

SUPERON SCHWEISSTECHNIK (I) LTD.



Kjellberg
FINSTERWALDE
ESTD. 1922

IN COLLABORATION WITH:






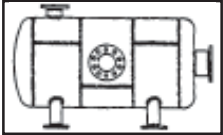

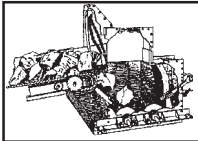
Kjellberg Finsterwalde Elektroden und Maschinen GmbH, Germany

MAINTENANCE WELDING ALLOYS



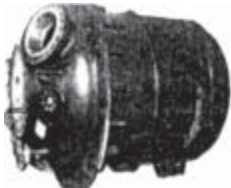

I. JOINING STEELS : MS/ CAST STEEL/ LOW ALLOY STEELS- CARBON STEELS..... TO THEMSELVES



SNO	PRODUCT	C	Si	Mn	Ni	Cr	Mo	V	Elongation%	Remarks
1	SUPERGOLD 060 NH	0.07	0.50	1.50	1.00	—	—	—	32%	Ideal general use
2	FERROSTEEL LH PLUS	0.07	0.45	1.70	2.50	0.35	0.40	—	24%	Higher tensile strength

ALLOYS	UNIQUE FEATURES	MECHANICAL PROPERTIES	POSITIONS	KEY REPAIR APPLICATIONS
SUPERGOLD 060 NH Extra low hydrogen – Moisture resistant steel electrode for unalloyed construction steels 	<ul style="list-style-type: none"> Flexible flux coating allows bending of the electrode. Uniquely superior balance of high tensile strength, high elongation & high impact values Extremely smooth - spatter and turbulence free arc transfer. Excellent self peeling slag. Unusually good AC welding characteristics. Easy re-strike. 	Tensile Strength 610 N/mm ² Yield Strength 500 N/mm ² Elongation 32% Impact Energy 90J (-30°C) Welding current: DC Reverse (+) or AC	<ul style="list-style-type: none"> Flat Vertical up Vertical down Horizontal Overhead 	For joining and repairing boiler plate, pipe steels, shipbuilding steels and cast steels. Excellent for weathering steels, such as "Corten". 
FERROSTEEL LH PLUS Higher strength version of Ferrosteel LH. Super strong alloy for welding T-1 & other heavy duty and construction steels- superior crack resistance. 	<ul style="list-style-type: none"> 120% recovery, superior high strength AC/DC moisture resistant electrode especially for joining low & medium alloy construction steels Very low weld metal hydrogen levels Ultra strong welds 	Tensile Strength 800 N/mm ² Yield Strength 750 N/mm ² Elongation 24% Impact Energy 40J (-51°C) Welding current: DC (+) ; AC	<ul style="list-style-type: none"> Flat Vertical up Horizontal Overhead 	Structural & repair welds on high strength fine grained steels- cranes, earth moving equipment, highly stressed low alloy steels/ MS structural components..... 

II. JOINING STEELS : EXTREME TEMPERATURE APPLICATION





SNO	PRODUCT	C	Si	Mn	Ni	Cr	Mo	V	Ferrite Number	Elongation%	Remarks
3	SUPERGOLD 070 HT	0.10	0.60	3.00	21.00	26.50	—	—	Fully Austenitic	30%	High temperature joints
4	SUPERGOLD 222 INHD	0.02	0.90	0.60	65.00	21.00	9.50	Nb 1.50	Fully Austenitic	43%	Ultimate joining alloy


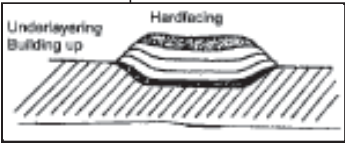
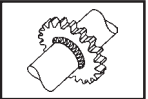
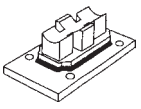
ALLOYS	UNIQUE FEATURES	MECHANICAL PROPERTIES	POSITIONS	KEY REPAIR APPLICATIONS
SUPERGOLD 070 HT Supergold 070 HT is an AC-weldable rutile-coated electrode with an alloyed core, suitable for joining corrosion-proof, highly heat-proof and non scaling CrNi-steels which are subject to service temperatures up to 1200° C. The electrode is also suitable for joint welding Cr-, CrSi-, and CrAl steels and for cladding low alloy base metals. The weld metal alloy is highly hotcrack- proof. Keep temperature as low as possible during welding. Annealing to 250°C and post-weld tempering to 700°C is required on ferritic base materials. 	<ul style="list-style-type: none"> Uniquely higher. Mn content for maximum resistance to solidification cracking & micro fissuring. Core wire alloyed. Fully austenitic high temperature alloy. Exceptionally smooth spatter free welding. 	Tensile Strength 600 N/mm ² Yield Strength 350 N/mm ² Elongation 30% Impact Energy 80J (0°C) Welding current: = + / ~ / 50 V	<ul style="list-style-type: none"> Flat Vertical up Vertical down Horizontal Overhead 	Ovens, heat treatment, super heaters, furnace parts, boilers, oven bells, cement mills.... (Nickel based alloys FG 501 & 502 are however superior in cases of high temperature thermal cycling) Excellent for furnace construction, fittings, pipelines... Excellent for joining 310 type steels as well as dissimilar steel combinations

<p>The electrode is mainly used in furnace-construction, for fittings and pipelines.</p>			
<p>SUPERGOLD 222 INHD Inconel electrode that performs on AC current as well as on DC current.</p> 	<ul style="list-style-type: none"> Rare version of this "Super Alloy" that works perfectly on small AC machines. Welds can withstand temperature extremes ranging from 1900°F to -140°F (1050°C to -196°C). Welding characteristics and weld appearance are exceptional 	<p>Tensile Strength 950 N/mm²</p> <p>Yield Strength 660 N/mm²</p> <p>Elongation 43%</p> <p>Impact Energy 65J (-196°C)</p> <p>Welding current: DC Reverse (+) or AC</p>	<ul style="list-style-type: none"> Flat Vertical up Horizontal Overhead <p>Universal "problem solver" for welding: A) Ferritic SS to austenitic ss, inconel to monel, clad steel to unclad steel, nickel to steel, inconel to inconel, ss to monel, nichrome to steel, monel to monel....</p> <ul style="list-style-type: none"> Desulfurisation plants, pipes, containers, agitators, valves... High temperature & cryogenic service equipment... Liquid gas handling equipment Cement mill kiln rings, burner liners, clinker cooler screens & supports. Blast furnace components. <p>Ultra high security joints.</p> <ul style="list-style-type: none"> Surfacing & overlaying in off shore, marine petrochemical environments on pumps, valves & safety where high pitting resistance and tolerance to weld metal dilution are essential.

III. JOINING STEELS : DISSIMILAR/ DIFFICULT TO WELD STEELS

SNO	PRODUCT	C	Si	Mn	Ni	Cr	Mo	V	Ferrite Number	Elongation%	Remarks
5	SUPERGOLD 080 CDS	0.08	0.90	0.80	10.20	29.10	0.50	0.10	40+	29%	Superior crack resistance & tensile strength
6	FERROGOLD 303	0.08	0.90	0.90	10.50	28.60	0.55	0.10	35+	29%	Competitive pricing high quality
7	FERROSTEEL PLUS	0.10	0.90	1.00	9.50	28.00	—	—	30+	28%	Unique price & performance balance
8	FERROGOLD 301*	0.03	0.90	0.90	13.50	23.50	0.10	—	15 - 18	40%	Ideal balance- near universal alloy



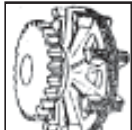
ALLOYS	UNIQUE FEATURES	MECHANICAL PROPERTIES	POSITIONS	KEY REPAIR APPLICATIONS
<p>SUPERGOLD 080 CDS The ultimate electrode for welding all types of steels, without any danger of cracking or breakage. Special "FERRITE BALANCED" Chemistry also serves as a "STUD PULL" electrode</p> 	<ul style="list-style-type: none"> An engineered deposit chemistry that has the perfect ratio of metalics to offer crack resistance far superior to any other brand. Ultra high tensile strength as well as superior elongation values Special flux formulation eliminates slag interference in horizontal fillets. Slag is designed to turn to powder making this electrode ideal for "STUD PULL" applications 	<p>Tensile Strength 910 N/mm²</p> <p>Yield Strength 660 N/mm²</p> <p>Elongation 29%</p> <p>Impact Energy 50J 68°F (20°C)</p> <p>Ferrite 40+</p> <p>Welding current: DC Reverse (+) or AC</p>	<ul style="list-style-type: none"> Flat Vertical up Horizontal Overhead  	<p>Foundry parts, mills cylinder supports, machine housings, underlay before hardfacing, different types of guide rollers, inlet guide nozzles, frames, sliding guides, crankshafts, shaft bearing surfaces, lifting equipment...</p> <p>Cement / Mining: over laying crank shafts, bearings of clinker cooler systems...</p> <p>Repairs: Spring plates drill bits, moulds, dies, chains, crane booms, shafts, tools, armhole plates...</p>
<p>FERROGOLD 303 Ferrite balanced, super strength, non-cracking ultimate electrode for welding all types of steels without any danger of cracking or breakage. Ideal for repairing tools, dies, spring steels & all dissimilar steel combinations. Ideal for all position repairing of worn parts as an underlay for hardfacing.</p>	<ul style="list-style-type: none"> Unmatched mechanical properties especially ultra high tensile strength and elongation- "Super strong joints". Unmatched arcing and shielding qualities- defect free beads. Uniquely perfect ratio of metalics to offer crack resistance superior to any other brand. 	<p>Tensile Strength 910 N/mm² (As welded) 1280 (Work hardened)</p> <p>Yield Strength 660 N/mm²</p> <p>Elongation 29%</p> <p>Impact Energy 50J (20°C)</p>	<ul style="list-style-type: none"> Flat Vertical up Horizontal Overhead 	<p>Foundry parts, mills cylinder supports, machine housings, underlay before hardfacing, different types of guide rollers, inlet guide nozzles, frames, sliding guides, crankshafts, shaft bearing surfaces, lifting equipment...</p> <p>Cement / Mining: over laying crank shafts, bearings of clinker cooler systems...</p>




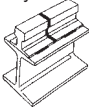
<p>Ultra high alloy & ferrite content gives extreme tolerance to dilution and hot cracking penetration.</p> 	<ul style="list-style-type: none"> Special slag interference in horizontal fillets. Self peeling. Exceptional strength & versatility. Insensitive to surface contaminants. Ultra low heat input. 	<p>Ferrite 35+</p> <p>Hardness 320HB</p> <p>Welding current: DC Reverse (+) or AC</p>		<p>Repairs: pinion teeth, drive shafts, welding wear plates...</p> <p>Repairing tools & die steels.</p> <p>"On-line" leak repairs buffer layers.</p>
<p>FERROSTEEL PLUS</p> <p>Adapted for welding dissimilar steels (high alloyed with low alloyed steels) difficult to weld steels (tool steels, Mn steels, spring steels...) & unknown steels. Metal deposit highly resistant to cracks acids & scale to 1000°C..</p> <p>Superior microstructure with excellent soft fusion, nice aspect of the bead & self releasing slag for crack proof build-up & cushioning prior to hardfacing.</p> <p>IMP NOTE: insofar as specifically tooling applications are concerned if lower hardness pick-up is desired in the final overlays, please use "Ferrogold301" as a cushion layer electrode in place of FG 303/Ferrosteel Plus.</p>	<ul style="list-style-type: none"> Rutile-basic electrode with austenitic-ferritic stainless steel deposit. Excellent work hardening & crack resistance even in multi-pass overlays. Self lifting slag. Ultra low heat input. Soft fusion with minimal spattering Available even in 1.6mm dia. 	<p>Tensile Strength 800 N/mm²</p> <p>Yield Strength >600 N/mm²</p> <p>Elongation (%) 28%</p> <p>Impact Energy 50J (20°C)</p> <p>Ferrite 30+</p> <p>Welding Current AC ; DC+</p>	<ul style="list-style-type: none"> Flat Vertical up Horizontal Overhead 	<p>Crack repair/ Cushion/ buffer layers before hardfacing on tool steels (dies, molds...) & other highly alloyed/ hardened steels</p> <p>Excellent corrosion & temperature resistance.</p>
<p>FERROGOLD 301*</p> <p>Extra strength & tough stainless steel electrode for joining low alloyed/ unalloyed steels with high alloyed steels/ stainless steels/ casted steels & manganese steels.</p> 	<ul style="list-style-type: none"> Tough austenitic- ferritic joints- "Black" to "White" joints. Self removing slag. Best combination of ductility & joining strength. "Low hydrogen" technology ensures very high resistance to weld metal porosity 	<p>Tensile Strength 750 N/mm²</p> <p>Yield Strength 530 N/mm²</p> <p>Elongation (%) 40%</p> <p>Impact Energy >55J (20°C)</p> <p>Welding Current AC ; DC+</p>	<ul style="list-style-type: none"> Flat Vertical up Horizontal Overhead 	<p>Ideal for "Black" to "White" welding.</p> <p>Excellent for manganese steel repairs, welding high temperature Cr- Ni steels.</p> <p>Excellent buffer layer before hardfacing especially in "high impact" tooling applications, especially for "Ferrotool HT....."</p>

Ferross B&W contains additionally 2.5 Mo for added heat & corrosion resistance.

IV. JOINING STEELS : MANGANESE STEELS

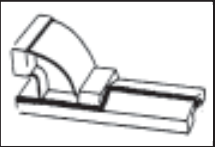
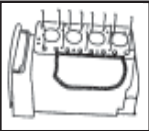

SNO	PRODUCT	C	Si	Mn	Ni	Cr	Mo	V	Ferrite	Elongation%	Remarks
9	FERROGOLD 302	0.10	0.90	6.00	9.00	19.50	—	—	3 - 5	40%	Manganese steels/ tool steels- SS Core
10	FERROGOLD 602	0.10	0.90	6.00	9.00	19.50	—	—	3 - 5	41%	Manganese steels/ tool steels- MS Core


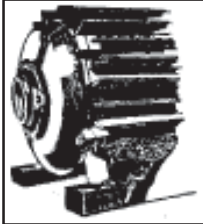
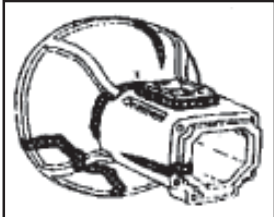
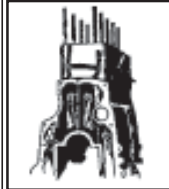
ALLOYS	UNIQUE FEATURES	MECHANICAL PROPERTIES	POSITIONS	KEY REPAIR APPLICATIONS
<p>FERROGOLD 302</p> <p>Non-magnetic high manganese stainless steel electrode for joining manganese steels, to them selves as well as to other steel without preheat.</p> <p>Excellent for buffering & cladding on manganese steels as well as welding of hard to weld steels.</p> <p>Weld metal is not susceptible to cracking & possesses high deformation capacity. Joins manganese steels to themselves, armour steels as well as to non - alloy & alloy structural & heat treatable steels.</p> 	<ul style="list-style-type: none"> Rare Combination of toughness, crack resistance & impact resistance. Austenite with 5 FN Easy position welding. Easy & complete slag removal, qualities as are generally not found in manganese steel joining & buffering electrodes. Resists scaling upto 850°C 	<p>Tensile Strength 690 N/mm²</p> <p>Yield Strength 510 N/mm²</p> <p>Elongation (%) 40%</p> <p>Impact Energy 80J at +20°C</p> <p>Hardness 220HB (As Welded) 450HB (Work Hardened)</p> <p>Welding Current AC ; DC+</p>	<ul style="list-style-type: none"> Flat Vertical up Horizontal Overhead 	<p>Welding & repairing difficult to weld steels, manganese & armour steels, steels with high sulfur & phosphorus contents... railways, mining...</p> <p>Buffer layers before cold hardfacing on manganese steels as well as cast Irons.</p> 

<p>FERROGOLD 602 Ultimate Impact resistant alloy for manganese steels. Withstands extreme shock & impact. Extra high strength, Impact resistant, work-hardening, electrode for joining surfacing & building-up unalloyed & manganese steels. Extremely high crack resistance. Contains stabilising elements & special additives to prevent brittleness.</p> <p>Can be readily cut with an oxyacetylene torch.</p> 	<ul style="list-style-type: none"> Withstands extreme shock, loading & impact Work hardens to greater degree than manganese steel. Joins & surfaces. Unique combination of high tensile strength, elongation, crack resistance and quick work hardening wear & impact resistance. Extra high strength welds. Welds do not spall. Withstand extreme shock, loading & impact. Out wears ordinary hard - facing alloys in impact conditions to as much as 10 to 1. Scaling resistant upto 850°C. 	<table border="0"> <tr> <td>Tensile Strength</td> <td>700 N/mm²</td> </tr> <tr> <td>Yield Strength</td> <td>500 N/mm²</td> </tr> <tr> <td>Elongation (%)</td> <td>41</td> </tr> <tr> <td>Hardness</td> <td>200 HB (As welded) 520 HB (Work hardened)</td> </tr> <tr> <td>Impact Energy:</td> <td>90J at 0°C 104J at RT</td> </tr> <tr> <td>Welding Current</td> <td>AC ; DC+</td> </tr> </table> 	Tensile Strength	700 N/mm ²	Yield Strength	500 N/mm ²	Elongation (%)	41	Hardness	200 HB (As welded) 520 HB (Work hardened)	Impact Energy:	90J at 0°C 104J at RT	Welding Current	AC ; DC+	<ul style="list-style-type: none"> Flat Vertical up Horizontal 	<p>Railways, heavy construction & mining equipment - joining, overlays & build ups.</p> <p>Cushion layer prior to hardfacing on manganese steels & cast iron's.</p> <p>Crusher hammers. Repairing digger & shovel buckets ...</p> <p>Anti-wear protective overlay for</p> <ol style="list-style-type: none"> Gears Drive sprockets Tracked vehicle wheels & return rollers Rails & rail joints. Crusher hammers cones & drills Armour Plates <p>IMP NOTE: remove slag & peen deposits between passes. Cool naturally.</p> 
Tensile Strength	700 N/mm ²															
Yield Strength	500 N/mm ²															
Elongation (%)	41															
Hardness	200 HB (As welded) 520 HB (Work hardened)															
Impact Energy:	90J at 0°C 104J at RT															
Welding Current	AC ; DC+															

V. JOINING CAST IRON : PURE NICKEL





SNO	PRODUCT	C	Si	Mn	Ni	Cr	Mo	Fe	Elongation%	Remarks
11	FERROGOLD 403	0.40	0.20	0.10	Bal	—	—	0.50 Max	30	99% nickel core wire
12	FERROGOLD 404	1.00	0.50	0.20	Bal	—	—	0.50 Max	30	99% nickel core wire + pulsed arc

ALLOYS	UNIQUE FEATURES	MECHANICAL PROPERTIES	POSITIONS	KEY REPAIR APPLICATIONS										
<p>FERROGOLD 403 Soft, very machinable 99%nickel cast iron electrode featuring a totally nonconductive flux coating.</p> <p>Generation II machinable electrode for cast iron-welds practically any type of cast iron.</p> <p>Stable arc characteristics also provide uniform low penetration and minimum dilution.</p> 	<ul style="list-style-type: none"> Gives perfect machinable welds without hard spots, on practically all types of cast iron. Unusually strong arc drive penetrates oil & grease easily Non - conductive flux coating does not side arc even after being heated. Ideal for welding in deep recesses or close quarters. Excellent positional welding. Outstanding elongation allows the weld metal to stretch to prevent cracking. 	<table border="0"> <tr> <td>Tensile Strength</td> <td>380 N/mm²</td> </tr> <tr> <td>Yield Strength</td> <td>270 N/mm²</td> </tr> <tr> <td>Elongation (%)</td> <td>30</td> </tr> <tr> <td>Hardness</td> <td>155 HB</td> </tr> <tr> <td>Welding Current</td> <td>AC ; DC+</td> </tr> </table>	Tensile Strength	380 N/mm ²	Yield Strength	270 N/mm ²	Elongation (%)	30	Hardness	155 HB	Welding Current	AC ; DC+	<ul style="list-style-type: none"> Flat Vertical up Vertical down Horizontal Overhead 	<p>Anchoring or buttering layers prior to using nickel - iron cast irons. Especially when repairs are being done without preheating on "Difficult" cast Irons.</p> <p>Repairing engine blocks, exhaust pipes, pump & valve bodies.</p> 
Tensile Strength	380 N/mm ²													
Yield Strength	270 N/mm ²													
Elongation (%)	30													
Hardness	155 HB													
Welding Current	AC ; DC+													

<p>FERROGOLD 404</p> <p>Pure nickel "pulsed arc" non-cracking cast iron with the ultimate tensile strength, crack resistance & machinability.</p> <p>Ideal for repairing very thin or eroded sections of cast iron.</p> <p>Requires absolutely no preheating.</p> <p>Offers low viscosity slag enabling welding pass on pass without need for slag removal.</p> 	<ul style="list-style-type: none"> ▪ Unique "pulsed arc" shallow penetration minimises heat affected zone hardening. ▪ "Low temperature" gentle globular arc transfer. ▪ Weld deposits are extremely soft & machinable due to minimal dilution. ▪ High tensile strength & high elongation cast iron welding electrode for ultimate strength and crack resistance. 	<p>Tensile Strength 420 N/mm²</p> <p>Yield Strength 300 N/mm²</p> <p>Elongation (%) 30</p> <p>Hardness 150 HB</p> <p>Welding Current AC ; DC+</p> 	<ul style="list-style-type: none"> ▪ Flat ▪ Vertical up ▪ Vertical down ▪ Horizontal ▪ Overhead <p>Aged & eroded or very thin sections of cast irons.</p> <p>Whenever minimum "HAZ" & ultimate machinability are criteria's.</p> <p>'NIHARD' repairs Ideal cast iron welding electrode for practically all types of cast iron</p> 
--	---	--	--

VI. JOINING CAST IRON : FERRO-NICKEL



SNO	PRODUCT	C	Si	Mn	Ni	Cr	Mo	Fe	Elongation%	Remarks
13	FERROGOLD 402	1.00	1.00	0.50	60.00	—	—	Bal	20	60% Nickel core wire
14	FERROCAST GCI	1.50	1.50	0.50	55.00	—	—	Bal	18	55% Nickel core wire

ALLOYS	UNIQUE FEATURES	MECHANICAL PROPERTIES	POSITIONS	KEY REPAIR APPLICATIONS
<p>FERROGOLD 402</p> <p>High strength, non-cracking multi-position, universal machinable electrode for cast iron.</p> <p>Gives perfectly machinable welds on all types of cast iron-ductile, nodular & malleable cast irons. Ideally suited for the repair of meehanite dies.</p> <p>Requires no base metal pre-heating in most cases.</p> <p>"Makes cast iron welding as easy as MS welding".</p> 	<ul style="list-style-type: none"> ▪ Unmatched crack resistance. Welds without preheating on practically any CI-CI or CI-steel joining - easy trouble free quick cast iron repairs. ▪ Unmatched low heat input and low dilution-minimum HAZ. No cracking or overheating even under difficult AC amperage. Fully machinable joints even on the hardest CI. ▪ Unmatched tensile strength hand joint fusion – strong durable repairs on practically any type of cast iron. ▪ Extremely strong "controlled blast" arc drive strongly penetrates surface contaminants (oil, scale, oxides...) & burns them off before weld metal transfer. ▪ Special slag composition can be welded over without creating porosity. ▪ Extra nickel content ensures crack resistant machinable welds. 	<p>Tensile Strength 500 N/mm²</p> <p>Yield Strength 350 N/mm²</p> <p>Elongation (%) 20</p> <p>Hardness 165HB</p> <p>Welding Current AC ; DC+</p> 	<ul style="list-style-type: none"> ▪ Flat ▪ Vertical up ▪ Vertical down ▪ Horizontal ▪ Overhead 	<p>Welders choice for virtually all types of cast iron (grey, modular, malleable, ductile, NI resist", "meehanite"....)</p> <p>Including joining cast iron parts to steel.</p> <p>Machine housings, engine blocks, gear boxes, pumps & valves, tables, supports & machine frames.....</p> 

FERROCAST GCI Graphited, All Purpose Nickel – Iron Electrode. For welding of grey cast iron with laminar and globular graphite structure and malleable cast iron. Also for joints of cast iron (GGL – and GGG – Types) with unalloyed steels. The weld metal is easy to machine and crack resistant. Deposit and base metal are approx. of the same color. Soft welding electrode has good wetting abilities.	<ul style="list-style-type: none"> Economical high quality Ferro-Nickel with good crack resistance. 	Tensile Strength	500 N/mm ²	<ul style="list-style-type: none"> Flat Vertical up Vertical down Horizontal Overhead 	Joining cast iron & steels...pump casing, water bodies, motor casings, C.I. elbows, filling blow holes...
		Yield Strength	350 N/mm ²		
		Hardness	175HB		
		Elongation(%)	18		
		Welding Current	AC ; DC+		



VII. JOINING CAST IRON : NICKEL FREE







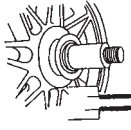
SNO	PRODUCT	C	Si	Mn	Ni	Cr	Mo	Fe	Elongation%	Remarks
15	FERROGOLD 400	0.15	0.05	0.65	—	—	—	Bal	20	Seals in contaminants prior to using Nickels.

ALLOYS	UNIQUE FEATURES	MECHANICAL PROPERTIES	POSITIONS	KEY REPAIR APPLICATIONS
FERROGOLD 400 Nickel free cast iron problem solver, seals in porosity generating contaminants prior to finish welding with nickels 	<ul style="list-style-type: none"> Easily clads heat oxidized and oil impregnated castings Perfect color match to cast iron Non-conductive flux coating 	Tensile Strength 440 N/mm ² Yield Strength 360 N/mm ² Elongation (%) 20 Hardness 39HRC Welding Current AC ; DC+	<ul style="list-style-type: none"> Flat Vertical up Vertical down Horizontal Overhead 	Furnace gates, oil saturated cast iron, foundry casting repairs, steel to cast iron welding. Underlaying / anchoring contaminated cast iron 

VIII. JOINING - ALUMINIUM BRASS/BRONZE

SNO	PRODUCT	C	Si	Mn	Ni	Fe	Al	Cu	Elongation%	Remarks
16	FERRO ALUM	—	5.25	0.04	—	0.80	Bal	0.23	18%	5% Silicon aluminium electrode
17	FERROGOLD 503	—	0.05	0.01	0.05	0.10	Sn 8.00	Bal	18%	AC- DC Tin Bronze electrode
18	FERRO CU-UNI	—	0.60	13.70	2.90	3.00	5.60	Bal	20%	High strength Ni/ Al/ Mn bronze electrode.



ALLOYS	UNIQUE FEATURES	MECHANICAL PROPERTIES	POSITIONS	KEY REPAIR APPLICATIONS
FERRO ALUM 5% silicon aluminum arc welding electrode with exclusive self lifting slag. 	<ul style="list-style-type: none"> Unique self lifting slag. Pure white long shelf life extruded flux coating outlasts conventional products in moisture resistance. Available in hermetically sealed PURE ALUMINIUM pull ring cans for extended shelf life. 	Tensile Strength 250 N/mm ² Yield Strength 50 N/mm ² Elongation (%) 18 Welding Current DC+	<ul style="list-style-type: none"> Flat Horizontal 	For arc welding aluminums alloyed with copper, silicon, and magnesium. Also excellent for joining dissimilar grades of aluminum. 











<p>FERROGOLD 503 “Super versatile” universal AC/DC bronze welding electrode Ideal for build-up use & provides outstanding weldability and wear resistance. Will not cause overheating of jobs Super versatile electrode for copper alloys Joins wide variety of dissimilar metals. Reduces heat damage or need for pre-heating.</p> 	<ul style="list-style-type: none"> Unmatched capacity to repair weld a variety of copper alloys including bronze to steels and cast iron Unmatched low heat input. Minimum need for preheating. Suitable for both big and small jobs. Unmatched AC-DC welding- extremely user friendly for quick bronze repairs. Faster and more reliable than torch welding. Unmatched wear & corrosion resistance in anti-friction overlays. Excellent color matching for salvaging bronze castings. High strength for building up worn parts. Fully machinable Unique 8 SN alloyed core wire. 	<p>Tensile Strength 340 N/mm² Yield Strength 210 N/mm² Elongation (%) 18% Hardness 105 HB Welding Current AC ; DC-</p> 	<ul style="list-style-type: none"> Flat 	<p>Building up worn out shafts, bushings, pump rotors, valve seats, turbines shoes</p> <p>Excellent anti friction properties for hardfacing sliding guides, bearings, shaft surfaces... best color match & wear resistance.</p> <p>Bronze foundry salvage</p> 
<p>FERRO CU-UNI Very high strength nickel manganese aluminium bronze electrode with extra wear resistance</p> 	<ul style="list-style-type: none"> Universal electrode safely repairs all grades of aluminium bronzes. Resists corrosion, cavitation, erosion, and metal to metal wear. Unique strength & crack resistance 	<p>Tensile Strength 650 N/mm² Yield Strength 450 N/mm² Elongation (%) 20 Hardness 155HB Welding Current DC+</p>	<ul style="list-style-type: none"> Flat 	<ul style="list-style-type: none"> Joining and surfacing parts subject to service in marine environments and sea water. Pump impellers Dissimilar joints between steels & copper alloys. Overlays on cast iron, steels & copper alloys. 

IX. TOOLING

S NO	PRODUCT	C	Si	Mn	Ni	Cr	Mo	V	W	Elongation%	Remarks
19	FERROGOLD 600	0.35	0.85	0.45	—	5.25	1.80	1.20	—	54-57HRC	Universal
20	FERROTOOL HT	0.25	0.30	0.50	—	2.50	—	0.60	4.50	45-47 HRC 48-50HRC(Tempering)	Hot forging
21	FERROTOOL HSS	0.90	0.30	0.50	—	4.50	8.00	1.50	2.00	59-62 HRC 63-65HRC(Tempering)	Cutting edges


IMP: Also available range of “Stellites” – 6, 12, 21


ALLOYS	UNIQUE FEATURES	MECHANICAL PROPERTIES	POSITIONS	KEY REPAIR APPLICATIONS
<p>FERROGOLD 600 Tungsten free universal tool steel electrode. Unmatched weldability on practically any type of tool and die steel in hardened condition including the most “temperamental” crack prone steels in most cases without preheating.</p>	<ul style="list-style-type: none"> Welds practically all tool, die & mold steels quickly & easily in “hardened” conditions. Weld metal maintains many of the properties of H13 tool steel. capabilities - will not crack. 	<p>Hardness 54–57 RC Welding Current AC ; DC+ DC (–)</p> 	<ul style="list-style-type: none"> Flat Vertical up Horizontal 	<p>Recommended for the repair & hardfacing of:</p> <ul style="list-style-type: none"> Hot & cold working trimming dies. Forming & blanking dies.

<p>Unmatched high hardness and high toughness - 57RC plus on tool and die steels without heat treatment or relief cracks.</p> <p>Unmatched versatility-suitable to dies and tools working in both hot and cold condition.</p>	<ul style="list-style-type: none"> Reduces need for pre-heating on crack sensitive steels. Gives super hard & tough welds which maintain a very sharp edge without heat treatment. Extraordinary wear resistance to impact, shock, abrasion & heat (upto 500°C). Provides multi pass capabilities-will not crack. 			<ul style="list-style-type: none"> Hot & cold shear blades. Rotary shear knives. Forming & drawing dies... 
<p>FERROTOOL HT</p> <p>Martensitic steel deposit containing fine carbides of W, Cr & V. Excellent resistance to metal-metal wear and "Hot hardness" retention upto 550°C.</p> 	<ul style="list-style-type: none"> Chrome – tungsten-vanadium high temperature abrasion & impact protection. Soft fusion, no spatters, self releasing slag. EDM machining is recommended. 	<p>Hardness</p> <p>40-41HRC (Single layer)</p> <p>43-47HRC (4 layers)</p> <p>50HRC (After tempering)</p> <p>20 - 25 HRC (soft annealed @ 800°C)</p>	<ul style="list-style-type: none"> Flat Vertical up Horizontal 	<p>Hot forging dies & hammers cutting tools, hot working tools, trimming & blanking dies, shear blades, press dies & punches, hot shearing knives.</p> 
<p>IMP: Use Ferrotrode 312 as a buffer layer electrode for best results</p>				
<p>FERROTOOL HSS</p> <p>High- speed tool steel electrode Superior C-Cr-Mo-W martensitic deposit resistant upto 650°C. Exceptional sharpness & cutting edge retention even at elevated temperatures.</p> <p>Highly alloyed- out performs ordinary high speed steels. Alloy was formulated for welding 'D' & 'M' series of tool steels. Has the desired characteristics for hardness, toughness & dimensional stability.</p> <p>With stands more shock than tungsten carbide-retains "Razor-Sharp" cutting edge sharpness.</p> 	<ul style="list-style-type: none"> "Stay- sharp" deposits that are ideal for cutting & high-heat usage. Gives hardness as applied to 62RC. Requires no heat treating. Tough crack resistant non-porous deposits. Reduces cost & inventories of tools- special "sharp edge" tools can be quickly made-up using low cost easy to machine steels & overlaid with Ferrotrode HSS 	<p>Hardness</p> <p>59-62 HRC (after welding)</p> <p>63-65HRC (After tempering)</p> <p>60-63HRC (after oil hardening)</p> <p>Welding Current AC/ DC+</p> 	<ul style="list-style-type: none"> Flat Vertical up Horizontal 	<p>Re-edging HSS tools & dies, shears, punches & piercing tools, drills, cutting blades, milling cutters, broaches, lathe tools, boring bars, cutters, punches, scrapers, chisels, knives, ingot tongs....</p> <p>Also useful as high hardness "non-relief cracking" hardfacing.</p> 
<p>IMP: Use Ferrotrode 312 as a buffer layer electrode for best results</p>				

X. NON - MANGANESE STEEL BUILD UP-MS, CARBON STEELS, TOOL STEELS

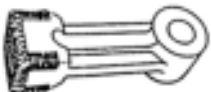



SNO	PRODUCT	C	Si	Mn	Ni	Cr	Mo	V	HARDNESS (RC)	Remarks
22	SUPERGOLD 002 MB	0.07	0.45	1.60	0.60	1.50	0.20	-	25- 27	Toughest
23	FERROGOLD 601	0.25	0.60	0.80	0.75	1.50	0.20	-	33- 38	Best balance of compression & impact resistance
24	FERROFILL 320	0.20	0.40	0.95	0.30	2.10	1.00	-	36- 40	Highest Hardness








ALLOYS	UNIQUE FEATURES	MECHANICAL PROPERTIES	POSITIONS	KEY REPAIR APPLICATIONS
<p>SUPERGOLD 002 MB</p> <p>High build-up electrode depositing weldmetal that resists extreme compressive stresses.</p> <p>Electrode with a semi-hard and machinable deposit for rebuilding and surfacing. The weld deposit is dense and resist deformation, compression and high impact. Applied as cushion layer prior to hard facing, for buildup of worn parts like rails, drive sprockets, gear teeth, chains, and wheels.</p>	<ul style="list-style-type: none"> Very tough alloy for underlayments or medium hard tough overlays. Excellent machinability. Excels in vertical and horizontal position welding 	<p>Hardness : 25-27 HRC 270HB</p> <p>Welding Current DC+, AC</p> 	<ul style="list-style-type: none"> Flat Horizontal Vertical up 	<p>For underlayments on carbon and low alloy steels, also as a stand alone overlay for medium hard tough build-ups on rails, shafts, etc.</p>

<p>FERROGOLD 601 Super build-up electrode Tough build-up fully machinable wear resistant crack free deposits offering superior compression & impact resistance & unique ease & speed of use. Excellent for build -up & cladding of all carbon & low alloy steels, structural steels, general purpose cast steels & rail steels. Outstanding weldability gives non cracking deposits even on heavy overlay & thick multi-pass build-ups. Excellent for flame hardening.</p>	<ul style="list-style-type: none"> ▪ Easy to machine tough weldments. ▪ Is great for using as a base on large fills before hardfacing overlays. ▪ All position capabilities allows for cladding in positions. ▪ Excellent for overlaying even on high carbon or low alloy steels where cracking can be a problem with ordinary electrodes. ▪ Excellent operation even on low voltage AC machines. ▪ Weld pass on pass without need for chipping slag. ▪ Straight polarity (DC -) option doubles build up speed. ▪ Heavy thicknesses will not crack. ▪ Excellent for flame or pack hardening. 	<p>Hardness 33–38 HRC Welding Current AC ; DC + DC (-)</p> 	<ul style="list-style-type: none"> ▪ Flat ▪ Vertical up ▪ Horizontal ▪ Overhead 	<p>Surfacing of rails & switches, roller guides, slide ways... Build up before hardfacing / Re-building dies. Build up & cushion layers on forging die cavities, mandrels, gear teeth, chains, sprockets, punches, blades, drawing dies coupling, rope winches tractor shoes, mine car wheels, jack bits, sprockets, concrete mixer blades, roll ends, rollers, water well drill bits, clutch faces, gear teeth, shafts....</p>
<p>FERROFILL 320 Electrode for tough, hard and impact resistant surfacings, especially for medium manganese steels, (rail frog and cross pieces repair/ armoring of worn out parts on rails surfaces and flanks).</p>	<ul style="list-style-type: none"> ▪ High creep & wear resistance. Can be "Flame" hardened. ▪ Super Cr-Ni-Mo alloy. 	<p>Hardness 36 -40 HRC (without treatment) Welding Current AC ; DC+</p>	<ul style="list-style-type: none"> ▪ Flat ▪ Vertical up ▪ Horizontal ▪ Overhead 	<p>Rail frogs & crosspieces, hammers, wobblers, excavators, pinions, couplings, tail bars, keyways, gear teeth dozer sprockets... use either as a buffer or as a final layer. Highly suitable for wear – loaded machine members of unalloyed and low alloyed steels having dragged and crushing load. For example worms, toothed gears, and gear parts. The weld metal is still machinable. Resists severe impact.</p>

XI. MANGANESE STEEL BUILD UP


SNO	PRODUCT	C	Si	Mn	Ni	Cr	V	Mo	CUSHION	Remarks
22	Supergold 400 NM	0.45	0.30	14.0	4.0	3.00	—	0.30	Cushion layer not needed	Ideal balance of cost & performance
23	Ferrowork Mn	0.50	0.40	13.0	3.50	5.00	0.30	-	Cushion layer not needed	Economical
24	Ferrogold 602	0.10	0.90	6.00	9.00	19.00	-	-	Cushion layer not needed	Ideal high impact grip
25	Ferrowork Cr	0.80	0.70	16.00	-	14.00	-	-	Ferrogold 302/ Ferrogold 602	Fastest work hardening & best wear resistance

ALLOYS	UNIQUE FEATURES	MECHANICAL PROPERTIES	POSITIONS	KEY REPAIR APPLICATIONS
<p>SUPERGOLD 400 NM Joining and cladding electrode for manganese steel that can be flame cut</p> 	<ul style="list-style-type: none"> ▪ Spray transfer allows for smooth uniform overlays. ▪ Work hardens easily in service. ▪ Rare alloy that can be flame cut. 	<p>Hardness 170-220 HB (as welded) Work Hardened 380-500 HB Welding Current DC (+) or AC</p>	<ul style="list-style-type: none"> ▪ Flat ▪ Horizontal ▪ Vertical up ▪ Overhead 	<p>For repair of rail equipment and construction equipment manufactured of manganese steel.</p> 





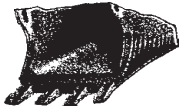
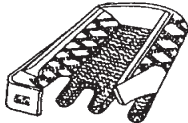
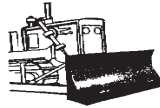
<p>FERROWORK MN Non-magnetic austenitic deposit Heavy basic coated austenitic manganese- alloyed electrode for wear resistant hardfacing on building machines grave mixers as well as for parts subject to impact and friction abrasion.</p>	<ul style="list-style-type: none"> ▪ Excellent resistance to impact, friction & abrasion. 	<p>Hardness 180- 220 HB (As welded) 400- 450HB (Work hardening) Welding Current AC;DC(+)</p>	<ul style="list-style-type: none"> ▪ Flat ▪ Horizontal 	<p>Cast manganese steel railway crossings, dredger buckets, crusher jaws, cement girder rings, austenitic manganese steel castings, crusher mantles, swing hammers, pulverizer hammers, wear plates etc.....</p>
<p>FERROGOLD 602 Ultimate Impact resistant alloy for manganese steels. Withstands extreme shock& impact Extra high strength, Impact resistant, work-hardening, electrode for joining surfacing & building-up unalloyed & manganese steels. Extremely high crack resistance. Contains stabilising elements & special additives to prevent brittleness. Can be readily cut with an oxyacetylene torch.</p>	<ul style="list-style-type: none"> ▪ Withstands extreme shock, loading & impact ▪ Work hardens to greater degree than manganese steel. ▪ Joins & surfaces. Unique combination of high tensile strength, elongation, crack resistance and quick work hardening wear & impact resistance. ▪ Extra high strength welds. Welds do not spall. Withstand extreme shock, loading & impact. ▪ Out wears ordinary hard - facing alloys in impact conditions to as much as 10 to 1. ▪ Scaling resistant upto 850°C. 	<p>Tensile Strength 700 N/mm² Yield Strength 500 N/mm² Elongation (%) 41 Hardness 200 HB (As welded) 520 HB (Work hardened) Impact Energy: 90J at 0°C 104J at RT Welding Current AC ; DC+</p> 	<ul style="list-style-type: none"> ▪ Flat ▪ Vertical up ▪ Horizontal 	<p>Railways, heavy construction& mining equipment - joining, overlays & build ups. Cushion layer prior to hardfacing on manganese steels & cast iron's. Crusher hammers. Repairing digger & shovel buckets ... Anti-wear protective overlay for a) Gears b) Drive sprockets c) Tracked vehicle wheels &return rollers d) Rails & rail joints. e) Crusher hammers cones &drills. f) Armour Plates IMP NOTE: remove slag & peen deposits between passes. Cool naturally.</p>
<p>FERROWORK CR Austenitic 140% recovery manganese chrome deposit with exceptional resistance to impact wear resistance, corrosion, abrasion & cavitation. Excellent work hardenable alloy for hardfacing on parts which are subject to extreme impact stress IMP: FG 302/602 should necessarily be used as a buffer layer prior to surfacing/building up with this alloy.</p>	<ul style="list-style-type: none"> ▪ High chrome manganese work-hardening deposit. ▪ Extremely high tensile &yield strength. Will not spall or deform ▪ Ultra fast work hardening. ▪ Excellent crack resistance by absorption of internal stresses. 	<p>Hardness 200 HB (Welding condition) 500 HB (Work hardened) Welding Current AC ; DC+</p>  <p>Manganese Crossing Diamonds</p>	<ul style="list-style-type: none"> ▪ Flat ▪ Vertical up  <p>Manganese Railroad Frogs</p>  <p>Crusher Hammers</p>  <p>Dragline Pins</p>	<p>Rails frogs & cross pieces, crossings & points, gantry tracks, drive sprocket wheels, conveyor rolls, crushers, hammers, bucket teeth, wear plates, shovel track pads, grab tips, impactors.... For building – up or final layers on manganese steels, low alloy & low carbon steels... IMP NOTE: remove slag &peen deposits between passes.</p> 

XII. HARDFACING OVERLAY - MARTENSITIC

SNO	PRODUCT	C	Si	Mn	Ni	Cr	Mo	V	W	B	HARDNESS	Remarks
(A) METAL TO METAL												
26	FERROCLAD I	0.50	1.00	1.00	—	8.50	1.50	1.80	—	0.20	60-63HRC	Unique high hardness without relief cracks









<p>FERROCLAD I Hardfacing electrode resistant to wear, abrasion, impact & compression. Basic coated all position hardfacing electrodes for application subject to impact, compression and abrasive wear. For anti wear application on carbon steel and manganese steel.</p>	<ul style="list-style-type: none"> ▪ Resistant to wear, impact & compression 	<p>Hardness 60 – 63HRC Welding Current AC ; DC+</p> 	<ul style="list-style-type: none"> ▪ Flat ▪ Horizontal ▪ Vertical up 	<p>Hardfacing and repairs of screw conveyors, bucket teeth, dipper teeth, cutting tools, crusher jaws, ploughshares, etc.....</p>
--	---	---	---	---

SNO	PRODUCT	C	Si	Mn	Ni	Cr	Mo	V	W	B	HARDNESS	Remarks
(B) METAL TO EARTH - IMPACT & MILD ABRASION/ GENERAL USE												
27	SUPERGOLD 700 GCM.	4.00	2.30	0.60	—	10.20	—	—	—	—	60-65 HRC	Best hardness- wear resistance
28	FERROCLAD II	4.00	1.00	0.50	—	8.50	2.00	0.50	—	—	58-62 HRC	Ideal general purpose hardfacing
29	FERROCLAD IMPACT	0.40	1.00	1.00	—	9.00	1.00	1.00	—	—	58-60 HRC	Suitable for metal to metal impact resistance.







ALLOYS	UNIQUE FEATURES	MECHANICAL PROPERTIES		POSITIONS	KEY REPAIR APPLICATIONS
SUPERGOLD 700 GCM For abrasion resistance and moderate impact resistance 	<ul style="list-style-type: none"> Basic coated SMAW electrode for hard surfacing. Good for severe abrasion and moderate impact resistance. Suitable up to 500° C. 120% Recovery 	Hardness 1 layer 59 HRc 2 layers 61 HRc 3 layers 65 HRc 4 layers 67 HRc Welding Current DC (-), AC		<ul style="list-style-type: none"> Flat Horizontal Half up 	For conveyor screws, mixer blades, pump and crusher parts operation in sand, clay, cement, and coal. 
FERROCLAD II High carbon, chrome- moly- vanadium protection. Basic coated, excellent for sever abrasion and moderate impact resistance.	<ul style="list-style-type: none"> Excellent for severe abrasion & moderate impact resistance. 	Hardness 58-62 HRC Welding Current AC; DC(-)		<ul style="list-style-type: none"> Flat Horizontal Half up 	For bucket teeth, conveyors screws, mixer blades, jaw crushers, scrapers, crusher mantles, pulverizer hammers, fan blades etc.....
FERROCLAD IMPACT Super alloy for primary crushing equipment, gives super impact & abrasion resistance Excellent weldability & features a self lubricating action. The deposit is tough-hardend crack resistant. Recovery of the electrode is approx 120%. 	<ul style="list-style-type: none"> Impact, compression & abrasion resistant chrome- vanadium – moly carbides. Built-in resiliency for unprecedented impact resistance. Deposit stress relieves itself. Highly efficient arc spatter & slag free. Weld metal retains hardness upto 450°C (however markebly softens in the range 550-700°C) 	Hardness 58-60 HRC Welding Current AC; DC(+)		<ul style="list-style-type: none"> Flat Horizontal Half up 	Hardfacing of bulldozer blades, excavator teeth, buckets, scrappers, swing hammers, beater bars, block presses, crusher jaws, wheel rims, rollers, caterpillar tracks, plough shares, running surface, cutting edges etc. Disintegration bars from combination roll crushers, agitator blades, impact breaker rotors & bars, scarifier teeth, end bits, skip hoists, grader blades, screens, conveyor buckets, power shovel teeth.... The combination FG 602 buffer combined with two or more layers of Ferroclad impact is particularly successful for excavation & crushing equipment.








XIII. HARFACING OVERLAY - AUSTENITIC


SNO	PRODUCT	C	Si	Mn	Ni	Cr	Mo	V	W	B	HARDNESS	Remarks
(A) METAL TO EARTH -MILD IMPACT + ABRASION												
30	FERROCLAD CR	3.80	0.90	0.40	—	33.00	—	—	—	—	57-60 HRC	Uniquely priced high Cr-C alloy
31	SUPERGOLD 006 CRC	3.80	1.00	0.14	0.35	37.00	0.55	—	—	—	59-60 HRC	Superior wear resistance

ALLOYS	UNIQUE FEATURES	MECHANICAL PROPERTIES	POSITIONS	KEY REPAIR APPLICATIONS
<p>FERROCLAD CR Universal hardfacing electrode. Superior quality 3C - 33Cr chromium carbide universal hardfacing alloy having excellent resistance to abrasion, impact, corrosion, erosion... surface formed is smooth & shiny & exhibits superior sliding wear resistance. Uniquely replaces commonly used hardfacing alloys & provides 2-3times longer wear life & protection.</p>	<ul style="list-style-type: none"> Unmatched balance of abrasion resistance-impact resistance and cost effectiveness. Unmatched weldability on AC and low current settings. Eliminates unbonded in landsand blowholes. Tough austenitic matrix resists both impact & abrasion. Superb weldability-positively non cracking. Ripple free surface doubles "grip resistance" to fine abrasive media. Can be deposited pass overpass without slag removal. Completely spatter proof 	<p>Hardness 57 - 60 HRC.</p> <p>Welding current: AC/DC+</p>  <p>Bucket Teeth</p>  <p>Augers</p>	<ul style="list-style-type: none"> Flat  <p>Muller Tires</p>  <p>Dozer Blades</p>	<p>Buckets, shovels, scrapers, wear pads, screws, conveyors, paddles, hammers (fibrizer, mincer, coal crushing, cement mill...), cane cutting knives, coal firing nozzles, dragline bucket pins & links, idlers, drums....</p>
<p>SUPERGOLD 006 CRC High efficiency chromium carbide electrode for hardfacing 160% Recovery, Superior High – Chrome Protection</p> 	<ul style="list-style-type: none"> Quiet smooth welding with self releasing slag. Short arc length-ultra low heat input. Forms shiny smooth deposit with excellent sliding wear resistance. Molten metal is viscous & easy to control. Allows for ease of use out of position. 	<p>Hardness 59-60 HRC</p> <p>Welding Current AC ; DC+</p> 	<ul style="list-style-type: none"> Flat Vertical up Horizontal  	<p>Screws, mixer blades, pump bodies, excavator teeth, plough shares, screw presses, mineral & ore crushing equipment, concrete pumps... Exhaustor fan blades, hardfacing chute plates... Crushing & grinding equipment...</p>


SNO	PRODUCT	C	Si	Mn	Ni	Cr	Mo	V	W	Nb	HARDNESS	Remarks
(B) METAL TO EARTH –SEVERE ABRASION/ EROSION/ CORROSION.....												
32	SUPERGOLD 710 HCC	4.50	0.70	0.50	—	34.00	—	—	—	—	62-64 HRC	Ultra high carbide density
33	FERROCLAD NbCr	5.20	2.20	0.40	—	29.00	0.15	1.0	2.00	7.50	62-64 HRC	Ideal for wet abrasion
34	SUPERGOLD 715 CCHT	4.50	1.50	2.00	—	29.00	7.00	1.00	2.50	8.00	64-65 HRC	Superior alloying for hot/wet/ low stress
35	FERROWEAR ULTIMA	4.80	0.70	0.50	—	38.00	—	—	—	B-3.00	67-69 HRC	Ultimate dry abrasion alloy below tungsten carbide alloys

<p>SUPERGOLD 710 HCC High carbide density FeCrC hardfacing alloy Supergold 710 HCC is a heavy coated high efficiency hardfacing electrode with 170 % recovery. Suitable for applications subject to strong abrasive wear by minerals, combined with moderate impact, medium shocks and compression as well as humidity or wetness. The weld metal is nearly free of slag. A buffer layer of Supergold 646 CNM is recommended prior to surfacing on old claddings.</p>	<ul style="list-style-type: none"> Ideally suited to applications exposed to extreme "GRINDING" low stress abrasion. Excellent performance at high temperatures upto 500°C 	<p>Hardness 62- 64 HRC</p> <p>Welding Current AC ; DC(+)</p> 	<ul style="list-style-type: none"> Flat Horizontal 	<p>Mainly used on pump bodies, mixer blades, agitator arms, concrete pumps, conveyer worms and coke-oven slides.</p> 
<p>FERROCLAD NbCr Universal "Wet-High & Low stress abrasion" hardfacing electrode. Smooth deposits enriched with highest possible % of niobium & chromium carbides offer an excellent combination of wet & dry abrasion resistance & high temperature hardness retention of upto 650°C.</p>	<ul style="list-style-type: none"> Unmatched niobium carbides in a dense work hardening austenitic matrix to resist both high and low stress abrasion, especially wet abrasion. 	<p>Hardness 62- 64 HRC</p> <p>Welding Current AC/ DC+</p> 	<ul style="list-style-type: none"> Flat Horizontal Half - up 	<p>Sizing screens, rolling mill guides, pump impellor saugers & feed screw shandling wet abrasive sands& sludges, ash plows, screw conveyors, valves, agitator fingers, mill guides mixer paddles, rake teeth in furnaces, elevator bucket tips.....</p>


<p>Features a dense matrix impregnated with hard carbide to resist both "high stress" & "low stress" abrasion.</p>	<ul style="list-style-type: none"> Unmatched wear resistance and high hardness 58-64 RC even at elevated temperatures. Problem solver for most applications. Unmatched weldability. Smooth pin hole free drop transfer deposits. Easy slag removal. High deposition rate 210% recovery. Ultra high % of carbide forming alloys. Excellent for "wet" & "dry" high temperature strong abrasion, friction, heat & corrosion Ultra low wear co-efficient. 		 <p>Grader Blades</p>	<p>Ideal product for high abrasion low impact applications in the mining & cement industry.</p> <p>Superior to "chromium carbides" & even the more expensive "conventional Nb+ Mo+ Cr+ W..... type complex carbides" in specifically "wet" abrasion applications.</p> <p>Highly versatile alloy is possibly the best balance of cost & performance.</p>
<p>SUPERGOLD 715 CCHT High recovery electrode (200%) for hard surfacing with a deposit which is extremely resistant against mineral abrasion combined with medium impact, corrosion and heat up to 650°C. (high% of hardness retention upto 860°C)</p> 	<ul style="list-style-type: none"> The ultimate combination of high abrasion resistance, high temperature hardness retention & corrosion protection. 	<p>Hardness 64-65 HRC</p> <p>Welding Current AC ; DC(+)</p> 	<ul style="list-style-type: none"> Flat  	<p>Agitator fingers, valves, mixer paddles, screw presses, coke crusher, ploughshares, ash plows, coke crusher segments, screw conveyers, valves, exhaust fans, agitator fingers, mill guides, mixer paddles, rake teeth in furnaces, tong bits, slag ladles, elevator bucket-tips etc. operation temperatures up to 650°C.</p> <p>Excellent for the protecting of all iron based parts against severe fine particle abrasion as well as in applications at elevated temperatures.</p>
<p>FERROWEAR ULTIMA Universal "Dry - Extreme abrasion" hardfacing. Unmatched high hardness and wear resistant boron carbide alloy - 65RC plus hardness Unmatched wear life and as deposited hardness and alloying. Unmatched high recovery 240% diamond hard alloy for the ultimate performance in "dry-Extreme" metal to earth abrasion applications under severe conditions. Excellent for surfacings and repairs in mining industry, cement works steel plants. Sugar mills.....</p>	<ul style="list-style-type: none"> Highest "first" layer hardness. Diamond hard boron carbides in a tough austenitic matrix. Ultra high density C- Cr carbides support B4C carbides for unmatched wear & dry abrasion resistance Performs well even at elevated temperature upto 800°C Tungsten carbide like hardness at a fraction of the cost. 	<p>Hardness 67 - 69 HRC (1st layer itself)</p> <p>Welding Current AC/ DC+/DC-</p>	<ul style="list-style-type: none"> Flat 	<p>Extreme abrasion & erosion applications.</p> <p>Unmatched wear resistance, In all parts subject to high abrasion high temperature sand low impact; sintering plants, steel mills, coke oven plants, coal excavation, mining, over burden removal, road construction machinery crushers, conveyor screws...</p>




Roll Heads




Slurry Tank agitator bearings




Die rings




Plows




Slurry Tank agitator shaft




Screw flight shaft bearing, hangers & gudgeon pins




Bag peckers screws




Scalping & sizing vibratory screens




Rotary Screens




Elevator Bucket lips




Cage crushers




Crusher Hammer




Clinker grinding rolls




Pug mill augers



Spreader Cones



Feeder Blades



Conveyor and Vertical Mixer Screws

INDIA'S FINEST WELDING ELECTRODES



Premium Welding Consumables

SUPERON SCHWEISSTECHNIK (I) LTD.

Admin. Office : 15-16, Old Sewa Nagar Market, Post Off: Lodhi Road, New Delhi-110 003, INDIA
 Phone : 24647252, 24647199, 24638360, 24652337, 24649831
 Fax : 24623826, 24633847 E-mail : sales@superonindia.com
 Web site : www.superonindia.com

AUTHORISED AREA DISTRIBUTOR