



Range of Brazing and Welding Products



Indian Solder and Braze Alloys

Established 1974

An ISO 9001:2008 Company Approved by NABCB



Range of Brazing and Welding Products

Company Profile

Indian Solder and Braze Alloys is a renowned manufacturer and supplier of high quality brazing and welding products that include **silver brazing alloys, silver copper phosphorous alloys, copper based brazing alloys, aluminium wires and fluxes.** With over decades of experience we have attained specialization and offer perfect solutions for all the brazing needs of our customers.

We have been able to carve a niche for ourselves in the international market by supplying products that are known for their reliability and quality. Our range of products has a proven track record in many industries across the globe including **Air Conditioning, Refrigeration, Defense, Heavy Engineering, Railways, Power, Hydraulic Motors, Pumps, Radiators, Switchgears and Tools Industries.** The product range is most comprehensive and wide catering to general purpose as well as special applications. These conform to technical standards and are available in standard and in customized forms as well.

Quality

Our quality system is **ISO 9001:2008 certified.** To maintain high standards of performance all alloys are melted and fabricated from selected raw materials under the technical supervision of experts. This ensures that brazing alloys conform to their appropriate specification not only in chemical composition but also in their freedom from harmful traces of impurities and other undesirable features as well. After the final stage of production all our products are subject to specific quality control tests with the aid of state of art in-house testing laboratory.

Infrastructure

Our manufacturing facility is located at Meerut (approximately, 70 Kms. from the National Capital Territory New Delhi on NH-58). Equipped with the latest and sophisticated machinery we have been able to meet the ever changing application requirements of our customers with utmost precision and in time. The Management of the organization is strong and focused with a sound and vibrant corporate philosophy thereby enabling employee retention and generating a productive atmosphere. Besides this, we have a team of skilled workforce, who continually undergo training so as to match up to the expectations of our clients.



BRAZING

THE PROCESS

Brazing

Brazing refers to a group of joining processes that produces coalescence of materials by heating them to brazing temperature in the presence of a brazing filler metal that has a liquidus temperature above 840°F (450°C) and below the solidus temperature of the base metals. The brazing filler metal is distributed between closely fitted faying surfaces of the joint by capillary action.

The five elements of Brazing are :

- Joint Design - Lap or Butt Joint; Joint clearance
- Base Materials - Chemistry, Hardness
- Filler Metals - Chemistry, Solidus-Liquidus
- Source of Heat - Electrical, Oxy fuel Gas.
- Protective Cover- Fluxes

Filler Metals

Brazing filler metals are complex alloys made up of three or more metals to produce a successful braze depending on the intended use or application. Ability to spread and adhere to base metals, suitable melting range and fluidity are factors that help in determining a suitable filler metal.

These filler metals are available in various forms such as Rod, Wire, Strips, Pre forms, Paste and Flux Coated Rods. Suitability to the application helps in determining the form in which the Brazing Filler Metals should be used.

Flux

Brazing Flux is a mixture of chemicals that is used to prevent the formation of oxides and other undesirable substances in molten brazing filler metal and on solid base metal surfaces. By removing the surface oxides brazing flux reduces surface tension and promotes the free flow of brazing filler metal. Flux also serves the purpose of cleaning any contamination left on the brazing surfaces. It can be applied in various forms such as paste, liquid, powder or pre-made brazing pastes that combine flux with filler metal powder. Flux can also be applied using brazing rods with a coating of flux or a flux core.

Our Offering

We are a single source supplier for all your brazing needs including brazing alloys and their fluxes. Based on extensive research and product innovation, our comprehensive range of products includes:

Silver Brazing Alloys

Silver Copper Phosphorous Brazing Alloys

Copper Based Brazing Alloys

Aluminium Filler Wires

Fluxes

**SECTION 1**

- Silver Brazing Alloys- with Cadmium
- Silver Brazing Alloys- without Cadmium
- Silver Brazing Alloys- For Tungsten Carbide Tipped Tools
- Silver Copper Phosphorous Brazing Alloys
- Copper Based Brazing Alloys- Brasses and Bronzes
- Aluminium Filler Wires
- Fluxes:

**SECTION 2****Forms and Capabilities**

- Bare Rods
- Flux Coated Rods
- Wires
- Copper Phosphorous flats
- Stripes and Foils
- Rings and Multi turn Rings
- Fluxes
- Slugs, Pre-forms, Coins and Washers
- Granules

SECTION 3

Steps for Successful Brazing



We are a leading manufacturer of high quality silver brazing alloys that are easy to use, possess high strength impact with short melting ranges, free flowing and versatile. Our silver brazing alloys have outstanding flow characteristics and mechanical properties. These are available in forms of wire, foils or shims, preformed wires or strips, granules, rings and paste or powder. Besides, these can be customised as per clients' specifications and applications. Our silver brazing alloys range includes:

Cadmium Bearing Alloys

Cadmium Free Alloys

For Tungsten Carbide Tipped Tools

Silver Brazing Alloys With Cadmium

We offer a range of cadmium bearing alloys which have an excellent combination of melting range, capillary flow and mechanical properties. These cadmium bearing alloys would be recommended as the most economical alloys where the presence of cadmium is acceptable.

Product Code	Composition %					Melting Range		Tensile Strength	Corresponding Standard				
	Ag	Cu	Zn	Cd	Others	Celsius	Density		DIN 8513	BS 1845	AWS A5.8	IS 2927	EN 1044
ALFA-213	67	11	12	10	-	635-720	9.6 g/cm ³	40 Kg/mm ²	L- Ag67Cd	-	-	-	-
ALFA-205	50	15	16	19	-	620-640	9.5 g/cm ³	43 Kg/mm ²	L- Ag50Cd	AG-1	B Ag-1a	BA Cu Ag 10	AG 301
ALFA-209	45	15	16	24	-	607-619	9.4 g/cm ³	43 Kg/mm ²	L- Ag45Cd	-	B Ag-1	BA Cu Ag 15	AG 302
ALFA-207	43	16	20	21	-	615-620	9.4 g/cm ³	42 Kg/mm ²	-	-	-	BA Cu Ag 16A	
ALFA-206	42	17	16	25	-	605-620	9.4 g/cm ³	42 Kg/mm ²	-	AG-2	-	-	AG 303
ALFA-204	40	19	21	20	-	595-630	9.3 g/cm ³	42 Kg/mm ²	L-Ag40Cd	AG-10	-	-	AG 304
ALFA-211	38	20	22	20	-	605-650	9.2 g/cm ³	40 kg/mm ²	-	AG-3	-	BA Cu Ag 19	
ALFA-208	35	26	21	18	-	607-702	9.1 g/cm ³	40 Kg/mm ²	L-Ag34Cd	-	B Ag-2	BA Cu Ag 20	AG 305
ALFA-203	30	27	20	23	-	607-710	9.1 g/cm ³	38 Kg/mm ²	L-Ag30Cd	AG-12	B Ag-2a	BA Cu Ag 21	AG 306
ALFA-207A	25	30	27.5	17.5	-	605-710	8.8 g/cm ³	40 Kg/mm ²	-	-	B Ag-33	-	AG 307
ALFA-207B	25	35	26.5	13.5	-	605-745	8.8 g/cm ³	40 kg/mm ²	-	-	B Ag-27	-	
ALFA-202	20	38	28	14	-	620-750	8.7 g/cm ³	40 Kg/mm ²	L-Ag20Cd	-	-	-	AG 309
ALFA-208A	17	41	26	16	-	620-760	8.7 g/cm ³	42 Kg/mm ²	-	-	-	-	
ALFA-203A	12	50	31	7	-	620-810	8.7 g/cm ³	42 Kg/mm ²	L-Ag12Cd	-	-	-	

ALFA-213 is majorly used for brazing of Silver goods which are made of Silver Alloys.

ALFA - 205 is a general purpose alloy which has highest joint strength and also provides resistance to corrosion in chlorine, sulphur and steam environments.

ALFA 209 has lowest brazing temperature range because of which it provides excellent flow characteristics. Its narrow melting range makes it suitable for rapid or slow methods of heating and also helps in flowing freely in narrow clearance joints.

ALFA - 207 may be used in brazing operations, requiring a low temperature, quick and complete penetration and neat joints of high strength that needs little or no finishing. It is used where joints are closely fitted and where it is desired to employ a single alloy effective in wide range of applications. It may be used in brazing steel, copper, brass, gunmetal, tin bronzes, aluminium, manganese bronzes, copper nickel alloys and nickel silver.

ALFA - 204 is versatile, high strength, free flowing and exhibits lowest melting points.

ALFA - 211 Similar to ALFA-208 but little costlier. Provides more strength to the joint.

ALFA - 208 is free flowing and is suitable for general purpose work requiring higher brazing temperature. Its melting range is helpful where joint clearances are not uniform. Unless heating is rapid, care must be taken, that lower melting constituents do not separate by liquation.

ALFA - 203 is very versatile, high strength and is free flowing. It can be used to join a wide range of base materials.

ALFA - 207A wide melting range limit its application because it is more prone to liquation. It is recommended for applications with slow heating rates. However, it has good fillet forming properties and has ability to bridge wider gaps.

ALFA - 207B is similar to ALFA-207A. It is used for brazing joints with very wide gaps.

ALFA - 202 is very versatile, high strength, free flowing and exhibits low melting points. It can be used to join a wide range of base metals besides being economical.

ALFA - 203A is ideal for bridging wider gaps where work pieces are insensitive to heat. It is preferred for applications having short heating cycles.

Caution : The above brazing filler metals contains cadmium where in fumes produced during brazing are poisonous. Kindly refer to American National Standard Z49.1 Safety in Welding and Cutting for proper usage of these alloys.

Silver Brazing Alloys Without Cadmium

We have developed a range of cadmium free alloys, keeping in view the requirements of our end users, which mainly consist of food and beverage industry. These alloys are suitable for use on most ferrous and non-ferrous materials. We offer numerous material compositions for general purpose and specialty applications, which are available in strip, wire, powder, paste, preforms, clad tri-metal products and flux-cored wire.



Without Tin

Product Code	Composition %			Melting Range Celsius	Density	Tensile Strength	Corresponding Standard					
	Ag	Cu	Zn				DIN 8513	BS 1845	AWS A5.8	IS 2927	EN 1044	
ALFA-311A	83	15	2	780-830	-	-	L-Ag83	-	-	-	-	-
ALFA-308A	80	16	4	738-810	9.1 g/cm ³	46 Kg/mm ²	-	-	-	-	BA Cu Ag 1	-
ALFA-312	75	22	3	741-788	9.1 g/cm ³	46 Kg/mm ²	-	-	-	-	BA Cu Ag 2	-
ALFA-309B	72	28	-	780-780	10.0 g/cm ³	35 Kg/mm ²	-	-	-	B Ag-8	BA Cu Ag 3	AG 401
ALFA-307B	70	20	10	691-738	9.1 g/cm ³	46 Kg/mm ²	-	-	-	B Ag-10	-	-
ALFA-313	67	23	10	700-730	9.1 g/cm ³	46 Kg/mm ²	L-Ag67	-	-	-	-	-
ALFA-311B	65	20	15	690-720	9.1 g/cm ³	46 Kg/mm ²	L-Ag64	-	-	B Ag-9	-	-
ALFA-307A	61	29	10	690-735	9.1 g/cm ³	46 Kg/mm ²	-	-	-	-	BA Cu Ag 6	-
ALFA-306	60	26	14	695-730	9.6 g/cm ³	48 Kg/mm ²	L-Ag60	AG 13	-	-	-	-
ALFA-305	50	34	16	688-774	9.1 g/cm ³	46 Kg/mm ²	-	-	-	B Ag-6	BA Cu Ag 9	-
ALFA-305A	50	50	-	750-870	9.1 g/cm ³	46 Kg/mm ²	-	-	-	-	-	-
ALFA-309	45	30	25	677-743	9.1 g/cm ³	51 Kg/mm ²	L-Ag44	AG 15	B Ag-5	BA Cu Ag 14	AG 203	-
ALFA-307	43	37	20	700-775	9.1 g/cm ³	46 Kg/mm ²	-	-	-	-	BA Cu Ag 16	-
ALFA-304	40	30	30	660-720	9.1 g/cm ³	46 Kg/mm ²	-	-	-	-	-	-
ALFA-308	35	32	33	685-755	9.0 g/cm ³	48 Kg/mm ²	-	-	-	B Ag-35	-	-
ALFA-303	30	38	32	680-765	8.9 g/cm ³	50 Kg/mm ²	L-Ag30	-	-	B Ag-20	-	AG 204
ALFA-307C	25	40	35	700-790	8.8 g/cm ³	45 Kg/mm ²	L-Ag25	AG 17	-	-	-	AG 205
ALFA-301	10	52	38	743-766	8.4 g/cm ³	48 kg/mm ²	-	-	-	-	BA Cu Ag 23	-

ALFA - 311A is used for brazing of precisions silver linings of chemical equipments or precision silver equipment.

ALFA - 308A is used in assembling of vacuum tubes where volatile elements are not permitted to be used. This alloy is free flowing yet it does not wet well on ferrous metals.

ALFA - 312 is generally used for joining sterling silver or brazing of objects made of silver alloys which are enameled after the brazing process.

ALFA 309B is suitable for furnace brazing in a protective atmosphere. It is very fluid and can be used on copper or copper alloys, stainless steel, nickel based alloys and carbon steel.

ALFA - 307B is used especially for joining sterling silver. The colour, after brazing, approximates the colour of sterling silver.

ALFA - 313 is used for brazing of silver goods which are made from silver alloys.

ALFA - 311B is similar to ALFA-307B but is more economical and provides less strength to the joint.

ALFA - 307A is particularly suitable for joining electrical components requiring high electrical conductivity.

ALFA - 306 is used for brazing monel, silver and nickel alloys.

ALFA - 305 may be used where the use of brazing alloy containing cadmium as for food handling or process equipment is objectionable. It is also used in electrical industry. Due to broad melting range it is a better filler metal for filling wide joint clearances or forming large fillets.

ALFA-305A is similar to ALFA-309. It is used where better gap filling is required.

ALFA-309 is a general purpose brazing alloy for use at higher brazing temperatures. It is an excellent filler metal for brazing brass parts.

ALFA-307 is similar to ALFA-309. It is also used for brazing of ferrous and non ferrous metals.

ALFA-304 has a wide melting range and used in brazing of copper based alloys, monel, nickel and mild steel.

ALFA-308 is a filler metal with intermediate temperature for use in brazing of ferrous and non ferrous metals.

ALFA-303 has moderate ductility which limits the joint design and application. It has good wetting characteristics and is free flowing.

ALFA-307C is an economical filler metal used for brazing ferrous metals, stainless steel, copper and brass. It is used in mechanical, electrical, refrigeration industries and for brazing musical instruments.

ALFA-301 is suitable for brazing ferrous and non ferrous metals not damaged by temperatures required. It is also useful for brazing copper based alloys.

With Tin

Product Code	Composition %				Melting Range Celsius	Density	Tensile Strength	Corresponding Standard						
	Ag	Cu	Zn	Sn				DIN 8513	BS 1845	AWS A5.8	IS 2927	EN 1044		
ALFA -311SnA						9.1 g/cm ³	46 Kg/mm ²	-	-	B Ag-19	BA Cu Ag 0			
ALFA -306SnB	60	23	14	3	620-685	9.6 g/cm ³	48 Kg/mm ²	L-Ag60Sn	-	-	-	-	AG 101	
ALFA -306Sn	60	30	-	10	600-720	9.8 g/cm ³	46 Kg/mm ²	-	-	B Ag-18	BA Cu Ag 7	AG 402		
ALFA -311Sn	56	22	17	5	619-652	9.4 g/cm ³	48 Kg/mm ²	L-Ag55Sn	-	B Ag-7	BA Cu Ag 8	AG 102		
ALFA -310Sn	55	21	22	2	630-660	9.4 g/cm ³	44 Kg/mm ²	L-Ag55Sn	-	-	-	AG 103		
ALFA -310SnA	55	43	-	2	771-895	9.1 g/cm ³	46 Kg/mm ²	-	-	-	BA Cu Ag 8A			
ALFA -309Sn	45	27	25	3	640-680	9.2 g/cm ³	43 Kg/mm ²	L-Ag45Sn	-	B Ag-36	-	AG 104		
ALFA -304Sn	40	30	28	2	650-710	9.1 g/cm ³	44 Kg/mm ²	L-Ag40Sn	AG 20	B Ag-28	-	AG 104		
ALFA -311SnB	38	32	28	2	650-720	9.1 g/cm ³	45 Kg/mm ²	-	-	B Ag-34	-			
ALFA -307Sn	34	36	27	3	630-730	9.1 g/cm ³	46 Kg/mm ²	L-Ag34Sn	-	-	-			
ALFA -303Sn	30	36	32	2	665-755	8.8 g/cm ³	48 Kg/mm ²	L-Ag30Sn	AG 21	-	-	AG 107		
ALFA -307 SnA	25	40	33	2	680-760	8.8 g/cm ³	48 Kg/mm ²	L-Ag25Sn	-	B Ag-37	-	AG 108		
ALFA -302	20	46	33.8	0.2	690-810	8.7 g/cm ³	43 Kg/mm ²	L-Ag20	-	-	-	AG 206		
ALFA -303A	12	48	39.8	0.2	800-830	8.4 g/cm ³	48 Kg/mm ²	-	-	-	-	AG 207		
ALFA -305B	5	55	39.8	0.2	820-870	8.4 g/cm ³	48 Kg/mm ²	L-Ag5	-	-	-	AG 208		

ALFA - 311SnA is suitable for protective atmosphere brazing and is of particular advantage when the precipitation-hardening heat treatment is combined with the brazing operation.

ALFA - 306SnB is similar to ALFA-313.

ALFA - 306Sn is similar to ALFA 309B in its applications. The tin contents help in wetting the surface of stainless steel, carbon steel and nickel base alloys. It is specially used for vacuum applications.

ALFA - 311Sn is a low melting filler metal and does not contain cadmium. It is ideal for furnace brazing. It is used by the dairy and food industry where cadmium free joints are required. This brazing alloy is less prone to cause stress cracking on stainless steel and some nickel alloys. After brazing it gives a closer match with whitish metals such as stainless steel.

ALFA - 310Sn may be used on any nickel and nickel alloys, copper and copper alloys and steels.

ALFA - 310SnA is advantageous where zinc volatilization is objectionable in furnace operations because of absence of Zinc in its composition.

ALFA-309Sn is a low temperature cadmium free alloy with free flowing characteristics.

ALFA-304Sn is a free flowing alloy for ferrous, non ferrous and dissimilar joints.

ALFA-311SnB is free flowing cadmium free filler metal used with ferrous and non ferrous base metals.

ALFA-307Sn is used for assembly of copper tubes in the refrigeration industry and on equipments and containers in the food industry. Presence of tin improves its fluidity and it has good wetting properties.

ALFA-303Sn is a free flowing alloy for ferrous, non ferrous and dissimilar metals with good fluidity.

ALFA-307SnA is economical filler metal and is useful on ferrous and non ferrous joints which do not require impact strength or high ductility.

ALFA-302 is used in brazing operations where brazing and heat treatment of steels is simultaneously done.

ALFA-303A is used for torch brazing on carbon and stainless steel, copper, nickel and its alloys. It is used in boiler works for drawn components.

ALFA-305B is used for brazing nichrome resistance elements.

Silver Brazing Alloys For Tungsten Carbide Tipped Tools

We manufacture excellent range of brazing filler metals containing nickel specifically for the tungsten carbide tipped tools industry because of its need of protection from crevice corrosion and higher temperature service properties. These alloys are available in forms of wire, foils or shims.



Product Code	Composition %					Melting Range Celsius	Density	Tensile Strength	Corresponding Standard				
	Ag	Cu	Zn	Cd	Others				DIN 8513	BS 1845	AWS A5.8	IS 2927	EN 1044
ALFA-409	63	28.5	-	-	2.5Ni6Sn	691-802	8.9 g/cm ³	55 Kg/mm ²	-	-	B Ag-21	-	
ALFA-410	55	40	4	-	1Ni	718-857	8.9 g/cm ³	50 Kg/mm ²	-	-	B Ag-13	BA Cu Ag 8B	
ALFA-405A	50	20	28	-	2Ni	660-750	9.0 g/cm ³	45 Kg/mm ²	-	-	B Ag-24	-	
ALFA-405	50	15.5	15.5	16	3Ni	632-688	9.5 g/cm ³	45 Kg/mm ²	-	-	B Ag-3	BA Cu Ag 12	AG 351
ALFA-411	56	42	-	-	2Ni	771-893	8.9 g/cm ³	50 Kg/mm ²	-	-	B Ag-13a	-	
ALFA-404	40	30	28	-	2Ni	671-775	8.9 g/cm ³	50 Kg/mm ²	-	-	B Ag-4	BA Cu Ag 18	
ALFA-404A	40	30	25	-	5Ni	660-860	9.0 g/cm ³	50 Kg/mm ²	-	-	-	-	

ALFA-409 is used in brazing AISI/300 and 400 series stainless steels, as well as the precipitation-hardening nickel and steel alloys. It is particularly suited to protective atmosphere furnace brazing because of the absence of zinc and cadmium. The nickel content makes it immune to crevice corrosion, particularly on 400 series stainless steel by imparting a nickel rich layer along the fillet edge. It is used for brazing stainless steel vanes of gas turbine aircraft engines.

ALFA-410 is used for service temperature up to 371 °C. Its low zinc content makes it suitable for furnace brazing.

ALFA-405A is low melting, free flowing, cadmium free and suitable for use in joining low carbon 300 series stainless steels (particularly food handling equipment and hospital utensils) and small tungsten carbide inserts for cutting tools.

ALFA-405 is particularly suitable for brazing carbide tool tips to tool shanks as it wets the carbide tool tip very satisfactorily. It has a wide wetting range, therefore, the solid and liquid portions do not tend to separate excessively. It is good filler metal for bridging gap. It has good corrosion resistant properties and is particularly suitable for brazing stainless steels also.

ALFA-411 is similar to ALFA-410, except that it contains no zinc, which is advantageous where volatilization is objectionable in furnace brazing.

ALFA-404 is used for brazing carbide tip brazing. Similar to ALFA-405, but higher brazing temperature is required. It flows freely and does not contain cadmium.

ALFA - 404A is used for brazing of tungsten carbide and stainless steels.

Silver Copper Phosphorus Brazing Alloys

We offer a wide range of copper phosphorus brazing alloys, which can be used in refrigeration, air conditioning and plumbing industry. These alloys are used extensively to join copper and copper alloy base metals (Brasses, Bronzes). They have self fluxing properties when used on copper. We can also customize the products as per customers applications and specifications. These brazing alloys are available in **wires , strips, wire flattening, wire pre-forms, strip pre-forms, granules and spheres.**



Product Code	Composition %			Melting Range Celsius	Density	Tensile Strength	Corresponding Standard				
	Ag	Cu	P				DIN 8513	BS 1845	AWS A5.8	IS 2927	EN 1044
ALFA-101A	-	95	5	710-924	8.1 g/ cm ³	58 Kg/mm ²	-	-	BCuP-1	BA Cu P1	
ALFA-101	-	93	7	705-800	8.1 g/ cm ³	58 Kg/mm ²	L-CuP7	-	BCuP-2	BA Cu P2	CP 202
ALFA-101B	0.5	93	6.5	650-810	9.1 g/ cm ³	58 Kg/mm ²	-	-	-	-	
ALFA-102	2	91.5	6.5	645-740	8.1 g/ cm ³	55 Kg/mm ²	L-Ag2P	-	BCuP-6	BA Cu P3	CP 105
ALFA-105	5	89	6	643-807	8.2 g/ cm ³	55 Kg/mm ²	L-Ag5P	CP1	BCuP-3	BA Cu P4	CP 104
ALFA-105A	5	88	7	643-771	8.2 g/ cm ³	55 Kg/mm ²	-	-	BCuP-7	-	
ALFA-106A	6	87	7	650-740	8.3 g/ cm ³	55 Kg/mm ²	-	-	BCuP-4	-	
ALFA-115	15	80	5	643-802	8.4 g/ cm ³	54 Kg/mm ²	-	L-Ag15P	BCuP-5	BA Cu P5	CP 102
ALFA-118	18	75	7	650-750	8.4 g/ cm ³	50 Kg/mm ²	-	-	-	-	CP 101

ALFA - 101A is particularly suitable resistance brazing applications. This filler metal is more ductile and less fluid at brazing temperature than other filler metals containing more phosphorus.

ALFA - 101 is extremely fluid at the brazing temperature. It will penetrate joints with very little clearance.

ALFA - 101B is similar to ALFA102, but contains less silver.

ALFA - 102 has high fluidity. It has ability to fill gaps at the lower end of its brazing range and is very fluid at high end.

ALFA - 105 may be used where very close fits cannot be held. It is best used with the lower joint clearance. It is majorly used in Air conditioning and Refrigeration industry.

ALFA - 105A is more fluid than ALFA105 and has a lower liquidus temperature. It is extensively used in heat exchanger and tubing joints.

ALFA - 106 is extremely fluid at brazing temperature. It provides more strength to joint than ALFA105.

ALFA - 115 is extremely fluid at brazing temperature. It provides more strength to joint than ALFA105.



Copper Based Brazing Alloys (Brasses And Bronzes)

These Brazing alloys include general purpose brasses, brasses with addition of nickel, high temperature copper alloys and copper for furnace brazing. All these alloys are economical to use and can be generally supplied in variety of forms like rods, wires, preforms, stripes, powder and pastes. General purpose brasses can be used for brazing and for Oxy-Fuel Gas Braze-Welding process.

Product Code	Composition %					Melting Range Celsius	Density	Tensile Strength	Corresponding Standard					
	Cu	Zn	Ni	Si	Others				DIN 8513	BS 1845	AWS A5.8	IS 2927	EN 1044	
ALFA-501	60	39.7	-	0.3	-	875-895	8.4 g/cm ³	40 Kg/mm ²	L-CuZn40	-	-	-	-	Cu 301
ALFA-502	60	39.6	-	0.2	0.2Mn	875-895	8.4 g/cm ³	45 Kg/mm ²	-	-	-	-	-	-
ALFA-510	50	39.7	10	0.3	-	890-920	8.9 g/cm ³	54 Kg/mm ²	L-CuNi10Zn42	-	RBCuZn-D	-	-	Cu 305
ALFA-510A	50	39.7	9	0.3	1 Ag	860-890	8.4 g/cm ³	45 Kg/mm ²	-	-	-	-	-	-
ALFA-506	96	-	-	-	4.7Sn0.3P	-	8.2 g/cm ³	55 Kg/mm ²	-	-	-	-	-	-
ALFA-5PC	100	-	-	-	-	1083	8.9 g/cm ³	22 Kg/mm ²	L-Cu	-	B-Cu1	-	-	Cu 101

ALFA - 501 is used for brass brazing steels, malleable cast iron, copper, copper alloys with melting temperatures greater than 950°C, nickel and nickel alloys. It is also known as **"Silicon Bronze"**.

ALFA - 502 is used for copper, malleable and cast iron brazing.

ALFA - 510 is often used for brazing tungsten carbide. It is also used with steel, nickel and nickel based alloys. This filler metal is unsuitable for protective atmosphere furnace brazing. It is also known as **"Nickel Bronze"**.

ALFA - 510A is similar to ALFA510 but the presence of silver in it improves joint strength.

ALFA - 506 may be used on steels, nickel and nickel alloys. It is also known as 'Phosphor Bronze'.

ALFA - 5PC is generally used for brazing carbon and alloy steels, stainless steel, nickel and copper nickel. It is primarily used in furnace brazing with protective reducing atmospheres without flux.

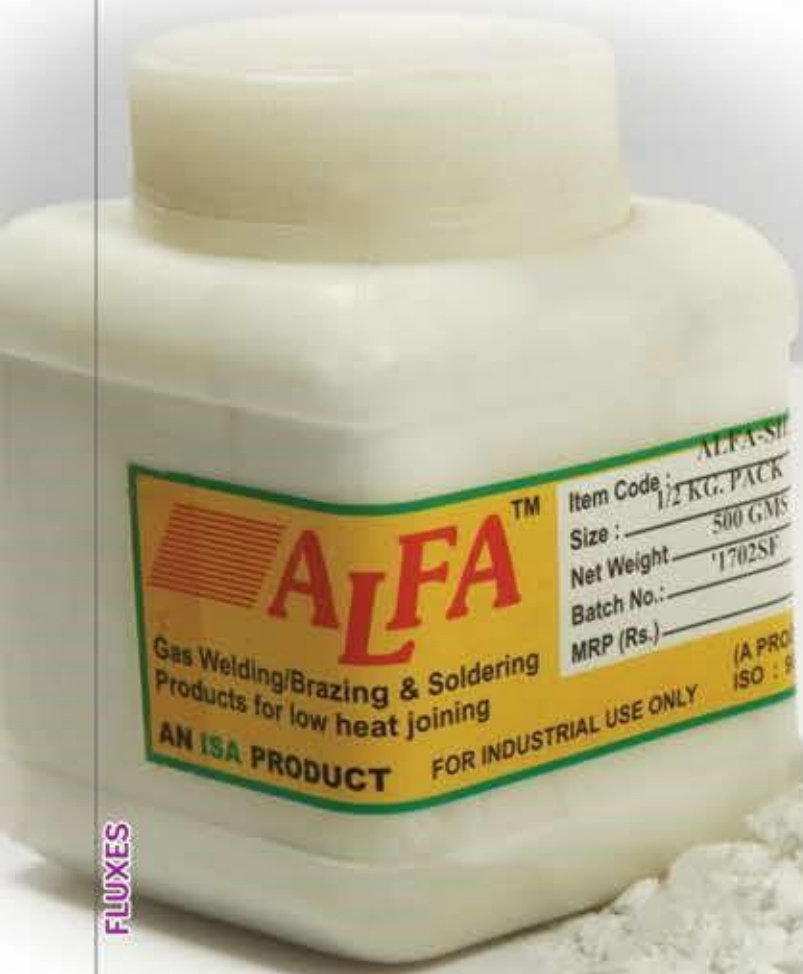
Aluminium Filler Wires

Backed by our sound expertise in the specific industry, we are presenting wide gamut of aluminium filler wires that are developed in compliance with international standards of quality using industry grade raw material. Our Aluminium product range can be put for many applications by adding one or more elements to increase the strength. Adding different elements also enhances the qualities that make it suitable for diverse applications.

Product Code	Composition %								AWS A5.10
	Si	Fe	Cu	Mn	Zn	Al	Mg	Cr	
A₁FA -Er1100	0.25 max	0.40 max	0.05- 2.20 max	0.05 max	0.10 max	99 min	-	-	Er1100
A₁FA -Er4043	4.5-6.0	0.80 max	0.30 max	0.05 max	0.10 max	Rest	.05 max	-	Er4043
A₁FA -Er4047	11.0-13.0	0.80 max	0.30 max	0.15 max	0.20 max	Rest	.10 max	-	Er4047
A₁FA -Er5356	0.25 max	0.40 max	0.10 max	0.05- 0.20 max	0.10 max	Rest	4.5- 5.5 max	0.05- 0.020 max	Er5356

Fluxes

We manufacture a wide range of fluxes, which can be put to varied uses. Fluxes consist of mild organic acid or strong inorganic acid which promotes high speed cleaning of metals with strong surface oxides and are generally used for silver brazing, copper brazing, solder and aluminum.



Product Code	Applications	Remarks
ALFA SILFLUX	It is an all purpose, low temperature flux for use in brazing both ferrous and non-ferrous metals and alloys using silver brazing filler metals. It begins to melt and dissolve oxides at 340°C and becomes fully molten at about 600°C and provides adequate protection upto 750°C. Excellent in hot rodding operation used to braze weld where the hot brazing rod is plunged into the dry powder. It can be easily cleaned up in hot water.	Equivalent to Esab Rupertam A Flux
ALFA SILFLUX-A	Recommended for use in 650°C-815°C Excellent in hot rodding operations. For application where a dry volatile flux is required. It can be easily cleaned up.	Equivalent to Handy Dry Flux 6040
ALFA SILFLUX-B	The temperature range of this flux is 600°C-925°C. It is recommended for brazing tungsten and chromium carbides, molybdenum alloys and high chromium stainless steels. It is useful where local overheating may occur, as in fast induction heating. Available in powder and paste form.	Equivalent Handy Flux Type B-1
ALFA SILPASTE	It is general purpose, low temperature flux in paste form which provides creamy smooth consistency and excellent adhesion. It begins to melt and dissolve oxides at 320°C, is fully molten at 600°C and it provides full protection upto 870°C. It is used for brazing all ferrous and non-ferrous alloys. It can be easily cleaned up in hot water.	Equivalent to Handy Paste Flux.
ALFA BRAZOFLUX	It is used for brazing or fusion welding of various ferrous and non-ferrous metals and alloys (like cast iron, steel, brass et.) using Cu-Zn (Brass) filler metals.	Equivalent to Esab Brazotectic Flux.
ALFA BRONZOFLUX	It is used for brazing various ferrous and non-ferrous metals and alloys using Cu-Sn (Bronze) based filler metals.	Equivalent to Esab Bronzotectic Flux.
ALFA ALUMFLUX	It is used for brazing aluminium and its alloys	Equivalent to Esab Alotectic Flux.
ALFA CASTOFLUX	It is used for welding Cast Iron.	Equivalent to Esab Castox Flux.

Forms and Capabilities



BARE RODS



FLUX COATED RODS



WIRES



STRIPS & FOLDS



RINGS & MULTI TURN RINGS



COPPER PHOSPHOROUS FLATS



SLUGS



COINS



GRANULES



PREFORMS



SHIMS



FLUXES

Bare Rods

	Diameter	Length
Silver Brazing Alloys	1.00 -> 6mm	300-> 1000mm
Copper Phosphorous Brazing Alloys (Square & Round)	1.50 -> 6mm	300-> 500mm
Brass Brazing Rods	1.50 -> 6mm	300-> 1000mm
Aluminium Filler Wires	1.60 -> 6mm	300-> 1000mm

	Packing	Weight
Silver Brazing Alloys	Plastic Box	1kg, 5 kg
Copper Phosphorous Brazing Alloys (Square & Round)	Plastic Box	5 kg
Brass Brazing Rods	Plastic Box	5 kg
Aluminium Filler Wires	Plastic Box	5 kg

**Packing can be done on customized basis also





Flux Coated Rods

Brazing Filler Metal in bare rods form when coated with relevant flux forms Flux Coated Rods. The main elements in Flux Coated Rods are:

- 1) Diameter and length of the bare rod to be coated
- 2) Outer diameter of the Flux coated rod

Why Flux coated brazing rods are preferred over traditional separate rod and flux application:

- 1) There is no need to use a separate flux.
- 2) Flux coated brazing alloy can be used directly on the job without separate application of flux making the operation quick and economical.
- 3) Compatibility of flux with the brazing alloy as supplied by the same manufacturer.
- 4) There is uniform flow of flux along with the brazing alloy during the brazing operation.
- 5) It eliminates the need for final fluxing step. As a result the final cleaning is easier, and fewer contaminants are contained in rinse water.

ALFA Flux Coated Brazing Rods

We have launched ALFA range of Flux coated brazing rods. Our range includes

- 1) Flux Coated Silver Brazing Alloys.
- 2) Flux Coated Brass Brazing Alloys.

Flux Coated Silver Brazing Alloys

Composition Basis

Silver, Copper, Zinc, with OR Without Cadmium. Silver Brazing Alloys filler metal can be selected based on specifications laid out by

- 1) IS 2927-1975 ii) BS:1845 iii) AWSA5.8 iv) DIN 8513 v) EN 1044

Characteristics

Lowest melting point
 Excellent flowing characteristics
 Excellent capillary action
 Strong, clean and smooth joints

Delivery Forms

STANDARD SIZES				
Diameter X Length (mm)	1.60 X 500	2.00 X 500	2.50 X 500	3.15 X 500
Outer Diameter (mm)	3.25	4.00	5.00	6.30

Customisation:

Bare Rod diameter from 1.50 to 3.15mm
 Standard Length from 350mm to 500mm
 Other Exterior diameters on Customers Request



Flux Coated Brass Brazing Alloys

Composition Basis

Copper, Zinc, with additives

Characteristics

Provides excellent wetting action.
 No objectionable fuming.
 Very fast and economical operation.
 Applied with high quality coating to speed up brazing time.
 Flexible and thin flux coating does not peel off even after bending.
 Flux coating has extended life span.

Delivery Forms

STANDARD SIZES				
Diameter X Length (mm)	1.60 X 500	2.00 X 500	2.50 X 500	3.15 X 500
Outer Diameter (mm)	2.00	2.50	3.00	3.65

Customisation:

Bare Rod diameter from 1.50 to 3.15mm
 Standard Length from 350mm to 500mm
 Other Exterior diameters on Customers Request

Flux coating is available in a variety of colours. Please specify your preferred colour and we will surely give you the best match. Any colour can be picked for coating on the brazing rods.

Wires

	Diameter	Weight	Packing
Silver Brazing Alloys	0.25 -> 5.00mm	1 Kg, 12Kg	Coils and Spools
Copper Phosphorous Brazing Alloys (Round)	0.80 -> 5.00mm	1 Kg, 12Kg	Coils and Spools
Brass Brazing Rods	0.50 -> 5.00mm	1 Kg, 12Kg	Coils and Spools
Aluminium Filler Wires	0.80 -> 6.00mm	6 Kg	Spools

**Packing can be done on customized basis also



Strips and Foils

	Thickness	Width
Silver Brazing Alloys	0.07 -> 1.60mm	2.00mm->100mm
Copper Phosphorous Brazing Alloys	0.10 -> 1.00mm	2.00mm->100mm
Brass Brazing Rods	0.10 -> 1.00mm	2.00mm->100mm

	Packing	Weight
Silver Brazing Alloys	Spools for strips and Plastic Box for Foils	1 kg
Copper Phosphorous Brazing Alloys	Spools for strips and Plastic Box for Foils	1 kg
Brass Brazing Rods	Spools for strips and Plastic Box for Foils	1 kg

**Packing can be done on customized basis also



Rings and Multi turn Rings

	Wire Diameter	Inner Diameter
Silver Brazing Alloys	0.50 -> 3.00mm	3.00mm->100mm
Copper Phosphorous Brazing Alloys (Round)	1.00 -> 3.00mm	3.00mm->100mm
Brass Brazing Rods	1.00 -> 3.00mm	3.00mm->100mm

	Packing	Weight
Silver Brazing Alloys	Plastic Boxes	1 kg; 5 Kg
Copper Phosphorous Brazing Alloys (Round)	Plastic Boxes	1 kg; 5 Kg
Brass Brazing Rods	Plastic Boxes	1 kg; 5 Kg

**Packing can be done on customized basis also



Fluxes

	Packing	Weight
Silver Brazing Fluxes	Plastic Boxes	100gms., 500 gms.
Brass and Bronze Brazing Fluxes	Plastic Boxes	100gms., 500 gms.
Aluminium Brazing Fluxes	Plastic Boxes	100gms., 500 gms.

**Packing can be done on customized basis also



Slugs, Pre forms, Granules, Coins and Washers

These Brazing Material forms are totally customizable as per specific application requirements. The pictures depict various forms which have been delivered with complete satisfaction to our clients.

STEPS FOR A SUCCESSFUL BRAZING

1. Designing and Fitting

The design is the first step to a successful and strong brazed joint. In order to assure that the joint is as strong as it can be, the joint needs to be designed with an overlap that is three or four times thicker than the thinner member. The lap joint is the easiest way to do this. A scarf joint can be the next best choice. Joint clearance – distance between faying surfaces – is another consideration. It's important because brazing works through capillary action and the clearance will define the capillary. Most brazing alloys in the B-Ag and B-CuP families need a clearance of between .001" and .005". If you're using metals that are dissimilar, don't forget that the rates of thermal expansion may be different when you are deciding about joint clearance.

2. Cleaning

The metals being joined must be as clean as possible for the best capillary action. Always remove grease and oil using a chemical solvent or vapour degreasing. Abrasive cleaning should be used to remove surface oxides.

3. Flux

When the metals are cleaned, you have to protect them from oxidation while they are being heated. The oxygen in the gas flame will result in oxide formation on unprotected metals and prevent capillary action. Proper fluxing (which is a protective atmosphere) protects the filler metals and the base from oxide formation.

4. Assembly

It is very important to maintain the alignment of the base metals while the brazing process is being done so that you know you are getting capillary action that is effective. Gravity alone can often accomplish this but sometimes you need to add a little bit of weight. When parts need fixturing, design the fixtures with the smallest mass possible and with materials that are poor heat conductors. This prevents heat from being taken away from the braze while it is being heated.

5. Selecting Filler Metal

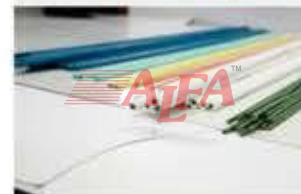
Whenever you select a filler metal for any application, a number of factors come into play. The main ones are the joint clearance, the compatibility with the metals you are joining, the heating method and brazing temperature, appearance, environment, and service temperature. Learn about the different alloys you have available and what each can do and you shouldn't have too much difficulty deciding which the best for the job is.

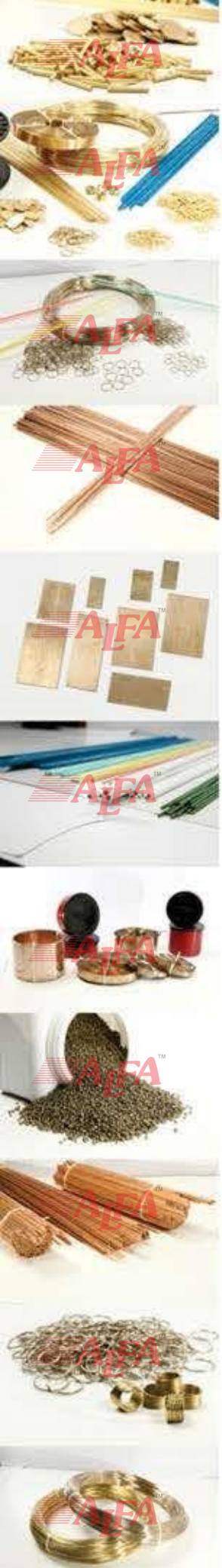
6. Heat

There are many different kinds of heating methods available for brazing, with torch brazing being the most common one. The entire assembly should be brought evenly up to brazing temperature. When the parts are at the right brazing temperature (you usually will see a dull red glow) add the brazing alloy to the joint. Capillary action draws the alloy into the joint as long as you have followed the other steps (keeping it clean, etc).

7. Cleaning Post-Braze

Once the metal has been brazed, allow it to air cool and solidify. Flux is corrosive, so remove any flux left by immersing the piece in hot water and brushing it off. If left, it can attack and weaken the joint. When the flux is saturated a residue might result and if so, an acid bath will be needed to remove it. Once it is all removed, you're done and your piece is brazed and strong.





NOTES





Range of Brazing and Welding Products

Reach us :



Indian Solder and Braze Alloys

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