

ALPHA[®] Full-line Selector Guide



alpha

Where do electronics
assemblers turn
for value?

ALPHA's Strategic Value Proposition

We are committed to enhancing your productivity, yield and cost of ownership as you navigate through today's electronic assembly challenges. We do this by developing leading technology materials combined with our world class process knowledge and applications expertise.

ALPHA's Customer Value Propositions:

- Leading technology products
- Sales/Support in every major electronics geographic market
- Local and consistent technical support regionally and globally
- Applications expertise
- Continuity of supply ensured through multiple manufacturing sites
- Consistent product performance globally
- Access to continuous new technology development
- Global OEM approval engagements
- Manufacturing lot trace-ability
- Six Sigma projects for process optimisation
- High-reliability products
- Channel Partner network (distribution)
- Access to application laboratories
- Accelerated technology customisation for key customers
- Delivered lowest cost of ownership
- Solder scrap value recovery

When you commit to ALPHA product technology, we commit to your success.

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ALPHA® European Region

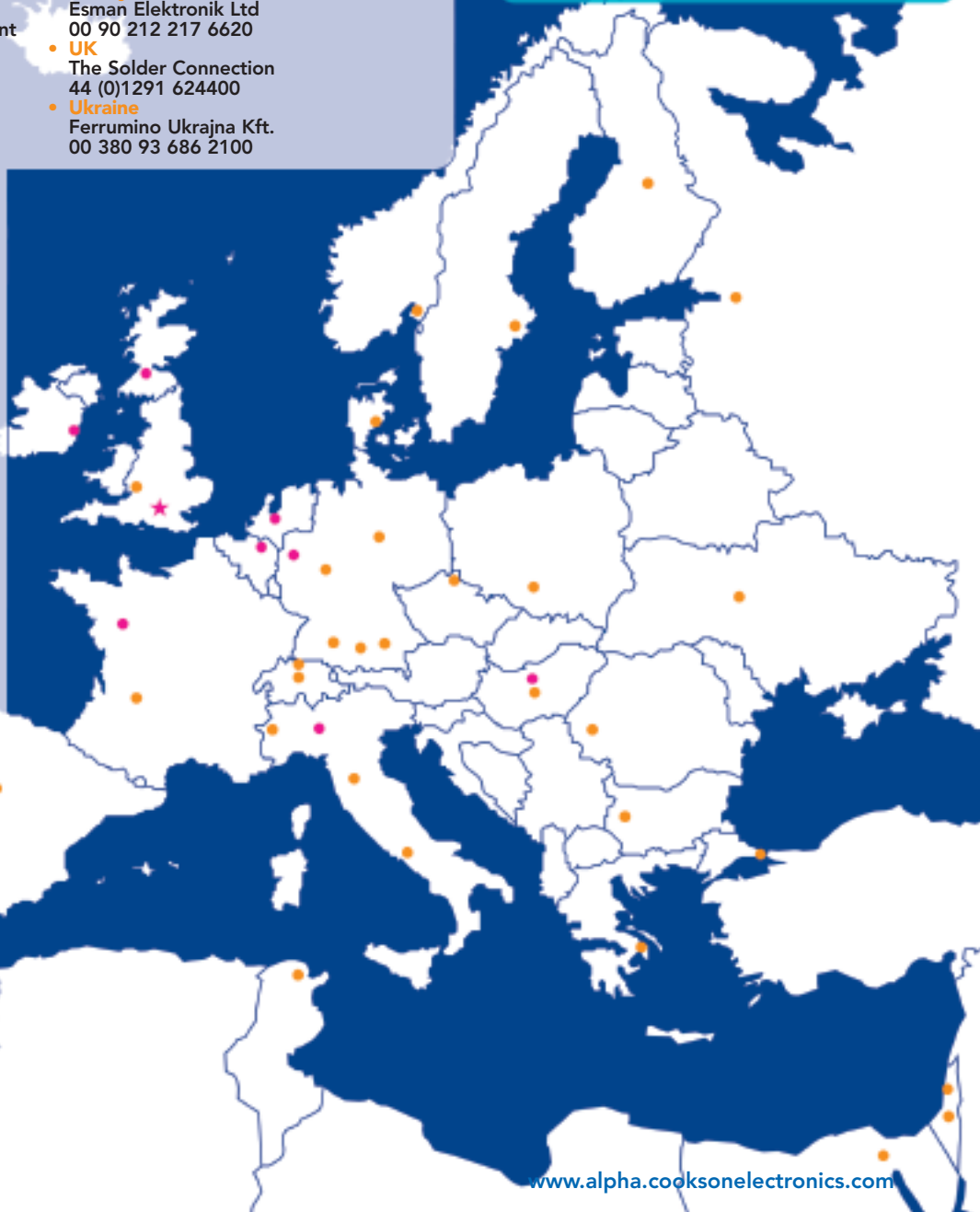
Alpha Sales Offices and Channel Partner Locations

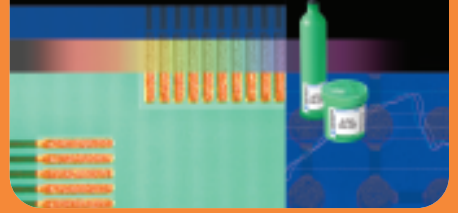
CHANNEL PARTNER LOCATIONS

- **Bulgaria**
Fintech Ltd.
00 35 92962 4756
- **Czech republic**
ERMEG s.r.o.
00 420 48 510 2491
- **Denmark**
Teleinstruments
00 45 76251818
- **Egypt**
Sigma
00202 2633 6964
- **Finland**
Matronic
00 358 927479126
- **France**
Univar
00 33 4 37 91 42 60
- **Germany**
Blume Elektronik Distribution GmbH
00 49 5063 2712-0
HOPF Vertriebsgesellschaft GmbH
00 49 6196 493-239
Keinath Electronic consulting & equipment
00 49 7072 91468-0
Weidinger GmbH
00 49 89 899132-0
- **Greece**
N.G.Zafiroopoulos & Co. E.E.
00 30 210 9566027
- **Hungary**
Nóniusz Szerszám
00 36 1 329 6453
- **Ireland**
Pat Gayer
00 353 87 3826 718
- **Israel**
Headtech Engineering Ltd
00 972-3-696-2132
- **Italy**
Alta S.R.L.
00 39 055-759411
Barbieri S.R.L.
00 39 0125-230341
Kosme s.a.s.
00 39 049-8725062
Pansystem SRL
00 39 06-4130978
Special Components S.R.L.
00 39 0362-346955
- **Norway**
Betek Consult AS
0047 3331 0150
- **Poland**
Lenz Urzadzenia dla Elektroniki, F. Gorol
00 48 32 227 2806
- **Portugal**
PRODUTRONICA LDA
00351 21 9246763
- **Romania**
aorbok@cooksonelectronics.com
00 36 30 4910160
- **Russia**
NPF DiPaul
007 (812) 702-1269
- **Slovenia/Croatia/Moldavia**
INTERKONT Import-Export Berger GmbH
00 49 8331 9799-0
- **Spain**
International Metals Synergy, S.L
00 34 91 6289433
- **Sweden**
Tecono
00 46 709623320
00 46 706307883
- **Switzerland**
Hilpert electronics AG
00 41 56 483 2525
- **Tunisia**
Adelec 00216 7083 8234
- **Turkey**
Esman Elektronik Ltd
00 90 212 217 6620
- **UK**
The Solder Connection
44 (0)1291 624400
- **Ukraine**
Ferrumino Ukraina Kft.
00 380 93 686 2100

ALPHA SALES LOCATIONS

- **Belgium**
+32 14 44 50 01
beneluxinfo@cooksonelectronics.com
- **England**
+44 (0) 1483 758 400
wokingsales@cooksonelectronics.com
- **France**
+33 241 49 00 11
stencil.southeurope@cooksonelectronics.com
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+49 2173 8490 300
germany@cooksonelectronics.com
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+36 24 460 720
rharyanyyi@cooksonelectronics.com
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pgazzola@cooksonelectronics.com
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+35 318 4211 72
stencileire@cooksonelectronics.com
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benelux@cooksonelectronics.com
- **Scotland**
+44 (0) 1355 276 500
alphasigma@cooksonelectronics.com





ALPHA® Solder Paste

Highest throughput and yield, and lowest cost of ownership for today's challenging electronic assembly processes.

ALPHA® solder pastes are used in the assembly of PCBs for a variety of product applications, including hand-held electronic devices, all types of computers, consumer electronics, network servers, automotive systems, medical and military equipment and many others.

NO-CLEAN PRODUCTS

ALPHA® OM-5100

- Broad latitude, no-clean; appropriate for most tin-lead SMT applications
- Higher reflow yields with excellent print deposit consistency
- Reduced random and mid-chip solder balls

ALPHA® OM-338T (ZHP)

- Broad latitude, no-clean; appropriate for most lead-free SMT applications
- Wide reflow process window and outstanding voiding resistance
- Ultra-fine pitch printing capability at up to 200mm/sec. (8 in./sec) print speed

ALPHA® OM-338 PT (ZHP)

- Excellent in-circuit pin testability
- Superior performance in closed-head printers
- Wide print process window up to 150mm/sec. (6 in./sec.)

ALPHA® OM-338 CSP (ZHP)

- Broad latitude lead-free, no-clean paste
- 0.4mm pitch BGA enabling technology
- Excellent print capability across various board designs

ALPHA® OM-340 (ZHP)

- Broad latitude lead-free, no-clean paste
- Excellent in-circuit pin testability
- Better spread and wetting

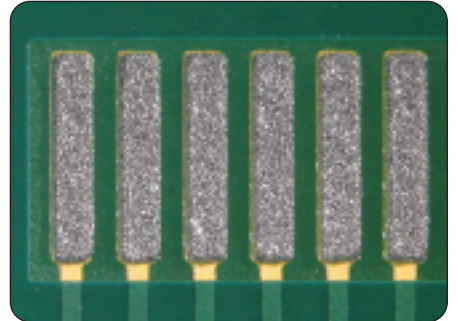
ALPHA® OM-350 (Halogen-Free)

- Reduced defects (voiding, mid-chip solder balls, BGA pillows)
- Excellent paste-in-through-hole performance
- Best-in-class electrical reliability
- Excellent print volume repeatability up to 100mm/sec. print speed

ZHP: ZERO Halogen Product

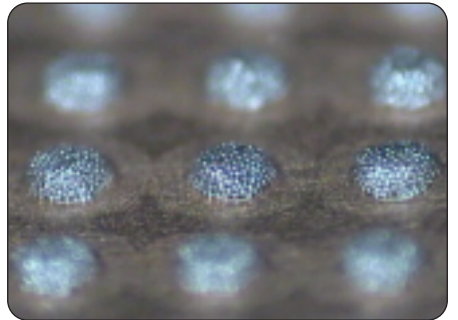
Halogen-free, per guidelines published in the following industry standards: IPC-4101B, IEC-61249-2-21 and JPCA-ES-01-1999.

OM-338PT No-Clean Solder Paste



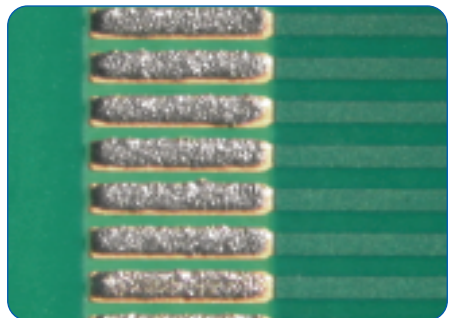
OM-338PT 0.40mm (0.40mm) pitch

OM-338T No-Clean Solder Paste



Photomicrograph of fine-feature solder paste deposits produced at 200mm/sec print speed.

WS-809 Water-Soluble Solder Paste



WS-809 Water-Soluble 0.40mm (16 mil), 75% RH 36+ HOURS



- Leading technology products
- Consistent product performance globally
- Continuity of supply ensured through multiple manufacturing sites

PERFORMANCE INDICATORS	PRODUCT NAME	No-Clean	Water Soluble	Pb-FREE ALLOYS				SnPb ALLOYS			POWDER SIZE			Metal Loading (% by Weight)	Viscosity Designation (Malcolm @ 10 RPM)	Flux J-STD 004 Classification	Dispense Version: Metal Loading and Viscosity	Halogen Content	
				SACX 0307	InnoLot	SAC 305	SAC 387	SAC 405	Sn63/Pb37	Sn62/Pb36/Ag2	Sn62.8/Pb36.8/Ag0.4	Type 3	Type 4						Type 4.5
LEAD-FREE	Universal, Highest Print Speed	ALPHA® OM-338 T	•			•	•	•				•			88.5%	M13	ROLO	88.3% M04	ND
	Universal, Pin Testable, Enclosed Print Heads	ALPHA® OM-338 PT	•			•	•	•				•			88.5%	M15	ROLO	NA	ND
	Enabling 0.4mm BGA Assembly	ALPHA® OM-338 CSP	•				•						•		88.3%	M15	ROLO	83.5% M04	ND
	High Soak Profile, Paste in Through Hole	ALPHA® OM-350	•		•	•	•	•					•		89.0%	M17	ROLO	TBD	<500 ppm
	Increased Spread Wetting	ALPHA® OM-340	•		•		•	•					•	•	89.0%	M18	ROLO	NA	ND
	Ultra Fine Feature High Soak Profile	ALPHA® OM-325	•				•	•	•				•		89.0%	M19	ROLO	NA	ND
	Universal Water Soluble	ALPHA® WS-819		•			•						•		88.8%	M19	ROLO	84% M05	<500 ppm
TIN-LEAD	Universal, Wide Process Window	ALPHA® OM-5100	•					•	•	•	•			90.0%	M13	ROLO	85% M04	ND	
	Universal Dispense Paste	ALPHA® CL-78	•					•	•	•	•			85.0%	M04	ROLO	85% M04		
	Universal, Best Joint Cosmetics	ALPHA® WS-609		•				•	•		•			90.0%	M13	ORHO	85% M07	ND	
	Stencil Life, Joint Cosmetics, Cleanability	ALPHA® WS-809		•				•	•		•			90.0%	M18	ORHO	NA	<500 ppm	

ND: None Detected

WATER-SOLUBLE PRODUCTS

ALPHA® WS-809

- Broad-latitude, water-soluble tin-lead paste; appropriate for most SMT applications
- Excellent balance of stencil life and cleanability
- Provides excellent voiding resistance
- Delivers excellent throughput and high first pass yield

ALPHA® WS-819

- Long stencil life under varying ambient conditions
- Excellent resistance to BGA voids
- Ease of cleaning with aqueous wash systems



Tin-lead water-soluble

Lead-free no-clean

Tin-lead no-clean

Lead-free water-soluble

To fully support SMT printing requirements, ALPHA also offers a complete line of ALPHA® Stencils and Cleaners.



ALPHA® Wave Solder Metals

Industry leading lead-free and tin-lead alloys that meet demanding process requirements.

ALPHA® solder metals offer the best value for wave and selective soldering performance – quality products at the lowest cost of ownership. And thanks to a global copy exact product policy, consistency of supply is assured.

- High purity.
- Excellent solderability.
- High reliability.
- Low oxides, low drossing.
- Solder bar, chunks, anodes, preforms and solid wires.
- Vaculoy alloy conditioning process.

ALPHA has been manufacturing soldering alloys for over 125 years. Today, with eight manufacturing locations globally, ALPHA is the largest supplier of solder alloys for the electronics assembly industry.

Our ongoing commitment to research and development has enabled us to understand the complexities of alloy performance resulting in a product line that meets our customers' most demanding lead-free and tin-lead wave soldering processes and is backed by dedicated customer technical support.



The ALPHA® line of wave soldering alloys consists of proprietary, specially developed products under our SACX® brand and the more common SAC and Sn/Pb alloys and other alloys that require third party licensing.



The SACX Family of Alloys

Engineered for high performance on certain types of assemblies or in specific applications, all SACX alloys demonstrate excellent soldering performance, low dross generation and high mechanical reliability. All SACX alloys are manufactured using our proprietary Vaculoy conditioning process.

ALPHA® SACX 0807

- SAC305-like performance on complex, dual sided assemblies
- Low copper dissolution
- Lower silver (.8%) means lower cost



ALPHA® SACX 0307

- Perfect for standard assemblies
- Excellent wetting and drainage resulting in high yields
- Great Value

ALPHA® SACX 0107

- Great for single sided or simple dual sided assemblies
- Low copper dissolution

ALPHA® SACX 0307 Plus

- Designed for use in wave, rework or selective solder applications
- Low copper dissolution during long exposure times

ALPHA® SACX HASL

- High-value, low-cost pad finish
- Low consumption, uniform, flat coverage

We also manufacture additional Pb-free alloys including the high-performing industry standard SAC305, along with, SAC405, SAC387, SAC380, SA2515, and others. Each Pb-free alloy is also available in a copper-free version (i.e., SAC300) for solder pot replenishment and rebalancing.

- Sales and Engineering Support in every major electronics geographic market
- Continuity of supply ensured through multiple manufacturing sites
- Solder scrap value recovery

PROCESS	BASE ALLOY	ASSEMBLY CHARACTERISTICS	PRODUCT NAME	AVAILABILITY		
				AMERICAS	ASIA	EUROPE
Wave Soldering	Lead-Free Standard (<.1% Pb) and Ultra Low Lead (<0.5% Pb) versions are available	Dual sided, high complexity, high heat capacity areas and components, <1.6mm thickness, OSP pad finish, etc...	ALPHA® Vaculoy® SAC305, 387 & 405	•	•	•
			ALPHA® SACX® 0807	•	•	•
		Single and dual sided, standard complexity, metallised and OSP pad finishes, 1.6mm thickness, etc...	ALPHA® SACX® 0307 ALPHA® SACX® 0307 Plus	•	•	•
		Single sided, paper phenolic laminates, metallised pad finishes, 1.6mm thickness, etc...	ALPHA® SACX® 0107	•	•	•
	Tin-Lead (63/37 and others)	Dual sided, high complexity, high heat capacity areas and components, <1.6mm thickness, OSP pad finish, etc...	ALPHA® HiFlo SMG			•
			ALPHA® HiFlo	•	•	
		Single and dual sided, standard complexity, metallised and OSP pad finishes, 1.6mm thickness, etc...	ALPHA® Vaculoy® SMG	•	•	
			ALPHA® Vaculoy®	•	•	•
		Single sided, paper phenolic laminates, metallised pad finishes, 1.6mm thickness, etc...	ALPHA® Clean Wave		•	•
Mini Pot Rework / Tin Dipping	Lead-Free	All	ALPHA® SACX® 0307 Plus	•	•	•
	Tin-Lead		ALPHA® Vaculoy®	•	•	•
Hot Air Solder Level (HASL)	Lead-Free	All	ALPHA® SACX® HASL	•	•	•
	Tin-Lead		ALPHA® Vaculoy® HASL	•	•	•

Availability

ALPHA® quality wave solder metals are available in a choice of options to suit your process requirements. Solder bars (1 & 3.5kg), solid wire for automatic feed, chunks, preforms and anodes.

For best results always use a compatible ALPHA® flux, available in a choice of solids content and activator levels, with water washable, no-clean and VOC-free options.

For details of the range of popular ALPHA® Fluxes, Cored Wire, Cleaning Materials and Reclaim Services, please refer to individual product literature or go to www.alpha.cooksonelectronics.com



ALPHA® Wave Solder Flux

Fluxes that deliver best in class soldering performance and electrical reliability, including options that improve worker safety and are better for the environment.

The ALPHA® branded fluxes are the leader in providing wave soldering process solutions. Our latest line of fluxes, including our EF-Series, is designed to provide the highest level of performance and reliability in its class. Specific flux products were formulated to offer a safer and more environmentally friendly alternative.

All ALPHA® fluxes have been developed using the latest ALPHA flux technology. ALPHA operates many flux production facilities around the world. Each site follows strict standards that assure high product quality and consistency.

All ALPHA® EF-Series fluxes were developed for SnPb and Pb-free applications and are halogen-free*.

WATER-BASED

ALPHA® EF-2210

- VOC-free
- Excellent soldering performance
- Rosin free formulation results in excellent cosmetics and pin testability
- Bellcore SIR compliant

ALPHA® EF-3001 and ALPHA EF-3215

- Low-VOC formula – nonflammable
- Resin bearing emulsion flux for high reliability and performance – Bellcore SIR compliant



ALCOHOL-BASED

ALPHA® EF-6000

- Highly active for exceptional soldering performance
- Low solids (2%) for excellent cosmetics and pin testability
- IPC SIR compliant

ALPHA® EF-6100

- High reliability – JIS SIR compliant
- Low solids for excellent cosmetics and pin testability
- High soldering yields

ALPHA® RF-800 Rosin No-Clean Flux

- Best selling low-solids (4%) flux in the world
- Excellent soldering on a wide variety of assembly types
- High reliability – JIS SIR compliant

ALPHA® EF-8000

- Excellent solder performance on complex two sided assemblies
- Perfect for selective soldering applications
- High reliability – JIS SIR compliant

ALPHA® EF-9301 Flux

- Excellent solder performance on a variety of complex two sided assemblies
- Halide bearing dulling flux
- High reliability – JIS SIR compliant

ALPHA® EF-12000

- high-solids (15%) dulling flux
- Maximum wetting on a wide variety of simple and complex assemblies
- High reliability – JIS SIR compliant

* Halogen-free, per guidelines published in the following industry standards: IPC-4101B, IEC-61249-2-21 and JPCA-ES-01-1999.

- Sales and Engineering Support in every major electronics geographic market
- Continuity of supply ensured through multiple manufacturing sites
- Access to continuous new technology development

FLUX TECHNOLOGY	ROSIN	SOLIDS	FLUX APPLICATION		PREHEAT TECHNOLOGY		SOLDER ALLOY		ELECTRICAL RELIABILITY				REGION			PRODUCTS	
			SPRAY	FOAM	IR	CONVECTION	SELECTIVE SOLDERING	PB-FREE†	IPC	BELLCORE SIR	QPL/MIL	JIS	HALIDE-FREE	AMERICAS	EUROPE		ASIA-PACIFIC
Water-Based	Rosin-Free No-Clean	Low	•			•	•	•	•	•			•	•	•	•	ALPHA EF-2210
		Low	•			•	•	•	•	•			•	•	•	•	ALPHA NR-330
	Rosin-Containing No-Clean	Low	•			•	•	•	•				•	•	•	•	ALPHA EF-3215
		Low	•			•	•	•	•	•			•	•	•	•	ALPHA EF-3001
		Med	•			•	•	•	•	•	•	•	•	•	•	•	ALPHA EF-4102
	Water Soluble	High	•			•	•	•	•					•	•	•	ALPHA WS-3355VF
High		•	•		•	•	•	•					•	•	•	ALPHA WS-375	
Alcohol-Based	Rosin-Free No-Clean	Low	•		•	•	•	•				•	•	•	•	ALPHA EF-6000	
		Low	•		•	•	•	•	•			•	•	•	•	ALPHA LS-500A	
	Rosin-Containing No-Clean	Low	•	•	•	•	•	•	•	•			•	•	•	•	ALPHA RF-800
		Low	•	•	•	•	•	•	•	•			•	•	•	•	ALPHA RF-800T
		Med	•	•	•	•	•	•	•	•		•	•	•	•	•	ALPHA EF-8000
		Med	•	•	•	•	•	•	•	•		•	•	•	•	•	ALPHA EF-9301
		High		•	•	•	•	•	•	•	•	•		•	•	•	ALPHA HS-615-25
		High	•	•	•	•	•	•	•	•	•	•		•	•	•	ALPHA EF-12000
	Water-Soluble	High		•	•	•	•	•	•					•	•	•	ALPHA WS-856
		High		•	•	•	•	•	•					•	•	•	ALPHA WS-3355-11
		High		•	•	•	•	•	•					•	•	•	ALPHA WS-857

† All fluxes recommended for Sn/Pb



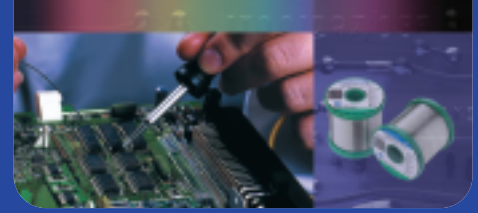
For the most up-to-date list of ALPHA® fluxes, or to find the right flux for your assembly or application, use our on-line Flux Selector. Go to <http://www.alpha.cooksonelectronics.com> and navigate to the wave solder flux products page.



Hand Fluxing and Related Products

- Flux Thinners
- ALPHA® Flux Pens
 - ALPHA® Aqualine: water-soluble
 - ALPHA® Guideline: rosin flux
 - ALPHA® Cleanline: very low residue
- Flux gel
- Flux stop

To fully support wave soldering requirements, ALPHA also offers wave soldering alloys, solder wire, and cleaning chemistries.



ALPHA® Cored Wire

High-performance, fast wetting cored wires that meet the most demanding reliability criteria.

The ALPHA® range of quality solder wires is specifically designed for hand soldering, component attach and touch-up for surface mount technology. All products are manufactured to ISO 12224-1 specification and test methods.

- For all hand and automated soldering, component attach and rework operations.
- Minimal, non-corrosive flux residues for high soldering efficiency.
- Even core flux distribution.
- Good solderability, strong joints.
- Rosin/resin and lead-free options.
- Meets leading specifications.

ALPHA® cored wires are available in a choice of high-purity alloys, diameters and flux percentages, with the choice of no-clean, rosin/resin free and lead-free options. All alloys conform to ISO 9453.

The comprehensive range of ALPHA® wires is designed to give excellent wettability, produce strong joints without spattering and leave minimal non-corrosive residues with good SIR for defect-free soldering.

Lead-free

For soldering of Lead-Free assemblies, there are ALPHA cored wires available in the following alloy specifications: SACX, SAC305, SAC405 and Sn96.5/Ag3.5

ALPHA® Telecore Plus

- World's no.1 selling cored solder wire
- No-clean, activated rosin flux conforming to J-STD-004 ROL0
- Bellcore compliant
- Clear, tack-free, non-corrosive residues, high SIR



ZHP: ZERO Halogen Product

ALPHA® Telecore XL-806

- Low flux spatter for safer, more user friendly operation
- Fast wetting, ideal for rework, manual assembly and "drag soldering"
- Good Spread Characteristics for excellent first pass solder joints
- Low Fume for cleaner working environment
- Clear, non tacky no-clean residue
- High resistance to charring for improved board cosmetics
- Good joint appearance makes inspection easy
- J-STD-004 ROM1 designation
- Passes all reliability testing required for ROL1 classification

ALPHA® Telecore XL-810

A newly developed cored wire designed for use in Pb-Free soldering operations. Designed in conjunction with the development of Alpha® Telecore XL-806, this product contains slightly less halides in order to meet the ROL1 classification.

ALPHA® SMT Plus (ZHP)

- Alpha's "ZERO Halogen" cored solder wire
- Low flux content – less residues, good cosmetics
- J-STD-004 ROM0 classification
- Excellent wetting

ALPHA® FT 2002 Rosin Free

- Fully synthetic halide and rosin free, no-clean
- J-STD-004 ORLO
- Drop in replacement for rosin cored solders
- Very good tarnish removing properties and high SIR
- Clear, hard residues can be safely left on the board

ALPHA® Pure Core

- Organic activated water soluble flux
- J-STD-004 ORM1
- Washable even if cleaning is delayed for several days
- Very fast wetting

ALPHA® Fluitin 1532

- Activated rosin flux
- J-STD-004 ROM1
- Good thermal stability in poor soldering conditions
- Clear, hard residues can be left on the board

- High-reliability products
- Access to continuous new technology development

Availability: Lead-Free Alloy-Flux

		STANDARD FLUXES							J-STD-004 Class
		FT-2002 Rosin-Free	Telecore+	Telecore XL-806	Telecore XL-810	SMT	Fluitin 1532	PureCore Water-Soluble	
Alloy	Melting or Solidus/Liquidus Temp °C	ORL0	ROL0	ROM1	ROL1	ROM0	ROM1	ORM1	
SAC305	217-221	122, 133	122, 133	122, 133	122, 133	111, 122	122, 133	133	
SACX 0307	217-228			122, 133	122, 133	111, 122	122, 133		
SACX 0807	217-225			122, 133	122, 133				
SAC387	217-220		122						
SAC405	217-225					111, 122	122, 133		
Sn96.5/Ag3.5	221								
Sn99/Cu1	228	122				122	122, 133		

Availability: Tin-Lead Solder

		FT-2002	SMT	Fluitin 1535	Fluitin 1532	J-STD-004 Class Halide Content Acid Value
Alloy	Melting or Solidus/Liquidus Temp °C	ORL0 None 250	ROM0 None 362-402	ROL1 0.35-0.45 170-190	ROM1 0.80-1.10 170-190	
Sn60/Pb40	183-190		105, 111	122	111, 122	
Sn60/Pb38/Cu2	183-190				111, 122, 133	
Sn63/Pb37	183	111, 122	105, 111		122	
Sn62/Pb38/Ag2	178-190		105, 111		122	

Numbers represent percentage of flux in alloy



ALPHA[®] Exactalloy[®] Preforms

How does your ability to fine tune solder volume help increase your process efficiency and product performance?

ALPHA[®] Exactalloy[®] solder preforms address a wide variety of soldering challenges, including PBC assembly, automotive sub-assemblies, connectors and terminals, die attach, power module substrate attach, filtered connectors, and electronic component assembly.

Custom-designed shapes, sizes, alloys and flux types

Exactalloy[®] solder preforms are precisely formed pieces of solder suitable for volume manufacturing with very tight tolerances. They are manufactured in a wide variety of shapes, sizes, solder alloys and flux delivery systems to meet your requirements.

ALPHA[®] Exactalloy[®] Preform Selection Criteria

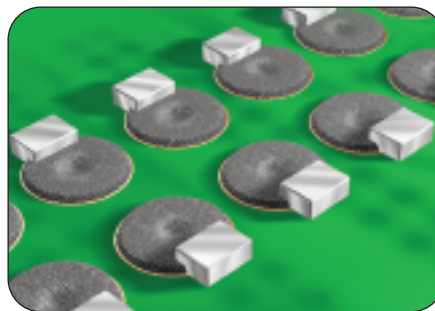
Alloy: Selection is based on melting point and compatibility with substrate materials. Exactalloy preforms are produced in a large variety of alloys to meet your specific application requirements. When used in combination with solder paste, the preform alloy matches the paste alloy.

Size/Shape: Custom designed sizes and shapes provide exact solder volume for specific applications, aiding the assembly process.

Flux Type: Based on the specific application, fluxes can be integrated with an Exactalloy[®] preform. Our applications engineers can help you select a flux that meets all applicable IPC standards. Color-coded fluxes are available for easy identification.

Key ALPHA[®] Exactalloy[®] Preform Applications

Preforms in Solder Paste: ALPHA[®] Exactalloy[®] Preforms can be used with solder paste to selectively increase solder volume. Tape-and-reel packaging provides a convenient method for the delivery of the preform with standard pick-and-place assembly equipment. The preform is picked from the tape-and-reel packaging, and placed directly into the solder paste prior to reflow. Only a portion of the preform needs to contact the paste. ALPHA Solder Preform Tape & Reel packaging provides you with a time-to-market advantage, solving your solder volume issues during assembly verification. Standard size 0402, 0403, 0603 and 0805 and smaller ALPHA[®] Preforms are readily available in tape-and-reel packaging.



ALPHA Exactalloy Preforms in solder paste.

Solder Washers for PCB Assembly:

ALPHA[®] Exactalloy[®] Preform solder washers provide you with an ideal method of not only delivering the precise solder volume and flux needed for through-hole connections, but they also eliminate the need for secondary solder washer processes. The preform solder washer can be placed on the connector pin during PCB assembly using pick and place equipment. Solder washers can also be integrated into production using various fixturing methods. The connector pins are then reflow soldered at the same time as the solder paste.



Bare pins, washers in place pre-reflow, post-reflow

Solder-Copper Laminates: For applications that require laminated preforms, we offer solder/copper/solder laminates in washer, square, rectangular and disc shapes. A wide variety of alloys is feasible.

LAMINATION SPECIFICATIONS	
MATERIAL	THICKNESS (mm)
Copper	.075 – .750
Solder	.040 – .225

Consult for specific solder-copper combinations

Fuse Alloys: The combination of the precise solder volume and a specific melt temperature provides a fuse function, such as required in fire suppression systems. In addition to the very precise fuse function enabled by eutectic or near eutectic alloys, the solder can provide mechanical strength for the assembly. ALPHA is leading the industry in cost effective solutions.

- Access to continuous new technology development
- Applications expertise
- Accelerated technology customization for key customers

Solder Sleeves: ALPHA's patented manufacturing methods provide the vast majority of the industry's volume for solder sleeves used in solder-based wire harness connectors. These products are the life blood of aeronautic, marine and specialty vehicles. The end products provide vibration resistant and moisture proof interconnection solutions. Ask about plans to support RoHS and ELV compliant offerings.

Solder Ribbon: ALPHA's high quality solder ribbon product offering provides the flexibility to integrate custom solder preforms into your product with your specialised material cutting and handling equipment, ensuring a costeffective approach for high volume production.

Die Attach: Typically provided in high lead alloys, contaminate free solder materials – combined with ALPHA process knowledge and expertise – offer a highly reliable die attach solution for demanding power applications. Our continuous R&D efforts in this area are providing new capabilities, further enhancing the cost performance of die attach solutions.

Substrate Attach: The heart of the power module that drives reliability is the DBC substrate. ALPHA offers the highest performance high Sn alloys in the industry for the most demanding, highest reliability substrate to heat spreader attach. Ask about our newest alloy offering that extends system reliability.

Flexible Packaging Options: Packaging options are available to meet a variety of applications and assembly equipment requirements and are designed to maximise customer process efficiency. High-speed preform placement can be implemented using preforms packed on tape and reel, or in bulk feeder cartridges. ALPHA also offers an assortment of trays, and bulk packaging options. Argon packaging is available for specific alloys.




Tape and reel

Prototypes and Specialty Shapes: ALPHA's rapid prototyping ability enhances time to market while minimising tooling expenses needed to verify acceptable preform performance.

ALPHA has a great deal of experience developing specialty shapes. Please contact your sales representative to learn more about how we can support your unique preform shape requirements.

SPECIFICATION GUIDELINES*

Washer

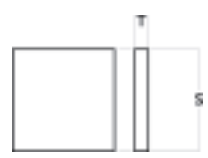


OD
Min = .020" (0.51mm)
Max = 3.00" (76.0mm)

ID
Min = .008" (0.2mm)
Max = OD - .010" (0.25mm)

T (Thickness)
Min = .002" (0.05mm)
Max = .110" (2.80mm)


Rectangle



S (Side)
Min = .020" (0.51mm)
Max = 2.30" (58.00mm)

T (Thickness)
Min = .002" (0.05mm)
Max = .200" (5.00mm)

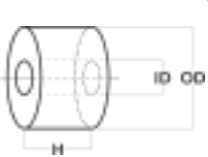
Disc



D (Diameter)
Min = .020" (0.51mm)
Max = 2.10" (53.00mm)

T (Thickness)
Min = .001" (0.025mm)
Max = .200" (5.08mm)

Sleeve



OD
Min = .057" (1.44mm)
Max = 1.05" (26.60mm)

ID
Min = .049" (1.20mm)
Max = 1.024" (26.00mm)

H (Height)
Min = .024" (0.61mm)
Max = .472" (12.00mm)

COMMON ALLOYS BY PRODUCT TYPE									
ASSEMBLY		LAMINATION OVER COPPER		SOLDER RIBBON		SUBSTRATE ATTACH		LOW TEMP FUSE ALLOYS (95-150C)	
SnAg	PbSn	SnAg	PbSn	SnAg	PbSn	SnAg	PbSn	SnPbCd	InAg
SnAgCu	PbSnAg		PbSnAg	SnAgCu	PbSnAg	SnAgCu	PbSnAg	SnPbInCd	SnBi
SnSb	PbInAg		PbInAg	SnSb	PbInAg	SnAgSb	PbInAg	SnPbIn	SnBiAg
SnBi				SnBi		SnSb	PbAg	SnPbBi	SnBiIn
						SnSbCuNi		SnIn	SnInCd
						SnBi		SnZn	

Available Flux Types: Flux is a critical element in the solder system. ALPHA offers the widest variety of flux types to meet the most demanding applications, including color indicators for identification of RoHS versions on the shop floor. Ask us about how our resilient flux is expanding the range of potential solutions available for your application.

FLUX TYPE	INTERNAL	EXTERNAL
RMA (ROL1)	yes	yes
RA (ROM1)	yes	yes
NC (ROLO)	yes	yes
RSA* (ROH1)	yes	yes
WS (ORLO)	yes	consult
Resilient (ROLO)	no	yes

* Rosin Superactivated

* Typical specifications shown, other dimensions available upon request.



ALPHA® Reclaim Services

**ALPHA reclaim management:
Leading the way
in environmental responsibility**

As part of The ALPHA customer care programme, electronics assemblers can take advantage of a safe, efficient reclaim service which will help companies meet the environmental and legislative requirements, maximising the return on their solder scrap.

- Controlled collection and reprocessing of solder scrap.
- Conformance to state and federal regulations.
- Metal buckets supplied free of charge.
- ISO 14001 Certified facility
- Freight paid to our facility
- Certificate of recycling
- Dedicated environmental and reclamation staff.

ALPHA has invested heavily in an appropriate integrated packaging and transport system for solder reclaim Investment that reflects our commitment to the products we manufacture throughout their complete life cycle Investment designed to save our customers time and trouble.

ALPHA recycles millions of kgs of tin/lead bearing materials each year.

As the largest solder reclaim operation in the world, ALPHA ensures that solder scrap is processed in the most efficient way possible which maximises the return to the customer. We are the only solder manufacturer that has a complete recycling facility.

Lead-free

Lead-free solders have not only created technological challenges but have increased the cost of materials for assembly companies. A way to offset this cost is with the reclamation of your lead-free solder dross. ALPHA is able to recycle the numerous lead-free alloys being used by companies today. With our refining capabilities we are able to help customers maximise the value of their materials.

We provide green buckets to help customers keep their lead-free dross segregated so they can maximise its value.

Solder Paste Recycling

Solder paste is a combination of flux and solder powder and as such requires special reprocessing methods. Unused solder paste should be segregated in a separate container for recycling.

ALPHA is a major global manufacturer of solder paste, and has all of the expertise required for its safe processing. These skills are not necessarily available from companies who do not manufacture solder paste.

Upon request, we also supply a certificate of recycling which is your proof the material was recycled.



Tough, sealable disposal bins for lead-free and tin-lead dross

- Solder scrap value recovery
- Delivered lowest cost of ownership
- Six Sigma projects for process optimisation

Reclaim Services

FACT / FEATURE	ADVANTAGES	BENEFITS
ALPHA recycles all kinds of solder scrap "Cradle to Grave"	The solder scrap does not pass through many different handlers before being recycled.	1) There is a clear audit trail so that customers can identify exactly where the solder scrap goes, and hence be reassured about its safe environmental reprocessing. Companies and their employees will not risk legal implications or adverse publicity caused by any illegal disposal. 2) Customers can visit the reprocessing facility and conduct their own audit on the recycling process. A complete preaudit package is available upon request
ALPHA can supply new solder bar in exchange for solder dross. "New for old"	Credit for the solder scrap is then seen directly in the cost center where it is generated.	This means that the true cost of the wave solder process can be measured, hence any decisions that involve costing (new designs, new subcontract projects) can be taken based on the true cost. All cost credits remain with the assembly department.
You can trust in ALPHA – the largest solder manufacturer and recycler in the world. Cookson Electronics is a publicly traded company.	The company has high legal and moral standards, and a global presence. The company has invested in the most efficient processes for solder recycling, ensuring that lead and other toxic compounds are strictly controlled and do not get released into the environment. Cookson Electronics has been ISO14001 certified since May 2002.	Companies get the piece of mind that the disposal of this solder scrap is being conducted in a legal and moral way. Customers are assured that they are behaving in a responsible manner which will protect the environment.

Your reclaim contacts

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ALPHA reclaim management: Leading the way in environmental responsibility



ALPHA® Cleaners

How does inadequate stencil and pcb cleaning impact your process?

ALPHA offers a range of cleaning products specifically for electronic assembly manufacturing applications, covering all major types of cleaning processes: semi-aqueous, aqueous and manual/non-aqueous cleaning.

Stencil/Misprint Cleaners

The range of stencil/misprint cleaners was developed specifically to replace IPA and other low-flash point, flammable materials in both manual and equipment applications where performance, safety and environmental properties are of primary concern. Some products are applied at ambient temperatures and dry quickly, with or without forced air. There are also products that are recommended for most non-aqueous and aqueous stencil cleaning equipment.

- ALPHA® SM-440
- ALPHA® SM-110
- ALPHA® SM-110E

Board Cleaning

Unlike traditional organic and inorganic saponifiers, ALPHA aqueous defluxers are organic solvent-based products that are either water soluble or make stable emulsions in aqueous process equipment. The products differ from semi-aqueous defluxers in that they can be used in standard aqueous equipment, both metal and plastic.

- ALPHA® SM-110
- ALPHA® SM-110E
- ALPHA® 2110
- ALPHA® BC-2200
- Armakleen E2001P
- Armakleen 2003

Manual Cleaning Range

In addition to replacing CFCs in production defluxing, ALPHA also offers alternative products for manual benchtop defluxing after touch-up and rework. These products are applied at room temperature, rinsed with fresh product, and dried with ambient or forced air. The fluids are more aggressive than CFCs and IPA and remove even the more difficult residues.

- ALPHA® SM-110
- ALPHA® SM-110E

ALPHA® SM-110 Cold/Manual Cleaner (liquid and pre-saturated wipes)

- Dissolves no-clean, water soluble and rosin flux residues
- Fast evaporation, higher flash point; excellent solvency properties outperform IPA
- Excellent compatibility with stencil and PCB materials; approved for use in printer underwipe systems

ALPHA® SM-110 E

- Specially formulated for use in non-aqueous stencil cleaning equipment
- Removes most types of solder paste and epoxy products, such as SMD adhesives

ALPHA® 2110 Aqueous Rosin Cleaner

- Cleaning concentrate designed for efficient removal of rosin flux residues from PCBs using aqueous saponification processing
- Excellent cleaning of PCBs in conveyorised, in-line aqueous machines, even to ionic cleanliness standards in MIL-P-28809

ALPHA® BC-2200

- Aqueous defluxer: VOC-free, high-performance alkaline cleaner with exceptional wetting properties and detergency; ideal for use with lead-free flux formulations
- Well-suited for in-line or batch spray-in-air cleaning; can be used in ultrasonic equipment
- Removes reflowed rosin, no-clean and water-soluble fluxes from PCBs

ARMAKLEEN® 2003

- Environmentally sensible, inorganic-based aqueous cleaner designed for in-line or batch equipment for cleaning PCBs
- Low surface tension allows for penetration of low stand-off heights



Armakleen is a registered trademark of Church & Dwight Co., Inc.

- Sales/support in every major electronics geographic market
- Local and consistent technical support regionally and globally
- Consistent product performance globally

Product Matrix by Cleaning Technology

STENCILS & MISPRINTS	AQUEOUS (SAPONIFIERS & DETERGENTS)		SOLVENT-BASED (WASH/NO RINSE)		SEMI-AQUEOUS (WASH/RINSE OPTIONAL)	
Printed rosin and no clean paste	C		A B		J	
Uncured SMD adhesives	C		A B		J	
Paste on board / understencil wipes	C		A B		J	
PRINTED CIRCUIT BOARDS	AQUEOUS (SAPONIFIERS)		SOLVENT-BASED (WASH/NO RINSE)		SEMI-AQUEOUS (WASH/RINSE)	
	Batch	In line	Batch	In line	Batch	In line
Reflowed rosin based paste residues	G D E F	G D E F	A B	A B	J	J
Reflowed no clean paste residues	FGE	G	-	-	J	J
High temp. reflow residues (Hybrids)	G	G	-	-	J	J
MANUAL CLEANING	AQUEOUS		SOLVENT-BASED		SEMI-AQUEOUS	
Jigs, fixtures	I		A B		J	
Finger cleaning, flux tanks, reflow condensers	I		A B		J	
Adhesive dispense needles	F		A		J	
Bench top, general cleaning	D E I		A B			

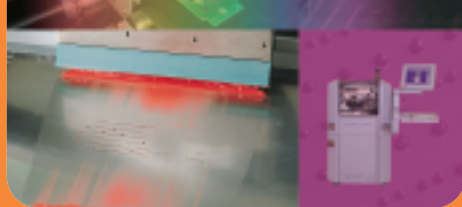


KEY	PRODUCT	FLASH POINT	SOLUTION
A	ALPHA® SM-110	41C+/106F+	Solvent
B	ALPHA® SM-110E	53C/128F	Solvent
C	ALPHA® SM-440	None to boiling	Aqueous
D	ALPHA® 2110	99C+/210F+	Aqueous
E	Armakleen 2003	None to boiling	Aqueous
F	Armakleen E2001P*	None to boiling	Aqueous
G	ALPHA® BC-2200	None to boiling	Aqueous
H	ALPHA® SC-30	65C/149F	Solvent
I	ALPHA® AutoClean 40	100C+/212F+	Aqueous
J	ALPHA® BC-3300	180 (COC)	Semi-aqueous

*Specifically formulated for use with cleaning that utilizes plastic parts.

PCB Cleaning Products

Stencil and Misprints	ALPHA® SM-440	Aqueous. Spray, ultrasonics and head cleaning stencils of raw paste/SMD adhesive. Use 10-15% @ 26-38°C
	ALPHA® SM-110 & SM-110E	Solvent based. Manual or non-aqueous batch cleaner – removes raw paste/adhesive and flux residues. Also available in presaturated wipes. ALPHA SM-110E has higher flash point.
Board Cleaning	ALPHA® 2110	Aqueous saponifier Industry Standard in SnPb applications, Flash point = 99°C, Used at 3-10% @ 65-76°C
	Armakleen 2003 & E2001P	Aqueous inorganic board cleaners. 2003 is the leading Armakleen board cleaner. E2001P is for use on machines with plastic parts. Machine maintenance is very important.
	ALPHA® BC-2200	Aqueous. For SnPb and LF apps, Use in batch, in-line and ultrasonic applications Aggressive, Low VOC, Typically used at 5-30% concentration and temperatures from ambient to 71°C
	ALPHA® BC-3300	Semi-aqueous. High strength, for use in spray under immersion, ultrasonic and hand cleaning operations Flash point = 82°C. Use at 100% concentration from RT to 65°C, Wipe or total immersion, Water rinse, Air dry
	ALPHA® SM-110 & SM-110E	Solvent based. Manual or non-aqueous batch cleaner – removes raw paste/adhesive and flux residues. Also available in presaturated wipes. ALPHA SM-110E has higher flash point
On-board Printer	ALPHA® SC-30	Solvent based. Used for understencil wipe in printer
General Cleaning & Equipment Maintenance	ALPHA® AutoClean 40	Aqueous cleaner for general cleaning of flux spray nozzles, ovens, pallets etc. Suitable for batch immersion cleaning and manual wipe.
	ALPHA® SM-110 & SM-110E	Solvent based. Manual or non-aqueous batch cleaner – removes raw paste/adhesive and flux residues. Also available in presaturated wipes. ALPHA SM-110E has higher flash point



ALPHA[®] Adhesives

Epibond[®] 7275-Series surface mount adhesives offer excellent performance for all print and dispensing applications.

- Non-slumping and non-stringing.
- Room temperature stability.
- Dispense, print and pin transfer application.
- Consistent dot profile and fast curing.
- High-visibility red or yellow options.
- Screen printable with ALPHA CUT laser stencils to SMD adhesive guidelines.

Epibond[®]* 7275-Series Surface Mount Adhesives are designed for holding in place bottom side – and some mixed technology – surface mount components during the wave soldering process. Epibond[®] are high-quality non-slumping and non-stringing adhesives applied by dot dispensing, printing equipment and pin transfer, giving consistent dot profile and fast curing.

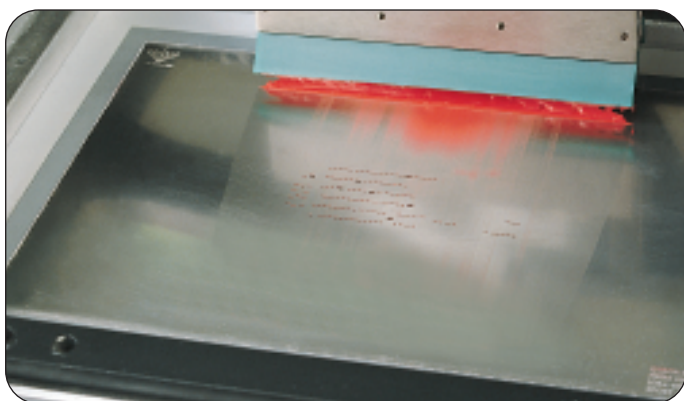
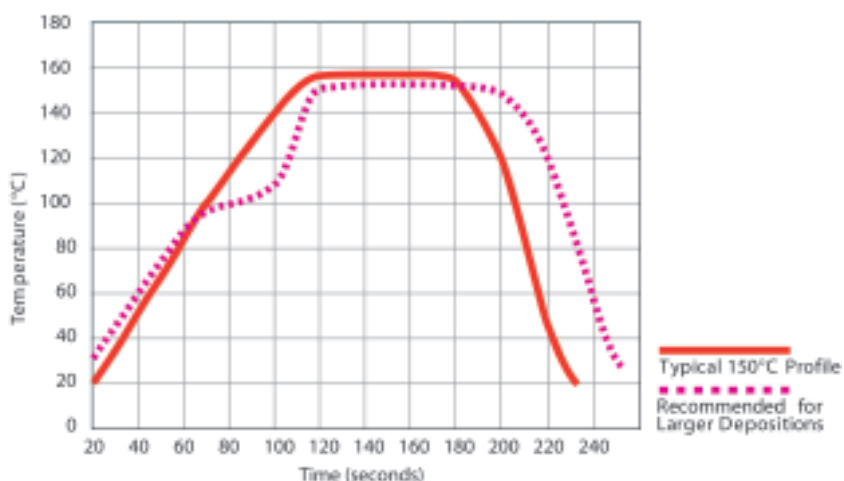


Epibond[®] Typical Cure Profile

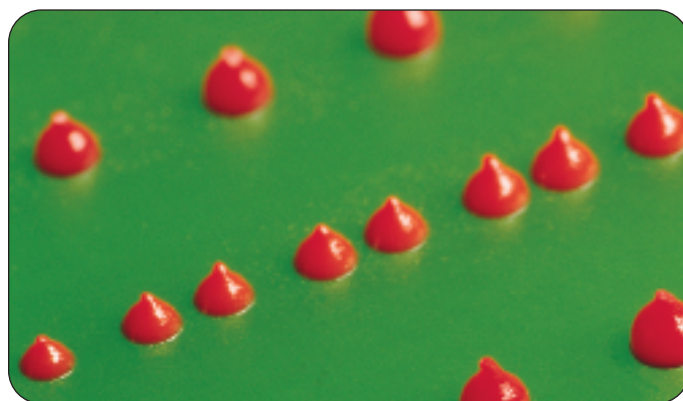
A correct thermal profile is critical to ensure that the adhesive achieves maximum mechanical strength and a homogeneous cure:

- Ensure the material is heated to the correct temperature for the specific time.
- The maximum thermal ramp rate is 1.5 to 2.0°C/second to ensure a homogeneous cure.

Epibond[®] Typical Cure Profile



Printed adhesive



Dispensed adhesive

- Sales/support in every major electronics geographic market
- Local and consistent technical support regionally and globally
- Consistent product performance globally

Typical Properties

UNCURED	EPIBOND 7275	EPIBOND 7275-1
Description	Original formula ideal for each of the deposition methods. Designed specifically for high-speed applications.	Slightly less viscous modification of the 7275. Preferred for certain application equipment.
Composition	Epoxy	Epoxy
Color	Red	Red
S.G. (ASTM-D-793)	1.28g/cc	1.20g/cc
Viscosity (ASTM-D-1824) cps @ 1 rpm (x1000) cps @ 10 rpm (x1000)	2,900 390	2350 290
Shelf Life	9 months @ 5°C 6 months @ 23°C	9 months @ 5°C 6 months @ 23°C
Thixotropic index	>6.0 (ASTM D-1824)	>6.0 (ASTM D-1824)
Dot profile W/H	<2.0	<2.0
Particle size	<25µ	<25µ
Curing time	Ramp rate <2.0°C/sec @150°C 1.5 mins	Ramp rate <2.0°C/sec @150°C 1.5 mins
TYPICAL ELECTRICAL PROPERTIES		
Dielectric strength (ASTM-149)	420 v/mil	420 v/mil
Dielectric constant (ASTM D-150)	3.87 @ 1 MHz	3.87 @ 1 MHz
Dissipation factor (ASTM D-150)	.025 @ 1 MHz	.025 @ 1 MHz
Surface resistivity (ASTM D-257)	1.1 x 10 ¹⁵ >cm ²	1.1 x 10 ¹⁵ >cm ²
Volume resistivity (ASTM D-257)	2.1 x 10 ¹⁵ >cm ²	2.1 x 10 ¹⁵ >cm ²
TYPICAL CURED PROPERTIES		
Lap shear strength (ASTM D-1002)	2000 psi @ 25°C	2000 psi @ 25°C
Glass transition Tg (ASTM D-696)	66°C	65°C
Thermal conductivity Cal/sec.cm.°C	6.5 x 10 ⁻⁴	6.4 x 10 ⁻⁴
Viscosity, ASTM-D-1824 (RVT Spindle #7)	cps @ 1 rpm: 3,200,000 cps @ 10 rpm: 420,000	cps @ 1 rpm: 2,500,000 cps @ 10 rpm: 320,000



ALPHA® Stencils

Helping you get first-time-right paste deposits through advanced stencil services and technology

A Complete Understanding of the Science of Printing Helps Us Get Your Stencil Right the First Time

- ALPHA® has an intimate knowledge of the stencil printing process based on its global experience as the leading producer of stencils as well as advanced solder paste products worldwide.
- ALPHA® understands that the stencil is an integral part of any precision printing process. Getting it right the first time helps save time and money.
- ALPHA® global team of 100+ Research & Development personnel, stays on the cutting edge of paste printing and stencil technology development.
- ALPHA's global technical service and support team helps integrate our products and enhance your yields.
- ALPHA® has over 1,200 satisfied stencil customers worldwide in all electronics industry segments.

Years of Experience Help Us Get Your Stencil Right the First Time

With over 800 man years of combined experience in the stencil business, we have more time invested in stencil and printing technology than any other stencil producer.



- 250+ man years of CAD experience globally
 - 400+ man years of manufacturing experience globally
 - 100+ man years of technical service experience globally
 - 60+ man years of stencil operations management experience globally
- ## Advanced Stencil Services Make Us Easy to Do Business With and Help Get Your Stencil Right the First Time
- Our inside sales staff ensures prompt, efficient start-up and transfer to CAD contact for ongoing orders and data transfer.
 - Our ongoing development work in printing and global exposure to the newest packages enables us to recommend stencil design rules to minimize defects and maximize stencil performance.
 - Automated application of customer and OEM / Product-specific design rules through our patented DIMENSIONS® system reduces the possibility of CAD errors and improves first time right service.
 - Our PCB scaling service can enhance yield and throughput. Scaling of stencil design to corresponding PCB reduces defects and rework.
- We regularly monitor and control positional accuracy of the stencil that allows us to provide accurate, consistent stencil quality resulting in the highest possible print quality with the fewest possible mis-printing errors.
 - Stepped stencils and unique aperture designs allow single stencils designed for broad range of deposit volumes to provide the right paste volume where needed. In cases where a stepped stencil is not practical or does not provide sufficient volume, our engineers can design a tape and reel preform option to efficiently address the volume needed.
 - Unique Cookson Electronics aperture designs such as reverse taper, Micro Pocket and Micro Max improve deposit volume.
 - We are your stencil and printing knowledge source offering seminars and publications on stencil design and printing technology to help you stay on the cutting edge.



- **Leading technology products**
- **Continuity of supply ensured through multiple manufacturing sites**
- **Delivered lowest cost of ownership**

Early Engagement in the New Product Introduction Process Helps Us Get Your Stencil Right the First Time

- ALPHA® stencil design expertise and printing knowledge allow us to understand your print and design requirements and engage early with you on new product introduction work.
- ALPHA® stencil design experts can support you and make recommendations that will enable you to design stencils that can help achieve first time right print deposits.
- ALPHA® can turn around an accurate stencil for you "First-Time-Right" in a timely manner utilizing our global locations, stencil manufacturing expertise, and the advanced technology services.
- ALPHA® Global Technical Service and Support Team helps implement our stencils in the field and troubleshoot if necessary, helping you achieve high yield, reduced defect implementations.

ALPHA® CUT Laser Cut Stencils Help Us Get Your Stencil Right the First Time

- ALPHA® CUT Laser Cut Stencils provide the highly repeatable, accurate printing performance you require for your challenging new product introductions and production requirements. With ALPHA® CUT you get:
 - Best-in-Class positional accuracy proven in process capability studies and machine mapping and a wide range of options, including:
 - Stepped area(s) for optimized paste volume deposition
 - Variety of surface finishes
 - High quality stainless steel or hard solid nickel material
 - Range of material thicknesses
 - Framed or frameless format (including TETRA & TETRA-VG)
 - Global manufacturing and quality systems to ensure reliability and quality
 - Local operations (11 global sites) ensures fast turnaround
- We also offer ALPHA® FORM electroformed stencils for applications requiring printing performance down to micro-electronic levels – even below 0.4 mm pitch.

ALPHA FORM™: Electroformed Stencils Help Us Get Your Stencil Right First Time

- ALPHA FORM electro-formed stencils are for applications requiring superior printing performance down to microelectronic levels – even below 0.4 mm pitch.
- They offer outstanding paste release properties and can be produced to custom thicknesses, accommodating stepped design features.
- These long life stencils enable very high print yields and a positive underside gasket effect reduces the need for under stencil cleaning.

ALPHA ETCH™: Chemically Etched Stencils Help Us Get Your Stencil Right First Time

- Accurate yet economical stencil foils, ideal for a variety of standard pitch printing applications.
- They permit high aperture counts without cost penalties and can accommodate multi level printing requirements for small and large components.



ALPHA® CUT Laser Cut Stencil

Product and Service Portfolio

ALPHA® Stencil Products	ALPHA® Stencil Services & Solutions
<p>ALPHA FORM Electroform Stencils</p> <ul style="list-style-type: none"> • For Board Assembly. The industry's WINNING combination of High Transfer Efficiency and Low Paste deposit variability. • For Wafer Bumping. Cost effective way to provide high aperture count WITH high accuracy and great stencil durability. 	<p>ALPHA DIMENSIONS Stencil Engineering The one system that systematically and automatically applies aperture modifications.</p>
<p>ALPHA CUT Lasercut Stencils</p> <p>The preferred cost effective way to provide high accuracy aperture placement combined with good paste transfer efficiency down to 16 mil pitch.</p>	<p>Cookson Stencil Design Rules Provide scientifically sized and shaped apertures to handle any printing situation regardless of complexity.</p>
<p>ALPHA ETCH Chemically Etched Stencils</p> <p>Chemical Etching remains the ONLY way to produce multi level stencils for printing boards with large and small components.</p>	<p>PCB Scaling When the PROBLEM is the accuracy of the PWB, the SOLUTION is to scale the stencil to match the board.</p>
<p>ALPHA TETRA Frame System</p> <p>The FIRST and the BEST high tension, high-accuracy frameless stencil system.</p>	<p>Global Commonality Program Whether it is made in the Americas, Europe or Asia, Cookson's worldwide stencil fabrication sites manufacture the same high quality product every time everywhere.</p>
	<p>Area Ratio Rules Provide stencil users a flag to potential aperture design violations prior to actual fabrication.</p>
	<p>Steps & Stepless Steps An in-depth understanding of the plating process coupled with precise control of the electroform plating bath allows skilled technicians to vary stencil thickness with aperture size to provide the most robust printing situation possible.</p>
	<p>Unique Aperture Designs Including Reverse Taper Years of studying the underlying science of stencil printing has allowed Cookson to design a family of "High Transfer" apertures, which allow the user to maximize paste deposition in the most marginal printing situations.</p>

How we support "First-Time-Right" NPI Stencils

- By engaging early in the design process, we can help reduce the cycle time and produce the stencil right the first time.
- Our design rule recommendations represent our collective knowledge of the printing process and can help get the right paste volume in the desired location.
- Automated application of customer and OEM/Product-specific design rules through our patented DIMENSIONS® system reduces the possibility of CAD errors and improves first time right service.
- Our DIMENSIONS® system allows for pre-programmed automatic application of existing design rules and continuous addition of new design rules. This enables the customer to systematically utilize one set of design rules globally.
- The PCB manufacturing process can result in variability of the pad locations. Our PCB scaling service can optimize the stencil to better correct for board stretch. Scaling of stencil design to corresponding PCB thus reduces defects and rework, and improves first pass yield in the NPI process.
- Stepped stencils and unique aperture designs allow single stencils designed for broad range of deposit volumes to provide the right paste volume where needed.

Fast Turnaround of ALPHA® CUT Stencil Orders Help Us Get Your Stencil Right the First Time

ALPHA® Stencils are manufactured at 12 Cookson Electronics sites globally, and are available with delivery options to suite your specific needs, including the use of shipping services to meet your specified delivery dates.



Global Stencil Manufacturing Locations

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San Jose, CA
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Sao Paulo, Brazil
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