






PCB Product Range



**Tools for NexGen and Cutting Edge
PCB Manufacturing**

PCB Product Range

| PRODUCT | DIA RANGE mm | ARTICLE | APPLICATION |
|---|--|-----------------------|--|
|  Undercut Drills Diamond Coated | 0.20 - 0.45 | X637D | Drilling of IMS PCBs, Halogen free laminates, FR4- High Tg ≥ 170°C |
|  Undercut Drills Diamond Coated | 0.50 - 1.25 | X638D | Drilling of IMS PCBs and laminates with ceramic fillers Rogers, ISOLA 620 |
|  Standard Drills Diamond Coated | 1.30 - 3.175 | X835D | Drilling of IMS PCBs and laminates with ceramic fillers High Tg material ≥ 170°C |
|  Inverse Drills Diamond Coated | 3.20 - 6.50 | X534D | Drilling of IMS PCBs and laminates with ceramic fillers Rogers, ISOLA 620 |
|  V Score Routers Diamond Coated | 2.00 / 2.40 / 3.175 | X845V | Suitable for scoring and chamfering in IMS PCBs, High Tg material and laminate with fillers |
|  Chamfering Cutters Diamond Coated | 6.00 / 6.35 45°/60°/75°/90°/120°/140° | X681C / X688C | Suitable for scoring and chamfering in IMS PCBs, High Tg material and laminate with fillers |
| Multilayer ultra mICRO Drills | 0.050 - 0.090 | D840 | Drilling small through holes, via holes and Foils & inner layers |
| Multilayer Super mICRO Drills | 0.10 - 0.19 | D840 | Drilling small through holes and via holes in High Tg, FR-4 and MLB |
| Multilayer Drills | 0.20 - 1.15 | D840 | Drilling multi layers boards, thick panels and flexible boards |
| mICRO Drills | 0.20 - 0.65 | D835 | Drilling small PTH holes in DS and 4-6 layers boards |
| Standard Drills | 0.70 - 3.175 | D835 | Drilling in all standard PCBs |
| Standard Inverse Drills | 3.20 - 7.50 | D835 | Drilling in all standard PCBs |
| High Performance Inverse Drills | 3.20 - 7.50 | D534 | High performance drilling in all PCBs and High Tg boards for better registration • Drilling in IMS PCBs |
| High Performance Chip Breaker Inverse Drills | 3.20 - 7.50 | D532 | High performance drilling in all standard PCBs and High Tg boards for better registration and efficient chip removal |
| Center Drills | 0.30 - 0.60 | D580 | For countersinking in FR-4, Plastics, Inox Stainless steel, MS, Brass, Copper and Aluminium. |
| Multilayer Undercut Drills | 0.15 - 0.65 | D620 | Drilling of high layer boards, thick panels, High Tg and High Cu content laminates |
| Undercut Drills | 0.20 - 2.50 | D635 | Drilling of high layer boards and High Tg laminates |
| Slot Drills | 0.30 - 3.175 | D546 | Drilling PTH slots in all standard PCBs |
| mICRO Via Drills | 0.075 - 0.30 | D550 | Drilling micro via and blind holes |
| Tapered mICRO Via Drills | 0.075 - 0.40 | D551 | Drilling of inner layers and foils |
| Stack Hole Drills | 3.15 / 3.175 | D835 | Drilling on PCB stack |
| Fixture Drills | 0.70 - 3.175 | D835 | Drilling of fixtures for BBT (Bare Board Testing) |
| Isolation Path Cutter (30°, 60°, 90°) | 0.75 - 1.60 | G842 / G843 / G844 | Used for isolation path cutting in prototype PCB for R&D and training institutions. |

ALSO AVAILABLE:

PCB Specials

V-Scoring Cutter (Discs type)

Tools for Metal based PCBs

OTHER ROUTERS

KEY TO POINT GEOMETRY:

FT : FISH TAIL

DP : DRILL POINT

SE : SAFE END

FE : FLAT END

- * Article are on request (non-stock)

- Other special geometry Routers and End Mills on request

| PRODUCT | DIA RANGE mm | ARTICLE | APPLICATION |
|---|-------------------------------|---|---|
|  Diamond Cut Routers Diamond Coated | 1.20 - 3.175 | X626R Updraft | FT <ul style="list-style-type: none"> • Depaneling of assembled PCBs • Suitable for Halogen free, High Tg material $\geq 170^{\circ}\text{C}$ and laminates with fillers |
|  Drill Point Routers Diamond Coated | 0.80 - 3.00 | X729R Updraft | DP <ul style="list-style-type: none"> • Depaneling of assembled PCBs • Suitable for Halogen free, High Tg material $\geq 170^{\circ}\text{C}$ and laminates with fillers |
|  Chip Breaker Routers Diamond Coated | 1.10 - 3.175 | X738R (Updraft) X727R (Downdraft) | FT <ul style="list-style-type: none"> • Depaneling of assembled PCBs • Routing of inner slotting in the PCBs • Suitable for Halogen free, High Tg material $\geq 170^{\circ}\text{C}$ and laminates with fillers |
|  2-Flute Routers Diamond Coated | 0.30 - 3.175 | X830R / X731R Updraft | SE <ul style="list-style-type: none"> • Depaneling of assembled PCBs • Routing of inner and outer contours of IMS PCBs, Aluminium, Copper laminate with ceramic |
|  2-Flute Routers Diamond Coated | 0.40 - 3.00 3.00 - 6.00 | X224R Updraft | SE FE <ul style="list-style-type: none"> • Routing of inner and outer contours of Aluminum and Copper based IMS PCBs |
|  1-Flute Routers Diamond Coated | 0.80 - 3.00 | X926R Updraft | SE <ul style="list-style-type: none"> • Routing of inner and outer contours of IMS PCBs |
|  1-Flute Routers Diamond Coated | 2.00 - 6.00 | X924R Updraft | SE <ul style="list-style-type: none"> • Routing of inner and outer contours of IMS PCBs, Aluminium, Copper PCBs |
| Dia Cut Routers | 0.70 - 3.175 | P626 (Updraft) RHRC P627* (Downdraft) LHRC | FT <ul style="list-style-type: none"> • Depaneling of all assembled PCBs |
| Hi-Feed Dia Cut Routers RHRC | 0.50 - 2.50 | P660 / P661 Updraft | FT <ul style="list-style-type: none"> • Routing of PCBs with aggressive feed rates with rugged spindles |
| Dia Cut Routers RHRC | 0.80 - 6.00 | P666 Updraft | FT <ul style="list-style-type: none"> • Routing of inner slotting in the PCBs • Suitable for Halogen free, High Tg material $\geq 170^{\circ}\text{C}$ and laminates with fillers |
| High Performance Depaneling Routers | 1.40 - 2.50 | P650 Updraft | FT <ul style="list-style-type: none"> • Routing / Depaneling PCBs in EMS industries |
| Chip-Breaker Routers | 0.40 - 3.175 | P726 (Updraft) RHRC P727* (Downdraft) LHRC | FT <ul style="list-style-type: none"> • Routing of PCBs with better edge finish under efficient vacuum conditions • Depaneling of assembled PCBs with better edge finish under efficient vacuum conditions and less deflection |
|  High Precision Chip-Breaker Routers | 0.80 - 2.40 | P728 Updraft | FT <ul style="list-style-type: none"> • Longer tool life with better dimensional control on PCB • Close process capability |
| Chip-Breaker Routers RHRC | 0.40 - 3.175 | P729* Updraft | DP <ul style="list-style-type: none"> • Routing of PCBs with better edge finish and routing inner contours with less deflection |
| High Performance Chip-Breaker Routers RHRC | 0.40 - 3.175 | P732 Updraft | FT <ul style="list-style-type: none"> • Routing of inner slots and complex contours in PCBs |
| Chip-Breaker Routers RHRC | 0.40 - 3.175 | P738 Updraft | FT <ul style="list-style-type: none"> • Routing of inner slotting in the PCBs • Spiral patterned standard router used for routing outer contours and inner contours of PCBs |
| Chip-Breaker Routers RHRC | 0.80 - 6.00 | P759 Updraft | FT <ul style="list-style-type: none"> • Suitable for Halogen free, High Tg material $\geq 170^{\circ}\text{C}$ and laminates with fillers |
| 1-Flute Routers RHRC | 0.40 - 3.175 | P926 Updraft | SE <ul style="list-style-type: none"> • Routing Alu, Cu heat sinks and flexible boards and teflon |
| 2-Flute Routers RHRC | 0.40 - 3.00 3.00 - 6.00 | P224 Updraft | SE FE <ul style="list-style-type: none"> • Routing of inner and outer contours of Aluminum and Copper based IMS PCBs |
| 2-Flute Routers RHRC | 0.25 - 3.175 | P826 / P820 Updraft | FT SE <ul style="list-style-type: none"> • Routing Aluminium, Copper heat sinks and flexible boards and teflon |
| 2-Flute Routers RHRC | 0.40 - 3.175 | P422 / P424 Updraft | SE DP <ul style="list-style-type: none"> • Routing of Aluminum and Copper circuit boards • Routing of IMS circuit boards |
| 3-Flute Routers RHRC | 0.60 - 3.175 | P436 Updraft | FT <ul style="list-style-type: none"> • Routing Aluminum, Copper, Plastics |
| Finishing Routers | 0.60 - 2.50 | P370 Updraft | FT <ul style="list-style-type: none"> • PCB routing outer and inner contours with very high surface finish requirements |
| 2-Flute Aluminium Routers | 1.60 - 3.00 | P024 (Updraft) P122 (Downdraft) | DP <ul style="list-style-type: none"> • High performance routers for non ceramic filler Aluminium PCBs |
| V-Score Routers | 30°/45°/60°/90°/ 120°/140° | G845 (Helical) G846 (Half moon) | <ul style="list-style-type: none"> • For V-scoring PCBs and routing insulation paths in prototypes |
| Chamfering Cutters | 6.00 / 6.35 | C681 | <ul style="list-style-type: none"> • For countersinking in FR4, Plastics, Stainless steel, MS, Brass, Copper and Aluminium. |

PCB Product Range



IND-SPHINX
PCB DRILLS | PCB ROUTERS



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