











YG-1 PCD Series for CFRP and stacks offer cutters designed for drilling, countersinking and milling operations. It covers the complete range of cutting tools commonly used within Aerospace, Automotive, Energy and Sporting Goods industries.

YG-1 PCD products range covers brazed and tipped PCD blades on Solid Carbide bodies which allow a major benefit for resharpening options, and therefore, a considerable cost saving.

PCD TOOLS

COMPOSITE PCD TOOLS INDEX

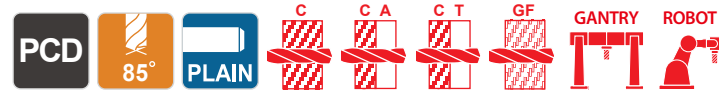
INCH	METRIC	MODEL	DESCRIPTION	SIZE		PAGE
				INCH	METRIC	
FDRPA1AD	FDRPA2AD		PCD Drills for CFRP	1/8 ~ 3/4	3.0 ~ 10.0	52
FDCPA1AD	FDCPA2AD		PCD Drills / Countersinks	1/8 ~ 3/4	3.0 ~ 10.0	53
FBNPA1AA	FBNPA2AA		PCD Ball Nose End Mills	1/8 ~ 3/4	3.0 ~ 20.0	54
FEMPA1AA	FEMPA2AA		PCD Straight End Mills	1/8 ~ 3/4	3.0 ~ 20.0	55
FEMPA1AB	FEMPA2AB		PCD Multiflute End Mills	3/16 ~ 5/8	4.0 ~ 16.0	56
FCSPA1AA(100°) FCSPA1AB(130°)	FCSPA2AA(100°) FCSPA2AB(130°)		PCD Countersinks, 2 flute - Integral 100° and 130° Angle, Integral pilot threaded shank	3/8 ~ 1-1/4	10.0 ~ 25.0	57
FCSPA1AC(100°) FCSPA1AD(130°)	FCSPA2AC(100°) FCSPA2AD(130°)		PCD Countersinks, 2 flute - Interchangeable 100° and 130° Angle, Interchangeable pilot threaded shank	3/8 ~ 1-1/4	10.0 ~ 21.0	58
FCSPA1AE(100°) FCSPA1AF(130°)	FCSPA2AE(100°) FCSPA2AF(130°)		PCD Countersinks, 3 flute - Interchangeable 100° and 130° Angle, Interchangeable pilot threaded shank	1/2 ~ 1-1/4	10.0 ~ 21.0	59

◎ : Excellent ○ : Good

Working material				Machine Type			
CFRP	CFRP/Al	CFRP/Ti	GFRP	ADU	Gantry	Robot	Hand-Held
◎	○	○	◎		◎	◎	
◎	○	○	◎		◎	◎	
◎			◎		◎	◎	
◎			◎		◎	◎	
◎			◎		◎	◎	
◎			◎				◎
◎			◎				◎
◎			◎				◎

PCD DRILLS FOR CFRP

Especially manufactured for the high demands needed by modern CFRP and CFRP/Stacks/AL/TI. The Full Nib drill allows the transition from a sandwich to a full nib tip, opening the door to a wider range of diamond geometries that do not exist in a sandwich diamond. 8 or 4 facet drills, destined to be the leader in hole-making for the aerospace industry.



INCH SIZES

(Unit : inch)

EDP	Mill Diameter			Shank Diameter D1	Flute Length FL	Overall Length OAL
	D					
	Fractional	Wire Gage	Decimal			
FDRPA1AD0125	1/8	-	.1250	1/8	1	3
FDRPA1AD0129	-	#30	.1285	.1285	1	3
FDRPA1AD0156	5/32	-	.1562	5/32	1	3
FDRPA1AD0159	-	#21	.1590	.1590	1	3
FDRPA1AD0188	3/16	-	.1875	3/16	1	3
FDRPA1AD0189	-	#12	.1890	.1890	1	3
FDRPA1AD0191	-	#11	.1910	.1910	1	3
FDRPA1AD0250	1/4	-	.2500	1/4	1	3
FDRPA1AD0251	-	-	.2510	.2510	1	3
FDRPA1AD0313	5/16	-	.3125	5/16	1	3
FDRPA1AD0375	3/8	-	.3750	3/8	1	3
FDRPA1AD0438	7/16	-	.4375	7/16	1	3
FDRPA1AD0500	1/2	-	.5000	1/2	1	3
FDRPA1AD0625	5/8	-	.6250	5/8	1	3
FDRPA1AD0750	3/4	-	.7500	3/4	1	3

METRIC SIZES

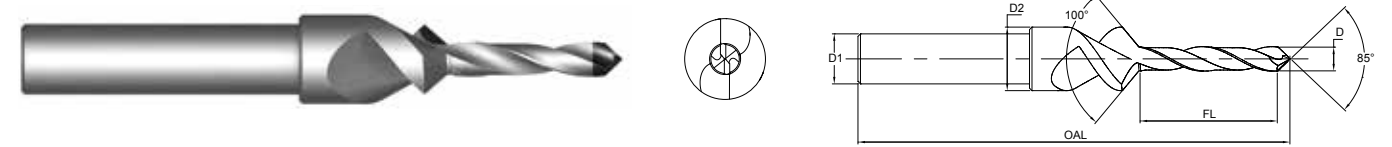
(Unit : mm)

EDP	Mill Diameter			Shank Diameter D1	Flute Length FL	Overall Length OAL
	D					
	Fractional	Wire Gage	Decimal			
FDRPA2AD0300	3	-	3	6	25	65
FDRPA2AD0400	4	-	4	6	25	65
FDRPA2AD0476	4.76	-	4.76	6	25	65
FDRPA2AD0500	5	-	5	6.35	30	70
FDRPA2AD0600	6	-	6	6.35	30	70
FDRPA2AD0635	6.35	-	6.35	6.35	30	70
FDRPA2AD0650	6.5	-	6.5	8	35	76
FDRPA2AD0700	7	-	7	8	35	76
FDRPA2AD0794	7.94	-	7.94	8	35	76
FDRPA2AD0800	8	-	8	10	40	89
FDRPA2AD0900	9	-	9	10	40	89
FDRPA2AD1000	10	-	10	12	45	100

► Available as made to order

PCD DRILLS / COUNTERSINKS

Take advantage of drilling and countersinking in one pass with the Full Nib drill or the Wafer drill. The use of one tool drilling and countersinking saves costs, such as the need to use a drill and countersink separately, and reduces the amount of measuring and accurate machine set-up. Also reduces the amount of tools needed for replacement, which impacts directly on production line costs.



INCH SIZES

(Unit : inch)

EDP	Drill Diameter			C'Sink Diameter D2	Shank Diameter D1	Flute Length FL	Overall Length OAL
	D						
	Fractional	Wire Gage	Decimal				
FDCPA1AD0125	1/8	-	.1250	3/8	.1250	1	3
FDCPA1AD0129	-	#30	.1285	3/8	.1285	1	3
FDCPA1AD0156	5/32	-	.1562	3/8	5/32	1	3
FDCPA1AD0159	-	#21	.1590	3/8	.1590	1	3
FDCPA1AD0188	3/16	-	.1875	3/8	3/16	1	3
FDCPA1AD0189	-	#12	.1890	3/8	.1890	1	3
FDCPA1AD0191	-	#11	.1910	3/8	.1910	1	3
FDCPA1AD0250	1/4	-	.2500	1/2	1/4	1	3
FDCPA1AD0251	-	-	.2510	1/2	.2510	1	3
FDCPA1AD0313	5/16	-	.3125	1/2	5/16	1	3
FDCPA1AD0375	3/8	-	.3750	3/4	3/8	1	3
FDCPA1AD0438	7/16	-	.4375	3/4	7/16	1	3
FDCPA1AD0500	1/2	-	.5000	3/4	1/2	1	3
FDCPA1AD0563	9/16	-	.5625	3/4	9/16	1	3
FDCPA1AD0625	5/8	-	.6250	3/4	5/8	1	3
FDCPA1AD0750	3/4	-	.7500	1	3/4	1	3

METRIC SIZES

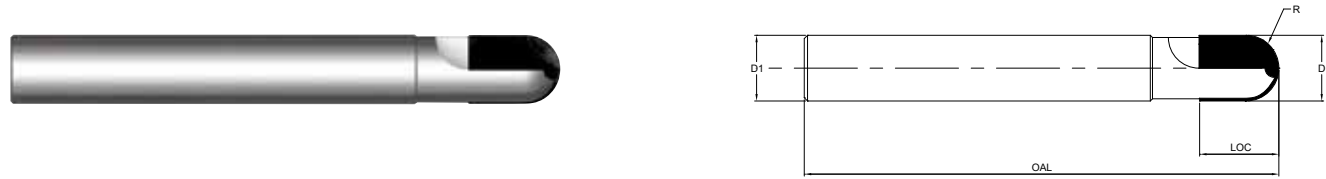
(Unit : mm)

EDP	Drill Diameter			C'Sink Diameter D2	Shank Diameter D1	Flute Length FL	Overall Length OAL
	D						
	Fractional	Wire Gage	Decimal				
FDCPA2AD0300	3	-	3	10	6	25	65
FDCPA2AD0400	4	-	4	10	6	25	65
FDCPA2AD0476	4.76	-	4.76	10	6	25	65
FDCPA2AD0500	5	-	5	10	6.35	30	70
FDCPA2AD0600	6	-	6	10	6.35	30	70
FDCPA2AD0635	6.35	-	6.35	10	6.35	30	70
FDCPA2AD0650	6.5	-	6.5	12	8	35	76
FDCPA2AD0700	7	-	7	12	8	35	76
FDCPA2AD0794	7.94	-	7.94	12	8	35	76
FDCPA2AD0800	8	-	8	12	10	40	89
FDCPA2AD0900	9	-	9	12	10	40	89
FDCPA2AD1000	10	-	10	20	12	45	100

► Available as made to order

PCD BALL NOSE END MILLS

Ball Nose End Mill, solid carbide body with diamond tip. Designed for use on all non-ferrous materials including Graphite, CFRP, Aluminum, Bronze, Copper, Ceramics, and Magnesium. Used to produce radiuses in the bottom of slots or pockets for added strength. Also used to create compound curves for molds.



INCH SIZES

(Unit : inch)

EDP	Mill Diameter		Radius	Shank Diameter	Length of Cut	Overall Length	No. of Flutes
	D						
	Fractional	Decimal	R	D1	LOC	OAL	
FBNPA1AA0125	1/8	.1250	1/16	1/8	1/4	1-1/2	1
FBNPA1AA0188	3/16	.1875	3/32	3/16	5/16	2	1
FBNPA1AA0250	1/4	.2500	1/8	1/4	3/8	2	2
FBNPA1AA0375	3/8	.3750	3/16	3/8	1/2	2-1/2	2
FBNPA1AA0500	1/2	.5000	1/4	1/2	5/8	3	2
FBNPA1AA0625	5/8	.6250	5/16	5/8	7/8	3-1/4	2
FBNPA1AA0750	3/4	.7500	3/8	3/4	1	4	2

METRIC SIZES

(Unit : mm)

EDP	Mill Diameter		Radius	Shank Diameter	Length of Cut	Overall Length	No. of Flutes
	D						
	Fractional	Decimal	R	D1	LOC	OAL	
FBNPA2AA0300	3	3	1.5	3	6	60	1
FBNPA2AA0400	4	4	2	4	6	60	1
FBNPA2AA0500	5	5	2.5	5	8	60	2
FBNPA2AA0600	6	6	3	6	10	75	2
FBNPA2AA0800	8	8	4	8	10	75	2
FBNPA2AA1000	10	10	5	10	15	75	2
FBNPA2AA1200	12	12	6	12	15	75	2
FBNPA2AA1600	16	16	8	16	20	100	2
FBNPA2AA2000	20	20	10	20	25	100	2

► Available as made to order

PCD STRAIGHT END MILLS

1-2 Flute Standard PCD Flat End Mills
Braze Diamond blades with center cutting point designed for intricate milling tasks, precisely.



INCH SIZES

(Unit : inch)

EDP	Mill Diameter		Shank Diameter	Length of Cut	Overall Length	No. of Flutes
	D					
	Fractional	Decimal	D1	LOC	OAL	
FEMPA1AA0125	1/8	.1250	1/8	1/4	2	1
FEMPA1AA0188	3/16	.1875	3/16	5/16	2	1
FEMPA1AA0250	1/4	.2500	1/4	3/8	2	2
FEMPA1AA0375	3/8	.3750	3/8	1/2	2-1/2	2
FEMPA1AA0500	1/2	.5000	1/2	5/8	3	2
FEMPA1AA0625	5/8	.6250	5/8	7/8	3-1/4	2
FEMPA1AA0750	3/4	.7500	3/4	1	4	2

METRIC SIZES

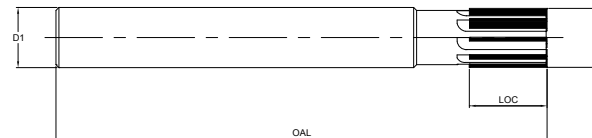
(Unit : mm)

EDP	Mill Diameter		Shank Diameter	Length of Cut	Overall Length	No. of Flutes
	D					
	Fractional	Decimal	D1	LOC	OAL	
FEMPA2AA0300	3	3	3	6	60	1
FEMPA2AA0400	4	4	4	6	60	1
FEMPA2AA0500	5	5	5	8	60	1
FEMPA2AA0600	6	6	6	10	75	2
FEMPA2AA0800	8	8	8	10	75	2
FEMPA2AA1000	10	10	10	15	75	2
FEMPA2AA1200	12	12	12	15	75	2
FEMPA2AA1600	16	16	16	20	100	2
FEMPA2AA2000	20	20	20	25	100	2

► Available as made to order

PCD MULTIFLUTE END MILLS

More flutes allow a higher feed rate, because there is less material removed per flute. More flutes and more cutting edges increases the tool stability providing better quality work surface, reduce working time, lower your cost and decrease the noise made by the tool.



INCH SIZES

(Unit : inch)

EDP	Mill Diameter		Shank Diameter D1	Length of Cut LOC	Overall Length OAL	No. of Flutes
	D					
	Fractional	Decimal				
FEMPA1AB0188	3/16	.1875	1/4	3/16	2-3/8	3
FEMPA1AB0250	5/16	.3125	7/16	5/16	2-3/8	3
FEMPA1AB0375	3/8	.3750	1/2	3/8	2-1/2	3
FEMPA1ABA375	3/8	.3750	1/2	3/8	3	5
FEMPA1AB0500	1/2	.5000	1/2	1/2	3	3
FEMPA1ABA500	1/2	.5000	1/2	1/2	3	5
FEMPA1ABB500	1/2	.5000	1/2	1/2	3	7
FEMPA1ABC500	1/2	.5000	1/2	1/2	3	9
FEMPA1AB0625	5/8	.6250	5/8	5/8	3-1/8	3
FEMPA1ABA625	5/8	.6250	5/8	5/8	3-1/8	5
FEMPA1ABB625	5/8	.6250	5/8	5/8	3-1/8	7
FEMPA1ABC625	5/8	.6250	5/8	5/8	3-1/8	9

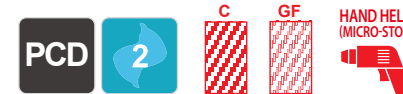
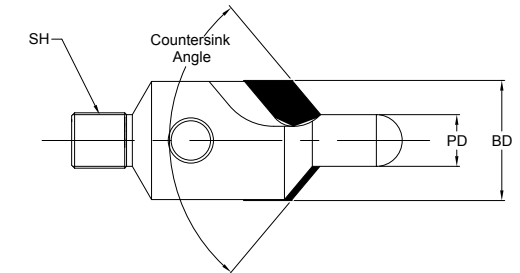
METRIC SIZES

(Unit : mm)

EDP	Mill Diameter		Shank Diameter D1	Length of Cut LOC	Overall Length OAL	No. of Flutes
	D					
	Fractional	Decimal				
FEMPA2AB0400	4		4	6	50	3
FEMPA2AB0600	6		6	6	60	3
FEMPA2AB0800	8		8	11	61	3
FEMPA2AB080A	8		8	10	75	3
FEMPA2AB1000	10		10	13	63	3
FEMPA2AB100A	10		10	13	63	5
FEMPA2AB1200	12		12	13	75	3
FEMPA2AB120A	12		12	13	75	5
FEMPA2AB120B	12		12	13	75	7
FEMPA2AB120C	12		12	13	75	9
FEMPA2AB1600	16		16	16	79	3
FEMPA2AB160A	16		16	16	79	5
FEMPA2AB160B	16		16	16	79	7
FEMPA2AB160C	16		16	16	79	9

PCD COUNTERSINKS, 2 FLUTE - INTERGRAL

The integral pilot guides the countersink to the center of the hole, preventing chatter and run out. All of the countersinks are available in all sizes, with two flutes and cutting angles as needed.



INCH SIZES

(Unit : inch)

EDP		Body Diameter BD	Pilot Diameter PD	Shank Thread SH	No. of Flutes
100° C'Sink Angle	130° C'Sink Angle				
FCSPA1AA0375	FCSPA1AB0375	3/8	.125	1/4-28	2
FCSPA1AAA375	FCSPA1ABA375	3/8	.128	1/4-28	2
FCSPA1AA0438	FCSPA1AB0438	7/16	.156	1/4-28	2
FCSPA1AAA438	FCSPA1ABA438	7/16	.187	1/4-28	2
FCSPA1AA0500	FCSPA1AB0500	1/2	.125	1/4-28	2
FCSPA1AAA500	FCSPA1ABA500	1/2	.187	1/4-28	2
FCSPA1AAB500	FCSPA1ABB500	1/2	.236	1/4-28	2
FCSPA1AA0625	FCSPA1AB0625	5/8	.191	1/4-28	2
FCSPA1AAA625	FCSPA1ABA625	5/8	.250	1/4-28	2
FCSPA1AA0750	FCSPA1AB0750	3/4	.312	3/8-24	2
FCSPA1AA0875	FCSPA1AB0875	7/8	.312	3/8-24	2
FCSPA1AA1000	FCSPA1AB1000	1	.312	7/16-20	2
FCSPA1AA1250	FCSPA1AB1250	1-1/4	.312	7/16-20	2

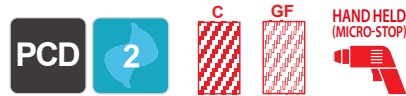
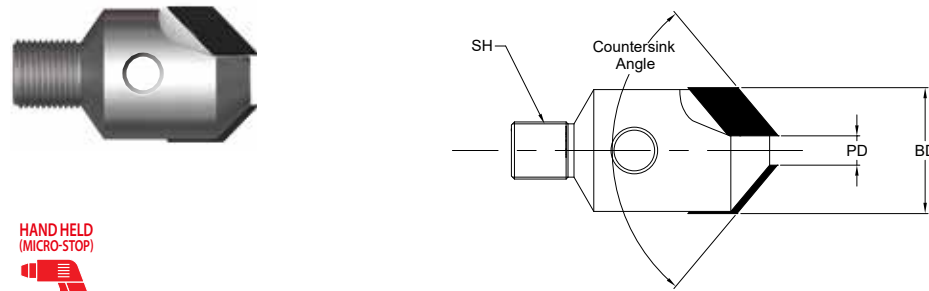
METRIC SIZES

(Unit : mm)

EDP		Body Diameter BD	Pilot Diameter PD	Shank Thread SH	No. of Flutes
100° C'Sink Angle	130° C'Sink Angle				
FCSPA2AA1000	FCSPA2AB1000	10	3	M6 x 1.0	2
FCSPA2AA1200	FCSPA2AB1200	12	3	M6 x 1.0	2
FCSPA2AA1400	FCSPA2AB1400	14	3	M8 x 1.0	2
FCSPA2AA1700	FCSPA2AB1700	17	4	M8 x 1.0	2
FCSPA2AA1900	FCSPA2AB1900	19	6	M8 x 1.0	2
FCSPA2AA2200	FCSPA2AB2200	22	8	M8 x 1.0	2
FCSPA2AA2500	FCSPA2AB2500	25	8	M8 x 1.0	2

PCD COUNTERSINKS, 2 FLUTE - INTERCHANGEABLE

The Interchangeable pilot countersink is ideal for cutting the same diameter chamfer with the same countersink but with different diameter pilots. Damaged pilots can be replaced at fraction of the cost, resulting in significant savings. Countersinks are available in all sizes with two flutes and cutting angles as needed.



INCH SIZES

(Unit : inch)

EDP		Body Diameter BD	Pilot Diameter PD	Shank Thread SH	No. of Flutes
100° C'Sink Angle	130° C'Sink Angle				
FCSPA1AC0375	FCSPA1AD0375	3/8	.125	1/4-28	2
FCSPA1AC0500	FCSPA1AD0500	1/2	.125	1/4-28	2
FCSPA1AC0625	FCSPA1AD0625	5/8	.125	1/4-28	2
FCSPA1AC0750	FCSPA1AD0750	3/4	.188	7/16-20	2
FCSPA1AC0875	FCSPA1AD0875	7/8	.188	7/16-20	2
FCSPA1AC1000	FCSPA1AD1000	1	.188	7/16-20	2
FCSPA1AC1250	FCSPA1AD1250	1-1/4	.188	7/16-20	2

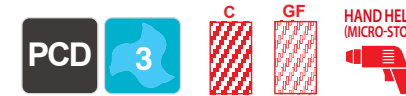
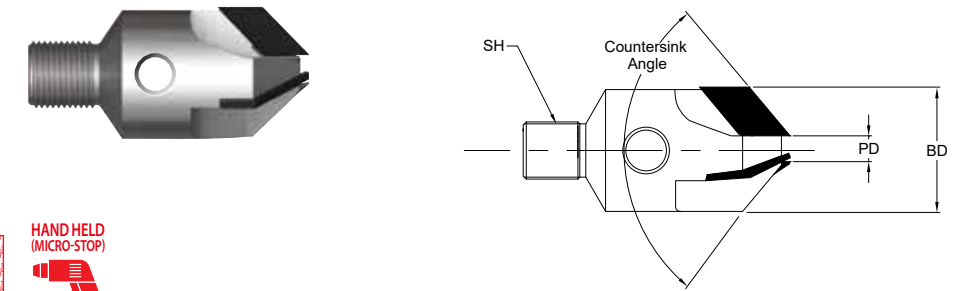
METRIC SIZES

(Unit : mm)

EDP		Body Diameter BD	Pilot Diameter PD	Shank Thread SH	No. of Flutes
100° C'Sink Angle	130° C'Sink Angle				
FCSPA2AC1000	FCSPA2AD1000	10	2.5	M6 x 1.0	2
FCSPA2AC1200	FCSPA2AD1200	12	3	M6 x 1.0	2
FCSPA2AC1400	FCSPA2AD1400	14	3	M6 x 1.0	2
FCSPA2AC1700	FCSPA2AD1700	17	3	M8 x 1.0	2
FCSPA2AC1900	FCSPA2AD1900	19	4	M8 x 1.0	2
FCSPA2AC2100	FCSPA2AD2100	21	4	M8 x 1.0	2

PCD COUNTERSINKS, 3 FLUTE - INTERCHANGEABLE

The Interchangeable pilot countersink is ideal for cutting the same diameter chamfer with the same countersink but with different diameter pilots. Damaged pilots can be replaced at fraction of the cost, resulting in significant savings. Countersinks are available in all sizes with three flutes and cutting angles as needed.



INCH SIZES

(Unit : inch)

EDP		Body Diameter BD	Pilot Diameter PD	Shank Thread SH	No. of Flutes
100° C'Sink Angle	130° C'Sink Angle				
FCSPA1AE0500	FCSPA1AF0500	1/2	.125	1/4-28	3
FCSPA1AE0625	FCSPA1AF0625	5/8	.125	1/4-28	3
FCSPA1AE0750	FCSPA1AF0750	3/4	.188	7/16-20	3
FCSPA1AE0875	FCSPA1AF0875	7/8	.188	7/16-20	3
FCSPA1AE1000	FCSPA1AF1000	1	.188	7/16-20	3
FCSPA1AE1250	FCSPA1AF1250	1-1/4	.188	7/16-20	3

METRIC SIZES

(Unit : mm)

EDP		Body Diameter BD	Pilot Diameter PD	Shank Thread SH	No. of Flutes
100° C'Sink Angle	130° C'Sink Angle				
FCSPA2AE1000	FCSPA2AF1000	10	2.5	M6 x 1.0	3
FCSPA2AE1200	FCSPA2AF1200	12	3	M6 x 1.0	3
FCSPA2AE1400	FCSPA2AF1400	14	3	M6 x 1.0	3
FCSPA2AE1700	FCSPA2AF1700	17	3	M8 x 1.0	3
FCSPA2AE1900	FCSPA2AF1900	19	4	M8 x 1.0	3
FCSPA2AE2100	FCSPA2AF2100	21	4	M8 x 1.0	3

CUTTING CONDITIONS LIST

MILLING

WORK MATERIAL	OPERATION	Tool Diameter in(mm)											
		1/8" (3.175mm)			1/4" (6.35mm)			3/8" (9.53mm)			1/2" (12.7mm)		
		RPM	FEED (IPM)	FEED (mm/min.)	RPM	FEED (IPM)	FEED (mm/min.)	RPM	FEED (IPM)	FEED (mm/min.)	RPM	FEED (IPM)	FEED (mm/min.)
CFRP	SLOTING	12000	30	762	6000	30	762	4500	30	762	4000	30	762
	SIDE MILLING (PROFILING)	15000	50	1270	8000	45	1143	5000	45	1143	4000	40	1016
GFRP	SLOTING	10000	25	635	5000	25	635	4000	25	635	3500	25	635
	SIDE MILLING (PROFILING)	12000	35	889	7000	35	889	5500	35	889	4500	35	889
HONEY COMB	SLOTING	25000	100	2540	20000	100	2540	18000	100	2540	15000	400	10160
	SIDE MILLING (PROFILING)	25000	100	2540	25000	100	2540	25000	100	2540	25000	400	10160

DRILLING

WORK MATERIAL	SPEED (SFM)	Tool Diameter (inch)			SPEED (m/min.)	Tool Diameter (mm)		
		1/4-3/8	3/8-1/2	1/2-1.00		6.35 -9.525	9.525-12.7	12.7-25.4
		FEED (IPR)						FEED (mm/rev.)
CFRP, GFRP	300 - 400	.006 - .008	.008 - .015	.015 - .025	91.4 - 121.9	.1524 - .2032	.2032 - .381	.381 - 0.635
CFRP/AL	300 - 400	.006 - .008	.008 - .015	.015 - .025	91.4 - 121.9	.1524 - .2032	.2032 - .381	.381 - 0.635
CFRP/Ti	30 - 70	.006 - .010	.010 - .015	.015 - .020	9.1 - 21.3	.1524 - .254	.1524 - .381	.381 - 0.508

REAMERS

WORK MATERIAL	SPEED (SFM)	Tool Diameter (inch)			SPEED (m/min.)	Tool Diameter (mm)		
		1/4-3/8	3/8-1/2	1/2-1.00		6.35 -9.525	9.525-12.7	12.7-25.4
		FEED (IPR)						FEED (mm/rev.)
CFRP, GFRP	300 - 400	.006 - .008	.008 - .015	.015 - .025	91.4 - 121.9	.1524 - .2032	.2032 - .381	.381 - 0.635
CFRP/AL	300 - 400	.006 - .008	.008 - .015	.015 - .025	91.4 - 121.9	.1524 - .2032	.2032 - .381	.381 - 0.635
CFRP/Ti	30 - 70	.006 - .010	.010 - .015	.015 - .020	9.1 - 21.3	.1524 - .254	.1524 - .381	.381 - 0.508

ICON GUIDE LIST

ICON	Contents	ICON	Contents
	Micro Grain Carbide		Cutting Condition
	Polycrystalline Diamond		CFRP (Carbon Fiber Reinforced Plastics)
	Diamond Coating		GFRP (Glass Fiber Reinforced Plastics)
	Point Angle		KFRP (Kevlar Fiber Reinforced Plastics)
	Number of Flutes		CFRP / Aluminum Stacks
	Type of Shank		CFRP / Titanium Stacks
	Helix Angle		Honeycomb
	Chamfer Angle		CNC Gantry Robot End-Effectors
	O.D. Tolerance of Reamer (DIN 1420 for H7)		Power Feed
	Internal Coolant Holes		Hand Held / Hand Held(Micro-Stop)
			Type of End Teeth