## LOW HEAT INPUT CONSUMABLES FOR MAINTENANCE & REPAIR

### A. ELECTRODES FOR STEEL & DISSIMILAR ALLOYS

| Product | Description | Applications | Typical Properties | Size and Current | | | | |
|---|---|---|---|---|---|---|---|---|
| **VALMATIC** **[AC/DC+]** | ALL POSITION, CONTACT WELDING, EASY DETACHABILITY, EXCELLENT BEAD FINISH, | Air Conditioning parts, Machine guards, Doors & Windows | U.T.S. 450-500 $N/mm^2$, Elongation 22% | **Size (mm)** **Amps** | **2.50** **50-90** | **3.15** **90-130** | **4.0** **140-170** | **5.0** **170-220** |
| **VALMET 516 LH** **[AC/DC+]** | ALL POSITION, LOW HYDROGEN, HIGH STRENGTH & RECOVERY, RADIOGRAPHIC. | Low & Medium Carbon Steels, Heavy Sections, Restrained joints under dynamic load, such as crane jigs & booms Chassis etc. | U.T.S. 550-600 $N/mm^2$, Elongation 26% | **Size (mm)** **Amps** | **2.50** 70-100 | **3.15** 100 - 140 | **4.0** 130 - 175 | **5.0** 165 - 220 |
| **VALMET 506 MLH** **[AC/DC+]** | ALL POSITION,LOW HYDROGEN, HIGH STRENGTH, GIVING HIGH IMPACT RESISTANCE & DUCTILITY UPTO 525° C | Applications: for joining & build up of carbon- moly steels, medium high tensile & low alloy steels, boilers, pressure vessels, pipes & tubes of such composition. | U.T.S. 570-620 $N/mm^2$, Elongation 22% | **Size (mm)** **Amps** | **2.50** 70-100 | **3.15** 100 - 140 | **4.0** 130 - 175 | **5.0** 165 - 220 |
| **CRONIMO 536** **[AC/DC+]** | BASIC, MEDIUM HEAVY COATED, LOW HYDROGEN, DEPOSITING WELD METAL OF 1%Cr/2.5% Ni/ 0.70%Mo TYPE | Welding of HT steel machinery parts, earth moving, automobile, chemical plant parts and armor plates using Ni-Cr-Mo steels, Repairing steam turbine rotors etc. | U.T.S. 720-750 $N/mm^2$,Elongation 22%,CVN at -60oC 5.0KgM | **Size (mm)** **Amps** | **2.50** 70-100 | **3.15** 100 - 140 | **4.0** 130 - 175 | **5.0** 165 - 220 |
| **VALMET 526** **[AC/DC+]** | WORK HARDENING ALLOY FOR JOINING & REPAIRING CRACKS IN MANGANESE STEELS (12%) AND JOINING MN STEELS TO OTHER STEELS | Shovels, Buckets, Sprockets, Track Pads, Crushers etc. | U.T.S. 650 $N/mm^2$, Elongation 30-40%, min<br>Hardness : As Deposited 160 BHN Work hardened 440 BHN | **Size (mm)** **Amps** | **2.50** 40-70 | **3.15** 60-120 | **4.0** 100 - 160 | **5.0** 140 - 190 |

| Product | Description | Applications | Typical Properties | Size and Current | | | | |
|---|---|---|---|---|---|---|---|---|
| **VALMET 5260**<br><br>**[AC/DC+]** | WORK HARDENING ALLOY FOR JOINING & REPAIRING CRACKS IN MANGANESE STEELS (12%) AND JOINING MN STEELS TO OTHER STEELS | Shovels, Buckets, Sprockets, Track Pads, Crushers etc. | U.T.S. 650 N/mm$^2$, Elongation 30-40%, min.<br><br>Hardness : As Deposited 160 BHN<br>Work hardened 440 BHN | **ize (mm)**<br>**Amps** | **2.50**<br>40-70 | **3.15**<br>60-120 | **4.0**<br>100 - 160 | **5.0**<br>140 - 190 |
| **CAMN 56**<br><br>**[AC/DC+]** | HIGH MANGANESE STEELS,MANGANESE STEEL TO MILD STEEL, CARBON & LOW ALLOY & STAINLESS STEELS, CUSHION LAYER ON FATIGUED MANGANESE & OTHER STEELS PRIOR TO HARDFACING. | Shovels, Buckets, Sprockets, Track Pads, Crushers etc. | U.T.S. 650 N/mm$^2$, Elongation 30-40% min.<br><br>Hardness: As Deposited 160 BHN<br>Work hardened 440 BHN | **Size (mm)**<br>**Amps** | **2.50**<br>40-70 | **3.15**<br>60-120 | **4.0**<br>100 - 160 | **5.0**<br>140 - 190 |
| **MNX 221**<br><br>**[AC/DC+]** | JOINING & REPAIR OF HIGH MANGANESE STEELS, MANGANESE STEEL TO MILD STEEL, CARBON STEEL & SS, CUSHION LAYER ON FATIGUED MANGANESE & OTHER STEELS | Shovels, Excavator Buckets, Sprockets, Track Pads, Jaw crushers, pinions | U.T.S. 680-700 N/mm$^2$, Elongation 30-35% | **Size (mm)**<br>**Amps** | | **3.15**<br>75-130 | **4.0**<br>100 - 160 | **5.0**<br>140 - 190 |
| **VALMET 576**<br><br>**[AC/DC+]** | FOR JOINING STAINLESS STEEL TO MILD STEEL & CARBON STEEL, OVERLAYS & CUSHION LAYER | Shafts, Valve seats & faces, roller journals, bucket cracks, hammers, jaw crushers. | U.T.S. 680 N/mm$^2$, Elongation 30%, Hardness 160-180 BHN | **Size (mm)**<br>**Amps** | **2.50**<br>40-70 | **3.15**<br>60-120 | **4.0**<br>100 - 150 | **5.0**<br>140 - 190 |
| **VALMET 586 OCM**<br><br>**[AC/DC+]** | FOR JOINING & REPAIR OF LOW, MEDIUM, HIGH ALLOY STEEL OR STEEL OF UNKNOWN COMPOSITION, SUPERIOR CRACK RESISTANCE, WELDABILITY & MACHINABILITY | Gears, tool steels, dies, shafts, cushion layer | U.T.S. 800-850 N/mm$^2$, Elongation 20-22% min. | **Size (mm)**<br>**Amps** | **2.50**<br>40-70 | **3.15**<br>75-130 | **4.0**<br>100 - 165 | **5.0**<br>130 - 180 |

| Product | Description | Applications | Typical Properties | Size and Current | | | | |
|---|---|---|---|---|---|---|---|---|
| **VALMET 586** **[AC/DC+]** | SUPERIOR ELECTRODE FOR UNKNOWN, DISSIMILAR, DIFFICULT TO WELD STEELS. | Gears, tool steels, dies, shafts, cushion layer. | U.T.S. 820-860 N/mm$^2$, Elongation 24% (Typical) | **Size (mm)** | **2.50** | **3.15** | **4.0** | **5.0** |
| | | | | **Amps** | 40-70 | 75-130 | 100 - 165 | 130 - 180 |
| **VALMET 586 FG** **[AC/DC+]** | DEPOSITS CONTROLLED & FINE GRAINED DUPLEX AUSTENO FERRITIC WELD, HIGH STRENGTH, TOUGHNESS, DUCTILITY AND CRACK RESISTIVITY. OUTSTANDING WELD CHARACTERISTICS | joining, surfacing, & repair of high alloy, high strength, difficult to weld, unknown & dissimilar steels components & also manganese steels. | U.T.S. 820-860 N/mm$^2$, Elongation 24% (Typical) | **Size (mm)** | | **2.50** | **4.0** | **5.0** |
| | | | | **Amps** | | 40-70 | 100 - 165 | 130 - 180 |
| **VALMET 588** **[AC/DC+]** | PRECISELY BALANCED FINE GRAINED DEPOSIT GIVING DUPLEX STRUCTURE OF AUSTENITE & FERRITE WITH SUPERB WELDABILITY | Gear Box , Gear Teeth, Shafts, Tools & Dies, Joining Wear plates, Leaf Spring, Cushion Layer | U.T.S. 860 N/mm$^2$, Elongation 24% | **Size (mm)** | **2.50** | **3.15** | **4.0** | **5.0** |
| | | | | **Amps** | 40-70 | 75-130 | 100 - 165 | 130 - 180 |
| **VALMET FVW 01** **[AC/DC+]** | Cr/Ni/Mo ALLOYED HIGH STRENGTH, HIGH CRACK RESISTANT SS ALLOY | joining and surfacing of armour plates, tough low alloy steels, as buffer layer prior to roll surfacing etc. | U.T.S. 735 N/mm$^2$, Elongation.36% | **Size (mm)** | **2.50** | **3.15** | **4.0** | **5.0** |
| | | | | **Amps** | 40-70 | 75-130 | 100 - 165 | 130 - 180 |

**B . ELECTRODE FOR CAST IRON**

| Product | Description | Applications | Typical Properties | Size and Current | | | | |
|---|---|---|---|---|---|---|---|---|
| **VALMET 26** **[AC/DC+]** | SPRAY TRANSFER, NON MACHINABLE WELD FOR RUSTY, CORRODED, OIL SOAKED IRON PARTS | machine frames, oil pump, pump housing, foundry defects | U.T.S. 380-430 N/mm$^2$ | **Size (mm)** | **2.50** | **3.15** | **4.0** | **5.0** |
| | | | | **Amps** | 50-70 | 60-110 | 80-130 | 100 - 170 |
| **CASTOMAC 238** **[AC/DC+]** | NODULAR IRON CASTING, CAST IRON TO M.S. JOINING WITH HIGH CARCK RESITIVITY, MACHINABLE WELD GIVING GOOD COLOUR MATCH | Repair of welding defects of heavy castings sections, pump casing, engine head, valve bodies, motor body, foundry defects cladding. | U.T.S. 380-420 N/mm$^2$, Hardness 190-210 B.H.N. | **Size (mm)** | **2.50** | **3.15** | **4.0** | **5.0** |
| | | | | **Amps** | 50-70 | 60-110 | 80-130 | 100 - 170 |

| Product | Description | Applications | Typical Properties | Size and Current | | | | |
|---|---|---|---|---|---|---|---|---|
| **MPCI 228**<br>**[AC/DC+]** | HIGH STRENGTH NICKEL IRON ALLOY ELECTRODE FOR CAST IRON TO M.S. JOINING WITH HIGH CARCK RESITIVITY, MACHINABLE DUCTILE WELD | Pump casing, engine head, valve bodies, motor body, foundry defects, auto parts, cladding, heavy cast iron sections | U.T.S. 350-400 $N/mm^2$ , | **Size (mm)** | **2.50** | **3.15** | **4.0** | **5.0** |
| | | | | **Amps** | 50-70 | 60-110 | 80-130 | 100 - 170 |
| **CASTODYNE 2384 C**<br>**[AC/DC+]** | SUPERIOR WELDABILITY & MACHINABILITY RECOMMENDED FOR PATCHING UP WELDING DEFECTS WITH EXCELLENT COLOUR MATCHING | Cast Iron roll & other foundry defect rectification, cast iron die cladding & for nodular iron | U.T.S. 380-430 $N/mm^2$ | **Size (mm)** | **2.50** | **3.15** | **4.0** | **5.0** |
| | | | | **Amps** | 40-70 | 60-110 | 80-130 | 100 - 170 |
| **CASTODYNE 2386**<br>**[AC/DC+]** | EXCELLENT BONDING & MACHINABILITY, VERY HIGH CRACK RESISTANCE, MAXIMUM WELD SOUNDNESS | Cast Iron roll & other foundry defect rectification, cast iron die cladding & for nodular iron | U.T.S. 380-420 $N/mm^2$ | **Size (mm)** | **2.50** | **3.15** | **4.0** | **5.0** |
| | | | | **Amps** | 40-70 | 60-110 | 80-130 | 100 - 170 |
| **MPCI 220**<br>**[AC/DC+]** | SOFT & DUCTILE HIGH NICKEL ELECTRODE | Cast iron gears & pulleys, housing, machine bases, engine blocks (water jacket), filling up blow holes etc. | U.T.S. 350-380 $N/mm^2$. | **Size (mm)** | **2.50** | **3.15** | **4.0** | **5.0** |
| | | | | **Amps** | 40-70 | 60-110 | 80-130 | 100 - 170 |
| **SDM 240**<br>**[AC/DC+]** | STRONG, DUCTILE & MACHINABLE REPAIR OF CAST IRON PARTS | For filling, joining, building up & repair of castings, sugar mill rollers, cast iron gears & pulleys, housing, machine bases, engine blocks (water jacket), filling up blow holes etc. | U.T.S. 330-400 $N/mm^2$. Hardness: 140-170 BHN | **Size (mm)** | **2.50** | **3.15** | **4.0** | **5.0** |
| | | | | **Amps** | 50-70 | 60-110 | 80-130 | 100 - 170 |
| **SDM 250**<br>**[AC/DC+]** | VERY HIGH NICKEL ALLOY, MINIMAL BASE METAL DILUTION, VERY SOFT & DUCTILE DEPOSIT. | Foundry Castings, sugar mill rollers, cast iron gears & pulleys, housing, machine bases, engine blocks (water jacket), filling up blow holes etc. | U.T.S. 320-380 $N/mm^2$, Hardness 110-130 BHN | **Size (mm)** | **2.50** | **3.15** | **4.0** | **5.0** |
| | | | | **Amps** | 50-70 | 60-110 | 80-130 | 100 - 170 |

| Product | Description | Applications | Typical Properties | Size and Current | | | | |
|---|---|---|---|---|---|---|---|---|
| **CASTO SUPER 0077 [AC/DC+]** | ONE ELECTRODE FOR ALL TYPES OF CAST IRON. SUPERB WELDABILITY, MAXIMUM CRACK RESISTANCE, EXCELLENT WELDABILITY | A versatile electrode for all Foundry Castings, sugar mill rollers, cast iron gears & pulleys, housing, machine bases, engine blocks (water jacket), filling up blow holes etc. | U.T.S. 320-400 $N/mm^2$, Hardness 130-170 BHN | **Size (mm)** | **2.50** | **3.15** | **4.0** | **5.0** |
| | | | | **Amps** | 50-70 | 60-110 | 80-125 | 110 - 170 |

## C . ELECTRODES FOR HEAT & CORROSION RESISTANCE

| Product | Description | Applications | Typical Properties | Size and Current | | | |
|---|---|---|---|---|---|---|---|
| **NICONEL 2424 [AC/DC+]** | HIGH RECOVERY NICKEL ALLOY ELECTRODE, EXCELLENT RESISTANCE TO CORROSION, OXIDATION & THERMAL SHOCK AT HIGH TEMPERATURE .ALSO SUITABLE FOR CRYOGENIC RANGE | Joining & overlaying of Nickel & Nickel Chrome alloys, HK alloys, furnace parts, dissimilar parts, cryogenic & high temperature equipments & for Inconel type of alloys. | U.T.S. 630 $N/mm^2$ | **Size (mm)** | **2.50** | **3.15** | **4.0** |
| | | | | **Amps** | 55-90 | 75-120 | 115 - 180 |
| **NICONEL 2525 [AC/DC+]** | HIGH RECOVERY NICKEL ALLOY ELECTRODE, EXCELLENT RESISTANCE TO CORROSION, OXIDATION & THERMAL SHOCK AT HIGH TEMPERATURE .ALSO SUITABLE FOR CRYOGENIC RANGE | Joining & overlaying of Nickel & Nickel Chrome alloys, HK alloys, furnace parts, dissimilar parts, cryogenic & high temperature equipments & for Inconel type of alloys. | U.T.S. 630 $N/mm^2$ | **Size (mm)** | **2.50** | **3.15** | **4.0** |
| | | | | **Amps** | 55-90 | 75-120 | 115 - 180 |
| **HK 3040 [AC/DC+]** | SPECIALLY DESIGNED HIGH CARBON, CROMIIM & NICKEL BEARING ALLOY WITH GOOD CREEP RUPTURE PROPERTIES UPTO 1150°C | For Welding HK 30, HK 40 alloys, refprmer tubes, AISI 309 & 310 type s.s, heat exchangers, furnace parts, heating element, heat treatment boxes, kiln cooler plates, reaction vessels etc | U.T.S. 600 $N/mm^2$, Elongation 35% | **Size (mm)** | | **3.15** | **4.0** |
| | | | | **Amps** | | 75-120 | 130-165 |

| Product | Description | Applications | Typical Properties | Size and Current | | | |
|---|---|---|---|---|---|---|---|
| **NICARB-1150**<br><br>**[AC/DC+]** | HIGH CARBON, CHROMIUM & NICKEL BEARING ALLOY, FOR WITH-STANDING HIGH TEMP. UPTO 1150 oC. HIGH CREEP RUPTURE PROLONGED LIFE AT ELEVATED TEMPERATURE | Welding & repairing of heat resistant castings for use in oxidizing & reducing atmosphere at high temp. in fertilizer, oil refinery & petrochemical industries. | U.T.S. 600-620 N/mm$^2$. Total Cr+Ni content above 50% | **Size (mm)** | **2.50** | **3.15** | **4.0** |
| | | | | **Amps** | 55-90 | 75-120 | 115-180 |
| **VALMET 2290**<br><br>**[AC/DC+]** | HIGH RECOVERY (150%), NICKEL, CR, MO, CO BASED ALLOY. GIVES EXCELLENT THERMAL SHOCK RESISTANCE WITH SUPERIOR RUPTURE STRENGTH & CORROSION RESISTANCE IN OXIDIZING ACIDS AND CHLORINE. ALSO RESISTANT TO DEFORMATION AT HIGH TEMPERATURE UPTO 1100°C UNDER STATIC AND CYCLIC LOAD. | Joining and overlaying of Alloy 600, 617, 625 & 825 | U.T.S. 880 N/mm$^2$ | **Size (mm)** | **2.50** | **3.15** | **4.0** |
| | | | | **Amps** | 70-90 | 100-130 | 110-150 |
| **VALMET 2293 LN**<br><br>**[AC/DC+]** | NITROGEN BEARING 22Cr/ 9 Ni/3 Mo WITH EXTRA LOW CARBON IDEAL FOR WELDING DUPLEX STAINLESS STEELS. ALSO GIVES EXCELLENT CORROSION RESISTANCE IN MARINE ENVIRONMENTS | Low & Medium Carbon Steels, Heavy Sections, gears, sprockets etc. | U.T.S. 730 N/mm$^2$, Elongation 25% | **Size (mm)** | **2.50** | **3.15** | **4.0** |
| | | | | **Amps** | 60-80 | 80-110 | 110 - 140 |
| **VALMET 068**<br><br>**[AC/DC+]** | FULLY AUSTENITIC NI/CR ALLOY SUITABLE FOR JOINING AND BUILD UP ON FERROUS ALLOYS, NICKEL AND NICKEL ALLOYS, COPPER AND COPPER ALLOYS CONFORMING TO AWS : 5.11 NiCrFe3 (Modified). | Hot rolling Guides, Tools and Dies, Reaction Vessels etc. | U.T.S. 625 N/mm$^2$, Elongation 35% | **Size (mm)** | **2.50** | **3.15** | **4.0** |
| | | | | **Amps** | 40-65 | 70-100 | 100 - 130 |

## D. SILVER BRAZING

| Product | Description | Applications | Typical Properties |
|---|---|---|---|
| **VALBRAZE 403 BARE**<br><br>**[ OXY-ACETYLENE]** | SILVER BEARING, THIN FLOWING ALLOY FOR JOINING COPPER TO COPPER, BRASS & BRONZE GIVING STRONG, DUCTILE & LEAK PROOF | Armature, electric motor, regrigeration tubes, heat exchangers. | Bonding Temperature 660oC, self fluxing on copper to copper Available in 1.60 mm & 3.20 mm sizes, For Copper alloys Valency Flux 403 should be used. |
| **VALBRAZE 405 BARE [OXY-ACETELYNE]** | VERSATILE HIGH STRENGTH, EXTREMELY THIN FLOWING ALLOY FOR JOINING STEEL, S.S., BRASS & BRONZE GIVING STRONG DUCTILE & LEAK PROOF JOINT | Electrical contacts, carbide tool tip, high speed tools, instruments, wire mesh & filters, hospital & hotel equipment | Bonding Temperature 600oC, Available in Rod 1.60 mm & Shin 25 mm x 0.075 mm |
| **VALBRAZE 450 BARE[(OXY-ACETELYNE]** | VERSATILE LOW MELTING, EXTREMELY THIN FLOWING HIGH SILVER ALLOY FOR COPPER, NICKEL, CARBON, STEELS, ALLOY STEELS, CARBIDES & SS | Electrical contacts, carbide tip, Wire mesh, Instruments, hospital, & hotel equipment, Thin Tubing | Bonding Temperature 600°C, Available in Rod 1.60 mm & Shin<br>2.5 mm x 0075 mm ms. |

## E. ALUMUNIUM & ALUMINIUM ALLOYS

| Product | Description | Applications | Properties |
|---|---|---|---|
| **VALBRAZE 110 BARE (OXY-ACETELYNE)** | THIN FLOWING ALLOY FOR HIGH STRENGTH FILLET, TEE, LAP & FLANGE JOINTS OF ALUMINIUM PARTS GIVING GOOD COLOUR MATCH | Furniture, radio instruments, containers, air conditioning ducts, tubes etc | U.T.S. 240 $N/mm^2$. Bonding Temp. 570oC, Available in Rod 1.60 mm, 2.50 mm & 3.15 mm dia ., To be used with Valency Flux 110 |
| **VALBRAZE 105 BARE (OXY-ACETELYNE)** | BEAD FORMING TYPE ALLOY FOR BUILDING UP AND JOINING OF ALUMINIUM PARTS, EXCELLENT FOR POOR FIT UP JOINTS. | Aluminium housing, fans, tubular frames, containers, furniture, radio instruments, containers, air conditioning ducts, tubes etc. | U.T.S. 220-240 $N/mm^2$. Bonding Temp. 590oC, Available in Rod 2.50 mm & 3.15 mm dia., To be used with Valency Flux 105 |
| **VALBRAZE 150C (Flux Coated Oxy Acetylene)** | FOR CAST IRON PARTS, ALSO SUITABLE FOR STEEL PARTS, HAVING SUPERIOR FLOW ON FERROUS & COPPER ALLOYS | Car bodies, galvanized sheet, exhaust manifold, C.I. housing, dissimilar metal combination | U.T.S. 460 $N/mm^2$. (Available in 3.15 mm dia. Also available 150 B Bare with corresponding 150 Flux) |
| **VALBRAZE 180C (Flux Coated for Brazing)** | HIGH STRENGTH WEAR RESISTANT ALLOY WITH LOW CO-EFFICIENT OF FRICTION & WORK HARDENING PROPERTY FOR MACHINABLE OVERLAYS ON C.I. , M.S. & LOW CARBON STEELS. CAN BE USED FOR JOINING ALSO | Spur gear teeth, Worn bearing area, worn shaft, valve seat etc. | U.T.S. 460 $N/mm^2$ Bonding Temp. 780oC, Remelt Temp. 890oC, Hardness 180 BHN (As Deposited), 240 BHN (Work Hardened)<br><br>(Available in 3.15 mm dia. ) |

## F . COPPER, BRASS & BRONZE

| Description | Applications | Typical Properties | Size and Current |
|---|---|---|---|
| FOR OVERLAY ON COPPER ALLOYS & JOINING COPPER ALLOYS TO C.I. & STEEL, MACHINABLE, GOOD COLOUR MATCH WITH BRONZE | Bronze impellers, gear teeth, soft bearing overlay, marine components, Can be applied on steel, C.I. & Bronze both for build up & joining. | U.T.S. 350 $N/mm^2$, Hardness 75-80 RB (As deposited), 90-95 RB (Work Hardened) | **Size (mm)** **3.15** **4.0**<br>**Amps** 90-130 100-160 |
| MULTIPURPOSE ELECTRODE FOR ALUMINIUM BRONZE, COPPER ALLOYS, STEEL & C.I., HAVING GOOD SEA WATER & CHEMICAL CORROSION RESISTANCE | Marine pumps & valves, ship propellers, impellers, bearing sliding surface | U.T.S. 420-450 $N/mm^2$ Hardness - 130-150 BHN | **Size (mm)** **3.15** **4.0**<br>**Amps** 90-110 120 - 140 |