

sif tips



Sifbronze was established in 1925 and is one of the last companies who continue to manufacture welding consumables here in the UK.

In February 2008 they became a wholly owned company within the WWS Group and now feature as part of the combined WELDABILITY SIF product range.

The company has kindly offered to provide a series of technical advice documents for the welding sales engineer and AWD members, following the traditional SIFTIPS format which was originally started in 1932.

Stainless

Stainless steel is a generic term for a range of steels that contain a minimum of 12% chromium, although other elements such as nickel and molybdenum are added to improve corrosion resistance, which is their primary feature and use. They sub-divide into five groups, but our main interest is with austenitic, which is the most popular and weldable range of stainless used in chemical plants, food processing equipment etc.

TIG welding is ideal for high quality work or root runs, prior to filling with an alternative process. Whereas the main advantage of MIG is speed. Shielding gas is typically argon or a mix of argon, helium and CO₂. There is a range of matching consumables in SIFMIG and Sifsteel Stainless, covering 347, 308, 316, 309 and 312 grades. Whilst talking MIG and TIG process, stainless can be TIG or MIG brazed using say Sifphosphor Bronze No 8 or SIFMIG 8, which can be very useful if the material needs to be joined to copper or steel.

It is possible to gas welding the common grades of stainless (18/8), but it is important to use Stainless flux and also apply the flux in paste form (mix powder with water) to the reverse side of the joint. Also, stainless can be silver soldered or brazed, which is again a benefit for dissimilar metal applications. To silver solder stainless, a high silver content alloy is required (such as SIF Silver Solder No 43 55% Ag Cd free) and a suitable flux (SIF Flux Silver Solder). Alternatively, a 'nickel bronze' brazing rod such as Sifbronze No 2 together with 'Tool Tipping/Brazing Stainless' flux (note: do NOT use Stainless flux as it is for gas welding of stainless).

A widely used process is arc welding. Our range of Hilchrome electrodes are ideal in the flat and vertical up positions and produce a concave bead from which the slag will easily lift.

Procedure Tips:

Cleanliness of the workpiece and working area is most important. Only use stainless wire brushes for cleaning.

As stainless is considered a poor thermal conductor, preheat is not normally required and a high heat input should be avoided.

Avoid striking the arc outside the joint, as this can lead to pitting and cracks.

With TIG, use a thoriated tungsten and do not allow it to contact the workpiece, which can lead to contamination.

After welding, clean thoroughly using a stainless brush. Use SIF Pickling Paste to clean discoloration from surface and restore chrome oxide layer on the stainless.

The weld can become contaminated and 'rust' spots appear on the stainless if ferrous particles have inadvertently been allowed to enter the weld area. This can be caused by poor housekeeping (stainless brush being used on steel) or other operations in the welding area which produce air borne metal particles, such as grinding.

Only The Best From... 

Weldability  **solutions
in fusion**

tel : +44 (0) 845 130 7757
fax : +44 (0) 800 970 7757
email : sales@wholeweld.co.uk
web : www.wholeweld.co.uk

tel : +44 (0) 1449 771 443
fax : +44 (0) 1449 771 945
email : sales@sifbronze.co.uk
web : www.sifbronze.co.uk