

PCB manufacturing

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Drawing materials

PCB pen, SK-20

Mfr. ScanKemi

A special pen for drawing the design on the copper laminate.

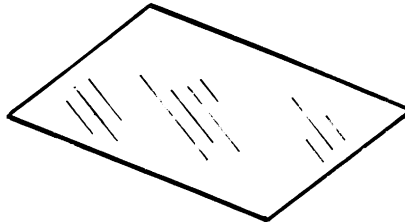
Etching can then be performed directly afterwards. When using, the tip should be pressed in to produce a feed of ink. The PCB should be properly cleaned. The temperature of the etching bath should not exceed 50 °C. Use acetone when cleaning.



Type	Stock number	Price each	
		1-	10-
SK-20 / 110239	49-523-39	6,06	5,12

Assembly film

Assembly film for developing originals for PCBs. The circuit is taped, rubbed or drawn directly onto the film. The film thickness is 0.10 mm in A4 format.

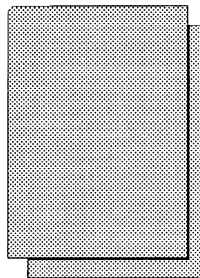


■ Supplied in packs of 5 sheets. Supplied

Type	Stock number	Price per pack	
		1-	5-
110250 Mount.foil clear	49-510-00	6,75	5,39

Positive/Negative film

Sheet film for producing positive and negative copies in an instant from an original design. The film needs no chemicals for developing and fixing. Computer assisted designs, transfers, photocopies or ink drawings can be used as originals. Exposure is by UV-light and the exposure time is very short. Even ordinary light can be used but then the exposure time is significantly longer. The film can for a short time be processed under dimmed lights and a darkroom is therefore not necessary. Instructions are included.



■ Supplied in packs of two A4 sheets.

Type	Stock number	Price per pack	
		1-	5-
PN-600 2 x A4	49-577-91	10,80	9,12

Copper-clad boards

Epoxy laminate, 0.5 mm/17.5 µ Cu

With photoresist, type FR-4

Copper-clad board, only 0.5 mm thick, coated with positive photoresist.
Copper layer: 17.5 µm

Width	Length	Stock number	Price each	
			1-	10-
Single-sided				
75 mm	100 mm	49-576-68	4,36	3,56
100 mm	160 mm	49-576-76	6,86	5,82
Double-sided				
75 mm	100 mm	49-576-84	3,67	3,05
100 mm	160 mm	49-576-92	7,97	5,69

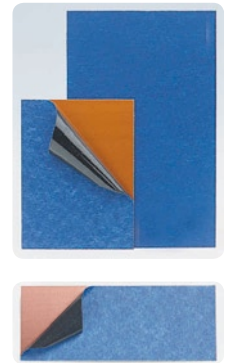


Epoxy laminate, 0.8 mm/17.5 µ Cu

With photoresist, type FR-4

Copper-clad board, 0.8 mm thick, coated with positive photoresist.
Copper layer: 17.5 µm

Width	Length	Stock number	Price each	
			1-	10-
Single-sided				
54 mm	100 mm	49-579-08	3,69	1,79
54 mm	120 mm	49-579-40	3,89	2,03
54 mm	150 mm	49-579-81	5,14	3,14
54 mm	250 mm	49-580-13	5,48	3,52
54 mm	510 mm	49-580-39	7,67	6,36
75 mm	100 mm	49-575-93	2,89	1,98
100 mm	160 mm	49-576-19	8,79	6,71
Double-sided				
100 mm	160 mm	49-576-35	6,83	5,87



Epoxy laminate, 1 mm/35 µ Cu

With photoresist, type FR-4

Copper-clad board with 1 mm thick layer of positive photoresist.
Copper layer: 35 µm

Width	Length	Stock number	Price each	
			1-	10-
Single-sided				
75 mm	100 mm	49-575-51	3,27	1,94
100 mm	160 mm	49-575-69	7,03	6,17
200 mm	300 mm	49-577-59	15,60	12,40
Double-sided				
75 mm	100 mm	49-575-77	4,02	2,32
100 mm	160 mm	49-575-85	6,48	4,89
200 mm	300 mm	49-577-75	21,90	17,90



Epoxy laminate, 1.5 mm/35 µ Cu

Without photoresist, type FR-4

Copper-clad board laminate, 1.5 mm thick. The laminate is based on brominated epoxy resin. This resin is free from brominated diphenylethers and isocyanates.
Copper layer: 35 µm

Width	Length	Stock number	Price each	
			1-	10-
Single-sided				
100 mm	160 mm	49-553-08	3,39	2,58
160 mm	233 mm	49-553-16	4,94	3,91
Double-sided				
100 mm	160 mm	49-553-24	3,70	2,87
160 mm	233 mm	49-553-32	5,29	4,43



Epoxy laminate, 1.55 mm/35 µ Cu

With photoresist, type FR-4

Copper-clad board laminate, 1.55 mm thick, coated with positive photoresist.
Copper layer: 35 µm

Width	Length	Stock number	Price each	
			1-	10-
Single-sided				
100 mm	160 mm	49-572-70	8,32	6,91
100 mm	220 mm	49-572-88	6,73	5,76
150 mm	200 mm	49-573-12	10,20	7,85
160 mm	233 mm	49-573-79	16,00	11,50
300 mm	400 mm	49-573-87	37,10	32,20
400 mm	600 mm	49-573-95	75,10	64,60
Double-sided				
100 mm	160 mm	49-574-03	8,02	6,02
100 mm	220 mm	49-574-11	8,87	6,69
150 mm	200 mm	49-574-45	11,90	9,34
160 mm	233 mm	49-574-86	15,60	12,00
300 mm	400 mm	49-574-94	46,80	37,40



Copper-clad boards

Epoxy laminate, 1.55 mm/70 µ Cu

With photoresist, type FR-4

Copper-clad board, 1.55 mm thick, coated with positive photoresist.
Copper layer: 70 µm



Width	Length	Stock number	Price each	
			1-	10-
Single-sided				
100 mm	160 mm	49-575-10	7,13	5,11
160 mm	233 mm	49-575-44	14,20	11,50

Epoxy laminate, 1.55 mm/105 µ Cu

With photoresist, type FR-4

Copper-clad board with thicker copper layer suitable for PCBs for higher currents such as power supply units, power amplifiers, etc. Thickness of laminate: 1.55 mm
Copper layer: 105 µm



Width	Length	Stock number	Price each	
			1-	10-
Single-sided				
100 mm	160 mm	49-583-02	6,13	5,44
160 mm	233 mm	49-583-28	10,90	9,53
Double-sided				
100 mm	160 mm	49-583-51	6,81	6,06
100 mm	233 mm	49-583-77	16,50	13,80

PTFE laminate, 0.8 mm/35 µ Cu

Copper-clad board laminate of copper/PTFE is used where there is a requirement for low losses, e.g. in high-frequency ICs.
Copper layer: 35 µm With or without photoresist



Width	Length	Stock number	Price each	
			1-	5-
Without photoresist, Double-sided				
75 mm	100 mm	49-571-55	12,70	9,92
100 mm	160 mm	49-571-97	26,30	20,90
With photoresist, Double-sided				
75 mm	100 mm	49-576-43	14,20	12,20
100 mm	160 mm	49-577-18	33,00	28,10

Chemicals

Developer for photoresist

Powder developer for positive photoresist. Dissolved in 2 litres of water at 30°C. Pre-packaged in a plastic bag. Contains 20g.

NOTE! DANGER.

Use rubber gloves, contains NaOH (sodium hydroxide).



Type	Stock number	Price each	
		1-	12-
110175 Developer P20	49-577-00	6,06	3,63

Etching powder

Etching powder for copper laminate. The powder (sodium persulfate) is dissolved in boiling water, the solution will then have a temperature of about 50°C, which gives the best results. 140 g powder etches 6 dm² in 5 min at 50°C with stirring. The solution can be stored. The solution does not give off any gases. Mixture ratio 1:5.



Type	Stock number	Price each	
		1-	10-
110170 200 g powder	49-577-26	5,53	4,11
110172 1 kg powder	49-577-42	16,70	14,40

Processing equipment

PCB guillotine

For cutting copper board and plate. Finely honed and hardened knife set of tool steel gives a clean cut with good precision. Provided with adjustable ruler graduated up to 115 mm with maximum cutting width of 200 mm. Because the cutting mechanism works on the lever principle, little manual force is needed when cutting. This combined with a stable design makes location non-critical. Provided with hand guard and fixed support for comfortable and safe operation. Cuts material such as epoxy laminate, SRBP, aluminium plate, brass plate, copper plate, plastic etc.



Type	Stock number	Price each	
		1-	2-
PC-205 Hand cutter	49-827-81	327,00	306,00
PC-205/B Spare blade	49-827-99	224,00	

Etching tank

Tank for etching PCBs. Designed to be connected to an air pump. Supplied with thermometer but NOT with pump or heater.



Type	Description	Stock number	Price each
			1-
ES-10 without air pump		49-578-58	80,00
RC-002	Pump	49-824-35	59,30
411 183	Heater 100 W	49-801-16	49,10

Etching kit

Mfr. Solectro

Etching kit developed for PCB production of prototypes and small series. The user etches without coming into contact with the process solution and with a good overview of the process. The kit comprises a tank made from clear acrylic plastic with air distribution hose, tank frame and diaphragm pump and continuously variable heater, thermometer, adjustable laminate holder and plastic collection vessel. When etching single-sided coated laminates capacity can be doubled by placing the laminates back-to-back.



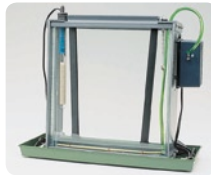
Type 1, serie 2000

Tank volume: 1.75 l
 Tank size (mm): L285xW105xH320 mm
 Tank opening: 205x25 mm
 Max laminate size: 175x250 mm
 Capacity in no. of 1- or 2-sided Eurocards: 4/2 pieces
 No. of pumps: 1 unit
 Air distribution hose: Single
 Power heater: 100 W
 Amount of etching solution: 0.4 kg
 Weight: 4 kg

Type	Description	Stock number	Price each	
			1-	4-
141 030 2000	Type 1, series 2000	49-800-10	303,00	252,00

Accessories and spare parts

Also for older kits, type 1 and 2, series 1000.



Type	Description	Fits type	Series
149 115 2000	Plastic tank	1	2000
149 175 1000	Air distribution hose	1	1000/2000
149 177 1000	Air distribution hose	2	1000
149 165 1000	Extra board holder	1	1000/2000
149 167 1000	Extra board holder	2	1000
411 155	Pump	1	1000/2000
411 158	Pump	2	1000
411 183	Heater 100 W	1	1000/2000
411 185	Heater 150 W	2	1000
741 510	Thermometer -5 to +50 °C	1/2	1000/2000

Type	Description	Stock number	Price per each	
			1-	4-
149 115 2000	Plastic tank	49-800-34	93,30	77,80
149 175 1000	Air distribution hose	49-800-58	19,50	16,40
149 177 1000	Air distribution hose	49-800-66	39,70	31,10
149 165 1000	Extra board holder	49-800-74	23,20	16,30
149 167 1000	Extra board holder	49-800-82	28,90	22,70
RC-002	Pump	49-824-35	59,30	34,60
411 158	Pump	49-801-08	92,40	77,00
411 183	Heater 100 W	49-801-16	49,10	41,00
411 185	Heater 150 W	49-801-24	54,30	45,10
741510	Thermometer -5 to +50 °C, Ø10x50 mm	49-824-50	21,20	9,01

UV exposure, single-sided

UV light box for exposing on copper-clad board coated with photoresist. The lid has a snap lock and is fitted with 20 mm thick foam for securing the object. The box has alignment and adjusting edges for exact positioning of layout and board. Fitted with timer.



■ Supplied with fluorescent lamps. If one lamp needs changing, all of them should be changed at the same time for even lighting.

Type	Stock number	Price each	
		1-	4-
140007 UV light box 1 side	49-821-04	523,00	436,00

UV exposure, double-sided

UV light box for exposing on copper-clad board coated with photoresist. Can be connected for single- or double-sided lighting. Equipped with electronic timer with 6-second steps, 6-90 seconds, and minute settings in 1-min steps, 1-15 min, and fitted with vacuum frame for exact fixing of the object being exposed.



■ Supplied with fluorescent lamps. If one lamp needs changing, all of them should be changed at the same time for even lighting.

Type	Stock number	Price each	
		1-	4-
140002 UV light box 2 side	49-821-53	1643,00	1370,00

Measuring cylinder

Measuring cylinder with base, made of transparent TPX plastic. Tall design with graduations.



Type	Volume	Stock number	Price each	
			1-	6-
6452	0.25 l	49-839-04	14,20	13,70
6454	0.5 l	49-839-12	21,20	19,80

Measuring jug

Measuring jug with handle and graduations, made of semi-transparent polypropylene (PP).



Type	Volume	Stock number	Price each	
			1-	6-
6358	1 l	49-839-46	5,69	4,80
6362	2 l	49-839-53	11,60	10,70

Funnel

Funnel made of polypropylene (PP).



Type	Diameter	Stock number	Price each	
			1-	6-
8370	100 mm	49-839-79	2,65	1,88