Solder Wire

Features

- Halide free version-Typ 400
- Mild odour
- Fast soldering-range of activities to suit all applications
- Clear residues
- Good spread on copper, brass and nickel
- Heat stable-low spitting

Multicomp type 400, 505 and 511 solid fluxes for cored solder wires have been specially formulated to complement no clean wave and reflow soldering processes. They are also applicable to repair operations carried out after a cleaning process, eliminating the need for further cleaning

Product Range

Multicomp type 400 is designed for users who require a halide free formulation. The remaining products in the range contain higher halide levels to maximise soldering power

Multicomp type 400, 505 and 511 cored wires are manufactured with a range of flux contents. Although users will normally be using products with a nominal flux content of 3%, the superior performance of the Multicomp Typ 400, 505 and 511 products may allow a lower flux content to be specified e.g. 2.2%. This will further improve residue appearance by reducing the quantity. All are available in alloys conforming to national and international standards, including lead free alloys.

Recommended Operating Conditions

Soldering Iron

Good results should be obtained using a range of tip temperatures. However, the optimum tip temperature and heat capacity required for a hand soldering process is a function of both soldering iron design and the nature of the task and care should be exercised to avoid unnecessarily high tip temperatures for excessive times. A high tip temperature will increase any tendency to flux spitting and it may produce some residue darkening

The soldering iron tip should be properly tinned and this may be achieved using Multicomp Typ 400, 505 and 511 cored wire. Severely contaminated soldering iron tips should first be cleaned and pre-tinned using a soldering iron tip tinner, then wiped on a clean, damp sponge before re-tinning with Multicomp cored wire

Soldering process

Flux cored wires type 400, 505 and 511 contain a careful balance of resins and activators to provide clear residues, maximum activity and high residue reliability, without cleaning in most situations. To achieve the best results from solder wires, recommended working practices for hand soldering should be observed as follows:

- Apply the soldering iron tip to the work surface, ensuring that it simultaneously contacts the base material and the component termination to heat both surfaces adequately. This process should only take a fraction of a second
- Apply flux cored solder wire to a part of the joint surface away from the soldering iron and allow to flow sufficiently to form a sound joint fillet - this should be virtually instantaneous. Do not apply excessive solder or heat to the joint as this may result in dull, gritty fillets and excessive or darkened flux residues
- Remove solder wire from the work piece and then remove the iron tip

The total process will be very rapid, depending upon thermal mass, tip temperature and configuration and the solderability of the surfaces to be joined

Multicomp flux cored solder wires provide fast soldering on copper and brass surfaces as well as solder coated materials. Activity of the halide activated versions on nickel is also good depending on the state of oxidation of the nickel finish. The good thermal stability of fluxes Typ 400, 505 and 511 means, they are also well suited to soldering applications requiring high melting temperature alloys.

The resin and flux systems are designed to leave relatively low residues and to minimise residual activity. This is achieved by ensuring some decomposition and volatilisation takes place during the soldering process. In some situations, this may generate visible fuming but in all cases, rosin fumes must be removed from the breathing zone of operators

Cleaning: In most industrial and consumer electronics applications cleaning will not be required and the product may therefore be used to complement a no clean wave soldering or reflow process or to allow repairs to cleaned boards without the need for a second cleaning process

Should cleaning be required, this is best achieved using a special solvent cleaner. Cleaning through saponification is not recommended

Technical Specification

Alloys

The alloys used for Multicomp Typ 400, 505 and 511 cored solder wires conform to the purity requirements of the common national and international standards. A wide range of wire diameters is available manufactured to close dimensional tolerances

Flux

The solid fluxes are based on modified rosins and carefully selected activators. In use they exhibit a mild rosin odour and leave a small quantity of clear residue

Flux Properties			
Test	**400**	**505**	**511**
Acid value mg / KOH / g	215	170	170
Halide Content %	0	0.5	1.1
J-STD-004 -Solder Spread mm^2 -Corrosion Test	210 Pass	315 Pass	340 Pass
SIR Test (Without Cleaning) -IPC-SF-818 Class3 -Bellcore TR-NWT-000078	Pass Pass	Pass Pass	Pass Pass
Electromigration-test SIR Test (Without Cleaning) Bellcore TR-NWT-000078	Pass	Pass	Pass
Classification -EN 29454-1 -J-STD-004 -IPC-SF-818	1.2.3 RO L0 LR3CN	1.2.2 RO M1 MR3CN	1.2.2 RO M1 MR3CN

Cored Wire

Multicomp type 400, 505 and 511 cored solder wires are designed to give fast and sustained wetting on both copper and brass. This can be demonstrated using spreading tests on both substrates under standard conditions for the Multicomp products and comparable competitor products. After 5 seconds, area of spread is measured to form a comparative index indicating total flux efficacy. Multicomp Typ 400, 505 and 511 flux cored solder wires out-perform competitor products, which required a higher flux content and leave more residues whilst achieving poorer spread

Relative Wetting Performance of Multicomp Solder Wire and Halide Free Competitor Products*			
Product	**Flux Content (%)**	**Area of Spread (mm^2)**	
		Oxidised Copper	**Oxidised Brass**
Type 400	2.2	222	209
Competitor A	3.5	191	140
Competitor B		202	

*Oxidised for 1 hour at 205°C

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Relative Wetting Performance of Multicomp Solder Wire and Halide Free Competitor Products*				
Product	Flux Content (%)	Halide Content (%)	Area of Spread (mm^2)	
			Oxidised Copper	Oxidised Brass
Competitor E	2	0.4	200	150
Competitor F	2.4		190	180
Competitor G	3.5		150	120
Competitor H	2.7	0.5	230	150
Type 505	3		220	240

*Oxidised for 1 hour at 205°C

Relative Wetting Performance of Multicomp Solder Wire and Halide Free Competitor Products*				
Product	Flux Content (%)	Halide Content (%)	Area of Spread (mm^2)	
			Oxidised Copper	Oxidised Brass
Type 511	3	1.1	270	390
Competitor J	2.2	1.2	260	190
Competitor K	2	1.6	210	230

*Oxidised for 1 hour at 205°C

Multicomp solder wires type 400, 505 and 511 are available in
Lead-free Alloys : S-Sn99.3Cu0.7 (is equivalent to DIN-EN-alloy S-Sn99Cu1) S-Sn96.1Ag2.6Cu0.3

Part Number Table

Description	Part Number
Solder Wire, Lead Free, 0.5mm, 250g	509-0672
Solder Wire, Lead Free, 0.7mm, 250g	509-0684
Solder Wire, Lead Free, 0.9mm, 250g	509-0696
Solder Wire, Lead Free, 1.2mm, 250g	812053
Solder Wire, Lead Free, 1.2mm, 250g	509-0726
Solder Wire, Lead Free, 0.9mm, 500g	509-0738
Solder Wire, Lead Free, 1.2mm, 500g	509-0740