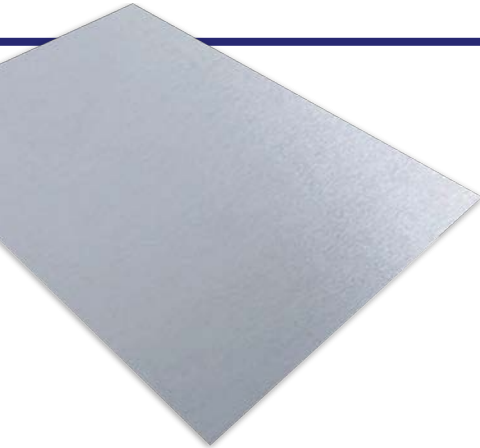




Apex LS Lubricated Aluminum Entry



Best Yielding Lubricated Aluminum Entry

Consistency and reliability in the manufacturing of our Aluminum ensures consistency in the drilling of circuit boards and our material is manufactured in accordance with ISO 9001 standards.

APEX LS Lubricated Aluminum Entry panels are available in .0079" and .0055" thickness, any size and any tooling specifications needed to suit a circuit board manufacturers specific needs.

The general rule of thumb for drill entry selection is based on the smallest diameter holes that are routinely processed. Ideally, entry thickness should not exceed the diameter of the smallest drill used. By optimizing entry thickness to drill diameter, breakage rates can be reduced.

Benefits

- Cools the drill bit to reduce the risk of smearing and resin buildup that can clog drill flutes and reduce debris evacuation
- Heat dissipation due to the cooling effect of aluminum
- Reduces the chance of 'oil canning' and burrs
- Environmentally friendly - Material is recyclable, reducing overall cost
- Protects the circuit board from surface damage during drilling and handling
- Excellent locational accuracy

- Allows for increased stack height, thus increasing drill capacity and machine utilization / efficiency.
- Significantly improves quality of drilled holes, particularly micro hole drilling required to manufacture today's demanding PCB designs.

Highly Accurate Cool Running Entry Material

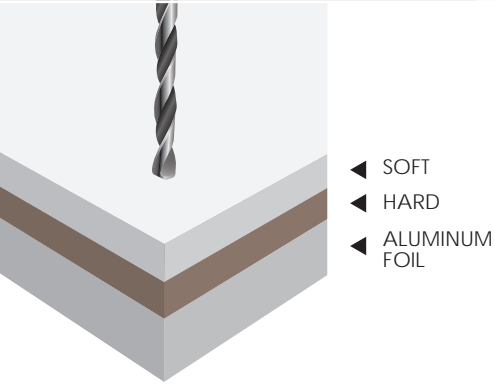
Apex LS has been developed such that the surface of the aluminum has Hard, Medium and Soft variances of hardness on the drill entry surface.

This, combined with an optimized aluminum treatment, allows the drill bit to "Center" on the target location with extreme accuracy.



Drill type	Project	Entry type						
		A	B	C	D	E	F	G
USF0.25-5.0-D	Accuracy plot							
	Cpk (±3mil)	1.276	1.326	2.167	2.845	1.767	1.981	3.553
CARBONITE 0.25-5.0-D	Accuracy plot							
	Cpk (±3mil)	3.449	2.136	3.253	4.243	1.825	2.553	5.349

Diameter	Drill Type	Board	Stack Height	Backup/Entry	Parameters	Hit Count
0.25	USF 0.25-5.0-D	Panasonic R1755V, 12-Layer	1 pnl 0.098" thick	Standard	97krpm F72ipm R600ipm	1500
	Carbonite 0.25-5.0-D					

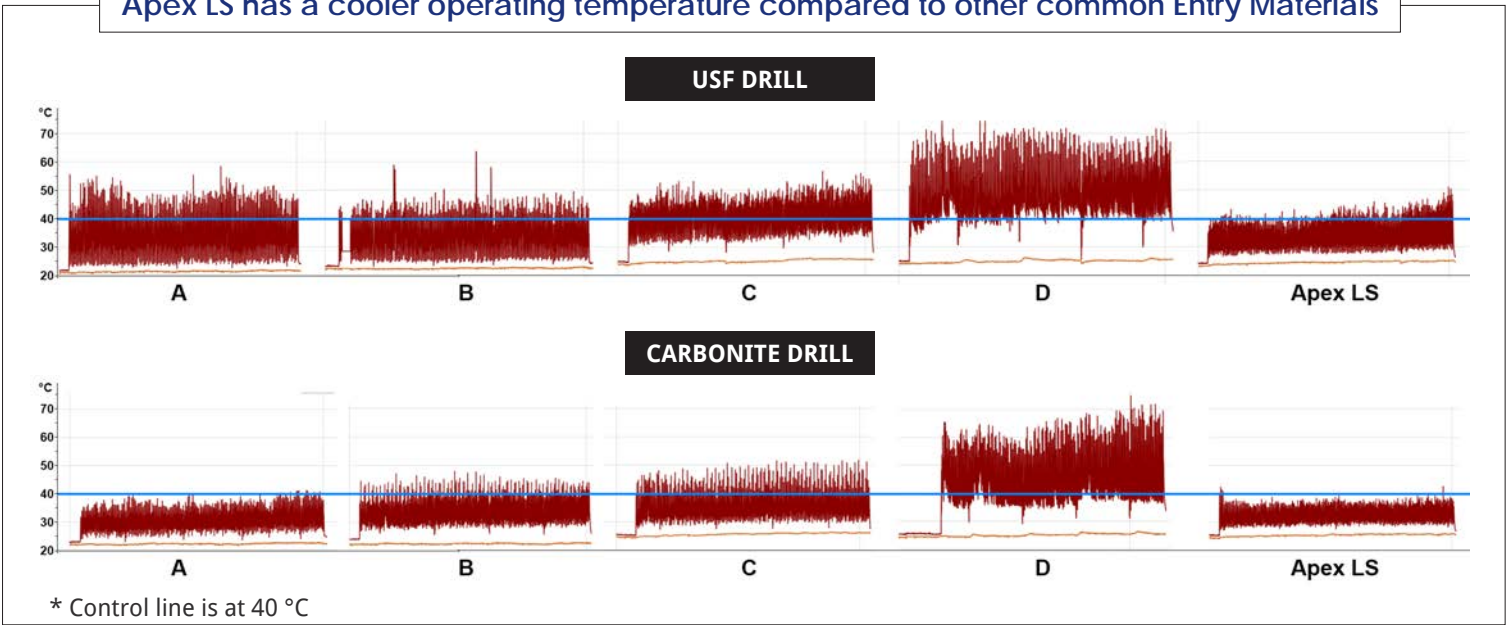


Specification

Product	Lubricant Thickness	Aluminum Thickness	Total Thickness
Apex LS .007"	0.0019"	0.0059"	0.0079"
Apex LS .005"	0.0015"	0.0039"	0.0055"

The thermal dissipation and Lubrication Properties significantly extend drill life, process capability and hole wall quality. Apex LS has a cooler operating Temperature compared to Common NA Entry materials.

Apex LS has a cooler operating temperature compared to other common Entry Materials



Apex LS delivers superior benefits to your drilling process

- A water-soluble lubricant that runs clean and produces contamination free holes.
- The combination of the heat sink properties and the lubrication layer provides superior heat dissipation and extended drill bit life.
- The unique construction was designed to keep drill bits and holes cleaner and provide the quick ejection of waste.
- Reduces hole wall smearing, increasing drill bit life and improves efficiency of desmear process.
- Runs cool with an improved yield.
- Recyclable