PCB Drills Application Chart

IND-SPHINX
PCB DRILLS | PCB ROUTERS

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Base Materials

S.No	Article	Description		Dia Range mm	D/S and MLB 4 layers	MLB 6-8 layers	MLB ≥ 10 layers	MLB ≥ 70µm Copper	Back panels	Flex/ Flexrigid	Polymide	Teflon	Metal core	Thermount Aramide	PMMA/ Plexiglass	High Tg >170Tg	Rogers Material	BGA	Remarks
1	D840	Multilayer drill	Undercut drill	0.050-1.15	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Excellent hole wall quality and better chip transport
2	D520			0.10-0.65	●	●	●	●	●	○	○	◒	○	◒	◒	●	○	●	Excellent hole registration and better hole quality
3	D620			0.15-0.65	●	●	●	●	●	○	○	○	○	○	○	●	◒	●	Good breakage resistance and better registration
4	D645			0.15-0.50	●	●	●	●	◒	◒	◒	●	●	●	◒	●	◒	●	High performance drill, high stacks, excellent positional accuracy
5	D635			0.70-3.175	●	●	◒	◒	◒	◒	◒	●	◒	●	◒	●	◒	◒	Recommend for all multilayer boards
6	D835	Standard drill	Common shank	0.20-0.65	●	◒	◒	◒	◒	◒	●	◒	◒	◒	◒	●	●	◒	Universal drill for all standard applications
7				0.70-3.175	●	◒	◒	◒	◒	◒	◒	◒	◒	◒	◒	●	●	◒	
8			Inverse shank	3.20-8.00	●	●	●	●	●	◒	◒	◒	◒	◒	◒	●	●	◒	
9	D534	Special drill	Inverse shank	3.20-8.00	●	●	●	●	●	◒	◒	◒	◒	◒	◒	●	●	◒	For high performance drilling in PCB and high Tg boards for better registration and making precise slots
10	D532			3.20-8.00	●	●	●	●	●	◒	◒	◒	◒	◒	◒	●	●	◒	High performance drill for efficient chip removal
11	D546	Slot drill	Standard	0.30-3.175	●	●	◒	◒	◒	◒	◒	◒	◒	◒	◒	●	◒	◒	For slot drilling
12	D545		Undercut	0.30-3.175	●	●	○	◒	◒	◒	◒	◒	◒	◒	◒	●	○	○	For slot drilling
13	D551	Micro via drill	Conical	0.075-0.40	○	●	●	●	●	◒	◒	◒	◒	●	○	○	○	○	For making micro through holes and blind holes

Description :
- ● Optimal
- ◒ Suitable
- ○ Not Recommended

Formula :
- Cutting speed Vc : $\frac{\pi dn}{1000}$ m/min
- Chip load f : $\frac{F}{n}$ mm
- Feed rate F : f x n mm/min
- d : Drill dia.
- n : Spindle speed in rpm