

Brief Information of Surfacing with Flux/Strip-electrode

So far there are two welding processes for surfacing with flux/Strip-electrode, i.e. submerged arc welding (SAW) and electro-slag welding (ESW). The main strip-electrode is stainless steel and normally it is 60mm wideness and 0.5mm thickness. Combine with flux, the strip-electrode fused together with the weldment to acquire a uniform stainless steel surfacing layer. Relative to wire-electrode the strip-electrode has advantages: 1) the penetration of weldbead is very uniform; 2) the fusion ratio of base metal is much lower; 3) the deposition efficiency is much higher; 4) the crack susceptibility of deposited metal is much lower. So surfacing with flux/strip-electrode is an advanced technology of surfacing in the world.

A) The Matters Need Attention for Surfacing with Flux/Strip-electrode

1) Power Source

The power source would not affect the submerged arc welding too much. But for the electro-slag welding it is very important so the flat characteristics DC power for surfacing is recommended and a constant speed strip-electrode feed system is recommended also.

2) Electric Current

SAW for surfacing with flux/strip-electrode, overlarge current is unsuited since larger current means heat input will be bigger then penetration will be deeper and the fusion ratio of base metal will be more; in this case more elements of base metal will mix to the deposited metal and more carbon that from the base metal will be the deposited metal; the performance of corrosion resistance of deposited metal will be reduced; even more undercut and crack would occur.

ESW for surfacing with flux/strip-electrode, smaller current will be the disadvantage of the arc striking and slag forming, height of the weld bead will be lower but overlarge current will affect the chemical composition of the deposited metal more. So an opportune electric current should be chosen but different fluxes should be different current.

3) Arc Voltage

Narrow scope of arc voltage is required for SAW for surfacing with flux/strip-electrode. If arc voltage higher, the weld bead would be wider with irregular edge and slag detaching would be insufficiency; if too low, weldability would be poor and the appearance of weld would be poor too. So ensure burning with stable arc voltage to choose a lower arc voltage.

It is sensitive for arc voltage in the process of ESW for surfacing with flux/strip-electrode also normally it should be 24V-28V and over 30V is inadvisable.

4) The Extention of Strip-electrode

Experimental results show that the strip-electrode extention should be controlled within 25mm-35mm and if over 35mm the appearance of weld would be poor.

5) Welding Speed

Usually the welding speed should be controlled within 140mm-200mm/min and if it slower or faster the quality of weld bead would be affected.

6) Measure of Lap Joint

In surfacing with flux/strip-electrode, along with the length of weld bead the later weld bead overlap on the previous one that the section lapped is called measure of lap joint. The 4mm-8mm of measure of lap joint is opportune the smaller or more of it will affect the quality of weld bead.

7) Magnetic Control Unit

It is necessary to use magnetic control unit for electro-slag welding that the strip-electrode is wider than 60mm because up to the magnetic pinch affect the wider of strip-electrode the larger current and the more serious of the undercut. Use flat characteristics DC power is better moreover.

8) Please read the indications about surfacing with flux/strip-electrode in the "Notice" under each item.

B) Storage and Moving the Flux / Stripp-electrode

1) The storeroom should be arefaction and ventilated. The temperature is better 10°C-40°C and relative humidity (RH) \leq 60%. Moisture should be avoided and repulsing any liquid or mordant effumability materials, such as water, acid, alkali and so on, far away from fire also.

2) Both welding flux and strip-electrode can not be put on ground directly and it should be put on pallet that made by wooden/metal/ plastic and the distance of the flux/ strip-electrode against the wall of storeroom at least 300mm.

3) It is important to store the strip-electrodes and fluxes respectively according to the types and specifications and do not misapplication.

4) Moving flux/ strip-electrode must be careful and do not damage any package of it. strip-electrode has strong elasticity so must be careful to open its package and be careful to put it on the welding machine.