

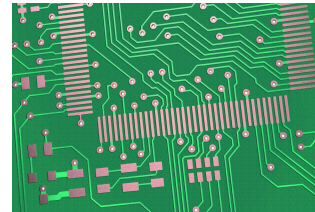
# LPKF

Laser & Electronics

## North American Tools & Materials Price List

Effective: July 1, 2018

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### **To Order Tools & Materials:**

Call: **1-800-345-LPKF Ext. 242**

Or (503) 454-4242

Fax: (503) 682-7151

E-Mail: [tools@lpkfusa.com](mailto:tools@lpkfusa.com)

Shop online at [www.lpkfusa.com/store](http://www.lpkfusa.com/store)

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## Milling Tools

100% Carbide universal milling tools for milling printed circuit board isolation tracks. V-shaped profile for variable milling width. Tools with distance rings are required for use with E33, E34, E44, D104, S43 and all "S" series machines. If smaller quantities are needed, please contact Tool Sales @ 503-454-4242.

Part Number	Milling Usage		Description	Quantity	Diameter Shank (Inches)	Tool Length (inches)	Price
	(mil)	(mm)					
<b>101010</b>	8 – 12 mil	0.2 – 0.3 mm	Universal Cutter for isolation tracks on 35 µm copper	10 pack	1/8"	1.42"	<b>\$180.00</b>
<b>101010-4</b>	8 – 12 mil	0.2 - 0.3 mm	with Orange distance ring	10 pack	1/8"	1.42"	<b>\$185.00</b>
<b>100890</b>	4 – 6 mil	0.1 – 0.15 mm	Fine Line Milling tool/Micro Cutter for isolation tracks on 35 µm copper	10 pack	1/8"	1.42"	<b>\$210.00</b>
<b>100890-4</b>	4 – 6 mil	0.1 – 0.15 mm	with Orange distance ring	10 pack	1/8"	1.42"	<b>\$215.00</b>



## End Mill Cutters

Used for copper removal by providing straight sided & flat-bottomed isolation paths. Also used for wide rub out paths. Tools with distance rings are required for use with E33, E34, E44, D104, S43 and all "S" series machines. If smaller quantities are needed, please contact Tool Sales @ 503-454-4242.

Part Number	Milling		Description	Quantity	Diameter Shank (Inches)	Length (inches)	Price
	(mil)	(mm)					
<b>100806</b>	4 mil	0.10 mm	End Mill (RF) for isolation & film engraving	10 pack	1/8"	1.42"	<b>\$295.00</b>
<b>100806-6</b>	4 mil	0.10 mm	with Blue distance ring	10 pack	1/8"	1.42"	<b>\$300.00</b>
<b>107244</b>	6 mil	0.15 mm	End Mill (RF) for isolation & film engraving	10 pack	1/8"	1.42"	<b>\$270.00</b>
<b>107244-6</b>	6 mil	0.15 mm	with Blue distance ring	10 pack	1/8"	1.42"	<b>\$275.00</b>
<b>100888</b>	10 mil	0.25 mm	End Mill (RF) for isolation & film engraving	10 pack	1/8"	1.42"	<b>\$200.00</b>
<b>100888-6</b>	10 mil	0.25 mm	with Blue distance ring	10 pack	1/8"	1.42"	<b>\$205.00</b>
<b>100862</b>	15.7 mil	0.4 mm	End Mill (RF) for isolation & film engraving	10 pack	1/8"	1.42"	<b>\$180.00</b>
<b>100862-6</b>	15.7 mil	0.4 mm	with Blue distance ring	10 pack	1/8"	1.42"	<b>\$185.00</b>
<b>100886</b>	20 mil	0.5 mm	End Mill (RF) for engraving aluminum & wider isolation tracks *requires addition within CircuitPro	10 pack	1/8"	1.42"	<b>\$170.00</b>
<b>100886-6</b>	20 mil	0.5 mm	with Blue distance ring *requires addition within CircuitPro	10 pack	1/8"	1.42"	<b>\$175.00</b>
<b>101012</b>	31 mil	0.8 mm	End Mill for engraving aluminum & wider isolation tracks	10 pack	1/8"	1.42"	<b>\$125.00</b>
<b>101012-2</b>	31 mil	0.8 mm	with Violet distance ring	10 pack	1/8"	1.42"	<b>\$130.00</b>
<b>101014</b>	39 mil	1.0 mm	End Mill for engraving aluminum & wider isolation tracks	10 pack	1/8"	1.42"	<b>\$125.00</b>
<b>101014-2</b>	39 mil	1.0 mm	with Violet distance ring	10 pack	1/8"	1.42"	<b>\$130.00</b>
<b>101016</b>	79 mil	2.0 mm	End Mill for engraving aluminum & wider isolation tracks	10 pack	1/8"	1.42"	<b>\$125.00</b>
<b>101016-2</b>	79 mil	2.0 mm	with Violet distance ring	10 pack	1/8"	1.42"	<b>\$130.00</b>
<b>101018</b>	118 mil	3.0 mm	End Mill for engraving aluminum & wider isolation tracks	10 pack	1/8"	1.42"	<b>\$135.00</b>
<b>101018-2</b>	118 mil	3.0 mm	with Violet distance ring	10 pack	1/8"	1.42"	<b>\$140.00</b>

## Long End Mill Cutters



Used for routing aluminum panels & milling of pockets in brass or aluminum backed substrates. Tools with distance rings are required for use with E33, E34, E44, D104, S43 and all "S" series machines. If smaller quantities are needed, please contact Tool Sales @ 503-454-4242.

Part Number	Milling		Description	Quantity	Flute Length (Inches)	Tool Length (inches)	Price
	(mil)	(mm)					
101015	39 mil	1.0 mm	End Mill for milling of aluminum & for contour routing of RF- & microwave materials	10 pack	.125"	1.50"	\$120.00
101015-3	39 mil	1.0 mm	2-Flute; with Light Green distance ring	10 pack	.125"	1.50"	\$125.00
101015-9	39 mil	1.0 mm	4-Flute; with Light Green distance ring	10 pack	.125"	1.50"	\$176.00
101017	79 mil	2.0 mm	End Mill for milling of aluminum & for contour routing of RF- & microwave materials	10 pack	.375"	1.50"	\$120.00
101017-3	79 mil	2.0 mm	2-Flute; with Light Green distance ring	10 pack	.375"	1.50"	\$125.00
101017-9	79 mil	2.0 mm	4-Flute; with Light Green distance ring	10 pack	.375"	1.50"	\$176.00

## Contour Routers (Downdraft)



Used for cutting the completed board from a larger panel & for routing cutouts. Tools with distance rings are required for use with E33, E34, E44, D104, S43 and all "S" series machines. If smaller quantities are needed, please contact Tool Sales @ 503-454-4242.

Part Number	Milling		Description	Quantity	Diameter Shank (Inches)	Length (inches)	Price
	(mil)	(mm)					
100878	20 mil	0.5 mm	Contour router for wider tracks	10 pack	1/8"	1.50"	\$145.00
100878-5	20 mil	0.5 mm	with Yellow distance ring	10 pack	1/8"	1.50"	\$150.00
100879	39 mil	1.0 mm	Contour router for wider tracks	10 pack	1/8"	1.50"	\$95.00
100879-5	39 mil	1.0 mm	with Yellow distance ring	10 pack	1/8"	1.50"	\$100.00
100880	59 mil	1.5 mm	Contour router for wider tracks	10 pack	1/8"	1.50"	\$95.00
100881	79 mil	2.0 mm	Contour router for wider tracks	10 pack	1/8"	1.50"	\$95.00
100881-5	79 mil	2.0 mm	with Yellow distance ring	10 pack	1/8"	1.50"	\$100.00
100882	98 mil	2.5 mm	Contour router for wider tracks	10 pack	1/8"	1.50"	\$95.00
100883	118 mil	3.0 mm	Contour router for wider tracks	10 pack	1/8"	1.50"	\$95.00
100883-5	118 mil	3.0 mm	with Yellow distance ring	10 pack	1/8"	1.50"	\$100.00

## Drill Bits



For use on all LPKF milling plotters. Tools with distance rings are required for use with E33, E34, E44, D104, S43 and all "S" series machines. If smaller quantities are needed, please contact Tool Sales @ 503-454-4242.

Part Number	Milling		Description	Quantity	Diameter Shank (Inches)	Length (inches)	Price
	(mil)	(mm)					
108910-1	6 mil	0.15 mm	Spiral Drill bit with Green distance ring	10 pack	1/8"	1.50"	\$125.00
108911	7.9 mil	0.2 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$98.00
108911-1	7.9 mil	0.2 mm	with Green distance ring	10 pack	1/8"	1.50"	\$103.00
100976	9.8 mil	0.25 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$75.00
100977	11.8 mil	0.3 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$60.00
100977-1	11.8 mil	0.3 mm	with Green distance ring	10 pack	1/8"	1.50"	\$65.00
100894	13.8 mil	0.35 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00



## Drill Bits (Continued)

For use on all LPKF milling plotters. Tools with distance rings are required for use with E33, E34, E44, D104, S43 and all "S" series machines. If smaller quantities are needed, please contact Tool Sales @ 503-454-4242.

Part Number	Milling		Description	Quantity	Diameter Shank (Inches)	Length (inches)	Price
	(mil)	(mm)					
100978	15.8 mil	0.4 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100978-1	15.8 mil	0.4 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
100979	19.7 mil	0.5 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100979-1	19.7 mil	0.5 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
100980	23.6 mil	0.6 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100980-1	23.6 mil	0.6 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
100897	25.6 mil	0.65 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100981	27.6 mil	0.7 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100981-1	27.6 mil	0.7 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
100944	29.5 mil	0.75 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100982	31.5 mil	0.8 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100982-1	31.5 mil	0.8 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
100983	33.5 mil	0.85 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100984	35.4 mil	0.9 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100984-1	35.4 mil	0.9 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
100985	39.4 mil	1.0 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100985-1	39.4 mil	1.0 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
100949	41.3 mil	1.05 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100986	43.3 mil	1.1 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100986-1	43.3 mil	1.1 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
100951	45.3 mil	1.15 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100987	47.2 mil	1.2 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100987-1	47.2 mil	1.2 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
100988	49.2 mil	1.25 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100989	51.2 mil	1.3 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100989-1	51.2 mil	1.3 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
100990	55.1 mil	1.4 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100990-1	55.1 mil	1.4 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
100991	59.1 mil	1.5 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100991-1	59.1 mil	1.5 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
100992	63.0 mil	1.6 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100992-1	63.0 mil	1.6 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
100915	65.0 mil	1.65 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100993	66.9 mil	1.7 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100993-1	66.9 mil	1.7 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
100917	68.9 mil	1.75 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100994	70.9 mil	1.8 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100994-1	70.9 mil	1.8 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
100919	72.8 mil	1.85 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00



## Drill Bits (Continued)

For use on all LPKF milling plotters. Tools with distance rings are required for use with E33, E34, E44, D104, S43 and all "S" series machines. If smaller quantities are needed or if the distance ring option is not detailed, please contact Tool Sales @ 503-454-4242.

Part Number	Milling		Description	Quantity	Diameter Shank (Inches)	Length (inches)	Price
	(mil)	(mm)					
100995	74.8 mil	1.9 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100995-1	74.8 mil	1.9 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
100996	78.7 mil	2.0 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100996-1	78.7 mil	2.0 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
100997	82.7 mil	2.1 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100997-1	82.7 mil	2.1 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
100998	86.6 mil	2.2 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100998-1	86.6 mil	2.2 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
100999	90.6 mil	2.3 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
100999-1	90.6 mil	2.3 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
101000	94.5 mil	2.4 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
101000-1	94.5 mil	2.4 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
101001	98.4 mil	2.5 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
101001-1	98.4 mil	2.5 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
101002	102.4 mil	2.6 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
101002-1	102.4 mil	2.6 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
101003	106.3 mil	2.7 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
101003-1	106.3 mil	2.7 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
101004	110.2 mil	2.8 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
101004-1	110.2 mil	2.8 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
101005	114.2 mil	2.9 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
101005-1	114.2 mil	2.9 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
101006	116.1 mil	2.95 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
101006-1	116.1 mil	2.95 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
101007	118.1 mil	3.0 mm	Spiral Drill bit for printed circuit boards	10 pack	1/8"	1.50"	\$48.00
101007-1	118.1 mil	3.0 mm	with Green distance ring	10 pack	1/8"	1.50"	\$53.00
117352	116.1 mil	2.95 mm	Spiral Drill Bits with Pink distance rings. Used to create reference holes on the LPKF ProtoMat® S42 <b>without</b> a Vacuum Table & S43 <b>with</b> a Vacuum table.	1 piece	1/8"	1.69"	\$20.00



## Distance Rings

Part Number	Description	Quantity	Price
108016	1/8" Inner Diameter Rings used for setting tool depth with the ProtoMat® 95s & LPKF 101 Hi-P Automill systems.	100 pack	\$19.00
101382	Pneumatic Distance Ring Press Applies distance rings to tools for use with automatic tool change systems.	1	\$1,200.00
116698	Precision Tool Ring Setter. Accurately calibrates tool ring to predetermined adjustable depth. Includes small hand microscope.	1	\$1,600.00

## Tool Accessories

Part Number	Description	Quantity	Price
101640	Tweezers	1	\$13.00

## Starter Tool & Accessories Packages

Part Number	Description					Unit Price	
129103	Starter Package - Tools & materials required to begin using your LPKF circuit board plotter					\$450.00	
	Qty.	Milling		Description	Diameter Shank		Length
		(mil)	(mm)		(inches)		(inches)
	10	8-12 mil	0.2-0.3 mm	Universal Milling Tools	1/8"		1.42"
	2	4-6 mil	0.1-0.15 mm	Micro Cutter Tools	1/8"		1.42"
	1	31 mil	0.8 mm	End Mill for isolation & film engraving	1/8"		1.42"
	2	39 mil	1.0 mm	End Mill for isolation & film engraving	1/8"		1.42"
	2	79 mil	2.0 mm	End Mill for isolation & film engraving	1/8"		1.42"
	1	39 mil	1.0 mm	Long End Mill for isolation & film engraving	1/8"		1.50"
	1	79 mil	2.0 mm	Long End Mill for isolation & film engraving	1/8"		1.50"
	2	39 mil	1.0 mm	Contour router for wider tracks	1/8"		1.50"
	2	79 mil	2.0 mm	Contour router for wider tracks	1/8"		1.50"
	2	15.8 mil	0.4 mm	Spiral Drill bit for printed circuit boards	1/8"		1.50"
	2	19.7 mil	0.5 mm	Spiral Drill bit for printed circuit boards	1/8"		1.50"
	2	23.6 mil	0.6 mm	Spiral Drill bit for printed circuit boards	1/8"		1.50"
	2	27.6 mil	0.7 mm	Spiral Drill bit for printed circuit boards	1/8"		1.50"
	2	31.5 mil	0.8 mm	Spiral Drill bit for printed circuit boards	1/8"		1.50"
	2	35.4 mil	0.9 mm	Spiral Drill bit for printed circuit boards	1/8"		1.50"
	2	39.4 mil	1.0 mm	Spiral Drill bit for printed circuit boards	1/8"		1.50"
	1	47.2 mil	1.2 mm	Spiral Drill bit for printed circuit boards	1/8"		1.50"
	1	55.1 mil	1.4 mm	Spiral Drill bit for printed circuit boards	1/8"		1.50"
2	59.1 mil	1.5 mm	Spiral Drill bit for printed circuit boards	1/8"	1.50"		
1	63 mil	1.6 mm	Spiral Drill bit for printed circuit boards	1/8"	1.50"		
2	70.9 mil	1.8 mm	Spiral Drill bit for printed circuit boards	1/8"	1.50"		
2	78.7 mil	2.0 mm	Spiral Drill bit for printed circuit boards	1/8"	1.50"		
2	118.1 mil	3.0 mm	Spiral Drill bit for printed circuit boards	1/8"	1.50"		
129103-1	Starter Package (above) with <b>Green distance rings for Drill Bits</b> & <b>Yellow distance rings for Contour routers</b>					\$450.00	
116394	RF Starter Package - End mills & materials used for the fabrication of RF & Microwave boards.					\$450.00	
	Qty.	Milling		Description	Diameter Shank		Length
		(mil)	(mm)		(inches)		(inches)
	3	6 mil	0.15 mm	End Mill (RF) for isolation & film engraving	1/8"		1.42"
	5	10 mil	0.25 mm	End Mill (RF) for isolation & film engraving	1/8"		1.42"
	3	15.7 mil	0.4 mm	End Mill (RF) for isolation & film engraving	1/8"		1.42"
	5	39 mil	1.0 mm	End Mill (RF) for isolation & film engraving	1/8"		1.42"
	2	79 mil	2.0 mm	End Mill (RF) for isolation & film engraving	1/8"		1.42"
2	79 mil	2.0 mm	Long End Mill (RF) for isolation & film engraving	1/8"	1.5"		
116394-1	RF Starter Package (above) with <b>Blue &amp; Violet distance rings RF End Mills &amp; End Mills</b>					\$450.00	

## Materials

### Copper Board Material (Single Sided)

Part Number	Dimensions				Description	Quantity	Price
	Width (inches)	Length (inches)	Thickness (Inches)	CU Thickness (Ounces.)			
106396	9"	12"	0.059"	1 oz	FR4 single sided 1 oz. Copper clad board	10 pack	<b>\$150.00</b>
106396-1	9"	12"	0.059"	1 oz	FR4 single sided 1 oz. Copper clad board <i>Includes predrilled set-pin holes</i>	10 pack	<b>\$160.00</b>
106400	15.5"	18"	0.059"	1 oz	FR4 single sided 1 oz. Copper clad board	10 pack	<b>\$325.00</b>

### Copper Board Material (Double Sided)

Part Number	Dimensions				Description	Quantity	Price
	Width (inches)	Length (inches)	Thickness (inches)	CU Thickness (ounces)			
106395	9"	12"	0.059"	¼ oz	FR4 double-sided copper clad board material. <i>Includes peel off protective foil.</i>	10 pack	<b>\$355.00</b>
106399	15.5"	18"	0.059"	¼ oz	FR4 double-sided copper clad board material. <i>Includes peel off protective foil.</i>	10 pack	<b>\$900.00</b>
106394	9"	12"	0.059"	½ oz	FR4 double-sided copper clad board material.	10 pack	<b>\$80.00</b>
106394-1	9"	12"	0.059"	½ oz	FR4 double-sided copper clad board material, <i>Includes predrilled set-pin holes</i>	10 pack	<b>\$90.00</b>
106398	15.5"	18"	0.059"	½ oz	FR4 double-sided copper clad board material.	10 pack	<b>\$162.00</b>
106397	9"	12"	0.059"	1 oz	FR4 double-sided copper clad board material.	10 pack	<b>\$80.00</b>
106397-1	9"	12"	0.059"	1 oz	FR4 double-sided copper clad board material, <i>Includes predrilled set-pin holes</i>	10 pack	<b>\$90.00</b>
106401	15.5"	18"	0.059"	1 oz	FR4 double-sided copper clad board material.	10 pack	<b>\$210.00</b>
106193	9"	12"	0.059"	2 oz	FR4 double-sided copper clad board material.	10 pack	<b>\$155.00</b>
106193-1	9"	12"	0.059"	2 oz	FR4 double-sided copper clad board material. <i>Includes predrilled set-pin holes</i>	10 pack	<b>\$165.00</b>
106403	9"	12"	0.020"	1 oz	FR4 double-sided copper clad board material.	10 pack	<b>\$90.00</b>
106403-1	9"	12"	0.020"	1 oz	FR4 double-sided copper clad board material. <i>Includes predrilled set-pin holes</i>	10 pack	<b>\$100.00</b>
101047	9"	12"	0.028"	½ oz	FR4 double-sided copper clad board material.	10 pack	<b>\$90.00</b>
101047-1	9"	12"	0.028"	½ oz	FR4 double-sided copper clad board material. <i>Includes predrilled set-pin holes</i>	10 pack	<b>\$100.00</b>
101043	15.5"	18"	0.093"	½ oz	FR4 double-sided copper clad board material.	10 pack	<b>\$532.00</b>



## Underlay Material

Underlay material is used to raise the copper board off the machined table so that when holes are drilled the table is not damaged. LPKF underlay boards are free of phenolic resin or formaldehyde additives. The material is very flat & has a smooth surface with a white, very thin, hard coating on both sides to meet the highest demands for drilling quality. Only conifers are used to manufacture these boards, which are free of carcinogenic oak or beech fibers & free of bark & ashes. The underlay material doesn't absorb moisture & doesn't bend.

Part Number	Dimensions				Description	Quantity	Price
	Width (inches)	Length (inches)	Thickness (mil)	Thickness (mm) +/- 0.1 mm			
106388	9"	12"	79 mil	2 mm*	Underlay Material	10 pack	\$39.00
106389	15.5"	18"	79 mil	2 mm*	Underlay Material	10 pack	\$89.00
107705	9"	12"	98.42 mil	2.5 mm	Underlay Material. Recommended for use with base materials off 40 mils (1 mm) & less.	10 pack	\$49.00
107706	15.5"	18"	98.42 mil	2.5 mm	Underlay Material. Recommended for use with base materials off 40 mils (1 mm) & less.	10 pack	\$99.00

## Vacuum Table Backing Materials

Part Number	Dimensions				Description	Quantity	Price
	Width (inches)	Length (inches)	Thickness (mil)	Thickness (mm)			
114297	7"	17"	197 mil	5 mm*	Honeycomb material for the LPKF ProtoMat <sup>®</sup> H100 vacuum table	4 pack	\$110.00
116148	13.5"	10"	197 mil	5 mm	Honeycomb material for the LPKF ProConduct <sup>®</sup> vacuum table	4 pack	\$110.00
116002	14.5"	16.8"	197 mil	5 mm	White Air Permeable backing material for the LPKF ProtoMat <sup>®</sup> H100 Vacuum Table	2 pack	\$205.00
116099	12.5"	9.5"	197 mil	5 mm	White Air Permeable backing material for the LPKF ProtoMat <sup>®</sup> S-Series Vacuum Table, ProtoLaser S, U3 and R models.	4 pack	\$150.00
10033233	12.5"	9.5"	197 mil	5 mm	White Air Permeable backing material with sinter plate for the ProtoMat <sup>®</sup> D104 and S-Series Vacuum Table. Thickness tolerance $\pm 25\mu\text{m}$ .	1	\$125.00
10055362	12.5"	9.5"	59 mil	1.5 mm	High Precision White Air Permeable backing material for ProtoLaser <sup>®</sup> S4/U4 Vacuum Table.	1	\$39.50

## Multi-Layer material & Accessories



Part Number	Description		Unit Price
119612	<b>Multi Layer Kit for Contac &amp; MultiPress (4 Layer Boards).</b> 10 multi-layer boards (4 layers each)		<b>\$1,170.00</b>
	Qty.	Description	
	10	FR4 double-sided ½ oz. copper clad base material: 12" x 9" x 39 mil (Part # 119574)	
	20	Single Sided laminate material for outer layers, ⅛ oz. Cu w/ protection foil. 12" x 9" x 8 mil (p 119571)	
	40	Prepreg bonding material. 12" x 9" x 6 mil (Part # 119570)	
119613	<b>Multi Layer Kit for Contac &amp; MultiPress (6 Layer Boards).</b> 10 multi-layer boards (6 layers each)		<b>\$1,555.00</b>
	Qty.	Description	
	20	FR4 double-sided ½ oz. copper clad base material: 12" x 9" x 14 mil (Part # 119575)	
	20	Single Sided laminate material for outer layers, ⅛ oz. Cu w/ protection foil. 12" x 9" x 8 mil (p/n119571)	
	60	Prepreg bonding material. 12" x 9" x 6 mil (Part # 119570)	
4	Pressing cardboard cushion 12" x 9" x 26 mil (Part # 119573)		

Part Number	Dimensions			Description	Quantity	Price
	Width (inches)	Length (inches)	Thickness (mil)			
119571	12"	9"	8 mil	Single Sided thin laminate material for outer layers, ⅛ oz. Cu <i>Includes peel off protective foil.</i>	1	<b>\$55.00</b>
119570	12"	9"	6 mil	Prepreg bonding material	1	<b>\$4.00</b>
106858	15"	12.6"	6 mil	Prepreg bonding material for MultiPress II	1	<b>\$5.00</b>
119573	12"	9"	26 mil	Pressing cardboard cushion for MultiPress S	1	<b>\$4.00</b>
106860	16.5"	14.2"	67 mil	Pressing cardboard cushion for MultiPressII	1	<b>\$5.00</b>
119574	12"	9"	39 mil	FR4 double sided ½ oz. CU clad, board material	1	<b>\$16.00</b>
106856	16.5"	14.2"	39 mil	FR4 double sided 1 oz. CU clad, board material	1	<b>\$25.00</b>
108761	16.5"	14.2"	19 mil	FR4 double-sided ½ oz. CU clad board material	1	<b>\$20.00</b>
119575	12"	9"	14 mil	FR4 double-sided ½ oz. CU clad board material	1	<b>\$14.00</b>
120999	12"	9"	67 mil	Pressing Cushion for MultiPress S	1	<b>\$120.00</b>
120345	12"	9"	63 mil	Pressing Metal Sheet for MultiPress S (2 pieces needed)	1	<b>\$160.00</b>
121061				Reinforcing Rings 13mm	500	<b>\$5.50</b>

## Stencil Cutting Polyamide Foil

Part Number	Dimensions		Description	Quantity	Price
	Width (inches)	Length (inches)			
108321	8"	12"	Polyimide stencil foil: compatible w/ S-class ProtoMat® machines	10 pack	<b>\$400.00</b>
108322	12"	16"	Polyimide stencil foil: compatible w/ X/H/M-class ProtoMat® machines	10 pack	<b>\$675.00</b>



## PCB Board Finish Accessories

Part Number	Description	Quantity	Price
07448	Metal Free PCB Cleaning Pads to remove oxidation from the copper surface.	10 pack	\$15.00
120140	Techspray 2108-12S "Turbo-Coat" acrylic conformal coating 12 oz. aerosol	1 can	\$35.00

## PCB Board Adhesive

Part Number	Description	Quantity	Price
106373	Masking Tape to mount board & underlay material to the tabletop of LPKF milling plotters to avoid movement & bending. This tape is safe release. 1" x 60 yards	1 roll	\$6.99
6065	Spray Adhesive to place soft or flexible materials onto the backing material without warping. Boards can be repositioned. Ideal for MW & RF circuits. 15 fl. oz	1 can	\$25.00



## Set Pin System

Part Number	Description	Quantity	Price
108221	Pilot Pins used for alignment to provide registration on all LPKF milling plotters (excluding Hi-P & Hi-P Automill) 3 mm diameter.	10 pack	\$10.00
127151	Long Pilot Pins used for alignment to provide registration on LPKF milling plotters with a vacuum table. 3 mm diameter x 12 mm length (was p/n 100197)	10 pack	\$15.00
100039	Set Pin Strips: red plastic strips used to place alignment (Pilot) pins into the table of all LPKF milling plotters.	10 pack	\$50.00
107188	Insertion Tool for Pilot Pins for the precise insertion of registration (Pilot) pins into the Set Pin Strips.	1	\$52.00

## LPKF ProMask for Solder Mask & ProLegend for Silk Screen



The LPKF ProMask® System is a quick, simple, and cost-effective solution for creating clean electrical insulation between tracks and components. ProMask® completely protects PCBs from environmental corrosion or oxidation, and provides optimal preparation for short-free soldering. The LPKF ProLegend allows users to include a silk screen layer of white text for proper component labeling and placement. The LPKF ProMask/ProLegend® combination gives prototype PCBs the professional finish they deserve and enables the soldering of SMD or conventional components to a clearly labeled PCB with no fear of short circuits. The necessary components for this process are as follows, the LPKF ProMask or LPKF ProLegend System accessory kit for application (p/n 117072 or 117584), the LPKF UV table (p/n 117192), a Laser Printer (minimum 600 dpi), & a hot-air oven (p/n 115877).

Part Number	Description	Price
117072	LPKF ProMask System Includes all necessary tools & materials for the initial set-up for ten 9" x 12" double sided PCB panels	<b>\$875.00</b>
	Qty.   Description	
	10   Foam rollers	
	1   Roller tray & roller handle	
	20   Wooden spatulas	
	1   Cleaning brush	
	1   Developer flask	
	1   Developer dish	
	20   Black/White laser printer films	
	2   PCB handles	
	20   Curing packets (Comp A.); 15 gram packets	
	20   Varnish packets (Comp. B); 5 gram packets	
	1   Cleaner (500 ml) deoxidizer	
	10   Developer 10 gram packets	
	10   Conditioner 7 gram packets (used to neutralize the developer)	
1   1 pair of Heavy duty gloves		
10   Disposable gloves		
117192	<b>LPKF UV Lamp Table</b> used for the exposure process (110/120 V, 60 Hz)	1   <b>\$1,500.00</b>
115877	<b>Hot Air Oven</b> used for curing.	1   <b>\$950.00</b>
117108	<b>LPKF ProMask Consumable Set</b> includes 20 Solder resist packets (Comp A & B), 10 Developer 10.0 Gram packets, 20 Black/White laser printer films, 10 Conditioner 7.0 gram packets, 10 foam rollers, 20 wooden spatulas, & 1 roller tray and handle.	1   <b>\$275.00</b>
117564	<b>LPKF ProLegend Consumable Set</b> includes 20 white identification resist (Comp A & B), 10 Developer 10.0 Gram packets, 20 Black/White laser printer films, 10 Conditioner 7.0 gram packets, 10 foam rollers, 20 wooden spatulas, & 1 roller tray and handle.	1   <b>\$375.00</b>
116061	<b>Replacement Foam Roller</b> for ProMask	1   <b>\$3.50</b>
116062	<b>Replacement Roller Tray and Roller Handle</b> including one foam roller for ProMask	1   <b>\$8.50</b>
120376	<b>LPKF ProMask Green Solder Resist</b> includes 20 packets of both Comp. A (15g) and Comp. B. (5g)	20   <b>\$230.00</b>
120377	<b>LPKF ProLegend White Identification Resist</b> includes 20 packets of both Comp. A (15g) and Comp. B (5g)	20   <b>\$302.00</b>
124855	<b>LPKF ProMask/ProLegend Conditioner</b> 7 gram packets (used to neutralize the developer)	10   <b>\$30.00</b>
124856	<b>LPKF ProMask/ProLegend Developer</b> 10 gram packets	10   <b>\$30.00</b>
115891	<b>ProConduct® &amp; ProMask Cleaner</b> including bottle. (500ml)	1   <b>\$20.00</b>
115891_R	<b>Refill ProConduct® &amp; ProMask Cleaner.</b> (500ml)	1   <b>\$10.00</b>



## Lead-Free Solder Paste

No-clean, lead-free solder paste is a modified rosin based paste, which allows repeatability and consistency. The Patented Nihon Superior nickel stabilized tin/copper eutectic alloy has a melting point of 227 °C.

Part Number	Description	Quantity	Unit Price
220191	Lead-free solder paste, 250 gram jar	1	\$80.00
129360	Lead-free solder paste, 5cc syringe, for use with ProtoPlace S/S63 & S103 dispensing unit	1	\$30.00
SET-10-1012	SmoothFlow Tapered Tips (red), (Dispensing needle for S63/S103), pkg of 5	1	\$10.00



## LPKF EasyContac Manual Through-Hole Plating

Part Number	Description	Unit Price																		
110914	<p><b>LPKF Easy Contac</b> for prototype circuit boards with less than 50 through-plated holes &amp; PCB repairs. All necessary parts are conveniently packed in a handy box including, rivets of a unique copper alloy that are placed in the hole by hand &amp; riveted with the help of a punch tool. The hole can be populated with a component or lead if required.</p> <table border="1"> <thead> <tr> <th>Qty.</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1000</td> <td>EasyContac Rivet 0.8 mm/31 mil outer diameter: 0.6 mm/23 mil inner diameter (Part # 110907)</td> </tr> <tr> <td>1000</td> <td>EasyContac Rivet 1.0 mm/39 mil outer diameter: 0.8 mm/31 mil inner diameter (Part # 110758)</td> </tr> <tr> <td>1000</td> <td>EasyContac Rivet 1.4 mm/55 mil outer diameter: 1.0 mm/39 mil inner diameter (Part # 110906)</td> </tr> <tr> <td>1000</td> <td>EasyContac Rivet 1.6 mm/63 mil outer diameter: 1.2 mm/47 mil inner diameter (Part # 110759)</td> </tr> <tr> <td>1</td> <td>EasyContac Rivet Punch Tool including tool tip A (used for 0.8 mm &amp; 1.0 mm size (Part # 110760)</td> </tr> <tr> <td>1</td> <td>Tool Tip B used for 1.4 mm &amp; 1.6 mm rivet sizes (Part # 110911)</td> </tr> <tr> <td>1</td> <td>Easy Contac Anvil (Part # 110821)</td> </tr> <tr> <td>1</td> <td>Easy Contac Tweezers (Part # 110757)</td> </tr> </tbody> </table>	Qty.	Description	1000	EasyContac Rivet 0.8 mm/31 mil outer diameter: 0.6 mm/23 mil inner diameter (Part # 110907)	1000	EasyContac Rivet 1.0 mm/39 mil outer diameter: 0.8 mm/31 mil inner diameter (Part # 110758)	1000	EasyContac Rivet 1.4 mm/55 mil outer diameter: 1.0 mm/39 mil inner diameter (Part # 110906)	1000	EasyContac Rivet 1.6 mm/63 mil outer diameter: 1.2 mm/47 mil inner diameter (Part # 110759)	1	EasyContac Rivet Punch Tool including tool tip A (used for 0.8 mm & 1.0 mm size (Part # 110760)	1	Tool Tip B used for 1.4 mm & 1.6 mm rivet sizes (Part # 110911)	1	Easy Contac Anvil (Part # 110821)	1	Easy Contac Tweezers (Part # 110757)	\$700.00
Qty.	Description																			
1000	EasyContac Rivet 0.8 mm/31 mil outer diameter: 0.6 mm/23 mil inner diameter (Part # 110907)																			
1000	EasyContac Rivet 1.0 mm/39 mil outer diameter: 0.8 mm/31 mil inner diameter (Part # 110758)																			
1000	EasyContac Rivet 1.4 mm/55 mil outer diameter: 1.0 mm/39 mil inner diameter (Part # 110906)																			
1000	EasyContac Rivet 1.6 mm/63 mil outer diameter: 1.2 mm/47 mil inner diameter (Part # 110759)																			
1	EasyContac Rivet Punch Tool including tool tip A (used for 0.8 mm & 1.0 mm size (Part # 110760)																			
1	Tool Tip B used for 1.4 mm & 1.6 mm rivet sizes (Part # 110911)																			
1	Easy Contac Anvil (Part # 110821)																			
1	Easy Contac Tweezers (Part # 110757)																			



## Expendables for EasyContac

Part Number	Rivet Diameter		Description	Quantity	Price
	Outer (mm/mil)	Inner (mm/mil)			
110907	0.8 mm / 31 mil	0.6 mm / 23 mil	EasyContac Rivets	1000 pack	\$115.00
110758	1.0 mm / 39 mil	0.8 mm / 31 mil	EasyContac Rivets	1000 pack	\$115.00
110906	1.4 mm / 55 mil	1.0 mm / 39 mil	EasyContac Rivets	1000 pack	\$115.00
110759	1.6 mm / 63 mil	1.2 mm / 47 mil	EasyContac Rivets	1000 pack	\$115.00
110760	EasyContac Center Punch for semiautomatic forming of the rivets including tool tip A			1	\$74.00
110971	EasyContac Tool Tip A for punching rivets with 0.8 mm & 1.0 mm diameter			1	\$40.00
110911	EasyContac Tool Tip B for punching rivets with 1.4 mm & 1.6 mm diameter			1	\$40.00
110821	EasyContac Anvil for stable support when punching			1	\$30.00
110757	EasyContac Tweezers			1	\$18.00



## LPKF ProConduct® Through-Hole Plating Process

An easy to use parallel through-hole plating process which applies an even layer of conductive paste to the through-holes of printed circuit boards, providing & electrical connection to double sided & multilayer PCB's. The necessary components for this process are as follows, a honeycomb surface vacuum table, dust extraction unit, adhesive foils, conductive paste, hot-air oven as well as an accessory kit for the foil application & mounting.

Part Number	Description	Price	
215790	<b>LPKF ProConduct® Starter Kit for use with included stand alone vacuum table.</b> Includes necessary tools & materials for the initial set-up as well (hot air oven and vacuum sold separately) as both consumable packages for ten 9" x 12" double sided PCB panels	<b>\$2,100.00</b>	
	Qty.   Description		
	1   LPKF ProConduct® Stand Alone Vacuum Table		
	20   Adhesive protection foils		
	10   Absorbent fleece backing sheets		
	20   LPKF proprietary conductive paste 2.5 gram packets		
	5   FR4 double-sided ½ oz. copper clad board material 9" x 12"		
	5   FR4 double-sided 1 oz. copper clad board material 9" x 12"		
	1   Squeegee		
	1   Brush		
	1   Roller		
	1   PCB Cleaning Pad		
	1   ProConduct® Cleaner & Spray Container		
1   1 pair of Heavy Duty Gloves & 100 disposable Gloves			
115790	<b>LPKF ProConduct® System for LPKF ProtoMat® machines with a vacuum table (S-Series, H100 &amp; D104).</b> Includes necessary tools and materials (hot air oven, vacuum, and vacuum table sold separately) minus the stand alone vacuum table.	1	<b>\$1,000.00</b>
115878	<b>LPKF ProConduct® Desktop Vacuum table</b>	1	<b>\$1,200.00</b>
114647-i	<b>Dust Extraction Unit/Vacuum</b> for stand alone vacuum table.	1	<b>\$875.00</b>
115877	<b>Hot Air Oven</b> used for curing.	1	<b>\$950.00</b>
116159	<b>LPKF ProConduct® Consumable Foil Set</b> includes 20 Adhesive Protection Foils, 10 Absorbent fleece backing sheets, & 10 vacuum table covers for concentration of suction.	1	<b>\$150.00</b>
116110	<b>LPKF ProConduct® Consumable Paste</b> includes 20, 2.5 gram packets of LPKF's proprietary conductive epoxy.	1	<b>\$275.00</b>
118209	<b>LPKF ProConduct® Protection Film</b> adhesive surface foils 9" x 12"	20	<b>\$90.00</b>
115891	<b>LPKF ProConduct® &amp; ProMask Cleaner</b> including bottle.	1	<b>\$20.00</b>
115891_R	<b>Refill ProConduct® &amp; ProMask Cleaner.</b> (500ml)	1	<b>\$10.00</b>

## Electroplating System Consumable

Part Number	Description	Quantity	Price
108764	One year supply of plating chemicals for MiniContac I, II, III, RS & Contac S4 systems, including Cleaner 110, Cleaner 210, Activator 310, Copper Plater 400 & Shine 400.	1 set	\$980.00
106920	One year supply of plating chemicals for Contac I, II, III & RS systems, including Cleaner 110, Cleaner 210, Activator 310, Copper Plater 400 & Shine 400.	1 set	\$1,990.00
107914	Cleaner 110	1 quart	\$25.00
107915	Cleaner 210	1 quart	\$25.00
107916	Activator 310	1 quart	\$95.00
102439	Copper Plater 400	1 quart	\$30.00
107917	Shine 400	1 quart	\$55.00
10062871	Liquid Tin for LPKF Contac S4, for closed and solderable surface finish; 5 liters	1	\$485.00
10012137	ViaCleaner with Side Container for MiniContac RS/older models; includes one (1) set of consumables for ViaCleaner sufficient for 10x PCB's 9"x12"	1	\$1,370.00
10013451	Set of Chemicals for ViaCleaner side container; consisting of 4 liters of Cleaner chemicals & Activator powder; sufficient for 10x PCB's 9"x12"	1 set	\$635.00
SET-10-1123	Set of Chemicals for ViaCleaner bath in Contac S4; consisting of 5 liters of Cleaner chemicals & Activator powder; sufficient for 10x PCB's 9"x12"	1 set	\$635.00
127028	Anode set for MiniContac RS	1 set	\$925.00



## Dust Extraction System & Supplies

Part Number	Description	Unit Price
114647-i	<b>Dust Extraction System (Jetstream) for the ProConduct<sup>®</sup> Vacuum Table &amp; all LPKF ProtoMat<sup>®</sup> models except H100 and D104</b> Whisper quiet (62 dba), variable speed, dust extraction system...0-140 CFM airflow & a highly effective 2 stage filter system; 1 <sup>st</sup> stage: Multi-layered disposable bag 2 <sup>nd</sup> stage: HEPA filter allowing > 99.97% dust capture efficiency. This system is switched on/off directly by the LPKF ProtoMat <sup>®</sup> , synchronized with the milling motor to optimize equipment life & can also be used independent of the LPKF ProtoMat <sup>®</sup> .	\$875.00
124391-i	<b>Dust Extraction System for ProtoMat<sup>®</sup> D104 and ProtoLaser<sup>®</sup> Series</b> Includes: Antimicrobial, HEPA, ASHRAE pleated and deep chemical air filters. Built in Silencers (~62 dB A at full speed). Operates with 110V 60Hz power and provides up to 282 CFM air flow.	\$3,500.00
AB134	<b>Dual Infinity motors for 120V CSA600 vacuums P/N 124391-i</b>	\$420.00
AG143	<b>Dust Extraction Bags</b> for both the LPKF ProtoMat <sup>®</sup> . H100 dust extraction (no latch on the top) (model LV200). & Jetstream dust extraction units. (p/n 114647-i) (5 pack)	\$63.00
AB112	<b>Dust Extraction Motor Brush Kit</b> for both the LPKF ProtoMat <sup>®</sup> . H100 dust extraction unit (no latch on the top) (model LV200) - requires 2 kits & Jetstream dust extraction units. (p/n 114647 (non i-series)) - requires 1 kit. 2 brushes included in each kit. (Non i-series vacuums)	\$25.00
F160	<b>HEPA filter</b> for Jetstream dust extraction unit. Fits p/n 114647.	\$72.00
F164	<b>Filter # 2 – Deep Pleated Pre-Filter</b> for the LPKF ProtoMat <sup>®</sup> .H100 dust extraction unit with a latch on the top (for p/n 220126) – 2 pack.	\$125.00
F074	<b>Filter # 3 – HEPA Filter</b> for the LPKF ProtoMat <sup>®</sup> . H100 dust extraction unit with a latch on the top (p/n 220126). Also for ProtoLaser <sup>®</sup> (p/n 124391)	\$142.00
AB011	<b>Dust Extraction Motor Brush Kit</b> for the LPKF ProtoMat <sup>®</sup> .H100 dust extraction unit with a latch on the top (for p/n 220126) – set of 4 brushes and 2 pads. 1 kit required	\$37.00
F073	<b>Filter # 2 -6" Disposable pleated</b> filter for the LPKF ProtoLaser <sup>®</sup> (p/n 124391) and MicroLine UV (p/n 210626) dust extraction units. 2 pack	\$120.00
AG128	<b>Filter #1 high capacity prefilter dust extraction bags</b> for the LPKF ProtoLaser <sup>®</sup> (p/n 124391) and MicroLine UV (p/n 210626) dust extraction units. 5 pack	\$140.00
AG110	<b>Filter #4 chemical filter replacement carbon</b> for the LPKF ProtoLaser <sup>®</sup> (p/n 124391) and MicroLine UV (p/n 210626) dust extraction units.	\$155.00
AB030	<b>Dust Extraction Motor Brush Kit</b> for the LPKF ProtoLaser <sup>®</sup> (p/n 124391) set of 4 brushes and filter pad. Requires 1 kit	\$95.00
109028	<b>Variable Speed Vacuum Dust Extraction Bags</b> (pkg. of 5) (fits p/n 050114)	\$35.00
109106	<b>Filter Queen Vacuum Dust Extraction Bags</b> (pkg. of 12)	\$10.00



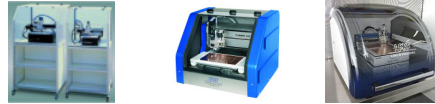
## Options & Upgrades

Part Number	Description	Unit Price
106007	<b>Pneumatic Z Stroke &amp; Height Extension</b> allows greater Z-axis movement of up to 14 mm. This option is available for all older LPKF circuit board plotters in the 9X, C and M Series except the LPKF ProtoMat <sup>®</sup> 95s & 95s/II. Option performed at the LPKF factory. Requires compressed air (min 87 psi)	\$2,500.00
107149	<b>Pneumatic Working Depth Limiter</b> rides on an air cushion, ideal for sensitive materials. Option performed at the LPKF factory. Requires compressed air (min 87 psi)	\$1,800.00
113421	<b>Brush Head for "S" and "X" Series</b> used during rework procedures, helps protect placed components, while maintaining a sufficient low pressure region for the vacuum system to remove debris from the area.	\$55.00
115789	<b>Automatic Fiducial Camera System for S42/S62/S100 LPKF ProtoMat<sup>®</sup> systems only.</b> Allows automatic fiducial recognition, eliminating user interaction, while simplifying the board alignment process. Option includes camera, mounting parts & cables.	\$4,000.00
127689	<b>Automatic Fiducial Camera for ProtoMat S43 only.</b> Allows automatic fiducial recognition, eliminating user interaction, while simplifying the board alignment process. Option includes camera, mounting parts & cables.	\$3,995.00
127781	<b>LPKF Status Light for S43/S63/S103 LPKF ProtoMat<sup>®</sup> systems only.</b> Connects to the LPKF ProtoMat <sup>®</sup> to indicate status of the machine visible across a busy factory floor or in other environments where constant close monitoring is impractical	\$745.00
120744	<b>Upgrade MultiPress S manual to auto.</b> hydraulic unit: automatic hydraulic unit for LPKF MultiPress S	\$6,500.00
107050	<b>Mobile Stand for MultiPress. Dimensions: 39.5 W x 29.5 D x 32 H</b>	\$2,850.00
115693	<b>LPKF S62/S100 Vacuum Table</b> - For securing board material to the machine without the need for registration pins. Ideal for flex circuits, thin films, and reworking existing boards.	\$2,200.00
117048	<b>LPKF S42 Vacuum Table</b> - For securing board material to the machine without the need for registration pins. Ideal for flex circuits, thin films, and reworking existing boards.	\$1,650.00
127688	<b>LPKF S43/S63 Vacuum Table</b> - For securing board material to the machine without the need for registration pins. Ideal for flex circuits, thin films, and reworking existing boards.	\$1,750.00
127700	<b>Upgrade Kit S43 - S63</b> Includes: 60k rpm spindle motor, automatic tool change, 2.5D milling, fiducial camera, solder paste dispenser.	\$10,500.00
127701	<b>Upgrade Kit S43 - S103</b> Includes: 100k rpm spindle motor, automatic tool change, 2.5D milling, fiducial camera, vacuum table, solder paste dispensing, pneumatic working depth limiter	\$18,000.00
127702	<b>Upgrade Kit S63 - S103</b> Includes: 100k rpm spindle motor, vacuum table, pneumatic working depth limiter	\$10,500.00

## Compressors

Part Number	Description	Unit Price
104864	Compressor with Filter – 10.6 CFM Air Specs: 10.6 CFM, 130 PSI, 9 bar. Power Requirements: 220V/50-60 Hz <b><i>This model recommended for the ProtoLaser S or ProtoLaser U3</i></b>	\$4,900.00
104863	Silent Compressor with Filter – 8.4 CFM Air Specs: 8.4 CFM, 120 PSI, 8 bar. Power Requirements: 220 V/50-60 Hz <b><i>This model recommended for the ProtoMat H100, S103, and D104</i></b>	\$3,900.00
101092	Silent Compressor with Filter – 2.1 CFM Air Specs: 2.1 CFM, 120 PSI, 8 bar. Power Requirements: 115 V/50-60 Hz or 220 V/50-60 Hz <b><i>This model recommended for the ProtoMat S63 solder paste dispensing feature and combined operation of the ProtoPlace S or ProtoPlace BGA.</i></b>	\$2,500.00
114090	Mini Compressor Air Specs: 0.7 CFM, 120 PSI, 8 bar. Power Requirements: 115 V/50-60 Hz or 220 V/50-60 Hz <b><i>This model is recommended for the ProtoMat S63 solder paste dispensing feature or ProtoPlace S or ProtoPlace BGA. Not recommended for running multiple systems at the same time.</i></b>	\$950.00





## Acoustic Cabinets

The acoustic cabinet provides protection of the plotter itself; as well as reduces noise and dust emissions to ensure comfortable operation in your lab or office.

<b>10060031</b>	<b>Table Top Acoustic Cabinet for ProtoMat E-Series</b> reduces noise and dust emissions.	<b>\$1,500.00</b>
<b>117750</b>	<b>Table Top Acoustic Cabinet for S42</b> reduces noise and dust emissions.	<b>\$1,610.00</b>
<b>114140</b>	<b>Large Acoustic Cabinet</b> (For LPKF ProtoMat <sup>®</sup> M30/s, M60, 95s, 95s/II, and H100 models). Acoustic Cabinet- 32" x 42" x 55" 248 lbs with packaging included	<b>\$5,490.00</b>

## Maintenance & Service

You may either ship your machine to the LPKF factory in Tualatin, OR, or an LPKF technician will travel to your site to service your LPKF circuit board plotter. We recommend maintenance once per year (date TBD by LPKF). This service includes cleaning, lubrication, & calibration of all rods & lead screws. Our technician will also check & adjust the alignment of the registration system, (includes new INI files) & check alignment.

Part Number	Description	Unit Price
<b>221001</b>	<b>In-House (LPKF factory)</b> LPKF circuit board plotter system	<b>\$700.00</b>
<b>235036</b>	<b>First day Customer On-Site Maintenance/Service at your facility</b> by a USA-based factory engineer. Includes travel expenses and airfare to Canada/Mexico. 1-8 hours. Overtime not included.	<b>\$2,900.00</b>
<b>235037</b>	<b>Each Additional Day Customer On-Site Maintenance/Service</b> (In Canada/Mexico). 1-8 hours. Overtime not included.	<b>\$1,700.00</b>
<b>225036</b>	<b>First day Customer On-Site Maintenance/Service at your facility</b> by a USA-based factory engineer. Includes travel expenses and airfare within the USA. 1-8 hours. Overtime not included.	<b>\$2,750.00</b>
<b>225037</b>	<b>Each Additional Day Customer On-Site Maintenance/Service</b> (In USA). 1-8 hours. Overtime not included.	<b>\$1,600.00</b>

In the special case that our service technicians find necessary repairs on your system that would exceed a maintenance job, we will make a recommendation on any hardware upgrade or repair separately. Such repairs would be subject to separate authorization & billing.

## Maintenance Supplies

Part Number	Description	Unit Price
<b>10058713</b>	<b>Lubricant for lead screws</b> used with the LPKF ProtoMat <sup>®</sup> 91s, 92s, 91s/HS, 91s/VS, 93s, C30, C30/s, C60, C100/HF, & S42, S62, S100, S43, S63, S103, E33, X60 and D104.	<b>\$42.00</b>
<b>106976</b>	<b>Lubricant for ball bearing</b> lead screws used with the LPKF ProtoMat <sup>®</sup> 95, 95s-II, Automill & Hi-P, & H100	<b>\$32.00</b>
<b>115513</b>	<b>ProtoMat<sup>®</sup> S42 &amp; S62 foot for working depth limiter</b>	<b>\$20.00</b>
<b>117228</b>	<b>ProtoMat<sup>®</sup> S100 foot for working depth limiter</b>	<b>\$150.00</b>
<b>125982</b>	<b>ProtoMat E33 &amp; S43 maintenance: Collar ring for working depth limiter</b>	<b>\$3.50</b>
<b>10041281</b>	<b>Working air bearing depth limiter foot for S103 for s/n 2524000525 and higher</b>	<b>\$320.00</b>
<b>10041587</b>	<b>Upgrade kit for ProtoMat S103 to aluminum air bearing working depth limiter</b>	<b>\$360.00</b>
<b>10044564</b>	<b>Working depth limiter foot for S63 s/n 2624001089 and higher or S103 s/n 2524000525 and higher</b>	<b>\$195.00</b>
<b>10041583</b>	<b>Upgrade kit for ProtoMat S63 to aluminum working depth limiter</b>	<b>\$260.00</b>
<b>122430</b>	<b>ProtoMat<sup>®</sup> S62 collet key</b>	<b>\$17.00</b>
<b>126869</b>	<b>ProtoMat<sup>®</sup> S62 &amp; S100 collet brush</b>	<b>\$2.50</b>
<b>127757</b>	<b>ProtoMat<sup>®</sup> E33 T6 Torx screw driver for collet set screw</b>	<b>\$15.00</b>
<b>10000104</b>	<b>ProtoMat<sup>®</sup> E33 set screw for tool change</b>	<b>\$0.50</b>
<b>128796</b>	<b>ProtoMat S63, S103 spare part: Collet Insertion/Removal Tool</b>	<b>\$58.00</b>
<b>SET-10-1042</b>	<b>Maintenance Set for ProtoMat S43</b>	<b>\$90.00</b>
<b>SET-10-1098</b>	<b>Maintenance Set for ProtoMat S63 w/ aluminum foot</b>	<b>\$225.00</b>
<b>SET-10-1099</b>	<b>Maintenance Set for ProtoMat S103 w/aluminum foot</b>	<b>\$375.00</b>
<b>SET-10-1063</b>	<b>Upper &amp; Lower stainless clamp tool holder for S63, S103</b>	<b>\$148.00</b>
<b>10002467</b>	<b>Foam for upper and lower tool bar; set of 15 for S63/S103</b>	<b>\$15.00</b>
<b>106001</b>	<b>Black FR4 for Scan Field Calibration (each)</b>	<b>\$30.00</b>

## Product Training

LPKF Laser & Electronics recommends no more than 2-3 students.

Part Number	Description	Unit Price
235036	<b>First day Customer On-Site Training for two people at your facility</b> by a USA-based factory engineer. Includes travel expenses and airfare to Canada/Mexico. 1-8 hours. Overtime not included.	<b>\$2,900.00</b>
235037	<b>Each Additional Day Customer On-Site Training (for two people at your facility in Canada/Mexico).</b> 1-8 hours. Overtime not included.	<b>\$1,700.00</b>
225036	<b>First day Customer On-Site Training for two people at your facility</b> by a USA-based factory engineer. Includes travel expenses and airfare within the USA. 1-8 hours. Overtime not included.	<b>\$2,750.00</b>
225037	<b>Each Additional Day Customer On-Site Training (for two people at your facility within the USA).</b> 1-8 hours. Overtime not included.	<b>\$1,600.00</b>
223002	<b>Remote phone training and support - per hour</b> (charges are acquired in 15 minute increments)	<b>\$120.00</b>
11	<b>Individual Factory Training (per day)</b> Cost is per day for two people at LPKF facility in OR. Does not include expenses. Usually requires 2 days to complete training.	<b>\$990.00</b>

## Limited Extended Warranty

Extends your current warranty for one year and is renewable on a yearly basis. Includes, repair of almost all system components (excluding the milling motor and/or laser source), one on-site maintenance visit: our technician will fly to your site (air fare is included in the price) and align, calibrate, and lubricate your machine. While on site, the technician can also answer any questions you may have and provide additional system training you might need. This option must be purchased before your current warranty expires.

Part Number	Description	Unit Price
211001	<b>Limited Extended Warranty for E33/E34 (does not include on-site visit)</b>	<b>\$1,000.00</b>
211007	<b>Limited Extended Warranty for E44 (does not include on-site visit)</b>	<b>\$1,250.00</b>
211002	<b>Limited Extended Warranty for S43 non-auto tool change systems</b>	<b>\$2,500.00</b>
211003	<b>Limited Extended Warranty for X60 and S-Series auto tool change systems</b>	<b>\$3,500.00</b>
211004	<b>Limited Extended Warranty for H100 and D104 auto tool change systems</b>	<b>\$5,500.00</b>
211005	<b>Limited Extended Warranty for ProtoLaser S (includes up to 2 days on-site)</b>	<b>\$12,000.00</b>
211008	<b>Limited Extended Warrant for ProtoLaser S4 (includes up to 2 days on-site)</b>	<b>\$13,500.00</b>
211006	<b>Limited Extended Warranty for ProtoLaser U3 (includes up to 2 days on-site)</b>	<b>\$15,000.00</b>
211009	<b>Limited Extended Warranty for ProtoLaser U4 (includes up to 2 days on-site)</b>	<b>\$16,500.00</b>
211012	<b>Limited Extended Warranty for ProtoLaser R (includes up to 2 days on-site)</b>	<b>\$27,500.00</b>
211010	<b>Limited Extended Warranty for Laser Welders; includes ALL system components; excluding consumables and custom-made tooling (Includes up to 2 days on-site)</b>	<b>\$25,000.00</b>
211011	<b>Limited Extended Warranty for StencilLaser G6060/G6080; includes ALL system components; consumables excluded for replacement outside on-site visit (includes up to 2 days on-site)</b>	<b>\$20,000.00</b>
SA-10-1359	<b>Limited Extended Warranty for MicroLine (includes up to 2 days on-site)</b>	<b>\$18,000.00</b>
SA-10-1375	<b>Limited Extended Warranty for MicroLine 5000 (includes up to 2 days on-site)</b>	<b>\$30,000.00</b>

## LPKF TERMS AND CONDITIONS

A copy of LPKF standard terms and conditions is available upon request, or may be downloaded from the website at: [http://www.lpkfusa.com/downloads/terms\\_and\\_conditions.pdf](http://www.lpkfusa.com/downloads/terms_and_conditions.pdf)