

## **COBALARC**

Cobalarc - the future of hardfacing. This range of tubular electrodes gives a host of advantages over conventional coated electrodes in respect of hardfacing applications owing to its unique features.

- The prime weapons that provide the hardness in hardfacing deposits are the metallic and nonmetallic carbides. In coated electrodes, the carbides are formed at the time of welding. Carbides, preformed, cannot be used in these electrodes because the high hardness renders them difficult to produce. But, Cobalarc electrodes have the advantage that the preformed carbides are put inside a hollow mild steel tube.
- In hardfacing controlling the heat input is important because greater dilution will lower the hardness of the deposit. In this respect, Cobalarc gives a major headway because only a thin walled tube has to be melted instead of a solid wire. So the heat requirement will be considerably less and automatically the heat input will really be low.
- The low heat input also reduces the heat-affected zone in the base metal.
- Cobalarc provides economy as the total loss involves only .butt end loss and very negligible slag loss. Moreover, the butt end does not contain any carbide inside - it is only the hollow tube that is lost, so the actual loss is even lower.
- The slag formation is very small in Cobalarc. So the welder can apply the next run without wasting any time for deslagging. This gives an immense advantage of speed and productivity. So in 1 hour of arcing, Cobalarc gives 2-2.5 times the weight of deposit than coated hardfacing electrodes.
- A near absence of slag does not mean that Cobalarc deposits are exposed to the atmosphere for oxidation. The outer coating contains ingredients that burn in the welding arc and generate copious amount of fumes, which provides the shielding to the weld pool.
- This outer coating has one more function. Since it contains non-hygroscopic stabilizers the mild steel tube is free from rusting giving these electrodes an indefinite shelf life. The rigid tube also protects the preformed carbides from degeneration over time.



## COBALARC 1M

### Preformed carbides to resist high stress abrasion

Cobalarc 1 M is the ultimate in welding technology.

It has autogenous fume shielding over preformed carbides in a tubular form, which gives the user genuine low heat input and infinite shelf life by dint of its non-hygroscopic coating.

It deposits fine chromium carbides in tough austenitic matrix and gives better abrasion resistance on mild and low alloy steel bases where impact requirement is limited. This will ensure excellent wear resistance on 12-14% manganese steel components.

**SPOT COLOUR:** YELLOW

**ALLOY BASE:** Fe, C, Cr, Si

### SPECIAL FEATURES

- Exceptional resistance to severe abrasion and moderate impact.
- Oxidation resistance at elevated temperatures.
- Unmatched deposition rates - high integrity deposits.
- Compared to solid cored electrodes, the current requirement is low so the dilution by parent metal is contained to a minimum.

- Non-hygroscopic coating needs no storage precaution – infinite shelf life.

### APPLICATIONS

I.D. fan blades, impeller casings, dredger bucket lips, crusher jaws, bulldozer cutting edges, muller tyres, sizing screens, pulveriser and crusher hammers, ball mill liner plates, scraper blades, crane grab shovel, dragline bucket lips, points and cutting edges, teeth augers, conveyor chains, rolling mill guides, agriculture implements. The electrode is suitable for 12-14% manganese steel parts and also for carbon steel parts when resistance to abrasion is required. Also for applications which call for oxidation resistance.

### PROPERTIES

Hardness : 55-59 HRC

### CURRENT RANGE : (AC 70, DC±)

Size (mm)	Length (mm)	Current Range (Amp)
5.0	400	90-130
6.3	450	120-140
8.0	450	140-170
10.0	450	180-200

## COBALARC 9

### Preformed carbides to resist abrasion at high temperatures

Cobalarc 9 is the ultimate in welding technology.

It has autogenous fume shielding over preformed carbides in a tubular form, which gives the user genuine low heat input and infinite shelf life by dint of its non-hygroscopic coating.

The weld metal consists of complex high temperature carbides, with high-stress abrasion resistance withstanding moderate to heavy impact even at high temperature. The deposit is easily grindable, with good impact property.

**SPOT COLOUR:** GREEN

**ALLOY BASE:** Fe, C, Cr, Si, Mo, Mn, V

### SPECIAL FEATURES

- Exceptional resistance to severe abrasion and moderate to heavy impact at elevated temperature.
- Unmatched deposition rates - high integrity deposits.

- Compared to solid cored electrodes, the current requirement is low so the dilution by parent metal is contained to a minimum.
- Non-hygroscopic coating needs no storage precaution – infinite shelf life.

### APPLICATIONS

Coal burner nozzles, clinker conveyor chains, railway tampers, sizing screens, augers, agricultural implements, rolling mill guides, heat resistant steel castings, pump casings, I.D. fans, tie rods, pug mill and augers, brick press screws, etc. where high stress abrasion is the major factor of wear at high temperatures.

### PROPERTIES

Hardness : 57-62 HRC

### CURRENT RANGE : (AC 70, DC±)

Size (mm)	Length (mm)	Current Range (Amp)
5.0	400	90-130
6.3	450	120-140
8.0	450	140-170
10.0	450	180-200

## COBALARC 4

### Preformed tungsten carbides for high pressure abrasion

Cobalarc 4 is the ultimate in welding technology.

It has autogenous fume shielding over preformed carbides in a tubular form, which gives the user genuine low heat input and infinite shelf life by dint of its non-hygroscopic coating.

The electrode deposits fine tungsten carbide embedded in a hard and tough martensitic-austenitic matrix, which is suitable for extreme abrasion with low to moderate impact. It resists all forms of abrasion and wear. Deposition efficiency is very high when compared with coated electrode.

**SPOT COLOUR:** PINK

**ALLOY BASE:** Fe, W, C, Co

#### SPECIAL FEATURES

- Exceptional resistance to severe abrasion and moderate to heavy impact at low to medium temperatures.
- Low spatter level.

- Unmatched deposition rates - high integrity deposits.
- Compared to solid cored electrodes, the current requirement is low so the dilution by parent metal is contained to a minimum.
- Non-hygroscopic coating needs no storage precaution – infinite shelf life.

#### APPLICATIONS

Rock drill bits, oil well drills, churn drills, sand gravel chutes, coal cutter bits and picks, bulldozer end plates, grader end bits, feed screens, scraper for sand and refractory materials, fan and pump impellers, pug mill augers and knives, choppers, post hole auger teeth, feed screws, mixer blades/paddles etc.

#### PROPERTIES

Hardness : 57-63 HRC

#### CURRENT RANGE : (AC 70, DC±)

Size (mm)	Length (mm)	Current Range (Amp)
5.0	400	90-120
6.3	450	120-140

## COBALARC MX

### Preformed stabilised carbides for high temperature complex wear

Cobalarc MX is the ultimate in welding technology.

It has autogenous fume shielding over preformed carbides in a tubular form, which gives the user genuine low heat input and infinite shelf life by dint of its non-hygroscopic coating.

In this case, preformed carbides in the tube route have been adopted to derive supersaturated composite alloy with high volume fraction of extreme abrasion resistant alloys along with complex stabilized carbides. While the electrode is best to solve critical wear problems at high temperature, it also performs better than chrome-carbide electrodes even at room temperature. The deposit is absolutely unparalleled in its resistance to fine particle abrasion.

Oxidation and corrosion resistance upto 1200°C.

**SPOT COLOUR:** BLUE

**ALLOY BASE:** Fe, C, Cr, Mo, Nb, V, W, Ti

#### SPECIAL FEATURES

- Exceptional resistance to severe fine and coarse particle abrasion at ambient to temperatures around 800°C.

- Low spatter level.
- Unmatched deposition rates - high integrity deposits.
- Compared to solid cored electrodes, the current requirement is low so the dilution by parent metal is contained to a minimum.
- Non-hygroscopic coating needs no storage precaution – infinite shelf life.

#### APPLICATIONS

Exhaust fans handling high temperature flue gases with ash, catalyst particles, ash ploughs, conveyer screws, sinter plant components, copper ladles and other non-ferrous industry applications, zinc industry blast furnace bells, Paulworth chutes, etc.

#### PROPERTIES

Hardness : 66-70 HRC

#### CURRENT RANGE : (AC 70, DC±)

Size (mm)	Length (mm)	Current Range (Amp)
5.00	400	90-100
6.30	400	120-140
8.00	450	130-170