removal.

Applications:

LoTherme-621 is used for crack resistant hardfacing on parts subject to a combination of impact, pressure, abrasion, corrosion and high temperatures up to 900°C, such as running and sealing faces on gas, water, steam and acid fittings and pumps, valve seats and cones for combustion engines, working parts in gas and power plants, hot working tools with changing thermal load. Excellent gliding characteristics, good polishability and toughness, highly work hardening nonmagnetic, machinable with cutting tools.

Weld Metal Hardness :

AT ROOM TEMPERATURE	:	25-32 RC
AT 600°C	:	220-280 BHN
WORK HARDENS	:	UP TO 45 HRC

Welding Instructions :

Ensure that the electrodes are dry. In case of moisture pick-up, dry the electrodes at 300°C for 2 hours before use. Clean weld area and preheat the base material. Hold electrode vertically and with a short arc and lowest possible amperage. Ensure slow cooling.

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	160-200	120-160	80-120	60-90

LoTherme - 624BE

Low heat input, low hydrogen electrode having excellent resistance to abrasion at elevated temperature.

Characteristics :

- Low heat input, low hydrogen, Ni-Mo alloy based electrodes.
- Electrode producing a weld metal having exceptional resistance to wear to combat abrasion, impact, and retain hardness at elevated temperatures.
- Soft and stable arc, which is easy to strike and re-strike.

Applications:

LoTherme-624 BE is ideally suited for hardfacing machine parts and components subject to combination of heavy abrasion, metal-to-metal wear, moderate impact and hardness at elevated temperatures. Typical applications include surfacing such as hot shears, blast furnace bells, tong teeth, hoppers, valve seats, guide plates, etc.

Weld Metal Hardness :

As Deposited	:	50 - 53 RC
At 550°C	:	40 - 43 RC

Welding Technique :

Remove all damaged and fatigued metal before deposition. Use short arc and stringer bead technique. Keep the electrodes dry. In case of moisture pick-up, redry at 250°C for an hour before use.

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	190-220	160-185	120-150	80-100

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LOTHERME

50 YEARS 1966 - 2016

LoTherme - 625

Low heat input hard-facing electrode for reconditioning of worn-out MM steel and Gr. 90A points and crossings for use in high traffic density 35 GMT.

Characteristics :

LoTherme-625 is characterized by producing easy work hardening and highly wear resistible austenitic 17%Cr-15%Mn- 3% Ni weld metal. The electrode possesses pleasing operating characteristics and produces smooth, well-rippled weld beads.

Applications:

LoTherme-625 is ideally suited for welding high manganese steel such as rail crossings and points, jaw and roll crushers, crusher hammers, crushing blades, etc.

Weld Metal Hardness	:	200-300 BHN (As welded)
After work hardening	:	400-470 BHN

Welding Technique :

Keep the electrode dry. In case of moisture pick up, they should be rebaked at 250°C for one hour. Clean the weld area thoroughly free of any foreign matter, Use low current, short arc and stringer beads,

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	200-250	160-190	130-160	100-130

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LoTherme - 627

A special low heat input hardfacing electrode.

Characteristics :

LoTherme-627 is a specially formulated low heat input hard-facing electrode for the reclamation of rolls, crane wheels, etc. The electrode has pleasing operating characteristics. The weld metal has excellent resistance to heat and rolling friction and resistance to wear at elevated temperatures. The weld deposit is machinable for smooth finish.

Applications:

The weld metal is ideally suited for the reclamation of steel mill rolls and other similar applications involving roll friction and elevated temperature wear.

Weld Metal Hardness : 280 - 380 BHN

Welding Technique :

Keep the electrode dry. In case of moisture pick-up, redry at 150°C for an hour before use. Clean the weld area free of any surface contamination. Use short arc and stringer bead technique.

Current Conditions : AC / DC(+)

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	160-200	130-160	90-120	60-90

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LoTherme - 628

Low heat input electrodes depositing air hardening weld metal for hardfacing.

Characteristics :

LoTherme-628 is a low heat input electrode specially designed for hardfacing and build-up of worn out machine parts and components. Welds are highly resistance to abrasive wear and possesses moderate toughness. It can be used in all conventional positions. Soft and stable arc, which is easy to strike and restrike, well rippled smooth weld beads and good slag detachability are the special operating characteristics.

Applications:

LoTherme-628 has versatility of applications in areas of building-up worn out parts and hard-facing. It can be use directly on the job without the necessity of putting a buffer layer. Some of the typical applications including surfing / rebuilding of shafts, chain sheaves, dies, shares, sprockets, rail ends & crossings, pulleys, idler wheels.

Weld Metal Hardness : 290-390 BHN

Welding Technique :

Keep the electrodes dry. For best results, redry the electrodes at 250°C for one hour before use. Clean the weld area thoroughly free of any foreign matter. Use low current, short arc and stringer beads.

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	180-220	130-160	80-110	70-90

LoTherme - 629

Low heat input electrodes for versatile hard-facing applications.

Characteristics :

LoTherme-629 is a low heat input electrode specially designed for hardfacing and build-up of worn out machine parts and components. Welds are abrasive wear resistance and possesses moderate toughness. It can be used in all conventional positions. Soft and stable arc, which is easy to strike and restrike, well rippled smooth weld beads and good slag detachability are the special operating characteristics.

Applications:

LoTherme-629 is versatility of applications in areas of building-up worn out parts and hardfacing. It can be use directly on the job without the necessity of putting a buffer layer. Some of the typical applications include surfacing / rebuilding of shafts, chain sheaves, dies, shares, sprockets, rail ends & crossings, pulleys, idler wheels.

Weld Metal Hardness : 290-390 BHN

Welding Technique :

Keep the electrodes dry. For best results, redry the electrodes at 250°C for one hour before use. Clean the weld area thoroughly free of any foreign matter. Use low current, short arc and stringer beads.

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	180-220	130-160	80-110	70-90

LoTherme - 630

Electrode is especially meant for cavitation wear, corrosion & high temperature impact.

Characteristics :

- It gives soft and smooth arc, which is easy to strike and re-strike.
- Detachability of slag is very easy.
- Smooth, regular and finely rippled beads.
- Weld metal has good erosion and corrosion resistance.

Applications:

LoTherme-630 is a highly corrosion resistant, especially against cavitation, erosion, compression and impact, experienced on water-turbines & pump constructions. It is ideal for surfacing on 13 Cr-4Ni stainless steel for service life improvement. As a result of work - hardening under impact to around 50 HRC, it exhibits extreme wear resistance in its application areas like high temperature impact resistance on steel plant rolls. Especially applicable for the surface of Turn Over Cooling Bed Rakes. Weld-metal is resistant to scaling up to 900°C Machinable with tungsten carbide tip tool.

Hardness Weld Metal :	As Welded	:	240 BHN
	Work Hardened upto	:	50 HRC

Precautions :

- The electrode should be dry. In case of moisture pick up Re-Dry the electrode at 250°C for two hours.
- Use short arc.
- Preheating or PWHT not warranted in case of normal carbon steels or stainless steel base material.

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	160-220	120-150	80-110	70-90

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LoTherme - 650 P

High Heat & Tempering Resistant Alloy for Surfacing of Mandrels, Hot Pierciing Plugs.

Characteristics :

LoTherme-650P has excellent welding properties, a homogeneous, finely rippled seam and a self-lifting slag.

Applications:

LoTherme-650P is suited for heat resistant buildups on hot working steels particularly exposed to metallic gliding wear and elevated shock stress, such as die cast molds for brass, aluminum and magnesium, hot piercing plugs, hot pressed mandrills, trimming tools, hot shear blades, extruding tools, forging dies and hot flow pressing tools for steel. Due to the excellent metal to-metal gliding properties, also suitable for buildups on guiding and gliding surfaces. Tempering resistant up to 650°C, scale resisting up to 900°C.

Weld Metal Hardness :

AS WELDED	:	47 - 52 RC
ANNEALED AT 850 - 900°C	:	35 RC
HARDENED AT 1100 - 1150°C	:	48 - 52 RC
TEMPERED AT 700°C	:	40 RC

Welding Instructions :

Clean welding area to metallic bright. Preheating temperature depends on the welding application (150-240°C). On low-alloy steels at least 3-4 layers should be applied. For best results, re-dry the electrodes at 250°C for one hour before use.

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	160-200	120-160	80-120	60-90

LoTherme - 660 G2

Electrode for high temperature resistant surfacing of hot work steels exposed to compression and friction especially in a re-rolling mill.

Characteristics :

LoTherme-660 G2 electrode welds well in the horizontal and slightly rising positions. The weld pool is easy to control and the slag is easily removed.

Applications:

On the strength of its great hardness, toughness and high-temperature resistance, LoTherme-660 G2 is employed for surfacing on machine components and tools exposed to friction and compression with moderate impact loads and operating temperatures up 500°C. These include dead centers, tons, slide - and guide ways, hot and cold cut-off attachments, valves, slides, hot shear blades, extrusion press pistons, dies, strippers, deburrers, sheet punching tools. It is also used to good advantage for the economic manufacture of cold and hot working tools.

Weld Metal Hardness : 50 - 57 RC

Welding Instructions :

Preheat the work piece to 250-300°C. Guide the electrode as vertically as possible, with medium-long arc. Let the work piece cool slowly under asbestos. Finish by grinding. For best results, re-dry the electrodes at 250°C for one hour before use.

Current Conditions : DC(+)

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	160-200	120-160	80-120	60-90

LoTherme - 660 G3

Electrode for high temperature resistant surfacing on hot work steels exposed to impact, compression and friction, especially in a re-rolling mill.

Characteristics :

LoTherme-660 G3 electrode welds well in the horizontal and slightly rising positions. The weld pool is easy to control and the slag is easily removed.

Applications:

On account of its high tensile strength, toughness and high-temperature resistance, LoTherme-660 G3 is employed for surfacing on machine components and tools exposed to impact, compression and friction at operating temperatures up to 550°C, such as cutting edges for cold and hot shear blades, guillotine shears, dies, swages, hammers etc. It is also used to good advantage for the economic manufacture of cold and hot working tools.

Weld Metal Hardness : 46 - 52 RC

Welding Instructions :

Preheat the work piece to 250-300°C. Guide the electrode as vertically as possible, with medium-long arc. Let the work piece cool slowly under asbestos. Finish by grinding. For best results, re-dry the electrodes at 250°C for one hour before use.

Current Conditions : DC(+)

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	160-200	120-160	90-120	60-90

LoTherme - 660 G4

Electrode for high temperature resistant surfacing exposed to compression and friction, especially in a re-rolling mill.

Characteristics :

LoTherme-660 G4 electrode welds well in the horizontal and slightly rising positions. The weld pool is easy to control and the slag is easily removed.

Applications:

On the strength of its toughness and high-temperature resistance, LoTherme-660 G4 is employed for surfacing on machine components exposed to impact, compression and friction at operating temperatures up to 550°C. Accordingly LoTherme-660 G4 is particularly suited for building-up dies. It can also be used to good effect for surfacing rollers, drive cloverleaves, hot shear blades, etc. It is also employed for the economic manufacture of these work pieces.

Weld Metal Hardness : 37 - 45 RC

Welding Instructions :

Preheat the work piece to 250-300°C. Guide the electrode as vertically as possible, with medium-long arc. Let the work piece cool slowly under asbestos. Subsequent machining with tungsten carbide or grinding. For best results, re-dry the electrodes at 250°C for one hour before use.

Current Conditions : DC(+)

Size (mm) Dia x Length	5x350	4x350	3.15x350	2.5x350
Current Range (Amps)	160-200	130-170	90-120	60-90

LoTherme

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LoTherme - 684

Low heat input electrodes for high stress grinding abrasion and hard deposit on ferrous metals.

Characteristics :

LoTherme-684 is a low heat input complex carbide electrode, which is easy to strike and restrike having very high abrasion resistance & good slag detachability. Weld beads are of fine appearance. It operates in all conventional positions. The weld metal is designed to give excellent resistance to high stress grinding abrasion, galling and scratching abrasion.

Applications:

It can be used on variety of steels and cast iron. Ideally suited for parts subject to abrasion, impact and compressive load, for sand pump, mining & cement industry, bucket lips, pug mill screw, power-station coal nozzles and coal burners.

Weld Metal Hardness : 57 - 62 RC

Welding Instructions :

- Keep the electrode dry. In case of moisture pick, redry at 150°C for one hour before use.
- Use low current and short arc.
- For base materials with carbon content of 0.3% and above, use buffer layers with LoTherme-352 / 607 before surfacing.

Current Conditions : DC(+) / AC

Size (mm) Dia x Length	5x350	4x350	3.15x350
Current Range (Amps)	150-180	120-150	95-120