Surfacing electrodes for anti-wear and anti-corrosion

Product Name Classification AWS Classification EN Classification DIN	Mechanical Properties Typical Values	Size (mm)	Approvals	Characteristics and Applications
UTP 73 G 2	Hardness: 55 - 58 HRC	2.5 x 300 3.2 x 350 4.0 x 400 5.0 x 400	-	UTP 73 G 2 is, due to its high hardness, toughness and heat resistance ideally suited for buildups on parts subject to severe friction, compression and moderate impact loads at elevated temperatures, such as back centers, gripping pliers, gliding and guiding surfaces, hot and cold punching tools, valves, slides, hot-shear blades, extrusion press pristons, forging tools, stripping columns, trimming tools, roll mandrils, punching tools for sheet metals. UTP 73 G 2 is used to good advantage for the production of new cold and hot working tools. In such cases cladding is made on base material with an accordingly high tensile strength. The stick electrode has excellent welding properties, a stable and regular flow, good bead appearance and very easy slag removal. Heat resistant up to 550° C.
UTP 73 G 3 EN 14700: E Fe3 DIN 8555: E 3-UM-45-T	Hardness: approx. 45 – 50 HRC	2,5 x 300 3,2 x 350 4,0 x 400 5,0 x 400* *available on request	-	UTP 73 G 3 is, due to its high strength, toughness and heat resistance ideally suited for buildups on parts subject to friction, compression and impact at elevated temperatures, such as hot shears blades, gate shear, forging saddles, hammers, forging dies, Al-die cast moulds. UTP 73 G 3 is also used to good advantage for the production of new cold and hot working tools with low-alloy base materials. The stick electrode has excellent welding properties, a stable and regular flow, good bead appearance and very easy slag removal. Heat resistant up to 550°C. Hardness of the pure weld metal: approx. 45 – 50 HRC
UTP N 2714 DS	Hardness: 41- 43 HRC	4.00 x 450 5.00 x 450 6.30 x 450	-	Low hydrogen heavy coated electrode for all conventional position welding and repair. Deposits medium alloyed weld metal of radgraphic quality. Excellent welding characteristic with less spatter and self-lifting slag. Superior creep resistance and impact toughness. Cobalt helps to increase resistance against abrasion, compression and impact at elevated temperature. Weld deposit is machinable by carbide tools. Repair of cracks in Ni- Cr hot working dies and case hardening steel. Applications: Build-up & Surfacing on all drop & press forging dies, hammers, punches, inserts. Repairs on hot working tools, forging dies, press jacks, hot draw rings, hot cutting and up setting tools. Suitable for surfacing on edges of tools from low & alloyed high tensile steels, hardened surfaces etc.

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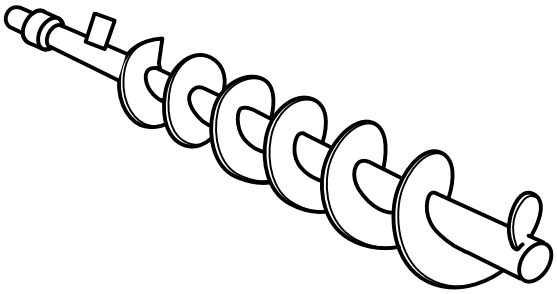
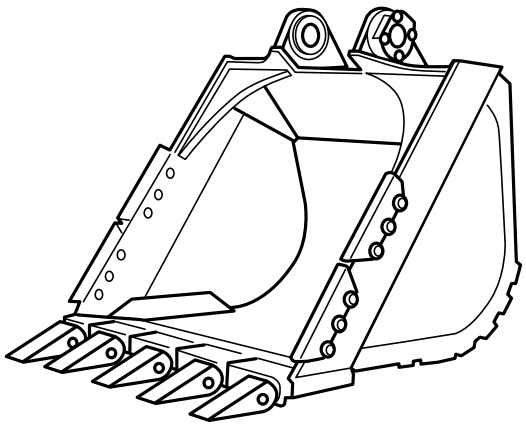
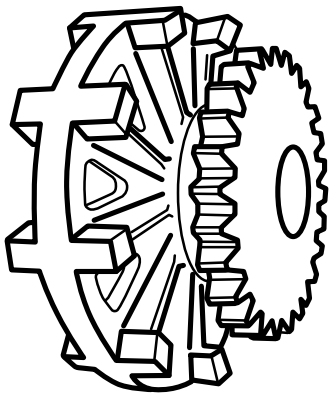
UTP 690 AWS A5.13: E Fe 5-B (mod.) EN 14700: E Fe4 DIN 8555: E 4-UM-60-ST	Hardness: approx. 62 HRC	2.5 x 350 3.2 x 350 4.0 x 450	-	UTP 690 is used for repair and production of cutting tools, particularly for building-up cutting edges and working surfaces. The deposit is highly resistant to friction, compression and impact, also at elevated temperatures up to 550°C. The production of new tools by welding on non-alloy and low alloy base metals is also possible (cladding of cutting edges). UTP 690 has excellent welding properties, a smooth, finely rippled bead appearance due to the spray arc and very easy slag removal. The weld deposit is equivalent to a high speed steel with increased Mo-content.
UTP S 718 S EN 14700: E Fe14 DIN 8555: E 10-UM-60-G	Hardness: approx. 60 HRC	3.25 x 350 4.00 x 450 5.00 x 450	-	This electrode is designed especially to meet rougher the sugar milling rolls by applying a hard coating in the form of small globules in the surface of the teeth of the mass reducing thus dramatically the sugarcane slippage. This electrode has a specially designed flux as characterized by a rapid ignition and re-ignition, needed to cross the discontinuities caused by grooving of the masses. It hard coat globules deposit, have the right size for a good drag of the sugarcane, without having to open the combs.
UTP 7200 AWS A5.13: EFeMn-C EN 14700: EZ Fe9 DIN 8555: ~ E 7-UM-250-KP	Hardness as welded: 200 – 250 HB Hardness after work-hardening: 48 – 53 HRC	3.2 x 350 4.0 x 450 5.0 x 450	DB	UTP 7200 is suitable for tough and crack-resistant joinings and surfacings on parts of high Mn-steel subject to extreme impact, compression and shock. Build-ups on C-steel are also possible. The main application is in construction, in quarries and mines for surfacing worn high-Mn steel parts, e.g. excavator pins, buckets and teeth, mill hammers, crusher jaws and cones, rails, crossings and switches.
UTP LEDURIT 61 AWS A5.13: EFeCr-A8 (mod.) EN 14700: E Fe14 DIN 8555: E 10-UM-60-GRZ	Hardness: approx. 60 HRC	2.5 x 350 3.2 x 350 4.0 x 450 5.0 x 450	-	UTP LEDURIT 61 is suited for highly wear resistant claddings on parts subject to strong grinding abrasion combined with medium impact, such as conveyor screws, scraper blades, bucket teeth, mixer wings, sand pumps. Also as a final layer on crusher jaws. Welding properties: UTP LEDURIT 61 has excellent welding characteristics and a very easy slag removal. The homogeneous and finely rippled seam surface does, for most applications, not require any finishing by grinding.



Surfacing electrodes for anti-wear and anti-corrosion

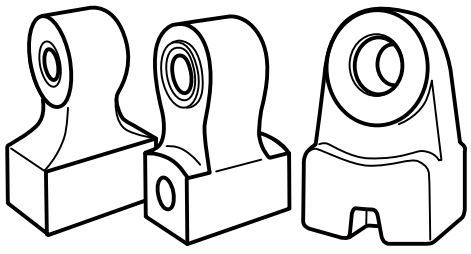
Product Name Classification AWS Classification EN Classification DIN	Mechanical Properties Typical Values	Size (mm)	Approvals	Characteristics and Applications
UTP LEDURIT 65 EN 14700: E Fe16 DIN 8555: E 10-UM-65-GRZ	Hardness: approx. 65 HRC	3.2 x 350 4.0 x 450 5.0 x 450	-	UTP LEDURIT 65 is suited for highly abrasion resistant claddings on parts subject to extreme sliding mineral abrasion, also at elevated temperatures up to 500°C. The extremely high abrasion resistance is reached by the very high content of special carbides (Mo, V, W, Nb). Main application fields are surfacings on earth moving equipment, working parts in the cement and brick industry as well as in steel mills for radial breakers and revolving-bar screens of sintering plants. UTP LEDURIT 65 has an even droplet transfer in the spray arc. The smooth welding bead is without slag covering. In general there is no need for any finishing by grinding.
UTP S BMC EN 14700: E Fe9 DIN 8555: E 7-UM-250-KPR	Hardness as welded: 260 HB Hardness after work hardened: 48-53 HRC	3.25 x 350 4.0 x 450 5.0 x 450	-	Suitable for build-up and claddings on part subject to highest pressure and shock in combination with abrasion. Surfacing can be made on ferritic steel as well as austenitic hard Mn-steel and joints on hard Mn-steel can be welded. Main application are in the mining, cement, crushing plant, steel works, thermal power plant where working parts are regenerated, such as breaker jaws, frogs, cross pieces, paving breakers, crusher hammer & rotors, railway points & crossing, etc. Rapid work hardening and high toughness.
UTP S DUR 350 EN 14700: E Fe 1 DIN 8555: E 1-UM-350	Hardness: 380 HB	3.25 X 350 4.00 x 450 5.00 X 450	-	Good abrasion resistance and multi-layer build up ability. Particularly suited for wear resistant surfacing on Mn-Cr-V alloyed parts, such as frogs, track rollers, chain support rolls, sprocket wheels, guide rolls etc. Weld metal is machinable with tungsten carbide tools.
UTP S DUR 600 EN 14700: E Fe8 DIN 8555: E6-UM-60	Hardness: 55 HRC	2.50 x 350 3.25 x 350 4.00 x 450 5.00 x 450	-	Martensitic microstructure with good resistance to abrasion, impact and compression. Universally applicable for cladding parts of steels, cast steels and high Mn-steel, subjected a simultaneously to abrasion, impact and compression. Typical application fields are the earth moving and stone treatment industry, e.g. excavator bucket teeth, crusher jaws and cones, mill hammers, rotors, etc. Good weldability and easy slag removal, machining of the weld metal possible by grinding only.
UTP S DUR 650 kb EN 14700: E Fe8 DIN 8555: E 6-UM-60	Hardness: 57 – 60 HRC	3.25 X 450 4.00 x 450 5.00 X 450	-	UTP S DUR 650 Kb is suitable for cladding structural parts subject to abrasion combined with impact. The main applications are tools in the earth moving industry and crushing plants as well as cold and hot working tools. The deposit is only machinable by grinding. UTP S DUR 650 Kb is a martensitic alloy. The stick electrode is suited in impact a pressure stress situations. Machining of the weld metal only by grinding.

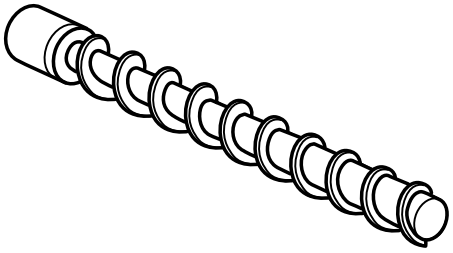




Surfacing electrodes for anti-wear and anti-corrosion

Product Name Classification AWS Classification EN Classification DIN	Mechanical Properties Typical Values	Size (mm)	Approvals	Characteristics and Applications
HARDALOY - II	Hardness 2 layer: 36 - 40 HRC	3.15 x 450 4.0 x 450 5.0 x 450	-	A hard facing electrode for mild steel, carbon steel and low alloy steels, where 350 Brinell hardness is required. The weld deposit is highly resistant to abrasive wear with good toughness properties. With the help of carbide tools weld deposit is machinable. Weld deposit provides good combination of abrasion and impact properties. Suitable for the surfacing on couplings, cog wheels, cold punching dies, rail ends and crossing, steel castings, excavators, conveyors parts, wobbler ends, Cams, Gear Shaft, Shear blades etc.
HARDALOY - III	Hardness 2 layer: 57 - 60 HRC	3.15 x 450 4.0 x 450 5.0 x 450	-	Rutile coated type air hardening electrode for surfacing applications on mild steel, carbon steel and low alloy steel where 550 Brinell hardness is required. The welds are non-machinable and can only be ground. Slag is easily detachable. Deposit provides resistance against high abrasion and moderate impact. Used for surfacing on metal cutting and forming tools, shears, croppers, oil expellers, cane cutting knives, conveyor buckets and mixer blades, crane wheels, bulldozer blades etc. Deposit should not be more than 2-3 layers. In difficult steel/carbon steel cushioning layers is recommended using ULTRA 7016.
HARDALOY - III LH	Hardness 2 layer: 56 -58 HRC	3.15 x 450 4.0 x 450 5.0 x 450	-	Basic heavy coated air hardening type electrode specially designed for hard facing and build – up on worn out machine parts which are subjected to extremely severe service conditions involving a combination of impact and abrasion. The weld deposit is hard, tough and non machinable. Used for surfacing on bamboo chipper knives, crushers, cane cutting knives, punches dies, drilling bits, shears, bulldozer blades, bucket lip and surfacing/ rebuilding of mill hammers for pulverizing coat etc. Deposit should not exceed more than two layers.
HARDALOY - V	Hardness 2 layer: 58 HRC	3.15 x 450 4.0 x 450 5.0 x 450	-	A medium heavy coated basic type graphite coated electrode for hard-facing and build-up of worn out machine parts and components. Weld beads are flat and smooth. Slag easily detachable. The weld metal is alloyed cast iron which is hard and extremely resistant to abrasion and metal to metal wear. Suitable for the surfacing on dredger bucket lips, oil expeller worms, concrete mixture blades, scrapper blades, screw conveyor, cement die rings etc. Deposit should not exceed more than 2- 3 layers.
HARDALOY - Mn	Hardness as deposited: 180 - 220 BHN Work hardness: up to 500 BHN	3.15 x 450 4.0 x 450 5.0 x 450	-	Hardaloy-Mn is a medium heavy coated basic type austenitic manganese (12-14%) steel electrode specially designed for re-conditioning of austenitic manganese steel parts. The weld metal has good resistance to wear under severe impact. Weld deposit is work hardenable for high impact applications. Suitable for the surfacing on crusher jaw, manganese steel rails, rail cross-over, cement grinding rings, austenitic manganese steel casting and hammers, crusher mantles etc.





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LOTUS - 71 B	Hardness as deposited: 220 -280 BHN Work hardness: upto 500 BHN	3.15 x 350 4.0 x 350 5.0 x 350	-	Excellent toughness and exceptional resistance to cracking. Work hardens while in service. Long life under heavy impact. Ideal for buffer layer on Mn steel before hard facing. Applications: Points and crossings, frogs, switches, dredger, excavator parts. Joining Mn steel to itself and carbon steels.
LOTUS - 72	Hardness as deposited: 280-320 BHN on 2 layer	3.15 x 350 4.0 x 350 5.0 x 350	-	Weld deposit is machinable. Overlay on ferrous materials. Good toughness and resistance to deformation. Rapid deposition in all position. Applications: Hammers, wobblers, excavators, sprockets, rollers, shafts, gear teeth and forging dies.
LOTUS - 73	Hardness as deposited: 550 – 600 BHN on 3 layer	3.15 x 350 4.0 x 350 5.0 x 350	-	Superior dense and spatter free deposit. Resist high abrasion and moderate impact. Operative in all positions. Suitable for reclamation and protective coating. Unique electrode for multiples build up in all positions. Applications: Buckets, shovels, excavating equipment, plough shears, scrapper, and conveyor screw etc.
LOTUS-76	Hardness as deposited: 580 - 640 BHN on 3 layer	3.15 x 350 4.0 x 350 5.0 x 350	-	Chromium carbide deposit retains sharp edge. Highly resistant to abrasion and moderate impact. Air hardening weld deposit. Applications: Paper cutting knives, cane cutting knives, pump casings, hammers, jaw plates, bucket pads, lips teeth, screw conveyor used in sugar, cement and mining industries.
LOTUS 766	Hardness as deposited: 570 - 610 BHN on 3 layer	3.15 x 350 4.0 x 350 5.0 x 350	-	High abrasion resistant with moderate impact. Excellent compressive strength. Air hardening weld deposit. Suitable for very high abrasion with mild impact applications. Applications: Augers, screws, conveyors, scrappers, paddle and wear pads etc. of sugar, cement and mining industries.

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UTP CELSIT 701 AWS A5.13: E CoCr-C EN 14700: E Co3 DIN 8555: E 20-UM-55-CSTZ	Hardness: 54 - 56 HRC	3.2 x 350 4.0 x 350	-	UTP CELSIT 701 is suited for highly wear resistant hardfacing on parts subject to severe abrasion in combination with corrosion and high temperatures up to 900°C, such as working parts in the chemical industry, running and sealing faces on fittings, valve seats and cones for combustion engines, cutting and crushing tools, hot working tools exposed to severe stresses without thermal shock, milling, mixing and drilling tools. Excellent gliding characteristics, good polishability, slightly magnetic.
UTP CELSIT 706 AWS A5.13: E CoCr-A EN 14700: E Z Co2 DIN 8555: E 20-UM-40-CSTZ	Hardness: 40 – 42 HRC	3.2 x 350 4.0 x 350 5.0 x 350* *available on request	-	UTP CELSIT 706 is used for hardfacing on parts subject to a combination of erosion, corrosion, cavitation, impact, pressure, abrasion and high temperatures up to 900°C, such as tight surfaces on fittings, valve seats and cones for combustion engines, gliding surfaces metal-metal, highly stressed hot working tools without thermal shock, milling mixers and drilling tools. Excellent gliding characteristics, easy polishability, good toughness, nonmagnetic. Machining by grinding or with tungsten carbide cutting tools. UTP CELSIT 706 has excellent welding properties and a homogenenous, finely rippled seam due to spray arc. Very easy slag removal.
UTP CELSIT 712 AWS A5.13: E CoCr-B EN 14700: E Co3 DIN 8555: E 20-UM-50-CSTZ	Hardness at RT: 48 - 50 HRC	3.2 x 350 4.0 x 350	-	UTP CELSIT 712 is used for highly wear resistant hardfacing on parts subject to a combination of abrasion, erosion, cavitation, corrosion, pressure and high temperatures up to 900°C, such as running, sealing and gliding faces on fittings and pumps, tools for wood, paper, plastic, shredding tools, highly stressed hot working tools without thermal shock. UTP CELSIT 712 has excellent welding properties and a homogeneous, finely rippled seam. Very easy slag removal.
UTP CELSIT 721 AWS A5.13: E CoCr-E EN 14700: E Co1 DIN 8555: E 20-UM-350-CTZ	Hardness: 31 – 37 HRC Work-hardened: approx. 45 HRC	3.2 x 350 4.0 x 350	-	UTP CELSIT 721 is used for crack-resistant hardfacings on parts subject to a combination of pressure, impact, abrasion, corrosion and high heat up to 900°C, such as running and sealing faces of gas, water, steam and acid fittings and pumps, valve seats and cones for combustion engines, working parts on turbines and power plants, hot working tools with frequent changes of high thermal load. Excellent gliding characteristics, good polishability and toughness, highly work-hardening, nonmagnetic, machinable with cutting tools. UTP CELSIT 721 has excellent welding properties and a homogenous, finely-rippled seam. Very easy slag removal.