

Soldering: A guide



Stage 1 - Preparation

Preparation is ensuring the parts to be soldered are a good dry fit, then pre-cleaning the areas to be soldered with an abrasive, such as wire wool. (Emery and sand paper should not be used, as they cause silica particles to become embedded in the surface, which prevents solder wetting.) For larger jobs, make a jig to hold the parts while soldering.



Stage 2 - Tinning

Tinning ensures optimum solderability of the surfaces to be soldered. It is possible to tin using solder bar/wire and flux but the easiest way is to use a solder paint. Paint the area to be soldered, heat until the solder powder in the paint becomes molten. Wipe away excess paint leaving a shiny solderable finish.



Stage 3 - Soldering

Apply a thin coating of the correct flux, then jig up the pieces to be soldered and apply a heat source (soldering iron or gas torch) to both surfaces simultaneously. If using an iron, clean the tip and load it with solder to assist heat transfer. When the surfaces are up to temperature, feed in sufficient solder (stick or wire) to make the joint. Remove the heat source and allow the solder to solidify and make the joint. In many instances it is possible to make a good joint using only the solder paint. Apply the paint to both pre-cleaned mating surfaces. Jig up the parts and apply the heat until the solder powder in the paint becomes molten. Remove the heat source to let the joint solidify. This technique has limited ability to fill voids.



Stage 4 - Post Cleaning

Many active fluxes can stain or even corrode the metal. Remove all flux residues after soldering by cleaning thoroughly. Fluxes recommended by the Solder Connection can be cleaned effectively with warm soapy water. The addition of a little citric acid to the rinse water may be beneficial.

Solder Connection was established over 25 years ago, supplying Alpha® soldering materials & PCB cleaners to the electronic assembly market in Wales and the South West of England.

Since then, the company has expanded, supplying the UK and Irish markets, whilst diversifying its range to include soldering systems, fume extraction, stencils and bespoke tooling.

More recently Solder Connection took over the manufacturing of the Industrial range of solders, paints and fluxes from Fry's Metals. Fry's Metals was established almost 100 years ago within the print industry in London, supplying low melt solder alloys to the newspaper presses in Fleet Street.

They would grow to become the largest manufacturer of Industrial solders & fluxes in the UK and Europe. Solder Connection have continued to manufacture, preserve and develop products from Fry's iconic range whilst attending a variety of Industrial Exhibitions.

Our new Solders & Fluxes website offers our Industrial Engineering customers the ability to purchase soldering products in convenient sizes and quantities.

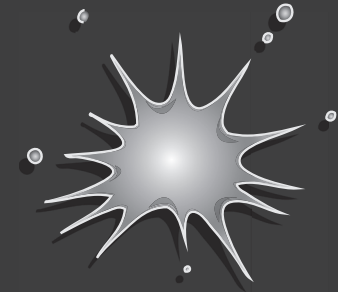
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SOLDERS & FLUXES
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Soft Solders

A comprehensive range of soft soldering alloys, covering most Industrial applications. Most alloys are available in traditional bar, tinman, blowpipe, wire and pellet form. Our common range is shown below.



Product	Alloy	Melt Point °C	Application
Grade D	Sn30 Pb70	185-250	Heat exchangers & copper connectors
Grade K	Sn60 Pb40	183-190	Soldering electrical connectors to copper
Grade 96S	Sn96 Ag4	221	High temperature soldering (lead-free)
Grade 99C	Sn99 Cu1	230-240	General lead-free soldering & plumbing
LS4 (Comsol)	Sn5 Pb94 Ag1	294-305	High temperature soldering of copper, brass & tin
Powerflow 99C Wire	Sn99 Cu1	227-228	WRAS approved lead-free wire for plumbing & heating
Powerflow Leaded Wire	Sn30 Pb70	183-234	Lead wire for non-potable water plumbing & heating

Solder Paints

Fryolux Solder Paints are available in both leaded and lead-free variants. They are a uniform mixture of finely powdered tin/lead solder and zinc chloride activated flux. It has a creamy consistency and is ideal for pre-finishing, solder coating and soft solder assembly.



Apply by brush, swab or spray to cold surfaces and then heat to melt the solder and make the joints. Only a thin coat is required.

Product	Alloy	Melt Point °C	Application
Leaded	Sn40 Pb60	183-235	General sweating & tinning
Lead Free	SN100	232	Hand tinning & sweat soldering where lead-free is essential

Soft Soldering Flux

Solder Connection manufactures a comprehensive range of liquid and paste fluxes for soft soldering a variety of ferrous and non-ferrous metal alloys.

Liquid Flux

Achieving the perfect joint requires the correct flux. Liquid fluxes are easily applied through dipping or with a brush. Fluxes should be used sparingly as residues can remain active and effect painted finishes.



Product	Application
Powerflow Flux Paste	WRAS Approved, self cleaning plumbing flux
Alcho-Re Paste	General purpose electrical & electronic soldering flux
Fluxite	WRAS approved multi-purpose flux for bronze & copper

Paste Flux

Paste Fluxes are a thicker, less fluid option, providing the ability to apply flux with a brush and undertake pre-assembly of the parts before applying heat.

Traditionally used in plumbing, central heating and motor rewind applications, they can be used effectively in vertical joints and enclosed areas within housings.



Product	Application
WLI	Dipping and roller tinning of copper or brass.
Bakers No.3	Soldering copper, brass or mild steel
Blackband	Soldering of mild steel, bronze and brasses
Radsol 301	Soldering copper or brass - Non-corrosive residues
A8	Highly reactive flux for stainless steel soldering
S26	Ideal for soldering chromium or nickel steels
Aluflux	Specifically formulated for aluminium soldering
S64	High Temperature solder dipping of wires
RF-800	General purpose, non-corrosive electrical flux

Silver Soldering

Silver Soldering is the process of joining metals at temperatures above 610°C, using a molten filler rod to create a strong solder joint. A range of the most popular Johnson Matthey silver solders and corresponding fluxes, highlighted below are available to order. Other products may be available on request.



Product	Melt Point °C	Application
Silverflo 40	660-710	Silver brazing filler metal for use joining copper to steel
Silverflo 55	630-660	General purpose silver brazing filler metal for use with most common engineering metals

Product	Temp Range °C	Application
EasyFlo Powder	550-800	General Purpose Brazing Flux for use on most common metals (excluding aluminium)
Tenacity 5 Powder	600-900	High Temperature Brazing Flux for use with Steel or Copper

Soldering Consumables

Designed to complement our soldering range, a comprehensive variety of soldering consumables are available. These include Soldering Irons, Solder Pots, Cleaning Wipes and Braid.



See our website for our full range of Industrial soldering products. From Solder Paste and Flux to Solder Wire & Soldering Irons.

Visit www.soldersandfluxes.co.uk to view the full range and order today.

