TEK-ROUNDS™

Diameters:
3mm - 12mm
0.125" - 0.500"

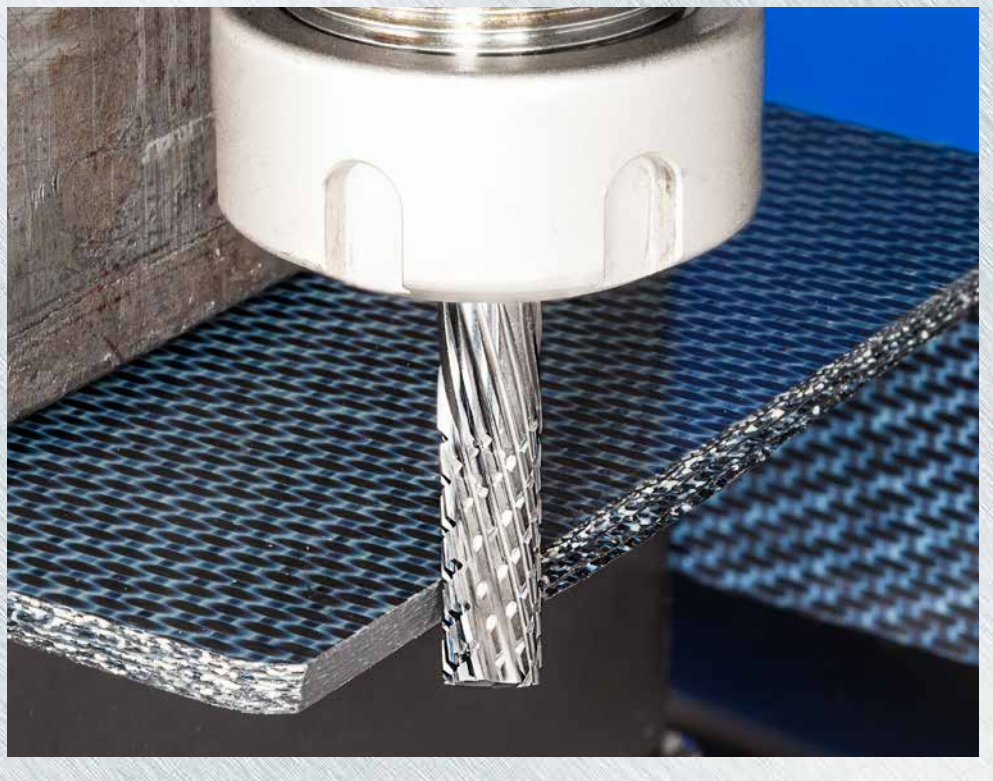
Cutting Edge Length:
12mm - 25mm
0.500" - 1.000"

Overall Length:
55mm - 83mm
2.100" - 3.000"

No. of Flutes:
10 and 12

Helix Angle:
15°

Grade:
IN05S



SOLID ENDMILLS FOR MACHINING CFRP AND HONEYCOMB PARTS

The increased popularity of composites in aerospace applications creates new challenges for shops that are used to cutting metal. One of these substances, Carbon Fiber-Reinforced Plastic (CFRP), can be especially difficult to machining.

These materials are extremely abrasive and difficult to machine, as a result of the different physical properties of the materials used in the layers that make these composites hard, tough and strong. Due to the harsh cutting environment, tool life can be very short when machining CFRP composites. As the exact formula of what these composites are made from is not known, it can be difficult to design appropriate tools.

When machining composites such as CFRP – there is no chip to speak of. Instead, the material removal mechanism might be better described as shattering.

The impact of the cutting edge fractures the hard carbon fibers, instead of shearing material away. This process causes the cutting edge considerable abrasion that can lead to rapid wear. In composite machining, as well as any cutting tool application, tool geometry drives cutting performance. However, in composites, tool material also becomes a driver of performance. Unless the edge material can withstand the abrasion well enough to hold its geometry and stay sharp, the tool can wear so rapidly that the geometry can change rapidly as well.

In order to successfully machine CFRP, Ingersoll now offers standard hard, sharp solid-carbide tools made from grade IN05S which can be supplied on request with long-lasting diamond coating.

The fixture for machining a composite part can be a considerable engineering investment. Clean cutting without fraying, delamination or otherwise separation of the layers, requires the part to be firmly secured against vibration.

Member IMC Group
Ingersoll Cutting Tools

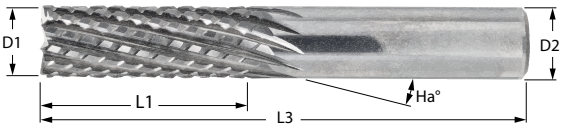
TEKROUNDS™

FEATURES

- Fine pitch - 10 and 12 flute endmills
- Unique flute profile provides good surface finish
- In most cases, eliminates CFRP fiber breakout
- Reduces delamination
- Decreases cutting forces
- Available in diameter 3-12 mm and 0.125" - 0.500"
- Available in IN05S uncoated or diamond coated - on request

As CFRP has become the industry standard widely used in the aerospace and aviation industries and also for advanced mechanical parts, there is a large application potential for this type of endmill.

ENDMILLS



METRIC

EDP#	Cutter Number	Ha Helix (Deg)	D1 Diameter	Z Flutes	R Radius	L3 Overall Length	L1 Cut Length	D2 Shank Size/Style	Fz Min	Fz Max
5622853	49J00312T9RL550	15.000	3mm	10	Sharp	55mm	12mm	3mm Cyl.	0.01	0.01
5622854	49J00416UORL550	15.000	4mm	10	Sharp	55mm	16mm	4mm Cyl.	0.01	0.01
5622857	49J00619T7RL570	15.000	6mm	10	Sharp	57mm	19mm	6mm Cyl.	0.02	0.02
5622859	49J00825T0RL630	15.000	8mm	12	Sharp	63mm	25mm	8mm Cyl.	0.02	0.02
5622860	49J01025T1RL720	15.000	10mm	12	Sharp	72mm	25mm	10mm Cyl.	0.02	0.02
5622861	49J01225T2RL830	15.000	12mm	12	Sharp	83mm	25mm	12mm Cyl.	0.02	0.02

INCH

EDP#	Cutter Number	Ha Helix (Deg)	D1 Diameter	Z Flutes	R Radius	L3 Overall Length	L1 Cut Length	D2 Shank Size/Style	Fz Min	Fz Max
5622862	49J-1250R5RL100	15.000	0.125	10	Sharp	2.100	0.500	0.125 Cyl.	0.0004	0.0008
5622863	49J-1862R5RL100	15.000	0.188	10	Sharp	2.100	0.625	0.188 Cyl.	0.0004	0.0008
5622864	49J-2575R6RL300	15.000	0.250	10	Sharp	3.000	0.750	0.250 Cyl.	0.0008	0.0012
5622867	49J-3110R7RL300	15.000	0.312	12	Sharp	3.000	1.000	0.312 Cyl.	0.0008	0.0012
5622868	49J-3710R8RL300	15.000	0.375	12	Sharp	3.000	1.000	0.375 Cyl.	0.0008	0.0012
5622869	49J-5010R8RL300	15.000	0.500	12	Sharp	3.000	1.000	0.500 Cyl.	0.0008	0.0012