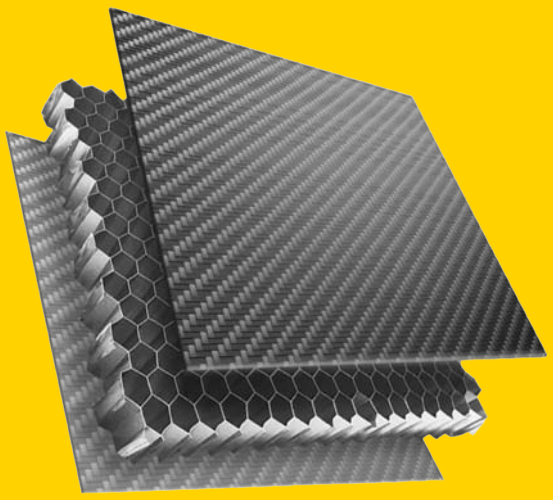
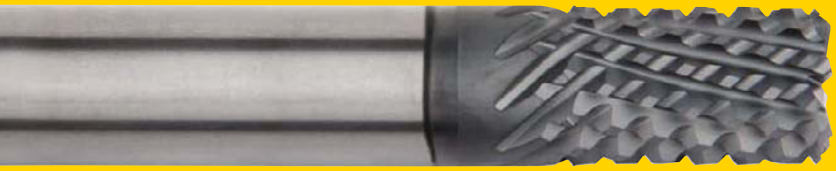
KENNAMETAL®

COMPOSITES SOLUTIONS

COMPOSITES SOLUTIONS



Kennametal's story is one of continuous innovation. Our combination of deep materials science expertise and wide application experience across a vast range of material cutting and shaping needs makes us a trusted problem solver, equipped to deliver the tools, knowledge and support that you need to achieve cost savings, higher productivity and to drive success—no matter the challenge.



LET'S TAKE YOUR **MANUFACTURING** TO THE NEXT LEVEL

Our tools and wear-resistant solutions enable customers to run longer, cut faster and machine with greater precision, and we're always ready to adapt by investing in new technologies, such as 3D printing, to create even more advanced products and solutions.

To learn more, contact your local sales representative or Kennametal Distributor or Authorized Channel Partner.

SPF Drills for Composites

SPF solid carbide drills offer a material-specific design to machine composites and composites stacks

Materials

C

Applications

- Drilling
- Non-Coolant: Dry
- Drilling: Stacked Plates

Machine Tools

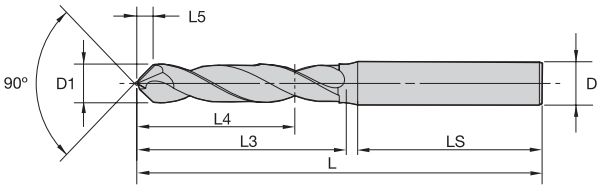
- ADU
- CNC
- Robot

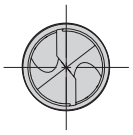
Features

- Advanced 90° point angle design increases centering capability of the tool and minimizes delamination.
- Multilayered CVD diamond coating provides increased tool life with high wear resistance and reduced friction.
- Combination of design and grade leads to less thrust and improved hole quality.

Portfolio

- Standard offering covers all major diameters up to 12,7mm (0.5").
- Intermediate diameters are available as semi-standards.
- Length variations and step drills can be offered as engineered solutions.





● Primary
○ Secondary

C1	●
C2	
C3	
C4	
C5	
C6	
N	

B531/B532 SPF • 3xD/5xD

	D1 Diameter				
short • KDF400	mm	in	L5	LS	D
B531A03300SPF	3,300	0.1299	1,5	36	6
B531A04000SPF	4,000	0.1575	1,8	36	6
B531A04851SPF	4,851	0.1910	2,2	36	6
B531A06000SPF	6,000	0.2362	2,7	36	6
B531A06400SPF	6,400	0.2520	2,9	36	8
B531A07938SPF	7,938	0.3125	3,6	36	8
B531A12725SPF	12,725	0.5010	5,8	45	14

Tolerance • Metric		
Nominal Size Range	D1 Tolerance m7	D Tolerance h6
>3–6	0,004/0,016	0,000/-0,008
>6–10	0,006/0,021	0,000/-0,009
>10–18	0,007/0,025	0,000/-0,011
>18–25,4	0,008/0,029	0,000/-0,013

Tolerance • Inch		
Nominal Size Range	D1 Tolerance m7	D Tolerance h6
>.1181–.2362	.0002/.0006	.0000/-.0003
>.2362–.3937	.0002/.0008	.0000/-.0004
>.3937–.7087	.0003/.0010	.0000/-.0004
>.7087–1.0000	.0003/.0011	.0000/-.0005

C1	CFRP, CFRP/CFRP
C2	CFRP/Aluminium
C3	CFRP/Titanium
C4	CFRP/Stainless
C5	CFRP/Aluminium/Titanium

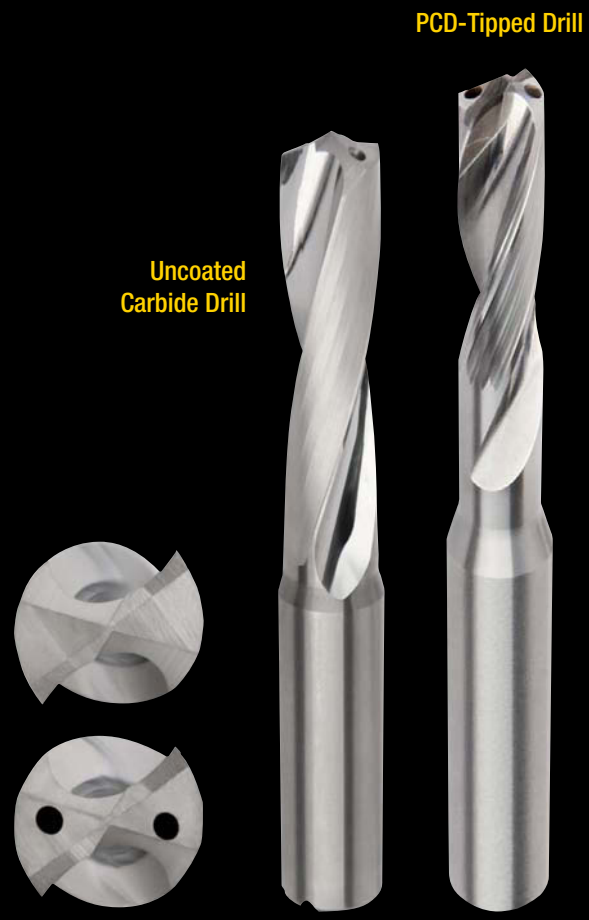
SPF Drills • B53 Series • Grade KDF400™ • Dry Applications • Drill Diameters 3–12mm (.1181-.4724")

Material Group		Cutting Speed — Vc Range — m/min			Metric Recommended Feed Rate (f) by Diameter						
		Min	Starting Value	Max		3,0	4,0	6,0	8,0	10,0	12,0
C	1	90	**120**	150	mm/r	0,03–0,20	0,03–0,20	0,03–0,20	0,03–0,20	0,03–0,20	0,03–0,20

Material Group		Cutting Speed — Vc Range — SFM			Inch Recommended Feed Rate (f) by Diameter						
		Min	Starting Value	Max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500
C	1	300	**390**	490	IPR	.001–.008	.001–.008	.001–.008	.001–.008	.001–.008	.001–.008

DAL Drills for CFRP–Metal Stacks

DAL drills tackle CFRP-metal stack drilling operations. The drills can be applied in all combinations of stacks: CFRP-Ti-Al as well as CFRP-Ti, CFRP-Al and also straight Ti or Al.



Materials

C N S

Applications

- Drilling
- Drilling: Stacked Plates
- Non-Coolant: Dry
- Through-Coolant: Wet/MQL

Machine Tools

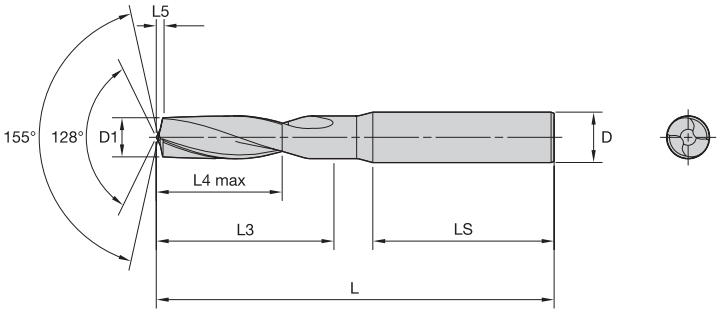
- ADU
- CNC
- Robot

Features

- Innovative double angle point design offers excellent centering capabilities and minimized burr when exiting the metal side of stack.
- Through-coolant and non-coolant drills for applications with standard coolant, MQL or even dry.
- Highly polished chip flutes ensure superior chip evacuation, even when MQL is applied.
- Uncoated drills made of wear resistant, fine-grain carbide for cost-effective drilling.

Portfolio

- Standard diameter range of 4,828–14,288mm (0.1901"–0.5625").
- Intermediate diameters and PCD-tipped drills are available as semi-standards.
- Length variations and step drills can be offered as engineered solutions.
- Four-margin land design for increased stability is available.

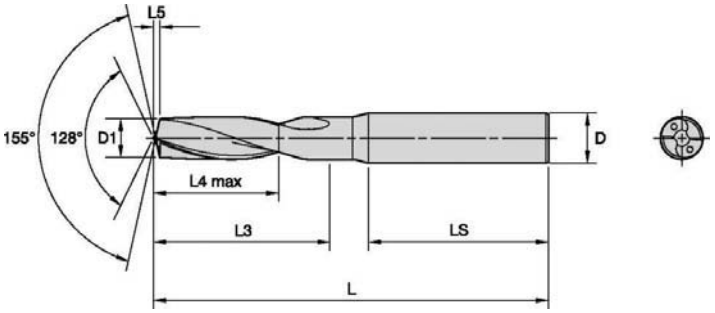


● Primary
○ Secondary

S	
N	
C2	●
C3	●
C4	○
M	

B551A DAL • 3xD

	D1 Diameter								
short • KN15	mm	in	Fraction	L	L3	L4 Max	L5	LS	D
B551A04763DAL	4,763	0.1875	3/16	66	28	20	0,8	36	6
B551A06350DAL	6,350	0.2500	1/4	79	34	24	1,1	36	8
B551A07938DAL	7,938	0.3125	5/16	79	41	29	1,4	36	8
B551A09525DAL	9,525	0.3750	3/8	89	47	35	1,7	40	10
B551A14288DAL	14,288	0.5625	9/16	115	65	45	2,5	48	16



● Primary
○ Secondary

S	
N	
C2	●
C3	●
C4	○
M	

B556A DAL • 3xD

	D1 Diameter								
short • KN15	mm	in	Fraction	L	L3	L4 Max	L5	LS	D
B556A04763DAL	4,763	0.1875	3/16	66	28	20	0,8	36	6
B556A04826DAL	4,826	0.1900	-	66	28	20	0,9	36	6
B556A06350DAL	6,350	0.2500	1/4	79	34	24	1,1	36	8
B556A07938DAL	7,938	0.3125	5/16	79	41	29	1,4	36	8
B556A09525DAL	9,525	0.3750	3/8	89	47	35	1,7	40	10
B556A14288DAL	14,288	0.5625	9/16	115	65	45	2,5	48	16

Stack Drill • B551/B541 Series • Grade KN15™ • Dry • Drill Diameters 3–20mm (.1181–.7874")

Material Group		Cutting Speed — Vc Range — m/min				Metric Recommended Feed Rate (f) by Diameter							
		Min	Starting Value	Max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
C	2	15	**80**	120	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23
C	3	10	**10**	15	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23
C	4	10	**15**	25	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23

Material Group		Cutting Speed — Vc Range — SFM				Inch Recommended Feed Rate (f) by Diameter							
		Min	Starting Value	Max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
C	2	50	**260**	390	IPR	.000–.002	.001–.003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009
C	3	30	**30**	50	IPR	.001–.002	.001–.003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009
C	4	30	**50**	80	IPR	.001–.002	.001–.003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009

Stack Drill • B556/B546 Series • Grade KN15 • Through Coolant • Drill Diameters 3–20mm (.1181–.7874")

Material Group		Cutting Speed — Vc Range — m/min				Metric Recommended Feed Rate (f) by Diameter							
		Min	Starting Value	Max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
C	2	15	**120**	150	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23
C	3	10	**15**	25	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23
C	4	10	**25**	50	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23

Material Group		Cutting Speed — Vc Range — SFM				Inch Recommended Feed Rate (f) by Diameter							
		Min	Starting Value	Max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
C	2	50	**390**	490	IPR	.000–.002	.001–.003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009
C	3	30	**50**	80	IPR	.001–.002	.001–.003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009
C	4	30	**80**	160	IPR	.001–.002	.001–.003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009

KenTIP™ FS

Modular Drilling for Composites and CFRP-Metal Stacks

Materials

C N S

Applications

- Drilling
- Drilling: Stacked Plates
- Drilling: Vibration Assisted
- Non-Coolant: Dry
- Through-Coolant: Wet/MQL

Machine Tools

- ADU
- CNC
- Robot

KenTIP FS covers more applications and provides better performance than any other modular system, delivering substantial cost savings and process simplifications on your shop floor.

KenTIP FS inserts cover the entire front part of the drill. The coupling is completely protected from chip flow and contact with the workpiece. You get carbide where it matters.

Double angle geometry with 128° and 90° point angle to avoid delamination.
For composites and composites stacks.

Through coolant.

Diamond coating for best tool life on composites stacks.

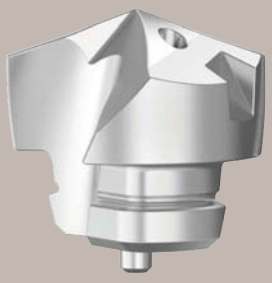
SPF

Double angle geometry with 128° and 155° point angle to minimize exit burrs.
For CFRP-metal stacks, non-ferrous materials and high-temp alloys.

Through coolant.

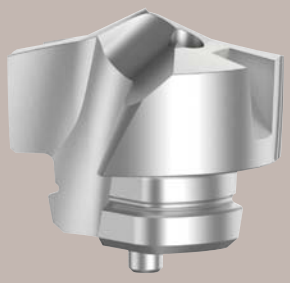
Uncoated for cost-efficient drilling.
Diamond coating for extended tool life optional.

FOR REGULAR DRILLING APPLICATIONS



DAL

FOR VIBRATION-ASSISTED DRILLING

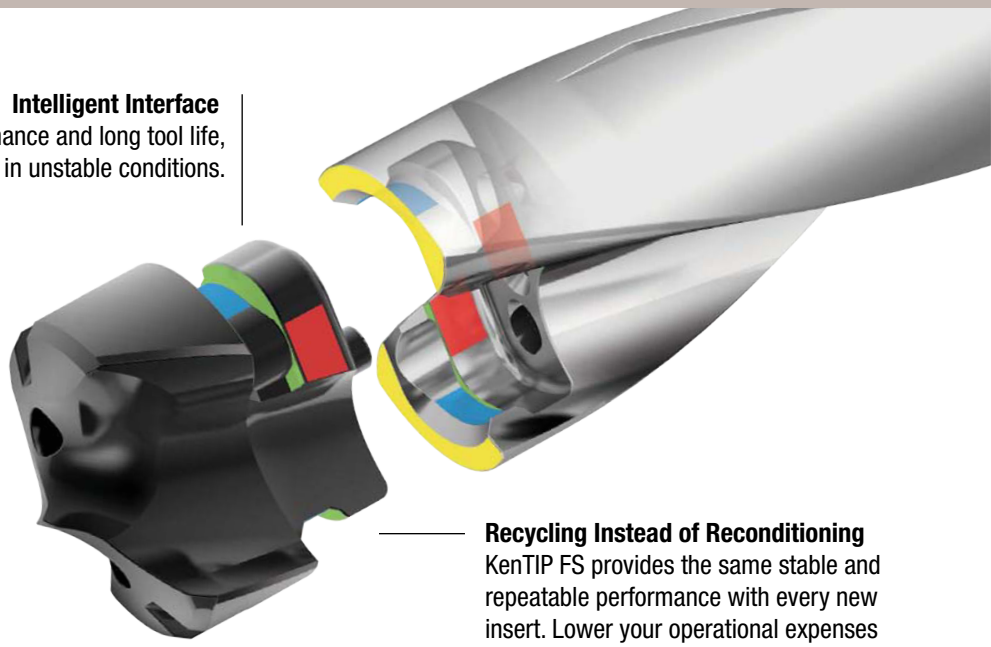


DAV

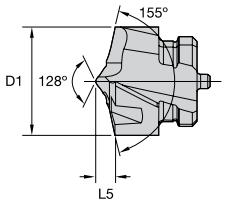
Intelligent Interface
Maximum performance and long tool life, even in unstable conditions.

Quick Release
Every drill body comes with a KenTIP smart wrench. Insert exchange in the machine becomes easy and saves idle time. And that saves money.

Multi-Coolant
Coolant delivery to the drill point and to the rake face for guaranteed coolant delivery where it is needed.



Recycling Instead of Reconditioning
KenTIP FS provides the same stable and repeatable performance with every new insert. Lower your operational expenses with less tooling inventory and simplified processes.

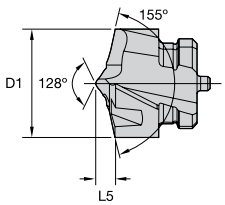


● Primary
○ Secondary

	KN15
P	
M	
K	
N	●
S	●
H	
C	●

KenTIP FS Inserts • DAV

	ISO	ANSI	D1		L5			KN15
Order Number	Catalog Number	Catalog Number	mm	in	mm	in	SSC	
6957701	KTFST06350DAVM	KTFST02500DAV	6,35	.250	1,12	.044	B	•
6957702	KTFST07938DAVM	KTFST03125DAV	7,94	.313	1,38	.054	E	•
6957703	KTFST09525DAVM	KTFST03750DAV	9,53	.375	1,69	.067	I	•
6957704	KTFST11113DAVM	KTFST04375DAV	11,11	.438	1,96	.077	L	•
6957705	KTFST12700DAVM	KTFST05000DAV	12,70	.500	2,24	.088	O	•

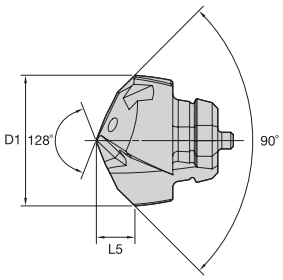


● Primary
○ Secondary

	KCC10	KN15
P		
M		
K		
N		●
S		●
H		
C	●	●

KenTIP FS Inserts • DAL

	ISO	ANSI	D1		L5			KCC10	KN15
Order Number	Catalog Number	Catalog Number	mm	in	mm	in	SSC		
6773176	KTFST06350DALM	KTFST02500DAL	6,35	.250	1,13	.045	B	•	–
6773231	KTFST06350DALM	KTFST02500DAL	6,35	.250	1,13	.045	B	–	•
6773232	KTFST06800DALM	KTFST06800DALM	6,80	.268	1,21	.048	C	–	•
6773233	KTFST07938DALM	KTFST03125DAL	7,94	.313	1,41	.056	E	–	•
6773177	KTFST07938DALM	KTFST03125DAL	7,94	.313	1,41	.056	E	•	–
6773234	KTFST08000DALM	KTFST08000DALM	8,00	.315	1,44	.057	F	–	•
6773235	KTFST08500DALM	KTFST08500DALM	8,50	.335	1,54	.061	G	–	•
6773236	KTFST09000DALM	KTFST09000DALM	9,00	.354	1,63	.064	H	–	•
6773178	KTFST09525DALM	KTFST03750DAL	9,53	.375	1,73	.068	I	•	–
6773237	KTFST09525DALM	KTFST03750DAL	9,53	.375	1,73	.068	I	–	•
6773238	KTFST10000DALM	KTFST10000DALM	10,00	.394	1,83	.072	J	–	•
6773179	KTFST11113DALM	KTFST04375DAL	11,11	.438	2,04	.080	L	•	–
6773239	KTFST11113DALM	KTFST04375DAL	11,11	.438	2,04	.080	L	–	•
6773240	KTFST11500DALM	KTFST11500DALM	11,50	.453	2,13	.084	M	–	•
6773180	KTFST12700DALM	KTFST05000DAL	12,70	.500	2,37	.093	O	•	–
6773241	KTFST12700DALM	KTFST05000DAL	12,70	.500	2,37	.093	O	–	•



● Primary
○ Secondary

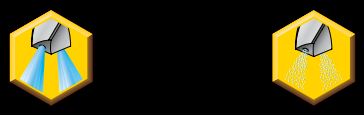
P	
M	
K	
N	
S	
H	
C	●

KCC10

KenTIP FS Inserts • SPF

	ISO	ANSI	D1		L5			
Order Number	Catalog Number	Catalog Number	mm	in	mm	in	SSC	
6773154	KTFST06350SPFM	KTFST02500SPF	6,35	.250	1,54	.061	B	•
6773155	KTFST07938SPFM	KTFST03125SPF	7,94	.313	1,94	.076	E	•
6773160	KTFST09525SPFM	KTFST03750SPF	9,53	.375	2,38	.091	I	•
6773171	KTFST11113SPFM	KTFST04375SPF	11,11	.438	2,46	.097	L	•
6773172	KTFST12700SPFM	KTFST05000SPF	12,70	.500	3,10	.122	O	•

KenTIP FS • DAL & DAV • Application Data • KN15



						DAL					
Material Group		Cutting Speed — Vc Range — m/min				Metric Recommended Feed Rate per Rev					
		min	Starting Value	max		6,0	8,0	10,0	12,0	16,0	20,0
S	4	10	**13**	20	mm/r	0,02–0,08	0,03–0,10	0,04–0,12	0,05–0,16	0,05–0,18	0,06–0,20
N	1	100	**230**	270	mm/r	0,13–0,22	0,16–0,24	0,20–0,28	0,24–0,32	0,28–0,40	0,32–0,48
	2	100	**220**	270	mm/r	0,14–0,23	0,16–0,28	0,20–0,32	0,24–0,36	0,28–0,40	0,32–0,52
	3	90	**180**	230	mm/r	0,13–0,22	0,16–0,24	0,20–0,28	0,24–0,32	0,28–0,40	0,32–0,48
	4	90	**130**	200	mm/r	0,10–0,18	0,16–0,28	0,20–0,32	0,24–0,36	0,28–0,40	0,32–0,52
C	2	70	**110**	140	mm/r	0,03-0,10	0,04-0,12	0,05-0,15	0,05-0,18	0,06-0,21	0,07-0,23
	3	10	**13**	20	mm/r	0,02-0,08	0,03-0,10	0,04-0,12	0,05-0,16	0,05-0,18	0,06-0,20
	4	10	**20**	40	mm/r	0,02-0,08	0,03-0,10	0,04-0,12	0,05-0,16	0,05-0,18	0,06-0,20

Material Group		Cutting Speed — Vc Range — SFM				Inch Recommended Feed Rate per Rev					
		min	Starting Value	max		1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
S	4	30	**40**	70	IPR	.001–.003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008
N	1	330	**750**	890	IPR	.005–.009	.006–.009	.008–.011	.009–.013	.011–.016	.013–.019
	2	330	**720**	890	IPR	.006–.009	.006–.011	.008–.013	.009–.014	.011–.017	.013–.021
	3	300	**590**	750	IPR	.005–.009	.006–.009	.008–.011	.009–.013	.011–.016	.013–.019
	4	300	**430**	660	IPR	.004–.007	.006–.011	.008–.013	.009–.014	.011–.016	.013–.019
C	2	230	**360**	460	IPR	.001-.004	.002-.005	.002-.006	.002-.007	.002-.008	.003-.009
	3	30	**40**	70	IPR	.001-.003	.001-.004	.002-.005	.002-.006	.002-.007	.002-.008
	4	30	**70**	130	IPR	.001-.003	.001-.004	.002-.005	.002-.006	.002-.007	.002-.008

KenTIP FS • DAL • Application Data • KCC10



Material Group		Cutting Speed — Vc Range — m/min			Metric Recommended Feed Rate per Rev						
		min	Starting Value	max		6,0	8,0	10,0	12,0	16,0	20,0
C	2	70	**110**	140	mm/r	0.03–0.10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23

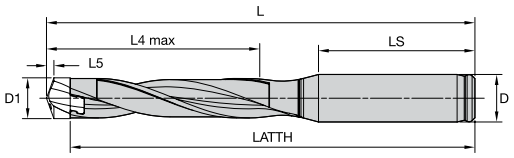
Material Group		Cutting Speed — Vc Range — SFM			Inch Recommended Feed Rate per Rev						
		min	Starting Value	max		1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
C	2	230	**360**	460	IPR	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009

KenTIP FS • SPF • Application Data • KCC10



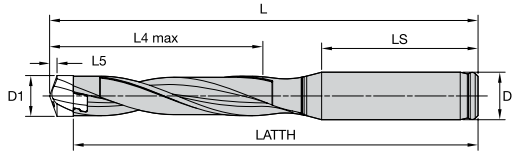
Material Group		Cutting Speed — Vc Range — m/min			Metric Recommended Feed Rate per Rev						
		min	Starting Value	max		6,0	8,0	10,0	12,0	16,0	20,0
C	1	80	**100**	150	mm/r	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20

Material Group		Cutting Speed — Vc Range — SFM			Inch Recommended Feed Rate per Rev						
		min	Starting Value	max		1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
C	1	260	**330**	490	IPR	.002–.008	.002–.008	.002–.008	.002–.008	.002–.008	.002–.008



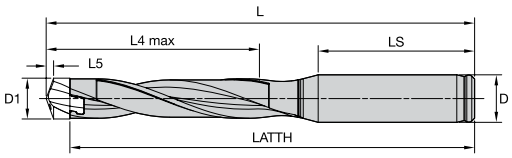
KenTIP FS • Drill Body • 1.5 x D • SS Shank • METRIC

		D1		D1 max		L4 max		L		LATTH		LS		D		
Order Number	ISO Catalog Number	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	SSC
6389570	KTFS060R01SS08M	6,00	.236	6,299	.248	9,00	.354	57,00	2.244	53,50	2.106	37,00	1.457	8,00	.315	A
6389571	KTFS063R01SS08M	6,30	.248	6,599	.260	10,00	.394	58,00	2.284	54,30	2.138	37,00	1.457	8,00	.315	B
6389572	KTFS066R01SS08M	6,60	.260	6,999	.276	11,00	.433	60,00	2.362	56,20	2.213	37,00	1.457	8,00	.315	C
6389573	KTFS070R01SS08M	7,00	.276	7,499	.295	11,00	.433	60,00	2.362	55,90	2.201	37,00	1.457	8,00	.315	D
6389574	KTFS075R01SS08M	7,50	.295	7,999	.315	12,00	.472	61,00	2.402	56,60	2.228	37,00	1.457	8,00	.315	E
6389575	KTFS080R01SS10M	8,00	.315	8,499	.335	13,00	.512	68,00	2.677	63,40	2.496	41,00	1.614	10,00	.394	F
6389576	KTFS085R01SS10M	8,50	.335	8,999	.354	14,00	.551	69,00	2.717	64,10	2.524	41,00	1.614	10,00	.394	G
6389577	KTFS090R01SS10M	9,00	.354	9,499	.374	14,00	.551	69,00	2.717	63,80	2.512	41,00	1.614	10,00	.394	H
6389578	KTFS095R01SS10M	9,50	.374	9,999	.394	15,00	.591	70,00	2.756	64,50	2.539	41,00	1.614	10,00	.394	I
6389448	KTFS100R01SS12M	10,00	.394	10,499	.413	16,00	.630	78,00	3.071	72,20	2.843	46,00	1.811	12,00	.472	J
6389449	KTFS105R01SS12M	10,50	.413	10,999	.433	17,00	.669	79,00	3.110	72,90	2.870	46,00	1.811	12,00	.472	K
6389450	KTFS110R01SS12M	11,00	.433	11,499	.453	17,00	.669	79,00	3.110	72,60	2.858	46,00	1.811	12,00	.472	L
6389471	KTFS115R01SS12M	11,50	.453	11,999	.472	18,00	.709	80,00	3.150	73,30	2.886	46,00	1.811	12,00	.472	M
6389472	KTFS120R01SS14M	12,00	.473	12,499	.492	19,00	.748	83,00	3.268	76,00	2.992	46,00	1.811	14,00	.551	N
6389473	KTFS125R01SS14M	12,50	.492	12,999	.512	20,00	.787	84,00	3.307	76,80	3.024	46,00	1.811	14,00	.551	O



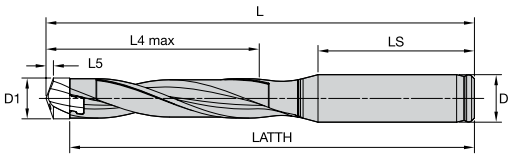
KenTIP FS • Drill Body • 3 x D • SS Shank • METRIC

		D1		D1 max		L4 max		L		LATTH		LS		D		
Order Number	ISO Catalog Number	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	SSC
6389361	KTFS060R03SS08M	6,00	.236	6,299	.248	19,00	.748	67,00	2.638	63,50	2.500	37,00	1.457	8,00	.315	A
6389362	KTFS063R03SS08M	6,30	.248	6,599	.260	20,00	.787	68,00	2.677	64,30	2.532	37,00	1.457	8,00	.315	B
6389363	KTFS066R03SS08M	6,60	.260	6,999	.276	21,00	.827	70,00	2.756	66,20	2.606	37,00	1.457	8,00	.315	C
6389364	KTFS070R03SS08M	7,00	.276	7,499	.295	23,00	.906	72,00	2.835	67,90	2.673	37,00	1.457	8,00	.315	D
6389365	KTFS075R03SS08M	7,50	.295	7,999	.315	24,00	.945	73,00	2.874	68,60	2.701	37,00	1.457	8,00	.315	E
6389366	KTFS080R03SS10M	8,00	.315	8,499	.335	26,00	1.024	81,00	3.189	76,40	3.008	41,00	1.614	10,00	.394	F
6389367	KTFS085R03SS10M	8,50	.335	8,999	.354	27,00	1.063	82,00	3.228	77,10	3.035	41,00	1.614	10,00	.394	G
6389368	KTFS090R03SS10M	9,00	.354	9,499	.374	29,00	1.142	84,00	3.307	78,80	3.102	41,00	1.614	10,00	.394	H
6389369	KTFS095R03SS10M	9,50	.374	9,999	.394	30,00	1.181	85,00	3.347	79,50	3.130	41,00	1.614	10,00	.394	I
6371340	KTFS100R03SS12M	10,00	.394	10,499	.413	32,00	1.260	94,00	3.701	88,20	3.472	46,00	1.811	12,00	.472	J
6371961	KTFS105R03SS12M	10,50	.413	10,999	.433	33,00	1.299	95,00	3.740	88,90	3.500	46,00	1.811	12,00	.472	K
6371962	KTFS110R03SS12M	11,00	.433	11,499	.453	35,00	1.378	97,00	3.819	90,60	3.567	46,00	1.811	12,00	.472	L
6371963	KTFS115R03SS12M	11,50	.453	11,999	.472	36,00	1.417	98,00	3.858	91,30	3.595	46,00	1.811	12,00	.472	M
6371964	KTFS120R03SS14M	12,00	.473	12,499	.492	38,00	1.496	102,00	4.016	95,00	3.740	46,00	1.811	14,00	.551	N
6371965	KTFS125R03SS14M	12,50	.492	12,999	.512	39,00	1.535	103,00	4.055	95,80	3.772	46,00	1.811	14,00	.551	O



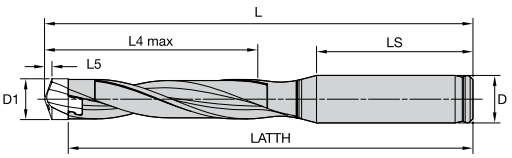
KenTIP FS • Drill Body • 5 x D • SS Shank • METRIC

		D1		D1 max		L4 max		L		LATTH		LS		D		
Order Number	ISO Catalog Number	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	SSC
6389370	KTFS060R05SS08M	6,00	.236	6,299	.248	32,00	1.260	80,00	3.150	76,50	3.012	37,00	1.457	8,00	.315	A
6389381	KTFS063R05SS08M	6,30	.248	6,599	.260	33,00	1.299	81,00	3.189	77,30	3.043	37,00	1.457	8,00	.315	B
6389382	KTFS066R05SS08M	6,60	.260	6,999	.276	35,00	1.378	84,00	3.307	80,20	3.158	37,00	1.457	8,00	.315	C
6389383	KTFS070R05SS08M	7,00	.276	7,499	.295	38,00	1.496	87,00	3.425	82,90	3.264	37,00	1.457	8,00	.315	D
6389384	KTFS075R05SS08M	7,50	.295	7,999	.315	40,00	1.575	89,00	3.504	84,60	3.331	37,00	1.457	8,00	.315	E
6389385	KTFS080R05SS10M	8,00	.315	8,499	.335	43,00	1.693	98,00	3.858	93,40	3.677	41,00	1.614	10,00	.394	F
6389386	KTFS085R05SS10M	8,50	.335	8,999	.354	45,00	1.772	100,00	3.937	95,10	3.744	41,00	1.614	10,00	.394	G
6389387	KTFS090R05SS10M	9,00	.354	9,499	.374	48,00	1.890	103,00	4.055	97,80	3.850	41,00	1.614	10,00	.394	H
6389388	KTFS095R05SS10M	9,50	.374	9,999	.394	50,00	1.969	105,00	4.134	99,50	3.917	41,00	1.614	10,00	.394	I
6371973	KTFS100R05SS12M	10,00	.394	10,499	.413	53,00	2.087	115,00	4.528	109,20	4.299	46,00	1.811	12,00	.472	J
6371974	KTFS105R05SS12M	10,50	.413	10,999	.433	55,00	2.165	117,00	4.606	110,90	4.366	46,00	1.811	12,00	.472	K
6371975	KTFS110R05SS12M	11,00	.433	11,499	.453	58,00	2.283	120,00	4.724	113,60	4.472	46,00	1.811	12,00	.472	L
6371976	KTFS115R05SS12M	11,50	.453	11,999	.472	60,00	2.362	122,00	4.803	115,30	4.539	46,00	1.811	12,00	.472	M
6371977	KTFS120R05SS14M	12,00	.473	12,499	.492	63,00	2.480	127,00	5.000	120,00	4.724	46,00	1.811	14,00	.551	N
6371978	KTFS125R05SS14M	12,50	.492	12,999	.512	65,00	2.559	129,00	5.079	121,80	4.795	46,00	1.811	14,00	.551	O



KenTIP FS • Drill Body • 3 x D • SS Shank • INCH

Order Number	ANSI Catalog Number	D1	D1 max	L4 max	L	LATTH	LS	D	SSC
6389398	KTFS0237R03SS031	.236	.248	.748	2.717	2.579	1.520	.313	A
6389399	KTFS0249R03SS031	.248	.260	.787	2.756	2.610	1.520	.313	B
6389400	KTFS0260R03SS031	.260	.276	.827	2.795	2.646	1.520	.313	C
6389401	KTFS0276R03SS031	.276	.295	.906	2.874	2.713	1.520	.313	D
6389402	KTFS0296R03SS031	.295	.315	.945	3.001	2.828	1.520	.313	E
6389403	KTFS0315R03SS038	.315	.335	1.024	3.150	2.969	1.590	.375	F
6389404	KTFS0335R03SS038	.335	.354	1.063	3.189	2.996	1.590	.375	G
6389405	KTFS0355R03SS038	.354	.374	1.142	3.268	3.063	1.590	.375	H
6389406	KTFS0375R03SS038	.374	.394	1.181	3.307	3.091	1.590	.375	I
6372000	KTFS0394R03SS044	.394	.413	1.260	3.543	3.315	1.670	.438	J
6372011	KTFS0414R03SS044	.413	.433	1.299	3.583	3.343	1.670	.438	K
6372012	KTFS0434R03SS044	.433	.453	1.378	3.661	3.409	1.670	.438	L
6372013	KTFS0453R03SS050	.453	.472	1.417	3.858	3.595	1.790	.500	M
6372014	KTFS0473R03SS050	.473	.492	1.496	3.937	3.661	1.790	.500	N
6372015	KTFS0493R03SS050	.492	.512	1.535	3.976	3.693	1.790	.500	O



KenTIP FS • Drill Body • 5 x D • SS Shank • INCH

Order Number	ANSI Catalog Number	D1	D1 max	L4 max	L	LATTH	LS	D	SSC
6389407	KTFS0237R05SS031	.236	.248	1.260	3.228	3.091	1.520	.313	A
6389408	KTFS0249R05SS031	.248	.260	1.299	3.268	3.122	1.520	.313	B
6389409	KTFS0260R05SS031	.260	.276	1.378	3.347	3.197	1.520	.313	C
6389410	KTFS0276R05SS031	.276	.295	1.496	3.465	3.303	1.520	.313	D
6389421	KTFS0296R05SS031	.295	.315	1.575	3.631	3.458	1.520	.313	E
6389422	KTFS0315R05SS038	.315	.335	1.693	3.819	3.638	1.590	.375	F
6389423	KTFS0335R05SS038	.335	.354	1.772	3.898	3.705	1.590	.375	G
6389424	KTFS0355R05SS038	.354	.374	1.890	4.016	3.811	1.590	.375	H
6389425	KTFS0375R05SS038	.374	.394	1.969	4.095	3.878	1.590	.375	I
6372023	KTFS0394R05SS044	.394	.413	2.087	4.370	4.142	1.670	.438	J
6372024	KTFS0414R05SS044	.413	.433	2.165	4.449	4.209	1.670	.438	K
6372025	KTFS0434R05SS044	.433	.453	2.283	4.567	4.315	1.670	.438	L
6372026	KTFS0453R05SS050	.453	.472	2.362	4.803	4.539	1.790	.500	M
6372027	KTFS0473R05SS050	.473	.492	2.480	4.921	4.646	1.790	.500	N
6372028	KTFS0493R05SS050	.492	.512	2.559	5.000	4.717	1.790	.500	O

HiPACS

Aerospace Fastener Hole Drilling and Countersinking System

Materials

C N S

Applications

- Drilling
- Drilling: Stacked Plates
- Drilling: Countersinking/ Stroke Chamfering
- Non-Coolant: Dry
- Through-Coolant: Wet/MQL

Machine Tools

- CNC

The HiPACS drilling and countersinking tool is a unique high-precision system, achieving 1° angular countersink tolerances in aerospace fastener hole applications.

Designed to be clamped in a standard hydraulic chuck, HiPACS consists of three standard off-the-shelf components:

- The HiPACS reducer sleeve, featuring a built-in, high-precision pocket seat for a countersinking insert.
- The HiPACS PCD countersinking insert.
- The HiPACS solid carbide drills with SPF and DAL point geometry.

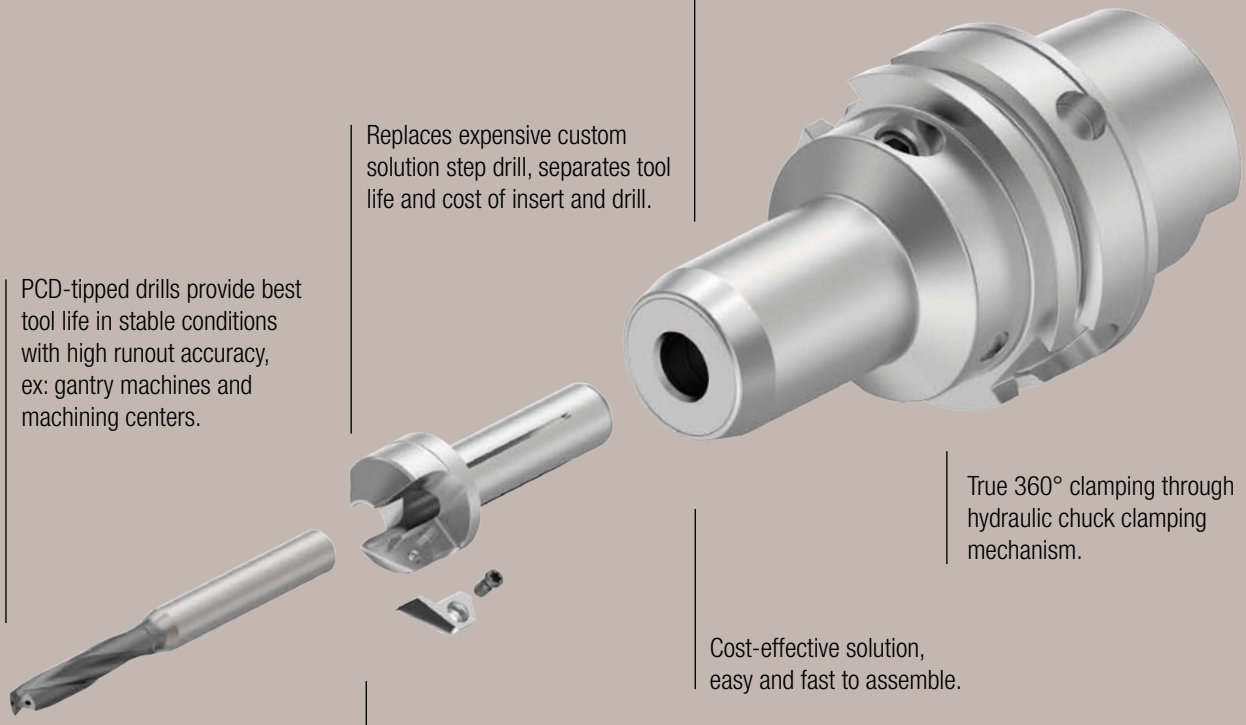
This easy-to-assemble system reduces cost per hole since drill and chamfer insert can be exchanged independently from another.

The straight shank enables length adjustment of 10mm.

Designed to be clamped in a standard hydraulic chuck.

Replaces expensive custom solution step drill, separates tool life and cost of insert and drill.

PCD-tipped drills provide best tool life in stable conditions with high runout accuracy, ex: gantry machines and machining centers.



True 360° clamping through hydraulic chuck clamping mechanism.

Cost-effective solution, easy and fast to assemble.

High-precision system to drill and chamfer in one operation.

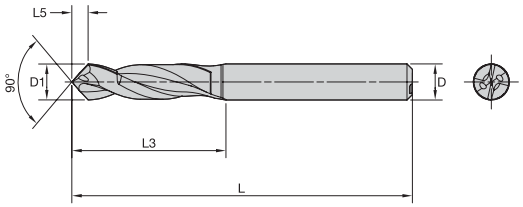
Diamond coated carbide drills offer competitive tool life in less stable conditions like on robot end effectors.

B516 – SPF PCD-tipped drill for composites.

B536 – SPF Diamond-coated carbide drill for composites.

B566 – DAL PCD-tipped drill for CFRP stacks with metal exit and non-ferrous materials.

B556 – DAL Diamond-coated carbide drill for CFRP stacks with metal exit.



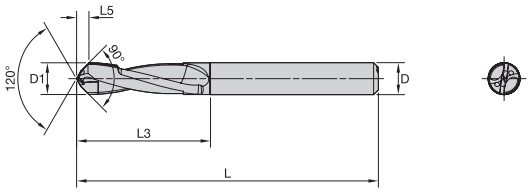
● Primary
○ Secondary

P	
M	
K	
N	
S	
H	
C	●

KCC05

HiPACS • SPF • B536 • 3 X D • INTERNAL COOLANT

	D1		fraction	L	L3	L5	D	
Catalog Number	mm	in						
B536H04828SPFP	4,83	.1901	—	75	33	2,2	6	•
B536H05558SPFP	5,56	.2187	7/32	75	33	2,5	6	•
B536H06350SPFP	6,35	.2500	1/4	75	33	2,9	8	•
B536H07938SPFP	7,94	.3125	5/16	75	33	3,6	8	•
B536H09525SPFP	9,53	.3750	3/8	75	33	4,3	10	•



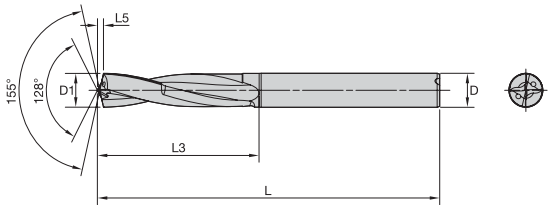
● Primary
○ Secondary

P	
M	
K	
N	
S	
H	
C	●

KDC05

HiPACS • SPF • B516 • 3 X D • INTERNAL COOLANT

	D1		fraction	L	L3	L5	D	
Catalog Number	mm	in						
B516H04828SPFP	4,83	.1901	—	75	33	1,9	6	•
B516H05558SPFP	5,56	.2188	7/32	75	33	2,2	6	•
B516H06350SPFP	6,35	.2500	1/4	75	33	2,5	8	•
B516H07938SPFP	7,94	.3125	5/16	75	33	3,1	8	•
B516H09525SPFP	9,53	.3750	5/8	75	33	3,7	10	•



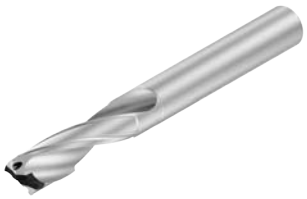
● Primary
○ Secondary

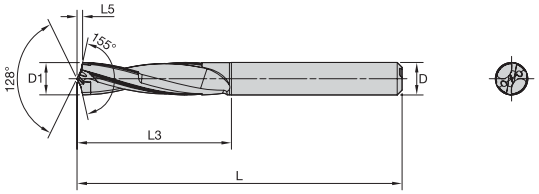
P	
M	
K	
N	
S	
H	
C	●

KCC05

HiPACS • DAL • B556 • 3 X D • INTERNAL COOLANT

	D1		fraction	L	L3	L5	D	
Catalog Number	mm	in						
B556H04828DALP	4,83	.1901	—	80	38	0,9	6	•
B556H05558DALP	5,56	.2188	7/32	80	38	1,0	6	•
B556H06350DALP	6,35	.2500	1/4	80	38	1,1	8	•
B556H07938DALP	7,94	.3125	5/16	80	38	1,4	8	•
B556H09525DALP	9,53	.3750	3/8	80	38	1,7	10	•





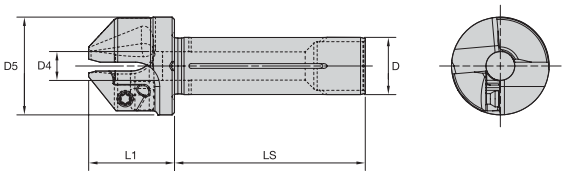
● Primary
○ Secondary

P		
M		
K		
N		●
S		○
H		
C		●

KDC15

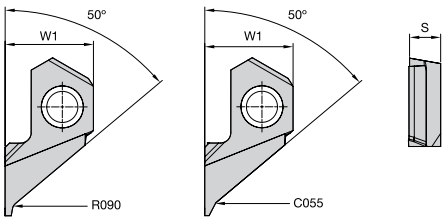
HiPACS • DAL • B566 • 3 X D • INTERNAL COOLANT

	D1		fraction	L	L3	L5	D	
Catalog Number	mm	in						
B566H04828DALP	4,83	.1901	—	80	38	0,8	6	•
B566H05558DALP	5,56	.2188	7/32	80	38	1,0	6	•
B566H06350DALP	6,35	.2500	1/4	80	38	1,1	8	•
B566H07938DALP	7,94	.3125	5/16	80	38	1,4	8	•
B566H09525DALP	9,53	.3750	3/8	80	38	1,7	10	•



HiPACS • Reducer Sleeve

		D		D4		D5		L1		LS	
Order Number	Catalog Number	mm	in	mm	in	mm	in	mm	in	mm	in
6770413	P12MHC060M	12	.472	6	.236	20,5	.807	18,0	.709	40	1.575
6770414	P12MHC080M	12	.472	8	.315	22,3	.878	18,0	.709	40	1.575
6770416	P12MHC100M	12	.472	10	.394	24,3	.957	18,0	.709	40	1.575



● Primary
○ Secondary

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C		●

KD1425

HiPACS • Chamfer Insert

	W1		S		
Catalog Number	mm	in	mm	in	
PC06350M100C055	8,52	.335	3,11	.122	•
PC06350M100R090	8,52	.335	3,11	.122	•

SPF • B536 • Internal Coolant • Application Data • KCC05

Material Group		Cutting Speed — Vc Range — m/min			Metric Recommended Feed Rate per Rev							
		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
C	1	90	**120**	180	mm/r	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	—	—

Material Group		Cutting Speed — Vc Range — SFM			Inch Recommended Feed Rate per Rev							
		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
C	1	300	**390**	590	IPR	.002–.008	.002–.008	.002–.008	.002–.008	.002–.008	.002–.008	—	—

SPF • B516 • Internal Coolant • Application Data • KDC05

Material Group		Cutting Speed — Vc Range — m/min			Metric Recommended Feed Rate per Rev							
		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
C	1	90	**120**	180	mm/r	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	0,05–0,20	—	—

Material Group		Cutting Speed — Vc Range — SFM			Inch Recommended Feed Rate per Rev							
		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
C	1	300	**390**	590	IPR	.002–.008	.002–.008	.002–.008	.002–.008	.002–.008	.002–.008	—	—

DAL • B566 • Internal Coolant • Application Data • KDC15

Material Group		Cutting Speed — Vc Range — m/min			Metric Recommended Feed Rate per Rev							
		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
C	2	80	**120**	150	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23
	3	10	**15**	25	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23
	4	10	**25**	50	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23
S	4	10	**15**	25	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23
N	1	100	**230**	270	mm/r	0,13–0,25	0,14–0,29	0,17–0,35	0,21–0,42	0,27–0,50	0,33–0,57	0,37–0,69	0,43–0,82
	2	100	**220**	270	mm/r	0,14–0,23	0,15–0,28	0,17–0,34	0,22–0,39	0,29–0,46	0,34–0,54	0,39–0,67	0,45–0,80
	3	90	**180**	230	mm/r	0,13–0,20	0,14–0,21	0,16–0,27	0,20–0,33	0,28–0,40	0,33–0,45	0,38–0,60	0,44–0,68
	4	90	**130**	200	mm/r	0,10–0,18	0,12–0,20	0,14–0,26	0,16–0,30	0,18–0,34	0,20–0,38	0,24–0,42	0,28–0,46

Material Group		Cutting Speed — Vc Range — SFM			Inch Recommended Feed Rate per Rev							
		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
C	2	260	**390**	490	IPR	.001–.002	.001–003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009
	3	30	**50**	80	IPR	.001–.002	.001–003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009
	4	30	**80**	160	IPR	.001–.002	.001–003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009
S	4	30	**50**	80	IPR	.001–.002	.001–003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009
N	1	330	**750**	890	IPR	.005–.010	.006–.011	.007–.014	.008–.017	.011–.020	.013–.022	.015–.027	.017–.032
	2	330	**720**	890	IPR	.006–.009	.006–.011	.007–.013	.009–.015	.011–.018	.013–.021	.015–.026	.018–.032
	3	300	**590**	750	IPR	.005–.008	.006–.008	.006–.011	.008–.013	.011–.016	.013–.018	.015–.024	.017–.027
	4	300	**430**	660	IPR	.004–.007	.005–.008	.006–.010	.006–.012	.007–.013	.008–.015	.009–.017	.011–.018

DAL • B556 • Internal Coolant • Application Data • KCC05

Material Group		Cutting Speed — Vc Range — m/min			Metric Recommended Feed Rate per Rev							
		min	Starting Value	max		3,0	4,0	6,0	8,0	10,0	12,0	16,0	20,0
C	2	80	**120**	150	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23
	3	10	**15**	25	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23
	4	10	**25**	50	mm/r	0,01–0,05	0,02–0,07	0,03–0,10	0,04–0,12	0,05–0,15	0,05–0,18	0,06–0,21	0,07–0,23

Material Group		Cutting Speed — Vc Range — SFM			Inch Recommended Feed Rate per Rev							
		min	Starting Value	max		1/8 .125	3/16 .188	1/4 .250	5/16 .313	3/8 .375	1/2 .500	5/8 .625	3/4 .750
C	2	260	**390**	490	IPR	.001–.002	.001–003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009
	3	30	**50**	80	IPR	.001–.002	.001–003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009
	4	30	**80**	160	IPR	.001–.002	.001–003	.001–.004	.002–.005	.002–.006	.002–.007	.002–.008	.003–.009

KenShape™ MaPACS & MaxPACS

Piloted PCD-Countersinking Solutions for Handheld Machines and Automated Drilling Units

Materials

C

Applications

Countersinking

Non-Coolant: Dry

Machine Tools

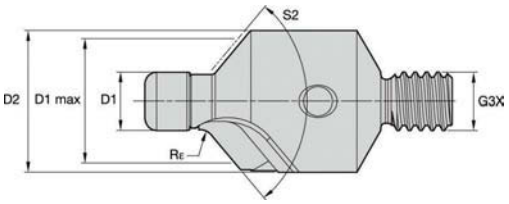
Hand Drill

Brazed

Indexable

Countersinking Solutions for Handheld Machines

- For manual countersinking applications on aerospace CFRP components.
- Carbide pilot provides high wear resistance and excellent guiding characteristics.
- One PCD cutting edge for low operator thrust force and excellent tool life.
- Customizable.
- MaPACS brazed version — Designed for up to three regrinds for lowest cost per part.
- MaxPACS indexable version — Delivering a highly economical solution without regrinding.
- Recommended working RPM of 2000–4000.



● Primary
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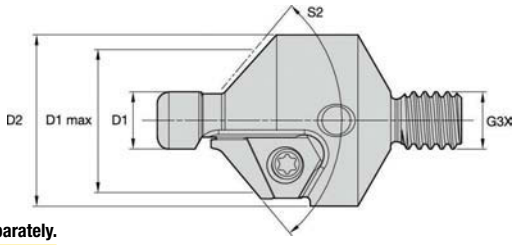
KD1415

KenShape MaPACS • Brazed Countersink

		D2		D1 max		D1		Rε				
Order Number	Catalog Number	in	mm	in	mm	in	mm	in	mm	S2	G3X	
7085924*	MPC04816M100R093	0.5512	14	0.425	10.795	0.1896	4.816	0.0365	0.927	100	1/4 - 28 UNF	•
7085925	MPC06340M100R093	0.6102	15.5	0.55	13.97	0.2496	6.34	0.0365	0.927	100	1/4 - 28 UNF	•
7085927*	MPC06340M130R093	0.6102	15.5	0.55	13.97	0.2496	6.34	0.0365	0.927	130	1/4 - 28 UNF	•
7085926*	MPC07927M100R118	0.75	19.05	0.7087	18	0.3121	7.927	0.0465	1.181	100	1/4 - 28 UNF	•

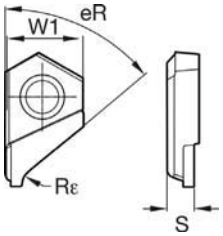
NOTE: *Made-to-order item. Manufacturing lead time and minimum order quantity applies.



KenShape MaxPACS • Tool Body

		D2		D1 max		D1			
Order Number	Catalog Number	in	mm	in	mm	in	mm	S2	G3X
7085928*	MXPC04816M100	0.625	15.875	0.425	10.795	0.1896	4.816	100	1/4 - 28 UNF
7085929	MXPC06340M100	0.75	19.05	0.55	13.97	0.2496	6.34	100	1/4 - 28 UNF
7085951*	MXPC06340M130	0.75	19.05	0.55	13.97	0.2496	6.34	130	1/4 - 28 UNF
7085930*	MXPC07927M100	0.75	19.05	0.7091	18.01	0.3121	7.927	100	1/4 - 28 UNF

NOTE: *Made-to-order item. Manufacturing lead time and minimum order quantity applies.



● Primary
○ Secondary

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KD1415

KenShape MaxPACS Inserts

		eR		W1		Rε			
Order Number	Catalog Number	in	mm	in	mm	in	mm	S	
7085952*	MXPX04816M100R093	50	50	0.2739	6.956	0.0365	0.927	2.5	•
7085953	MXPX06340M100R093	50	50	0.2739	6.956	0.0365	0.927	2.5	•
7085955*	MXPX06340M130R093	65	65	0.4689	11.91	0.0365	0.927	2.5	•
7085954*	MXPX07927M100R118	50	50	0.4689	11.91	0.0465	1.181	2.5	•

NOTE: *Made-to-order item. Manufacturing lead time and minimum order quantity applies.

Solid Carbide Routers

For Slotting and Trimming

Materials

C N

Applications

- Shoulder Milling
- Plunging
- Slotting
- Ramping
- Pocketing

Machine Tools

- CNC
- Robot

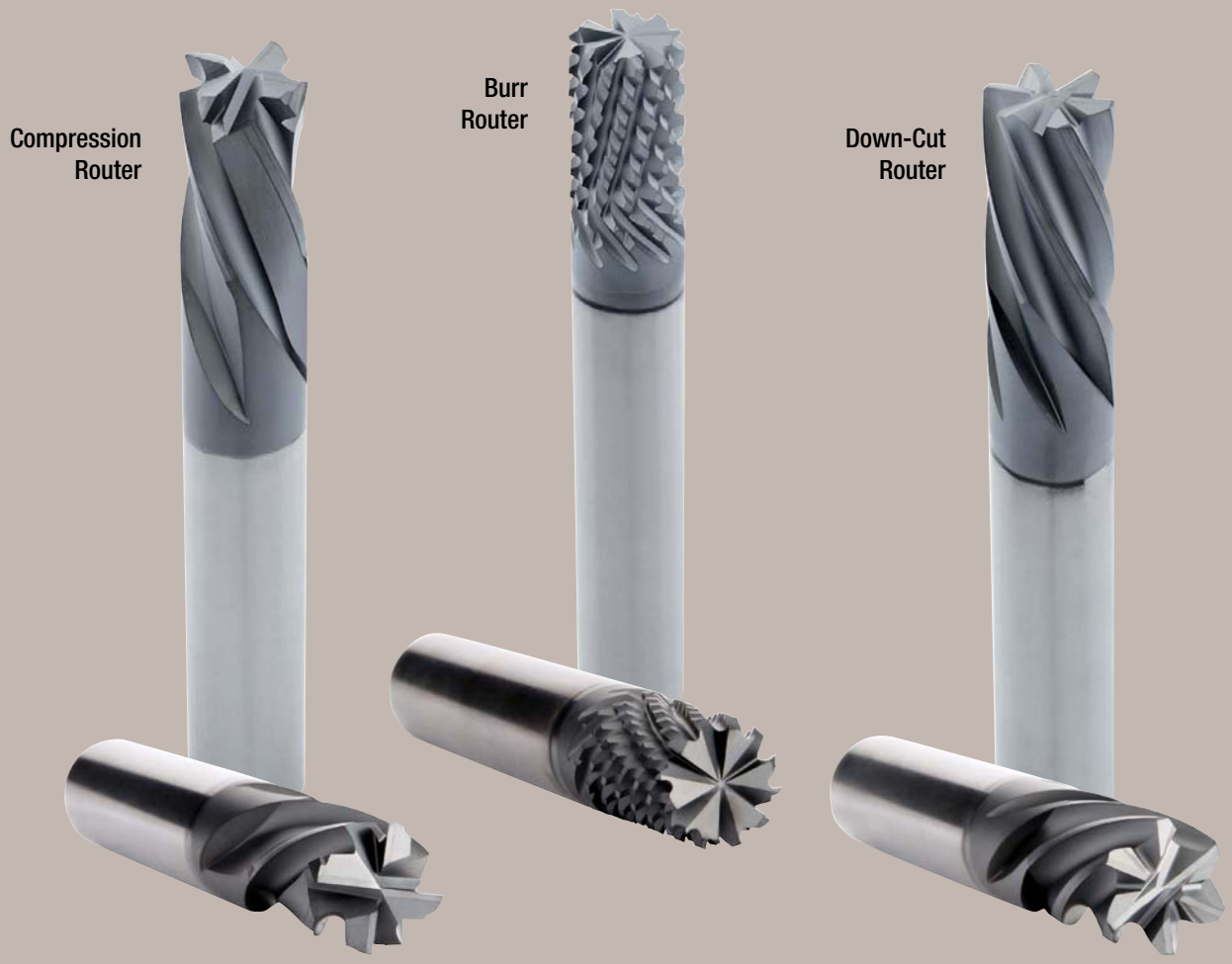
Kennametal Solid Carbide Routers provide excellent tool life and produce smooth finishes with improved edge quality when machining difficult composites and non-ferrous components.

Features

- Compression routers for trimming, designed to provide high feed rates and promote stable cutting conditions. Up-cut/down-cut geometry provides quality edges and surface finish on both sides of the material.
- Burr-routers for highest material removal rates and superior surface quality. Designed for trimming and slotting fiberglasses and composites.
- Down-cut routers intended for surface work and floor finishing. Excellent ramping capabilities eliminate surface delamination while machining.
- Proprietary substrate optimizes coating adhesion and improves tool life.

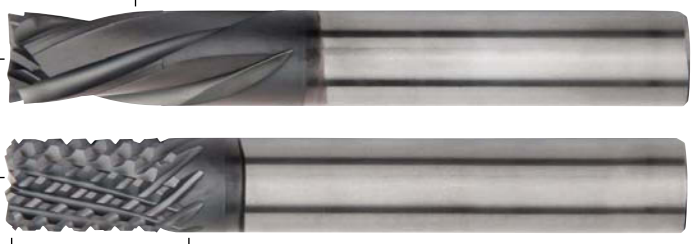
Portfolio

- Standard offering for all 3 router styles including metric (6,0–10mm) and imperial tools (0.25"–0.5").
- Intermediate diameters are available as semi-standards.
- Customized tool designs with additional flutes available for special wire CFRP.
- Burr routers with end mill style, drill point style, or blank, non cutting end face styles available on request.



Up-Cut/Down-Cut Geometry
Delamination by directing cutting forces into the workpiece.

Diamond Coating
For excellent tool life and smooth finishes with improved edge quality.



Highest Number of Cutting Edges
For highest material removal rates and excellent temperature control.

Extended Length of Cut Versions
Enable machining at various lengths along the cutting edges to extend the tool life of each router.

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○ Secondary

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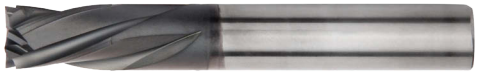

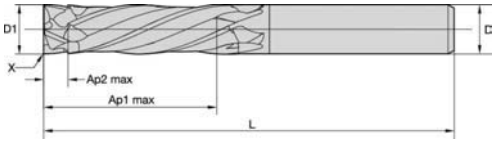

Compression Routers • METRIC

KCN05

Order Number mm	Catalog Number mm	D1 mm	D mm	Ap1 Max mm	Ap2 Max mm	L mm	BCH mm	
6447195	CCNC0800A4AH	8	8	18	3.175	83	0.127	•
4137282	CCNC1000A4BH	10	10	35.991	3.175	100	0.127	•

● Primary
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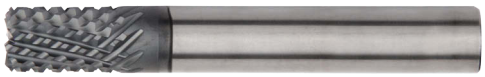

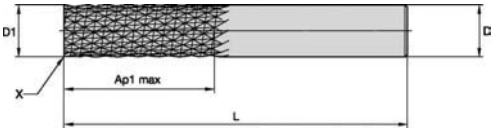

Burr Routers • METRIC

KCN05

Order Number mm	Catalog Number mm	D1 mm	D mm	Ap1 Max mm	L mm	BCH mm	
4137475	CBDB0600AXAS	6	6	18	63	0.508	•
4137476	CBDB0600AXBS	6	6	36	100	0.508	•
4137477	CBDB1000AXAS	10	10	18	83	0.889	•
4137478	CBDB1000AXBS	10	10	36	100	0.889	•

● Primary
○ Secondary

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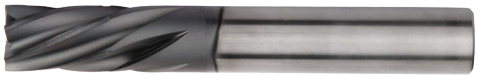

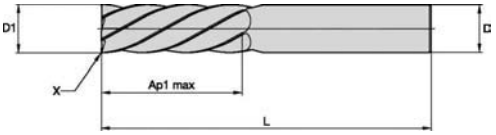

Down-Cut Routers • METRIC

KCN05

Order Number mm	Catalog Number mm	D1 mm	D mm	Ap1 Max mm	L mm	BCH mm	
4137735	CDDC0600A6AH	6	6	18	63	0.254	•
4137736	CDDC0600A6BH	6	6	36	100	0.254	•
6447197	CDDC0800A6AH	8	8	18	83	0.254	•
6447198	CDDC0800A6BH	8	8	36	100	0.254	•
4137738	CDDC1000A6BH	10	10	36	100	0.254	•

● Primary
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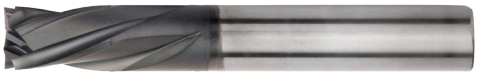

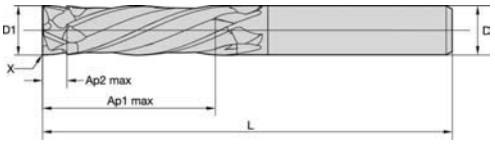

Compression Routers • INCH

KCN05

Order Number	Catalog Number	D1	D	Ap1 Max	Ap2 Max	L	BCH	
4137446	CCNC0250J3AH	1/4	1/4	3/4	1/8	2 1/2	0.005	•
4137279	CCNC0500J4AH	1/2	1/2	3/4	1/8	3 1/4	0.005	•

● Primary
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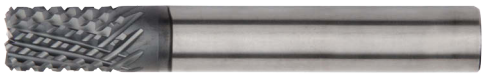

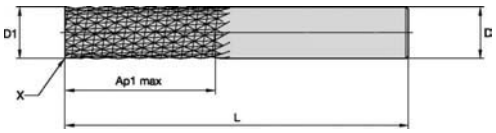

Burr Routers • INCH

KCN05

Order Number	Catalog Number	D1	D	Ap1 Max	L	BCH	
4137459	CBDB0250JXAS	1/4	1/4	3/4	2 1/2	0.020	•
4137460	CBDB0250JXBS	1/4	1/4	1 1/2	1 1/2	0.020	•
4137461	CBDB0375JXAS	3/8	3/8	3/4	3 1/4	0.035	•
4137462	CBDB0375JXBS	3/8	3/8	1 1/2	4	0.035	•
4137473	CBDB0500JXAS	1/2	1/2	3/4	3 1/4	0.045	•
4137474	CBDB0500JXBS	1/2	1/2	1 1/2	4	0.045	•

● Primary
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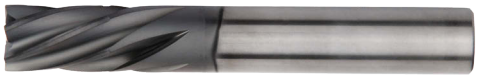
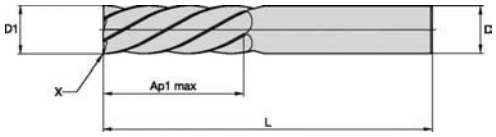




Down-Cut Routers • INCH

KCN05

Order Number	Catalog Number	D1	D	Ap1 Max	L	BCH	
4137719	CDDC0250J6AH	1/4	1/4	3/4	2 1/2	0.010	•
4137720	CDDC0250J6BH	1/4	1/4	1 1/2	4	0.010	•
4137721	CDDC0375J6AH	3/8	3/8	3/4	3 1/4	0.010	•
4137733	CDDC0500J6AH	1/2	1/2	3/4	3 1/4	0.010	•
4137734	CDDC0500J6BH	1/2	1/2	1 1/2	4	0.010	•

Application Data

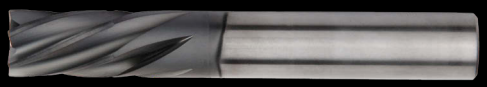
Compression Routers • METRIC


Material Group		Side Milling (A)		KCN05		Feed per Tooth fz information is for side milling (A)			
		A		Cutting Speed Vc m/min			D1 Diameter		
		ap	ae	min	max	mm	6,0	10,0	12,0
C	1	Ap1 max	0,5 x D	100	150	fz	0,018	0,030	0,036

Burr Routers • METRIC


Material Group		Side Milling (A) and Slotting (B)			KCN05		Feed per Revolution fn information is for Side Milling (A). For Slotting (B), reduce fn by 10%.			
		A		B	Cutting Speed Vc m/min			D1 Diameter		
		ap	ae	ap	min	max	mm	6,0	10,0	12,0
C	1	Ap1 max	0,2 x D	1 x D	100	150	fn	0,150	0,250	0,300

Down-Cut Routers • METRIC

Material Group		Side Milling (A)		KCN05		Feed per Tooth fz information is for side milling (A).			
		A		Cutting Speed Vc m/min			D1 Diameter		
		ap	ae	min	max	mm	6,0	10,0	12,0
C	1	Ap1 max	1 x D	100	150	fz	0,018	0,030	0,036

Application Data

Compression Routers • INCH

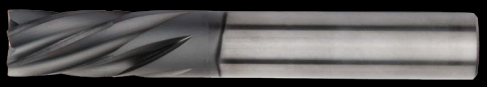

Material Group		Side Milling (A)		KCN05		Feed per Tooth fz information is for side milling (A)			
		A		Cutting Speed Vc SFM			D1 Diameter		
		ap	ae	min	max	frac	1/4	3/8	1/2
C	1	Ap1 max	0.5 x D	330	500	fz	0.007	0.0012	0.0014

Burr Routers • INCH



Material Group		Side Milling (A) and Slotting (B)			KCN05		Feed per Revolution Inch per revolution (IPR) information is for Side Milling (A). For Slotting (B), reduce IPR by 10%.				
		A		B	Cutting Speed Vc SFM			D1 Diameter			
		ap	ae	ap	min	max	frac	1/4	3/8	1/2	1/2
C	1	Ap1 max	0.2 x D	1 x D	330	500	IPR	0.0059	0.0098	0.0118	0.0118

Down-Cut Routers • INCH

Material Group		Side Milling (A)		KCN05		Feed per Tooth fz information is for side milling (A)			
		A		Cutting Speed Vc SFM			D1 Diameter		
		ap	ae	min	max	frac	1/4	3/8	1/2
C	1	Ap1 max	1 x D	330	500	fz	0.018	0.030	0.036

Mill 1–10™

High-Performance Indexable Milling

Multifunctional platform for shoulder, ramp, slot, plunge and helical milling in all materials.

Materials

P M K N S C

Applications

- Face Milling
- Shoulder Milling
- Slotting

Machine Tools

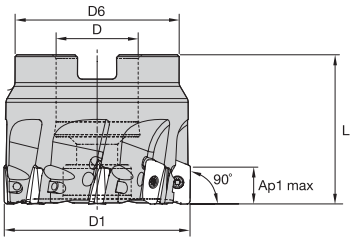
- CNC

Features

- Super positive cutting rake leads to low cutting forces and enables higher feed rates.
- Inserts feature innovative margin along the main cutting edge for perfect edge stability.
- Ideal for machining of aluminum, non-ferrous alloys and composites.

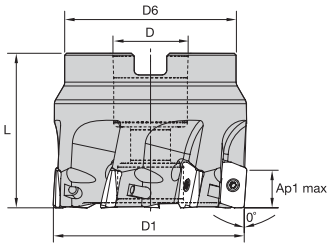
Portfolio

- Various cutter styles available as standard for maximum flexibility on the shop floor.
- PCD-tipped inserts with different corner radii available off the shelf.



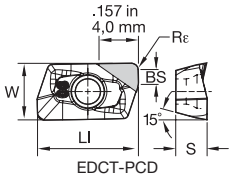
Mill 1-10 Indexable Shell Mills • *METRIC*

Order Number	Catalog Number	D1	D	D6	L	Ap1 max	Z	Max ramp angle	Kg	Max RPM
3745674	40A04RS90ED10D	40	16	37	40	9,9	4	2.0°	0,25	31600
3745675	40A06RS90ED10D	40	16	37	40	9,9	6	2.0°	0,24	31600
3745676	50A05RS90ED10D	50	22	44	40	9,9	5	1.5°	0,38	28300
3745677	50A08RS90ED10D	50	22	44	40	9,9	8	1.5°	0,36	28300
3745678	63A06RS90ED10D	63	22	44	40	9,9	6	1.0°	0,54	25200
3745679	63A09RS90ED10D	63	22	44	40	9,9	9	1.0°	0,53	25200
3745680	80A08RS90ED10D	80	27	60	50	9,9	8	.8°	1,26	22400
3745681	80A10RS90ED10D	80	27	60	50	9,9	10	.8°	1,25	22400
3745682	100B08RS90ED10D	100	32	80	50	9,9	8	0.5°	1,88	20000
3745703	100B12RS90ED10D	100	32	80	50	9,9	12	0.5°	1,85	20000



Mill 1-10 Indexable Shell Mills • *INCH*

Order Number	Catalog Number	D1	D	D6	L	Ap1 max	Z	Max ramp angle	Lbs	Max RPM
3745039	M1D150E1004S075L157	1.5	0.75	1.42	1.575	0.391	4	2.0°	0.46	32400
3745040	M1D150E1006S075L157	1.5	0.75	1.42	1.575	0.391	6	2.0°	0.49	32400
3745041	M1D200E1005S075L157	2	0.75	1.75	1.575	0.389	5	1.5°	0.92	28100
3745042	M1D200E1008S075L157	2	0.75	1.75	1.575	0.389	8	1.5°	0.89	28100
3745043	M1D250E1006S075L157	2.5	0.75	1.75	1.575	0.389	6	1.0°	1.29	25100
3745045	M1D250E1009S075L157	2.5	0.75	1.75	1.575	0.389	9	1.0°	1.26	25100
3745047	M1D300E1008S100L175	3	1	2.19	1.75	0.389	8	.8°	2.08	22900
3745048	M1D300E1010S100L175	3	1	2.19	1.75	0.389	10	.8°	2.07	22900
3745049	M1D400E1008S150L200	4	1.5	3.38	2	0.389	8	.5°	3.82	19800



● Primary
○ Secondary

P		
M		
K		
N		●
S		
H		

KD1410

EDCT-PCD

Order Number	Catalog Number	LI	W	S	BS	Re	hm	Cutting Edges	
3759083	EDCT10T304PDFR-PCD	0.474	0.266	0.148	0.083	0.016	0.001	1	•
3759084	EDCT10T308PDFR-PCD	0.474	0.265	0.148	0.067	0.031	0.001	1	•

Application Data METRIC

Mill 1-10 Indexable Shell Mills

Insert style	Cutting diameter	Max ramp angle to non-cutting corner tangent	Max ramp angle to steel body interference	DH min (min hole diameter)	DHI min (min flat-bottomed hole diameter)	Max diameter (no flat bottom)
Mill-1, 10mm	40	2,0°	2,3°	67,30	76,61	80
Mill-1, 10mm	42	1,9°	2,1°	71,32	80,60	82
Mill-1, 10mm	50	1,5°	1,6°	87,53	96,86	100
Mill-1, 10mm	63	1,2°	1,2°	113,54	122,86	126
Mill-1, 10mm	80	0,9°	0,9°	147,54	156,85	160
Mill-1, 10mm	100	0,7°	0,7°	187,54	196,85	200

NOTE: Max ramp angle decreases as nose radius increases.

Recommended Starting Feeds [mm]

Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)

Light Machining | General Purpose | Heavy Machining

Insert Geometry	5%			10%			20%			30%			40-100%			Insert Geometry
.F..-PCD	0,12	0,35	0,58	0,08	0,25	0,42	0,06	0,19	0,31	0,06	0,16	0,27	0,05	0,15	0,25	.F..-PCD

Application Data INCH

Mill 1-10 Indexable Shell Mills

Insert style	Cutting diameter	Max ramp angle to non-cutting corner tangent	Max ramp angle to steel body interference	DH min (min hole diameter)	DHI min (min flat-bottomed hole diameter)	Max diameter (no flat bottom)
Mill-1, 10mm	1.5	2.2°	2.4°	2.499	2.867	3
Mill-1, 10mm	2	1.2°	1.6°	3.509	3.876	4
Mill-1, 10mm	2.5	1.2°	1.2°	4.509	4.876	5
Mill-1, 10mm	3	0.9°	1.0°	5.509	5.876	6
Mill-1, 10mm	4	0.7°	0.7°	7.509	7.876	8

NOTE: Max ramp angle decreases as nose radius increases.

Recommended Starting Feeds [IPT]

Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)

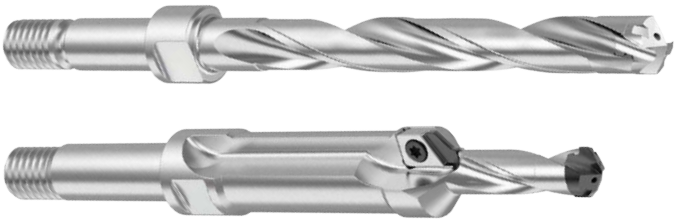
Light Machining | General Purpose | Heavy Machining

Insert Geometry	5%			10%			20%			30%			40-100%			Insert Geometry
.F..-PCD	0.005	0.014	0.023	0.003	0.01	0.017	0.003	0.008	0.013	0.002	0.007	0.011	0.002	0.006	0.01	.F..-PCD

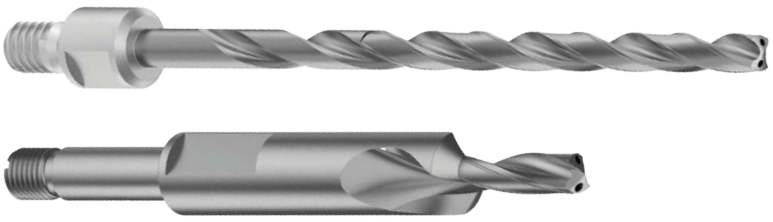
Drilling Solutions for Automated Drilling Units (ADU)

Modular and solid drills with material-specific cutting geometries and individual shank styles.

KTFS Modular Drills



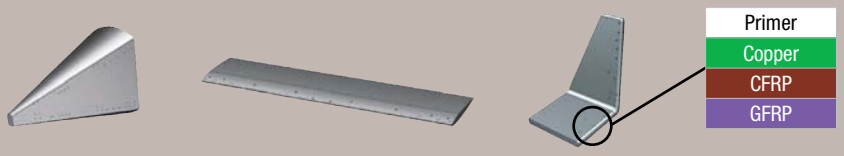
Solid Carbide Drills



PROVEN SOLUTION: Countersinking

Machine Tools

Hand Drill



MaxPACS

PCD • Countersinking

Workpiece	Flap Support, Winglet & Aft Body
Material	Stacks Primer/Copper/CFRP/GFRP
Tool Description	Countersink Cutter Ø19,05, One Indexable Cutting Insert
Operation	Finishing
Cutting Edge	PCD
Vc	100 m/min (328 SFM)
F	Hand Feed
Depth	0.166 in (6,5 mm)
Coolant Supply	No

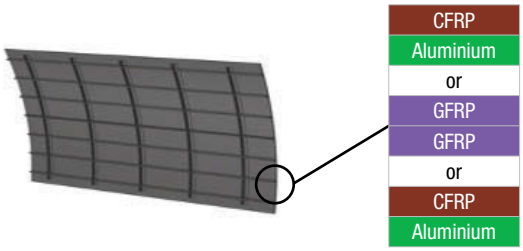
- An aerospace supplier requested the reduction of tool handling time and overall tool cost.
- Kennametal proposed the MaxPACS countersink and reduced the tool float by eliminating the need for reconditioning. Machine up-time increased by eliminating the need to disassemble thanks to an indexable design.

2x Tool Life Achieved

PROVEN SOLUTION: Drilling

Machine Tools

CNC



HiPACS • Drill & Chamfer Combination Tool

DAL Drills • PCD Stacks

Workpiece	Fuselage
Material	CFRP / Metallic Stack
Tool Description	HiPACS Combination System With DAL PCD Ø6,35 Center Drill
Operation	Rivet Hole Stack Drilling and Precision Chamfering
Cutting Edge	Drill and Chamfer Insert With PCD Cutting Edges
Vc	150 m/min (492 SFM)
F	481 mm/min (18.9 IPM)
Depth	5 mm (0.199 in)
Coolant Supply	Dry

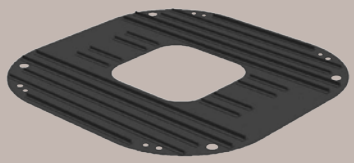
- A tier 1 aerospace supplier was seeking reduced monoblock assemblies and costs.
- Kennametal replaced monoblock tooling assemblies with the HiPACS system for the lowest cost per hole and a line-item reduction.

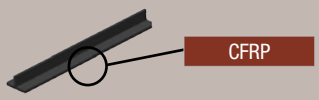
25% Reduction in Cost Per Hole

PROVEN SOLUTION: Slot Milling

Machine Tools

CNC

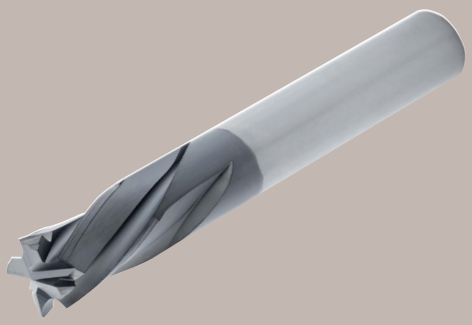




KenCut CF CCNC • Compression Router

Diamond Coated • Slot Milling

Workpiece	Pivot Bulkhead with Stiffeners
Material	CFRP
Tool Description	SC End Mill CCNC 12mm (0.5 in), 4 Cutting Edges
Operation	Roughing
Cutting Edge	Diamond Coated Carbide
Vc	243 m/min (797 SFM)
F	1217 mm/min (48 IPM)
Ap	12 mm (0.47 in)
Ae	12,7 mm (0.5 in)
Coolant Supply	External Air Vacuum



- An aerospace customer was experiencing inconsistent tool life and edge delamination with a competitor and was seeking a more stable process and improved tool life.
- Kennametal proposed a compression router to address both concerns.

Increased Tool Life by 100% With Repeatable Performance

PROVEN SOLUTION: Drilling

Machine Tools

CNC

KenTIP FS Modular Drill

Diamond Coated • Drilling

Workpiece	Wing Spar
Material	CFRP
Tool Description	KenTIP FS Modular Drill With Diamond Coated SPF Tip
Operation	Drilling
Cutting Edge	Diamond Coated Carbide
Insert	KTFS6629169 SPFM KCC05
Vc	152 m/min (499 SFM)
F	310 mm/min (12.125 IPM)
Depth	25mm
Coolant Supply	Air Through the Tool at 6 Bars

- A tier 1 aerospace supplier was in need of something to reduce heat damage, delamination, score marks and burrs while cutting costs in their operations.
- Kennametal implemented the KenTIP FS modular solution which maintained low component temperature (less than 33% of Tg) and minimal delamination.

Reduced Cost Per Hole by 65%

NOTES

Our Story Is One of Continuous Innovation




It starts in 1938 with our founder, metallurgist Philip M. McKenna, who after years of research created revolutionary tungsten-titanium carbide alloy cutting tools specifically for working with steel. That single development not only led to a new class of machining tools that cut faster, lasted longer and drove productivity in everything from the automobile to the airplane, but also led to the opening of McKenna Metals Company in Latrobe, Pennsylvania, United States. Today, that company is Kennametal Inc.—a recognized leader in metalworking serving customers across continents and industries including transportation, construction, aerospace and defense, machining and cutting, energy and general engineering. We have a reputation for building innovative solutions for our customers' most challenging applications. The name Kennametal is synonymous for high-quality, high-performance tools that can withstand the most strenuous conditions and bring ease to a wide range of machining operations. We help our customers' operations run longer, faster and with greater precision. We don't cut corners. We cut metal. Your toughest materials don't stand a chance.

KENNAMETAL®

LET'S TAKE YOUR **MANUFACTURING** TO THE **NEXT LEVEL**

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