



2017 Master Catalog

WIDIA  TM

HSR™ Reaming Tools combine high-performance micrograin substrates, specific coatings, and extremely unequal flutes for outstanding machining results. Increase your productivity with the HSR leads and lapped grinding surface of rake, clearance, and relief angle.



HSR Reaming Tools

HSR Solid Carbide Reaming Tools

- Diameters starting at .055" (1,40mm) with internal coolant supply available as standard.
- Ground to H7 tolerance class for use in most applications.
- Specific coatings and lead configurations available for high-speed machining of steel, stainless steel, and cast iron.
- Uncoated micrograin substrates for machining stainless steel and non-ferrous materials at accelerated speeds.

Features and Benefits

- Lapped ground leads for high-speed cutting.
- Long tool life with increased hole and surface quality.
- High Metal Removal Rates (MRR) at increased speeds and feeds.
- Radial coolant supply for through hole applications and axial coolant supply for blind holes to achieve higher feed rates.
- Decreased runout and improved straightness due to unequal flutes.

Customization

- Diameters starting at .055" (1,40mm) up to .557" (14,15mm) available with and without internal coolant in 0,001mm steps.
- Solid cermet reaming tools and tooling for heat-resistant materials are available on request.

HSR™ Carbide- and Cermet-Tipped Reaming Tools

- Achieve solid carbide and solid cermet metal removal rates from .551–1.26" (14–32mm) with no customization required.
- Ground to H7 tolerance class to accommodate most applications.
- Specific coatings and lead configuration for high-speed machining of steel, stainless steel, cast iron, and non-ferrous materials at accelerated speeds.
- Coated and uncoated micrograin substrate carbide and coated cermet specifically engineered for reaming.

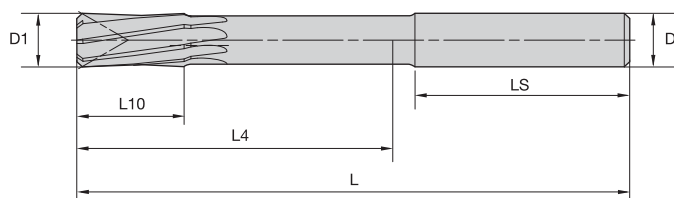
Features and Benefits

- Lapped ground leads for high-speed cutting.
- Long tool life with increased hole and surface quality.
- High metal removal rates at higher speeds and feeds.
- Decreased runout and improved straightness due to unequal flutes.
- Adjustment screw at straight-fluted HSR reamers to change internal coolant supply from axial to radial.
- Optimized coolant options for blind holes and blind hole applications with interrupted cut.

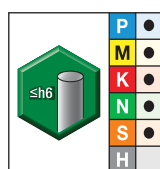
Customization

- Diameters up to 1.968" (50mm) available with and without internal coolant in 0,001mm steps.
- HSR tooling for machining heat-resistant materials is available on request.





■ HSR Reamers with Helical Flutes for Through Holes • K10™ • .055–.394" (1,4–10mm)

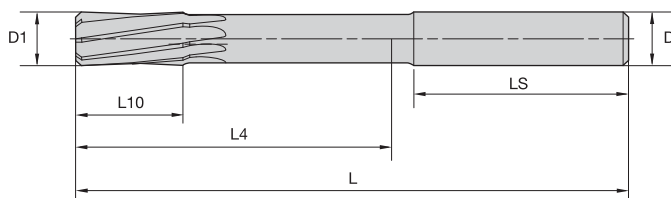
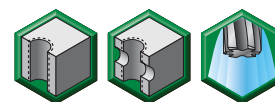


grade K10
uncoated

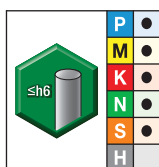
● first choice
○ alternate choice

order #	catalog #	D1		D		L	L4	L10	LS	Z
		mm	in	mm	in					
2293636	050221-000014	1,40	.055	1,40	.055	1.575	.708	.315	.866	3
2293637	050221-000015	1,50	.059	1,50	.059	1.575	.708	.315	.866	3
2293638	050221-000016	1,60	.063	1,60	.063	1.693	.787	.354	.906	3
2283423	050221-000020	2,00	.079	2,00	.079	1.929	.944	.433	.984	4
2283424	050221-000022	2,20	.087	2,20	.087	2.087	1.023	.472	1.063	4
2283426	050221-000025	2,50	.098	2,50	.098	2.244	1.102	.551	1.142	4
2283427	050221-000028	2,80	.110	2,80	.110	2.402	1.259	.591	1.142	4
2283428	050221-000030	3,00	.118	3,00	.118	2.402	1.259	.591	1.142	6
2283429	050221-000032	3,20	.126	3,20	.126	2.559	1.377	.630	1.181	6
2283430	050221-000035	3,50	.138	3,50	.138	2.756	1.574	.709	1.181	6
2283431	050221-000040	4,00	.157	4,00	.158	2.953	1.614	.748	1.260	6
2293640	050221-000045	4,50	.177	4,50	.177	3.150	1.732	.827	1.299	6
2283445	050221-000050	5,00	.197	5,00	.197	3.386	2.007	.906	1.339	6
2293641	050221-000055	5,50	.217	5,60	.221	3.661	2.244	1.024	1.417	6
2293642	050221-000060	6,00	.236	5,60	.221	3.661	2.086	1.024	1.417	6
2293643	050221-000065	6,50	.256	6,30	.248	3.976	2.480	1.102	1.496	6
2293644	050221-000070	7,00	.276	7,10	.280	4.291	2.716	1.221	1.575	6
2283450	050221-000075	7,50	.295	7,10	.280	4.291	2.716	1.221	1.575	6
2283451	050221-000080	8,00	.315	8,00	.315	4.606	2.952	1.299	1.654	6
2283463	050221-000085	8,50	.335	8,00	.315	4.606	2.952	1.299	1.654	6
2283464	050221-000090	9,00	.354	9,00	.354	4.921	3.188	1.417	1.732	6
2283465	050221-000095	9,50	.374	9,00	.354	4.921	3.188	1.417	1.732	6
2283466	050221-000100	10,00	.394	10,00	.394	5.236	3.425	1.496	1.811	6

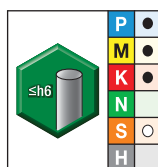
- Standard reamers listed are ground to achieve an H7 tolerance hole. IT6 hole tolerance capability starting at diameter .394" (10mm) is available as a Custom Solution. Additional diameters and lengths made to order.



■ HSR Reamers with Helical Flutes for Through Holes • K10F™/K10F-DCFD™ • .079–.551" (2–114mm)



grade K10F
uncoated

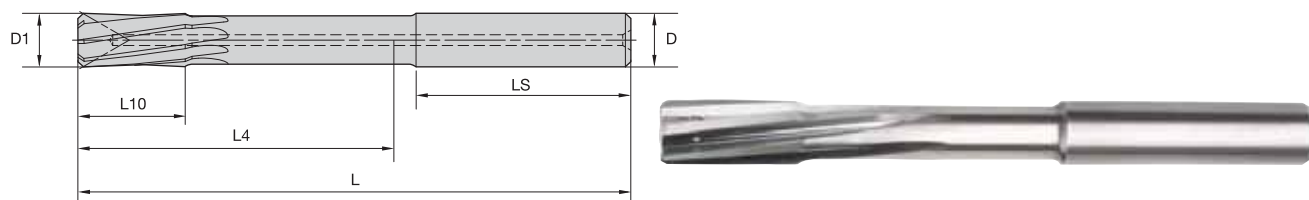
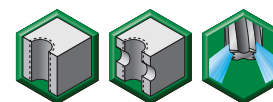


grade K10F-DCFD
TiAlN

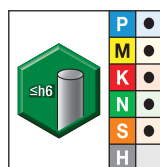
- first choice
- alternate choice

				D1		D		L	L4	L10	LS	Z
order #	catalog #	order #	catalog #	mm	in	mm	in					
2436494	050227-000200	2441162	450227-000200	2,00	.079	3,00	.118	1.890	.591	.236	1.102	4
2436871	050227-000300	2441253	450227-000300	3,00	.118	3,00	.118	1.890	.591	.236	1.102	4
2436872	050227-000400	2441254	450227-000400	4,00	.158	4,00	.158	2.126	.827	.315	1.102	4
2436913	050227-000500	2441256	450227-000500	5,00	.197	6,00	.236	2.913	1.260	.472	1.417	4
2436914	050227-000600	2441257	450227-000600	6,00	.236	6,00	.236	2.913	1.299	.472	1.417	4
2436916	050227-000800	2441260	450227-000800	8,00	.315	8,00	.315	3.583	1.969	.630	1.417	6
2436919	050227-001000	2441261	450227-001000	10,00	.394	10,00	.394	4.055	2.284	.787	1.575	6
2436922	050227-001200	2441284	450227-001200	12,00	.472	12,00	.472	4.646	2.677	.945	1.772	6
2436946	050227-001400	2441285	450227-001400	14,00	.551	14,00	.551	5.197	3.189	1.102	1.772	6

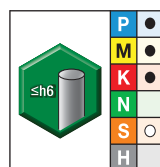
- Standard reamers listed are ground to achieve an H7 tolerance hole. IT6 hole tolerance capability starting at diameter .394" (10mm) is available as a Custom Solution. Additional diameters and lengths made to order.



■ HSR Reamers with Helical Flutes for Through Holes • K10F™/K10F-DCFD™ • .197–.551" (5–14mm)



grade K10F
uncoated

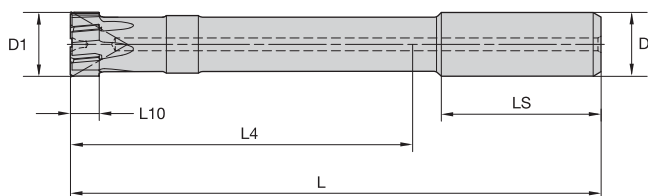
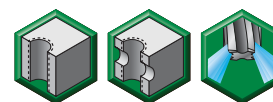


grade K10F-DCFD
TiAlN

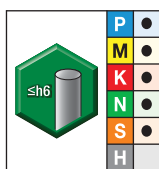
- first choice
- alternate choice

				D1		D		L	L4	L10	LS	Z
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2437425	050271-000500	2441380	450271-000500	5,00	.197	6,00	.236	2.913	1.260	.472	1.417	4
2437426	050271-000600	2441381	450271-000600	6,00	.236	6,00	.236	2.913	1.299	.472	1.417	4
2437428	050271-000800	2441453	450271-000800	8,00	.315	8,00	.315	3.583	1.969	.630	1.417	6
2437430	050271-001000	2441455	450271-001000	10,00	.394	10,00	.394	4.055	2.284	.787	1.575	6
2437432	050271-001200	2441457	450271-001200	12,00	.472	12,00	.472	4.646	2.677	.945	1.772	6
2437468	050271-001400	2441494	450271-001400	14,00	.551	14,00	.551	5.197	3.189	1.102	1.772	6

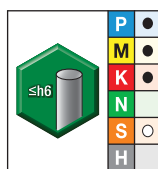
- Standard reamers listed are ground to achieve an H7 tolerance hole. IT6 capability is available. Additional diameters and lengths made to order.



■ HSR Reamers with Helical Flutes for Through Holes • K10F™/K10F-DCFD™ • .551–1.259" (14–32mm)



grade K10F
uncoated

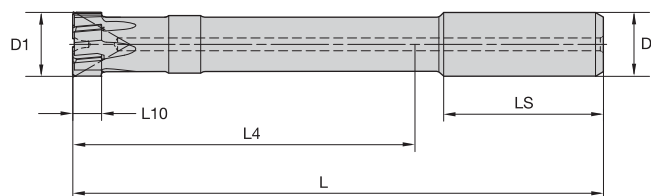
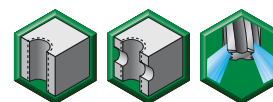


grade K10F-DCFD
TiAlN

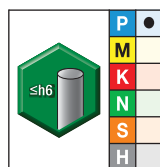
- first choice
- alternate choice

				D1		D						Z
order #	catalog #	order #	catalog #	mm	in	mm	in	L	L4	L10	LS	
3084978	050281-001400	3084312	450281-001400	14,00	.551	16,00	.630	5.709	3.543	.354	1.890	6
3084983	050281-001600	3084317	450281-001600	16,00	.630	20,00	.787	6.181	3.937	.354	1.969	6
3084992	050281-001800	3084321	450281-001800	18,00	.709	20,00	.787	6.732	4.488	.354	1.969	6
3085083	050281-002000	3084319	450281-002000	20,00	.787	20,00	.787	7.874	5.630	.354	1.969	6
3085084	050281-002200	3084322	450281-002200	22,00	.866	20,00	.787	8.268	6.024	.433	1.969	6
3085087	050281-002400	3084323	450281-002400	24,00	.945	20,00	.787	8.268	6.024	.433	1.969	6
3085089	050281-002500	3084324	450281-002500	25,00	.984	20,00	.787	8.268	6.024	.433	1.969	6
3085090	050281-002600	3084325	450281-002600	26,00	1.024	25,00	.984	9.449	6.969	.433	2.205	8
3085092	050281-002800	3084327	450281-002800	28,00	1.102	25,00	.984	9.449	6.969	.433	2.205	8
3085104	050281-003000	3084320	450281-003000	30,00	1.181	25,00	.984	10.630	8.150	.433	2.205	8
3085106	050281-003200	3084328	450281-003200	32,00	1.260	25,00	.984	10.630	8.150	.433	2.205	8

- Standard reamers listed are ground to achieve an H7 tolerance hole.
IT6 capability is available. Additional diameters and lengths made to order.



■ HSR Reamers with Helical Flutes for Through Holes • CERMET-DCFD™ • .551–.787" (14–20mm)

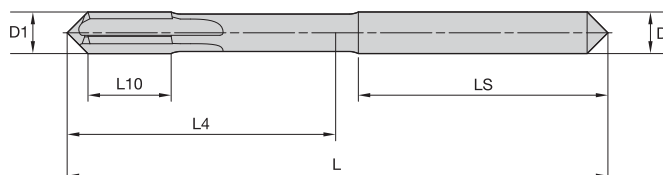
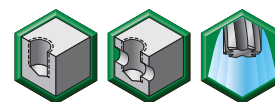


grade CERMET-DCFD
TiAlN

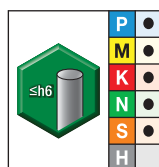
- first choice
- alternate choice

order #	catalog #	D1		D		L	L4	L10	LS	Z
		mm	in	mm	in					
3888130	456681-001400	14,00	.551	16,00	.630	5.710	2.992	.315	1.929	6
3888131	456681-001500	15,00	.591	16,00	.630	5.710	2.992	.315	1.929	6
3888132	456681-001600	16,00	.630	20,00	.787	6.180	3.386	.315	2.008	6
3888403	456681-001700	17,00	.669	20,00	.787	6.180	3.386	.394	2.008	6
3888404	456681-001800	18,00	.709	20,00	.787	6.730	3.937	.394	2.008	6
3888405	456681-001900	19,00	.748	20,00	.787	6.730	3.937	.394	2.008	6
3888406	456681-002000	20,00	.787	20,00	.787	7.870	5.079	.394	2.008	6

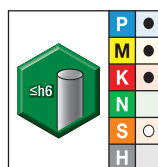
- Standard reamers listed are ground to achieve an H7 tolerance hole.
Additional diameters and lengths made to order.



■ HSR Reamers with Straight Flutes for Blind Holes • K10F™/K10F-DCFD™ • .079-.158" (2-4mm)



grade K10F
uncoated

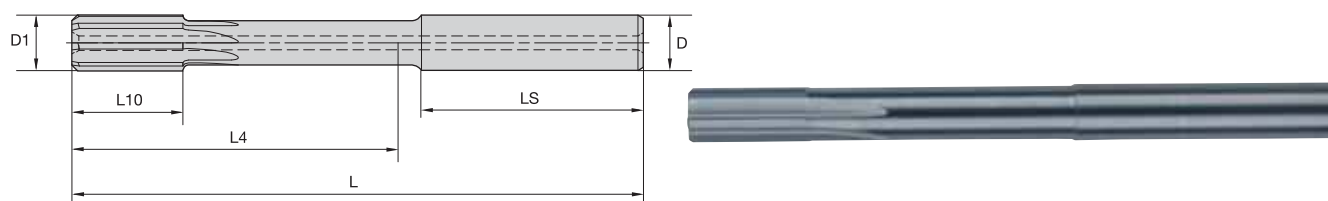
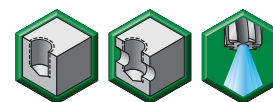


grade K10F-DCFD
TiAlN

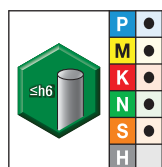
- first choice
- alternate choice

				D1		D						Z
order #	catalog #	order #	catalog #	mm	in	mm	in	L	L4	L10	LS	
2446025	050222-000200	2446371	450222-000200	2,00	.079	3,00	.118	1.890	.591	.236	1.102	4
2446029	050222-000300	2446372	450222-000300	3,00	.118	3,00	.118	1.890	.591	.315	1.102	4
2446031	050222-000400	2446415	450222-000400	4,00	.158	4,00	.158	2.126	.827	.315	1.102	4

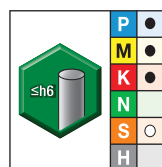
- Standard reamers listed are ground to achieve an H7 tolerance hole. IT6 hole tolerance capability starting at diameter .394" (10mm) is available as a Custom Solution. Additional diameters and lengths made to order.



■ HSR Reamers with Straight Flutes for Blind Holes • K10F™/K10F-DCFD™ • .197–.551" (5–14mm)



grade K10F
uncoated

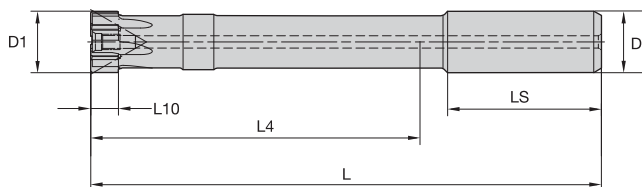
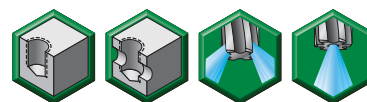


grade K10F-DCFD
TiAlN

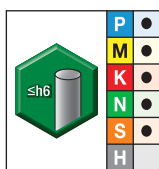
- first choice
- alternate choice

				D1		D						Z
order #	catalog #	order #	catalog #	mm	in	mm	in	L	L4	L10	LS	
2437472	050270-000500	2441337	450270-000500	5,00	.197	6,00	.236	2.913	1.260	.472	1.417	4
2437523	050270-000600	2441339	450270-000600	6,00	.236	6,00	.236	2.913	1.299	.472	1.417	4
2437525	050270-000800	2441341	450270-000800	8,00	.315	8,00	.315	3.583	1.969	.630	1.417	6
2437526	050270-001000	2441342	450270-001000	10,00	.394	10,00	.394	4.055	2.284	.787	1.575	6
2437527	050270-001200	2441353	450270-001200	12,00	.472	12,00	.472	4.646	2.677	.945	1.772	6
2437529	050270-001400	2441354	450270-001400	14,00	.551	14,00	.551	5.197	3.189	1.102	1.772	6

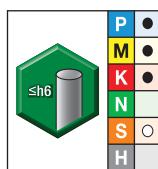
- Standard reamers listed are ground to achieve an H7 tolerance hole. IT6 capability is available. Additional diameters and lengths made to order.
- Coolant direction can be altered between axial and radial by using the set screw (included).



■ HSR Reamers with Straight Flutes for Blind Holes • K10F™/K10F-DCFD™ • .551–1.259" (14–32mm)



grade K10F
uncoated

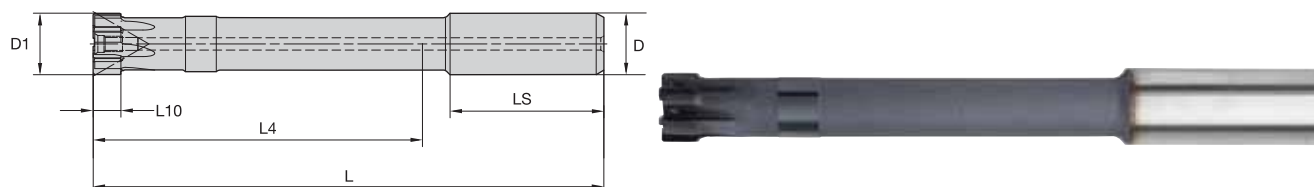


grade K10F-DCFD
TiAlN

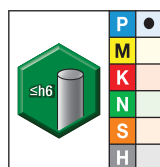
- first choice
- alternate choice

				D1		D						Z
order #	catalog #	order #	catalog #	mm	in	mm	in	L	L4	L10	LS	
3055655	050280-001400	3084512	450280-001400	14,00	.551	16,00	.630	5.709	3.543	.354	1.890	6
3055656	050280-001600	3084526	450280-001600	16,00	.630	20,00	.787	6.181	3.937	.354	1.969	6
3055657	050280-001800	3084528	450280-001800	18,00	.709	20,00	.787	6.732	4.488	.354	1.969	6
3056095	050280-002000	3077292	450280-002000	20,00	.787	20,00	.787	7.874	5.630	.354	1.969	6
3056096	050280-002200	3084529	450280-002200	22,00	.866	20,00	.787	8.268	6.024	.433	1.969	6
3056097	050280-002400	3084530	450280-002400	24,00	.945	20,00	.787	8.268	6.024	.433	1.969	6
3056098	050280-002500	3084531	450280-002500	25,00	.984	20,00	.787	8.268	6.024	.433	1.969	6
3056099	050280-002600	3084532	450280-002600	26,00	1.024	25,00	.984	9.449	6.969	.433	2.205	8
3056100	050280-002800	3084593	450280-002800	28,00	1.102	25,00	.984	9.449	6.969	.433	2.205	8
3056102	050280-003000	3084594	450280-003000	30,00	1.181	25,00	.984	10.630	8.150	.433	2.205	8
3056273	050280-003200	3084595	450280-003200	32,00	1.260	25,00	.984	10.630	8.150	.433	2.205	8

- Standard reamers listed are ground to achieve an H7 tolerance hole. IT6 capability is available. Additional diameters and lengths made to order.
- Coolant direction can be altered between axial and radial by using the set screw (included).



■ HSR Reamers with Straight Flutes for Blind Holes • CERMET-DCFD™ • .551–.787" (14–20mm)



grade CERMET-DCFD
TiAlN

- first choice
- alternate choice

order #	catalog #	D1		D		L	L4	L10	LS	Z
		mm	in	mm	in					
3888407	456680-001400	14,00	.551	16,00	.630	5.710	2.992	.315	1.929	6
3888408	456680-001500	15,00	.591	16,00	.630	5.710	2.992	.315	1.929	6
3888409	456680-001600	16,00	.630	20,00	.787	6.180	3.386	.315	2.008	6
3888410	456680-001700	17,00	.669	20,00	.787	6.180	3.386	.394	2.008	6
3888411	456680-001800	18,00	.709	20,00	.787	6.730	3.937	.394	2.008	6
3888412	456680-001900	19,00	.748	20,00	.787	6.730	3.937	.394	2.008	6
3888413	456680-002000	20,00	.787	20,00	.787	7.870	5.079	.394	2.008	6

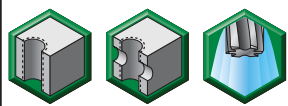
■ Series 050221 • Solid Carbide • Helical Flute • Grade K10™ • Inch

Material Group										
		Cutting Speed — vc Range — SFM			Recommended Feed Rate per Rev					
		min		max	Tool Diameter	0.055–0.124	0.124–0.189	0.189–0.281	0.282–0.378	0.378–0.5
P	1	50	–	80	IPR	0.002–0.004	0.004–0.007	0.004–0.008	0.004–0.009	0.006–0.010
	2	50	–	70	IPR	0.002–0.004	0.004–0.007	0.004–0.008	0.004–0.009	0.006–0.010
	3	30	–	70	IPR	0.002–0.004	0.004–0.007	0.004–0.008	0.004–0.009	0.006–0.010
	4	20	–	30	IPR	0.002–0.004	0.004–0.007	0.004–0.008	0.004–0.009	0.006–0.010
	5	20	–	30	IPR	0.002–0.004	0.004–0.007	0.004–0.008	0.004–0.009	0.006–0.010
	6	10	–	30	IPR	0.002–0.004	0.002–0.004	0.004–0.007	0.004–0.008	0.004–0.009
M	1	10	–	30	IPR	0.002–0.004	0.004–0.007	0.004–0.008	0.004–0.009	0.006–0.010
	2	10	–	30	IPR	0.002–0.004	0.004–0.007	0.004–0.008	0.004–0.009	0.006–0.010
	3	10	–	30	IPR	0.002–0.004	0.004–0.007	0.004–0.008	0.004–0.009	0.006–0.010
K	1	30	–	50	IPR	0.004–0.008	0.006–0.012	0.008–0.012	0.008–0.016	0.010–0.018
	2	30	–	50	IPR	0.004–0.008	0.006–0.012	0.008–0.012	0.008–0.016	0.010–0.018
	3	20	–	50	IPR	0.004–0.008	0.006–0.012	0.008–0.012	0.008–0.016	0.010–0.018
N	1	80	–	100	IPR	0.004–0.008	0.006–0.012	0.008–0.012	0.008–0.016	0.010–0.018
	2	80	–	110	IPR	0.004–0.008	0.006–0.012	0.008–0.012	0.008–0.016	0.010–0.018
	3	80	–	110	IPR	0.004–0.008	0.006–0.012	0.008–0.012	0.008–0.016	0.010–0.018
	4	80	–	100	IPR	0.004–0.008	0.006–0.012	0.008–0.012	0.008–0.016	0.010–0.018
	5	70	–	80	IPR	0.004–0.008	0.006–0.012	0.008–0.012	0.008–0.016	0.010–0.018
	6	80	–	110	IPR	0.004–0.008	0.006–0.012	0.008–0.012	0.008–0.016	0.010–0.018
S	1	10	–	30	IPR	0.002–0.004	0.004–0.007	0.004–0.008	0.004–0.009	0.006–0.010
	2	10	–	20	IPR	0.002–0.004	0.004–0.007	0.004–0.008	0.004–0.009	0.006–0.010
	3	20	–	50	IPR	0.002–0.004	0.004–0.007	0.004–0.008	0.004–0.009	0.006–0.010
	4	20	–	50	IPR	0.002–0.004	0.004–0.007	0.004–0.008	0.004–0.009	0.006–0.010

■ Series 050221 • Solid Carbide • Helical Flute • Grade K10™ • Metric

Material Group										
		Cutting Speed — vc			Recommended Feed Rate per Rev					
		Range — m/min								
		min		max	Tool Diameter	1,40–3,15	3,16–4,80	4,81–7,15	7,16–9,59	9,60–12,70
P	1	20	–	30	mm/r	0,07–0,13	0,08–0,16	0,10–0,20	0,13–0,23	0,15–0,25
	2	20	–	20	mm/r	0,07–0,13	0,08–0,16	0,10–0,20	0,13–0,23	0,15–0,25
	3	10	–	20	mm/r	0,07–0,13	0,08–0,16	0,10–0,20	0,13–0,23	0,15–0,25
	4	10	–	10	mm/r	0,07–0,13	0,08–0,16	0,10–0,20	0,13–0,23	0,15–0,25
	5	10	–	10	mm/r	0,07–0,13	0,08–0,16	0,10–0,20	0,13–0,23	0,15–0,25
	6	10	–	10	mm/r	0,06–0,10	0,07–0,13	0,08–0,16	0,10–0,20	0,13–0,23
M	1	10	–	10	mm/r	0,07–0,13	0,08–0,16	0,10–0,20	0,13–0,23	0,15–0,25
	2	10	–	10	mm/r	0,07–0,13	0,08–0,16	0,10–0,20	0,13–0,23	0,15–0,25
	3	10	–	10	mm/r	0,07–0,13	0,08–0,16	0,10–0,20	0,13–0,23	0,15–0,25
K	1	10	–	20	mm/r	0,10–0,20	0,15–0,30	0,20–0,30	0,20–0,40	0,25–0,45
	2	10	–	20	mm/r	0,10–0,20	0,15–0,30	0,20–0,30	0,20–0,40	0,25–0,45
	3	10	–	20	mm/r	0,10–0,20	0,15–0,30	0,20–0,30	0,20–0,40	0,25–0,45
N	1	30	–	30	mm/r	0,10–0,20	0,15–0,30	0,20–0,30	0,20–0,40	0,25–0,45
	2	30	–	40	mm/r	0,10–0,20	0,15–0,30	0,20–0,30	0,20–0,40	0,25–0,45
	3	30	–	40	mm/r	0,10–0,20	0,15–0,30	0,20–0,30	0,20–0,40	0,25–0,45
	4	30	–	30	mm/r	0,10–0,20	0,15–0,30	0,20–0,30	0,20–0,40	0,25–0,45
	5	20	–	30	mm/r	0,10–0,20	0,15–0,30	0,20–0,30	0,20–0,40	0,25–0,45
	6	30	–	40	mm/r	0,10–0,20	0,15–0,30	0,20–0,30	0,20–0,40	0,25–0,45
S	1	10	–	10	mm/r	0,07–0,13	0,08–0,16	0,10–0,20	0,13–0,23	0,15–0,25
	2	10	–	10	mm/r	0,07–0,13	0,08–0,16	0,10–0,20	0,13–0,23	0,15–0,25
	3	10	–	20	mm/r	0,07–0,13	0,08–0,16	0,10–0,20	0,13–0,23	0,15–0,25
	4	10	–	20	mm/r	0,07–0,13	0,08–0,16	0,10–0,20	0,13–0,23	0,15–0,25

■ Series 050227 • Solid Carbide • Helical Flute Grade K10F™ • Inch

Material Group											
		Cutting Speed — vc Range — SFM			Recommended Feed Rate per Rev						
		min		max	Tool Diameter	0.055–0.124	0.124–0.189	0.189 – 0.281	0.282–0.378	0.378–0.5	0.5–0.590
P	1	100	–	130	IPR	0.008–0.013	0.008–0.016	0.011–0.021	0.016–0.028	0.016–0.031	0.020–0.035
	2	80	–	110	IPR	0.008–0.013	0.008–0.016	0.011–0.021	0.016–0.028	0.016–0.031	0.020–0.035
	3	80	–	100	IPR	0.008–0.013	0.008–0.016	0.011–0.021	0.016–0.028	0.016–0.031	0.020–0.035
	4	50	–	80	IPR	0.008–0.013	0.008–0.016	0.011–0.021	0.016–0.028	0.016–0.031	0.020–0.035
	5	30	–	70	IPR	0.008–0.013	0.008–0.016	0.011–0.021	0.016–0.028	0.016–0.031	0.020–0.035
	6	30	–	50	IPR	0.006–0.012	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
M	1	20	–	50	IPR	0.006–0.012	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
	2	20	–	50	IPR	0.006–0.012	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
	3	20	–	30	IPR	0.006–0.012	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
K	1	70	–	100	IPR	0.010–0.018	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	2	70	–	80	IPR	0.010–0.018	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	3	230	–	290	IPR	0.010–0.018	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
N	1	260	–	330	IPR	0.010–0.018	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	2	260	–	330	IPR	0.010–0.018	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	3	230	–	290	IPR	0.010–0.018	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	4	200	–	260	IPR	0.010–0.018	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	5	280	–	340	IPR	0.010–0.018	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	6	30	–	50	IPR	0.010–0.018	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
S	1	20	–	30	IPR	0.004–0.008	0.006–0.012	0.008–0.012	0.008–0.016	0.010–0.018	0.012–0.020
	2	50	–	80	IPR	0.004–0.008	0.006–0.012	0.008–0.012	0.008–0.016	0.010–0.018	0.012–0.020
	3	50	–	80	IPR	0.006–0.012	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
	4	20	–	50	IPR	0.006–0.012	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026

■ Series 050227 • Solid Carbide • Helical Flute • Grade K10F™ • Metric

Material Group											
		Cutting Speed — vc Range — m/min			Recommended Feed Rate per Rev						
		min		max	Tool Diameter	1,40–3,15	3,16–4,80	4,81–7,15	7,16–9,59	9,60–12,70	12,70–15,00
P	1	30	–	40	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,40–0,70	0,40–0,80	0,50–0,90
	2	30	–	40	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,40–0,70	0,40–0,80	0,50–0,90
	3	30	–	30	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,40–0,70	0,40–0,80	0,50–0,90
	4	20	–	30	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,40–0,70	0,40–0,80	0,50–0,90
	5	10	–	20	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,40–0,70	0,40–0,80	0,50–0,90
	6	10	–	20	mm/r	0,15–0,30	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
M	1	10	–	20	mm/r	0,15–0,30	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
	2	10	–	20	mm/r	0,15–0,30	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
	3	10	–	10	mm/r	0,15–0,30	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
K	1	20	–	30	mm/r	0,25–0,45	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	2	20	–	30	mm/r	0,25–0,45	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	3	20	–	30	mm/r	0,25–0,45	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
N	1	70	–	90	mm/r	0,25–0,45	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	2	80	–	100	mm/r	0,25–0,45	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	3	80	–	100	mm/r	0,25–0,45	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	4	70	–	90	mm/r	0,25–0,45	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	5	60	–	80	mm/r	0,25–0,45	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	6	90	–	110	mm/r	0,25–0,45	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
S	1	10	–	20	mm/r	0,10–0,20	0,15–0,30	0,20–0,30	0,20–0,40	0,25–0,45	0,30–0,50
	2	10	–	10	mm/r	0,10–0,20	0,15–0,30	0,20–0,30	0,20–0,40	0,25–0,45	0,30–0,50
	3	20	–	30	mm/r	0,15–0,30	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
	4	20	–	30	mm/r	0,15–0,30	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65

■ Series 450227 • Solid Carbide • Helical Flute • Grade K10F-DCFD™ • Inch

Material Group											
		Cutting Speed – vc Range – SFM			Recommended Feed Rate per Rev						
		min		max	Tool Diameter	0.055–0.124	0.124–0.189	0.189–0.281	0.282–0.378	0.378–0.5	0.5–0.590
P	1	200	–	260	IPR	0.008–0.013	0.008–0.016	0.011–0.021	0.016–0.028	0.016–0.031	0.020–0.035
	2	180	–	250	IPR	0.008–0.013	0.008–0.016	0.011–0.021	0.016–0.028	0.016–0.031	0.020–0.035
	3	180	–	230	IPR	0.008–0.013	0.008–0.016	0.011–0.021	0.016–0.028	0.016–0.031	0.020–0.035
	4	130	–	200	IPR	0.008–0.013	0.008–0.016	0.011–0.021	0.016–0.028	0.016–0.031	0.020–0.035
	5	70	–	100	IPR	0.008–0.013	0.008–0.016	0.011–0.021	0.016–0.028	0.016–0.031	0.020–0.035
	6	50	–	80	IPR	0.006–0.012	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
M	1	30	–	70	IPR	0.006–0.012	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
	2	30	–	70	IPR	0.006–0.012	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
	3	30	–	50	IPR	0.006–0.012	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
K	1	160	–	250	IPR	0.010–0.018	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	2	150	–	210	IPR	0.010–0.018	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	3	150	–	210	IPR	0.010–0.018	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
S	1	20	–	30	IPR	0.004–0.008	0.006–0.012	0.008–0.012	0.008–0.016	0.010–0.018	0.012–0.020
	2	50	–	80	IPR	0.004–0.008	0.006–0.012	0.008–0.012	0.008–0.016	0.010–0.018	0.012–0.020

■ Series 450227 • Solid Carbide • Helical Flute • Grade K10F-DCFD™ • Metric

Material Group											
		Cutting Speed — vc Range — m/min			Recommended Feed Rate per Rev						
		min		max	Tool Diameter	1,40–3,15	3,16–4,80	4,81–7,15	7,16–9,59	9,60–12,70	12,70–15,00
P	1	60	–	80	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,40–0,70	0,40–0,80	0,50–0,90
	2	60	–	80	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,40–0,70	0,40–0,80	0,50–0,90
	3	60	–	70	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,40–0,70	0,40–0,80	0,50–0,90
	4	40	–	60	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,40–0,70	0,40–0,80	0,50–0,90
	5	20	–	30	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,40–0,70	0,40–0,80	0,50–0,90
	6	20	–	30	mm/r	0,15–0,30	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
M	1	10	–	20	mm/r	0,15–0,30	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
	2	10	–	20	mm/r	0,15–0,30	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
	3	10	–	20	mm/r	0,15–0,30	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
K	1	50	–	70	mm/r	0,25–0,45	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	2	50	–	70	mm/r	0,25–0,45	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	3	50	–	70	mm/r	0,25–0,45	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
S	1	10	–	20	mm/r	0,10–0,20	0,15–0,30	0,20–0,30	0,20–0,40	0,25–0,45	0,30–0,50
	2	10	–	20	mm/r	0,10–0,20	0,15–0,30	0,20–0,30	0,20–0,40	0,25–0,45	0,30–0,50

■ Series 050271 • Solid Carbide • Helical Flute • Grade K10F™ • Inch

Material Group										
		Cutting Speed — vc Range — SFM			Recommended Feed Rate per Rev					
		min		max	Tool Diameter	0.124–0.189	0.189–0.281	0.282–0.378	0.378–0.5	0.5–0.590
P	1	150	–	210	IPR	0.008–0.016	0.011–0.021	0.014–0.026	0.016–0.031	0.020–0.035
	2	130	–	200	IPR	0.008–0.016	0.011–0.021	0.014–0.026	0.016–0.031	0.020–0.035
	3	110	–	180	IPR	0.008–0.016	0.011–0.021	0.014–0.026	0.016–0.031	0.020–0.035
	4	80	–	110	IPR	0.008–0.016	0.011–0.021	0.014–0.026	0.016–0.031	0.020–0.035
	5	50	–	80	IPR	0.008–0.016	0.011–0.021	0.014–0.026	0.016–0.031	0.020–0.035
	6	30	–	70	IPR	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
M	1	30	–	70	IPR	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
	2	30	–	70	IPR	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
	3	20	–	50	IPR	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
K	1	100	–	160	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	2	100	–	160	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	3	80	–	150	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
N	1	420	–	470	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	2	460	–	520	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	3	460	–	520	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	4	420	–	490	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	5	390	–	460	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	6	470	–	540	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
S	1	30	–	70	IPR	0.006–0.012	0.008–0.012	0.008–0.016	0.010–0.018	0.012–0.020
	2	20	–	50	IPR	0.006–0.012	0.008–0.012	0.008–0.016	0.010–0.018	0.012–0.020
	3	80	–	110	IPR	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
	4	80	–	110	IPR	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026

■ Series 050271 • Solid Carbide • Helical Flute • Grade K10F™ • Metric

Material Group										
		Cutting Speed – vc Range – m/min			Recommended Feed Rate per Rev					
		min		max	Tool Diameter	3,16–4,80	4,81–7,15	7,16–9,59	9,60–12,70	12,70–15,00
P	1	50	–	70	mm/r	0,20–0,40	0,30–0,50	0,35–0,65	0,40–0,80	0,50–0,90
	2	40	–	60	mm/r	0,20–0,40	0,30–0,50	0,35–0,65	0,40–0,80	0,50–0,90
	3	40	–	60	mm/r	0,20–0,40	0,30–0,50	0,35–0,65	0,40–0,80	0,50–0,90
	4	30	–	40	mm/r	0,20–0,40	0,30–0,50	0,35–0,65	0,40–0,80	0,50–0,90
	5	20	–	30	mm/r	0,20–0,40	0,30–0,50	0,35–0,65	0,40–0,80	0,50–0,90
	6	10	–	20	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
M	1	10	–	20	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
	2	10	–	20	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
	3	10	–	20	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
K	1	30	–	50	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	2	30	–	50	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	3	30	–	50	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
N	1	130	–	150	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	2	140	–	160	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	3	140	–	160	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	4	130	–	150	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	5	120	–	140	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	6	150	–	170	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
S	1	10	–	20	mm/r	0,15–0,30	0,20–0,30	0,20–0,40	0,25–0,45	0,30–0,50
	2	10	–	20	mm/r	0,15–0,30	0,20–0,30	0,20–0,40	0,25–0,45	0,30–0,50
	3	30	–	40	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
	4	30	–	40	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65

■ Series 450271 • Solid Carbide • Helical Flute • Grade K10F-DCFD™ • Inch

Material Group										
		Cutting Speed — vc Range — SFM			Recommended Feed Rate per Rev					
		min		max	Tool Diameter	0.124–0.189	0.189–0.281	0.282–0.378	0.378–0.5	0.5–0.590
P	1	360	–	420	IPR	0.008–0.016	0.011–0.021	0.014–0.026	0.016–0.031	0.020–0.035
	2	340	–	410	IPR	0.008–0.016	0.011–0.021	0.014–0.026	0.016–0.031	0.020–0.035
	3	310	–	380	IPR	0.008–0.016	0.011–0.021	0.014–0.026	0.016–0.031	0.020–0.035
	4	200	–	260	IPR	0.008–0.016	0.011–0.021	0.014–0.026	0.016–0.031	0.020–0.035
	5	100	–	160	IPR	0.008–0.016	0.011–0.021	0.014–0.026	0.016–0.031	0.020–0.035
	6	100	–	130	IPR	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
M	1	100	–	130	IPR	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
	2	100	–	130	IPR	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
	3	70	–	100	IPR	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
K	1	250	–	310	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	2	250	–	310	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	3	230	–	290	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
S	1	100	–	130	IPR	0.006–0.012	0.008–0.012	0.008–0.016	0.010–0.018	0.012–0.020
	2	70	–	100	IPR	0.006–0.012	0.008–0.012	0.008–0.016	0.010–0.018	0.012–0.020

■ Series 450271 • Solid Carbide • Helical Flute • Grade K10F-DCFD™ • Metric

Material Group										
		Cutting Speed – vc Range – m/min			Recommended Feed Rate per Rev					
		min		max	Tool Diameter	3,16–4,80	4,81–7,15	7,16–9,59	9,60–12,70	12,70–15,00
P	1	110	–	130	mm/r	0,20–0,40	0,30–0,50	0,35–0,65	0,40–0,80	0,50–0,90
	2	110	–	130	mm/r	0,20–0,40	0,30–0,50	0,35–0,65	0,40–0,80	0,50–0,90
	3	100	–	120	mm/r	0,20–0,40	0,30–0,50	0,35–0,65	0,40–0,80	0,50–0,90
	4	60	–	80	mm/r	0,20–0,40	0,30–0,50	0,35–0,65	0,40–0,80	0,50–0,90
	5	30	–	50	mm/r	0,20–0,40	0,30–0,50	0,35–0,65	0,40–0,80	0,50–0,90
	6	30	–	40	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
M	1	30	–	40	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
	2	30	–	40	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
	3	20	–	30	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
K	1	80	–	100	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	2	80	–	100	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	3	70	–	90	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
S	1	30	–	40	mm/r	0,15–0,30	0,20–0,30	0,20–0,40	0,25–0,45	0,30–0,50
	2	20	–	30	mm/r	0,15–0,30	0,20–0,30	0,20–0,40	0,25–0,45	0,30–0,50

■ Series 050281 • Uncoated • Carbide-Tipped • Helical Flute • Grade K10F™ • Inch

Material Group								
		Cutting Speed — vc Range — SFM			Recommended Feed Rate per Rev			
		min		max	Tool Diameter	0.5–0.590	0.590–0.787	0.787–1.181
P	1	150	–	210	IPR	0.020–0.035	0.024–0.041	0.024–0.043
	2	130	–	200	IPR	0.020–0.035	0.024–0.041	0.024–0.043
	3	110	–	180	IPR	0.020–0.035	0.024–0.041	0.024–0.043
	4	80	–	110	IPR	0.020–0.035	0.024–0.041	0.024–0.043
	5	50	–	80	IPR	0.020–0.035	0.024–0.041	0.024–0.043
	6	30	–	70	IPR	0.014–0.026	0.016–0.031	0.020–0.035
M	1	30	–	70	IPR	0.014–0.026	0.016–0.031	0.020–0.035
	2	30	–	70	IPR	0.014–0.026	0.016–0.031	0.020–0.035
	3	20	–	50	IPR	0.014–0.026	0.016–0.031	0.020–0.035
K	1	100	–	160	IPR	0.024–0.047	0.028–0.051	0.031–0.055
	2	100	–	160	IPR	0.024–0.047	0.028–0.051	0.031–0.055
	3	100	–	130	IPR	0.024–0.047	0.028–0.051	0.031–0.055
N	1	420	–	490	IPR	0.024–0.047	0.028–0.051	0.031–0.055
	2	460	–	520	IPR	0.024–0.047	0.028–0.051	0.031–0.055
	3	460	–	520	IPR	0.024–0.047	0.028–0.051	0.031–0.055
	4	420	–	490	IPR	0.024–0.047	0.028–0.051	0.031–0.055
	5	390	–	460	IPR	0.024–0.047	0.028–0.051	0.031–0.055
	6	470	–	540	IPR	0.024–0.047	0.028–0.051	0.031–0.055
S	1	30	–	70	IPR	0.012–0.020	0.012–0.024	0.014–0.026
	2	20	–	50	IPR	0.012–0.020	0.012–0.024	0.014–0.026
	3	80	–	110	IPR	0.014–0.026	0.016–0.031	0.020–0.035
	4	80	–	110	IPR	0.014–0.026	0.016–0.031	0.020–0.035

■ Series 050281 • Uncoated • Carbide-Tipped • Helical Flute • Grade K10F™ • Metric

Material Group								
		Cutting Speed — vc Range — m/min			Recommended Feed Rate per Rev			
		min		max	Tool Diameter	12,70–15,00	15,00–20,00	20,00–32,00
P	1	50	–	70	mm/r	0,50–0,90	0,60–1,05	0,60–1,10
	2	40	–	60	mm/r	0,50–0,90	0,60–1,05	0,60–1,10
	3	40	–	60	mm/r	0,50–0,90	0,60–1,05	0,60–1,10
	4	30	–	40	mm/r	0,50–0,90	0,60–1,05	0,60–1,10
	5	20	–	30	mm/r	0,50–0,90	0,60–1,05	0,60–1,10
	6	10	–	20	mm/r	0,35–0,65	0,40–0,80	0,50–0,90
M	1	10	–	20	mm/r	0,35–0,65	0,40–0,80	0,50–0,90
	2	10	–	20	mm/r	0,35–0,65	0,40–0,80	0,50–0,90
	3	10	–	20	mm/r	0,35–0,65	0,40–0,80	0,50–0,90
K	1	30	–	50	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
	2	30	–	50	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
	3	30	–	40	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
N	1	130	–	150	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
	2	140	–	160	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
	3	140	–	160	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
	4	130	–	150	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
	5	120	–	140	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
	6	150	–	170	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
S	1	10	–	20	mm/r	0,30–0,50	0,30–0,60	0,35–0,65
	2	10	–	20	mm/r	0,30–0,50	0,30–0,60	0,35–0,65
	3	30	–	40	mm/r	0,35–0,65	0,40–0,80	0,50–0,90
	4	30	–	40	mm/r	0,35–0,65	0,40–0,80	0,50–0,90

■ Series 450281 • Coated • Carbide-Tipped • Helical Flute • Grade K10F-DCFD™ • Inch

Material Group								
		Cutting Speed — vc Range — SFM			Recommended Feed Rate per Rev			
		min		max	Tool Diameter	0.5–0.590	0.590–0.787	0.787–1.181
P	1	360	–	420	IPR	0.020–0.035	0.024–0.041	0.024–0.043
	2	340	–	410	IPR	0.020–0.035	0.024–0.041	0.024–0.043
	3	310	–	380	IPR	0.020–0.035	0.024–0.041	0.024–0.043
	4	200	–	260	IPR	0.020–0.035	0.024–0.041	0.024–0.043
	5	100	–	160	IPR	0.020–0.035	0.024–0.041	0.024–0.043
	6	100	–	130	IPR	0.014–0.026	0.016–0.031	0.020–0.035
M	1	100	–	130	IPR	0.014–0.026	0.016–0.031	0.020–0.035
	2	100	–	130	IPR	0.014–0.026	0.016–0.031	0.020–0.035
	3	70	–	100	IPR	0.014–0.026	0.016–0.031	0.020–0.035
K	1	250	–	310	IPR	0.024–0.047	0.028–0.051	0.031–0.055
	2	250	–	310	IPR	0.024–0.047	0.028–0.051	0.031–0.055
	3	230	–	290	IPR	0.024–0.047	0.028–0.051	0.031–0.055
S	1	100	–	130	IPR	0.012–0.020	0.012–0.024	0.014–0.026
	2	70	–	100	IPR	0.012–0.020	0.012–0.024	0.014–0.026

■ Series 450281 • Coated • Carbide-Tipped • Helical Flute • Grade K10F-DCFD™ • Metric

Material Group								
		Cutting Speed — vc Range — m/min			Recommended Feed Rate per Rev			
		min		max	Tool Diameter	12,70–15,00	15,00–20,00	20,00–32,00
P	1	110	–	130	mm/r	0,50–0,90	0,60–1,05	0,60–1,10
	2	110	–	130	mm/r	0,50–0,90	0,60–1,05	0,60–1,10
	3	100	–	120	mm/r	0,50–0,90	0,60–1,05	0,60–1,10
	4	60	–	80	mm/r	0,50–0,90	0,60–1,05	0,60–1,10
	5	30	–	50	mm/r	0,50–0,90	0,60–1,05	0,60–1,10
	6	30	–	40	mm/r	0,35–0,65	0,40–0,80	0,50–0,90
M	1	30	–	40	mm/r	0,35–0,65	0,40–0,80	0,50–0,90
	2	30	–	40	mm/r	0,35–0,65	0,40–0,80	0,50–0,90
	3	20	–	30	mm/r	0,35–0,65	0,40–0,80	0,50–0,90
K	1	80	–	100	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
	2	80	–	100	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
	3	70	–	90	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
S	1	30	–	40	mm/r	0,30–0,50	0,30–0,60	0,35–0,65
	2	20	–	30	mm/r	0,30–0,50	0,30–0,60	0,35–0,65

■ Series 456681 • Cermet-Tipped • Helical Flute • Grade CERMET-DCFD™ • Inch

Material Group		 					
		Cutting Speed — vc Range — SFM		Recommended Feed Rate per Rev			
		min	max	Tool Diameter	0.5–0.590	0.590–0.787	
P	1	360	–	420	IPR	0.020–0.035	0.024–0.041
	2	340	–	410	IPR	0.020–0.035	0.024–0.041
	3	310	–	380	IPR	0.020–0.035	0.024–0.041
	4	200	–	260	IPR	0.020–0.035	0.024–0.041
	5	100	–	160	IPR	0.020–0.035	0.024–0.041
	6	100	–	130	IPR	0.014–0.026	0.016–0.031

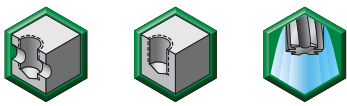
■ Series 456681 • Cermet-Tipped • Helical Flute • Grade CERMET-DCFD™ • Metric

Material Group		 					
		Cutting Speed – vc Range – m/min		Recommended Feed Rate per Rev			
		min	max	Tool Diameter	12,70–15,00	15,00–20,00	
P	1	110	–	130	mm/r	0,50–0,90	0,60–1,05
	2	110	–	130	mm/r	0,50–0,90	0,60–1,05
	3	100	–	120	mm/r	0,50–0,90	0,60–1,05
	4	60	–	80	mm/r	0,50–0,90	0,60–1,05
	5	30	–	50	mm/r	0,50–0,90	0,60–1,05
	6	30	–	40	mm/r	0,35–0,65	0,40–0,80

■ Series 050222 • Solid Carbide • Straight Flute • Grade K10F™ • Inch

Material Group							
		Cutting Speed – vc Range – SFM			Recommended Feed Rate per Rev		
		min		max	Tool Diameter	0.055–0.124	0.124–0.189
P	1	100	–	130	IPR	0.008–0.013	0.008–0.016
	2	80	–	110	IPR	0.008–0.013	0.008–0.016
	3	80	–	100	IPR	0.008–0.013	0.008–0.016
	4	50	–	80	IPR	0.008–0.013	0.008–0.016
	5	30	–	70	IPR	0.008–0.013	0.008–0.016
	6	30	–	50	IPR	0.006–0.012	0.008–0.012
M	1	20	–	50	IPR	0.006–0.012	0.008–0.012
	2	20	–	50	IPR	0.006–0.012	0.008–0.012
	3	20	–	30	IPR	0.006–0.012	0.008–0.012
K	1	70	–	100	IPR	0.010–0.018	0.014–0.026
	2	70	–	80	IPR	0.010–0.018	0.014–0.026
	3	70	–	80	IPR	0.010–0.018	0.014–0.026
N	1	230	–	290	IPR	0.010–0.018	0.014–0.026
	2	260	–	330	IPR	0.010–0.018	0.014–0.026
	3	260	–	330	IPR	0.010–0.018	0.014–0.026
	4	230	–	290	IPR	0.010–0.018	0.014–0.026
	5	200	–	260	IPR	0.010–0.018	0.014–0.026
	6	280	–	340	IPR	0.010–0.018	0.014–0.026
S	1	30	–	50	IPR	0.004–0.008	0.006–0.012
	2	20	–	30	IPR	0.004–0.008	0.006–0.012
	3	50	–	80	IPR	0.006–0.012	0.008–0.012
	4	50	–	80	IPR	0.006–0.012	0.008–0.012

■ Series 050222 • Solid Carbide • Straight Flute • Grade K10F™ • Metric

Material Group							
		Cutting Speed – vc Range – m/min			Recommended Feed Rate per Rev		
		min		max	Tool Diameter	1,40–3,15	3,16–4,80
P	1	30	–	40	mm/r	0,20–0,30	0,20–0,40
	2	30	–	40	mm/r	0,20–0,30	0,20–0,40
	3	30	–	30	mm/r	0,20–0,30	0,20–0,40
	4	20	–	30	mm/r	0,20–0,30	0,20–0,40
	5	10	–	20	mm/r	0,20–0,30	0,20–0,40
	6	10	–	20	mm/r	0,15–0,30	0,20–0,30
M	1	10	–	20	mm/r	0,15–0,30	0,20–0,30
	2	10	–	20	mm/r	0,15–0,30	0,20–0,30
	3	10	–	10	mm/r	0,15–0,30	0,20–0,30
K	1	20	–	30	mm/r	0,25–0,45	0,35–0,65
	2	20	–	30	mm/r	0,25–0,45	0,35–0,65
	3	20	–	30	mm/r	0,25–0,45	0,35–0,65
N	1	70	–	90	mm/r	0,25–0,45	0,35–0,65
	2	80	–	100	mm/r	0,25–0,45	0,35–0,65
	3	80	–	100	mm/r	0,25–0,45	0,35–0,65
	4	70	–	90	mm/r	0,25–0,45	0,35–0,65
	5	60	–	80	mm/r	0,25–0,45	0,35–0,65
	6	90	–	110	mm/r	0,25–0,45	0,35–0,65
S	1	10	–	20	mm/r	0,10–0,20	0,15–0,30
	2	10	–	10	mm/r	0,10–0,20	0,15–0,30
	3	20	–	30	mm/r	0,15–0,30	0,20–0,30
	4	20	–	30	mm/r	0,15–0,30	0,20–0,30

■ Series 450222 • Solid Carbide • Straight Flute • Grade K10F-DCFD™ • Inch

Material Group							
		Cutting Speed – vc Range – SFM			Recommended Feed Rate per Rev		
		min		max	Tool Diameter	0.055–0.124	0.124–0.189
P	1	200	–	260	IPR	0.008–0.013	0.008–0.016
	2	180	–	250	IPR	0.008–0.013	0.008–0.016
	3	160	–	230	IPR	0.008–0.013	0.008–0.016
	4	130	–	200	IPR	0.008–0.013	0.008–0.016
	5	70	–	100	IPR	0.008–0.013	0.008–0.016
	6	50	–	80	IPR	0.006–0.012	0.008–0.012
M	1	30	–	70	IPR	0.006–0.012	0.008–0.012
	2	30	–	70	IPR	0.006–0.012	0.008–0.012
	3	30	–	50	IPR	0.006–0.012	0.008–0.012
K	1	160	–	230	IPR	0.010–0.018	0.014–0.026
	2	150	–	210	IPR	0.010–0.018	0.014–0.026
	3	150	–	210	IPR	0.010–0.018	0.014–0.026
S	1	30	–	70	IPR	0.004–0.008	0.006–0.012
	2	30	–	50	IPR	0.004–0.008	0.006–0.012

■ Series 450222 • Solid Carbide • Straight Flute • Grade K10F-DCFD™ • Metric

Material Group							
		Cutting Speed – vc Range – m/min			Recommended Feed Rate per Rev		
		min		max	Tool Diameter	1,40–3,15	3,16–4,80
P	1	60	–	80	mm/r	0,20–0,30	0,20–0,40
	2	60	–	80	mm/r	0,20–0,30	0,20–0,40
	3	50	–	70	mm/r	0,20–0,30	0,20–0,40
	4	40	–	60	mm/r	0,20–0,30	0,20–0,40
	5	20	–	30	mm/r	0,20–0,30	0,20–0,40
	6	20	–	30	mm/r	0,15–0,30	0,20–0,30
M	1	10	–	20	mm/r	0,15–0,30	0,20–0,30
	2	10	–	20	mm/r	0,15–0,30	0,20–0,30
	3	10	–	20	mm/r	0,15–0,30	0,20–0,30
K	1	50	–	70	mm/r	0,25–0,45	0,35–0,65
	2	50	–	70	mm/r	0,25–0,45	0,35–0,65
	3	50	–	70	mm/r	0,25–0,45	0,35–0,65
S	1	10	–	20	mm/r	0,10–0,20	0,15–0,30
	2	10	–	20	mm/r	0,10–0,20	0,15–0,30

■ Series 050270 • Solid Carbide • Straight Flute • Grade K10F™ • Inch

Material Group										
		Cutting Speed – vc			Recommended Feed Rate per Rev					
		Range – SFM								
		min		max	Tool Diameter	0.124–0.189	0.189–0.281	0.282–0.378	0.378–0.5	0.5–0.590
P	1	150	–	210	IPR	0.008–0.016	0.011–0.021	0.014–0.026	0.016–0.031	0.020–0.035
	2	130	–	200	IPR	0.008–0.016	0.011–0.021	0.014–0.026	0.016–0.031	0.020–0.035
	3	110	–	180	IPR	0.008–0.016	0.011–0.021	0.014–0.026	0.016–0.031	0.020–0.035
	4	80	–	110	IPR	0.008–0.016	0.011–0.021	0.014–0.026	0.016–0.031	0.020–0.035
	5	50	–	80	IPR	0.008–0.016	0.011–0.021	0.014–0.026	0.016–0.031	0.020–0.035
	6	30	–	70	IPR	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
M	1	30	–	70	IPR	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
	2	30	–	70	IPR	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
	3	20	–	50	IPR	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
K	1	100	–	160	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	2	100	–	160	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	3	80	–	150	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
N	1	420	–	470	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	2	460	–	520	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	3	460	–	520	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	4	420	–	490	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	5	390	–	460	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	6	470	–	540	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
S	1	30	–	70	IPR	0.006–0.012	0.008–0.012	0.008–0.016	0.010–0.018	0.012–0.020
	2	20	–	50	IPR	0.006–0.012	0.008–0.012	0.008–0.016	0.010–0.018	0.012–0.020
	3	80	–	110	IPR	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
	4	80	–	110	IPR	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026

■ Series 050270 • Solid Carbide • Straight Flute • Grade K10F™ • Metric

Material Group										
		Cutting Speed — vc Range — m/min			Recommended Feed Rate per Rev					
		min		max	Tool Diameter	3,16–4,80	4,81–7,15	7,16–9,59	9,60–12,70	12,70–15,00
P	1	50	–	70	mm/r	0,20–0,40	0,30–0,50	0,35–0,65	0,40–0,80	0,50–0,90
	2	40	–	60	mm/r	0,20–0,40	0,30–0,50	0,35–0,65	0,40–0,80	0,50–0,90
	3	40	–	60	mm/r	0,20–0,40	0,30–0,50	0,35–0,65	0,40–0,80	0,50–0,90
	4	30	–	40	mm/r	0,20–0,40	0,30–0,50	0,35–0,65	0,40–0,80	0,50–0,90
	5	20	–	30	mm/r	0,20–0,40	0,30–0,50	0,35–0,65	0,40–0,80	0,50–0,90
	6	10	–	20	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
M	1	10	–	20	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
	2	10	–	20	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
	3	10	–	20	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
K	1	30	–	50	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	2	30	–	50	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	3	30	–	50	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
N	1	130	–	150	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	2	140	–	160	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	3	140	–	160	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	4	130	–	150	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	5	120	–	140	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	6	150	–	170	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
S	1	10	–	20	mm/r	0,15–0,30	0,20–0,30	0,20–0,40	0,25–0,45	0,30–0,50
	2	10	–	20	mm/r	0,15–0,30	0,20–0,30	0,20–0,40	0,25–0,45	0,30–0,50
	3	30	–	40	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
	4	30	–	40	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65

■ Series 450270 • Solid Carbide • Straight Flute • Grade K10F-DCFD™ • Inch

Material Group										
		Cutting Speed – vc			Recommended Feed Rate per Rev					
		Range – SFM								
		min		max	Tool Diameter	0.124–0.189	0.189–0.281	0.282–0.378	0.378–0.5	0.5–0.590
P	1	360	–	420	IPR	0.008–0.016	0.011–0.021	0.014–0.026	0.016–0.031	0.020–0.035
	2	340	–	410	IPR	0.008–0.016	0.011–0.021	0.014–0.026	0.016–0.031	0.020–0.035
	3	310	–	380	IPR	0.008–0.016	0.011–0.021	0.014–0.026	0.016–0.031	0.020–0.035
	4	200	–	260	IPR	0.008–0.016	0.011–0.021	0.014–0.026	0.016–0.031	0.020–0.035
	5	100	–	160	IPR	0.008–0.016	0.011–0.021	0.014–0.026	0.016–0.031	0.020–0.035
	6	100	–	130	IPR	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
M	1	100	–	130	IPR	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
	2	100	–	130	IPR	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
	3	70	–	100	IPR	0.008–0.012	0.008–0.016	0.012–0.020	0.012–0.024	0.014–0.026
K	1	250	–	310	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	2	250	–	310	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
	3	230	–	290	IPR	0.014–0.026	0.016–0.031	0.020–0.035	0.024–0.041	0.024–0.047
S	1	30	–	70	IPR	0.006–0.012	0.008–0.012	0.008–0.016	0.010–0.018	0.012–0.020
	2	20	–	50	IPR	0.006–0.012	0.008–0.012	0.008–0.016	0.010–0.018	0.012–0.020

■ Series 450270 • Solid Carbide • Straight Flute • Grade K10F-DCFD™ • Metric

Material Group										
		Cutting Speed — vc Range — m/min			Recommended Feed Rate per Rev					
		min		max	Tool Diameter	3,16–4,80	4,81–7,15	7,16–9,59	9,60–12,70	12,70–15,00
P	1	110	–	130	mm/r	0,20–0,40	0,30–0,50	0,35–0,65	0,40–0,80	0,50–0,90
	2	110	–	130	mm/r	0,20–0,40	0,30–0,50	0,35–0,65	0,40–0,80	0,50–0,90
	3	100	–	120	mm/r	0,20–0,40	0,30–0,50	0,35–0,65	0,40–0,80	0,50–0,90
	4	60	–	80	mm/r	0,20–0,40	0,30–0,50	0,35–0,65	0,40–0,80	0,50–0,90
	5	30	–	50	mm/r	0,20–0,40	0,30–0,50	0,35–0,65	0,40–0,80	0,50–0,90
	6	30	–	40	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
M	1	30	–	40	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
	2	30	–	40	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
	3	20	–	30	mm/r	0,20–0,30	0,20–0,40	0,30–0,50	0,30–0,60	0,35–0,65
K	1	80	–	100	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	2	80	–	100	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
	3	70	–	90	mm/r	0,35–0,65	0,40–0,80	0,50–0,90	0,60–1,05	0,60–1,20
S	1	30	–	40	mm/r	0,15–0,30	0,20–0,30	0,20–0,40	0,25–0,45	0,30–0,50
	2	20	–	30	mm/r	0,15–0,30	0,20–0,30	0,20–0,40	0,25–0,45	0,30–0,50

■ Series 050280 • Uncoated • Carbide-Tipped • Straight Flute • Grade K10F™ • Inch

Material Group								
		Cutting Speed – vc Range – SFM			Recommended Feed Rate per Rev			
		min		max	Tool Diameter	0.5–0.590	0.590–0.787	0.787–1.181
P	1	150	–	210	IPR	0.020–0.035	0.024–0.041	0.024–0.043
	2	130	–	200	IPR	0.020–0.035	0.024–0.041	0.024–0.043
	3	110	–	180	IPR	0.020–0.035	0.024–0.041	0.024–0.043
	4	80	–	110	IPR	0.020–0.035	0.024–0.041	0.024–0.043
	5	50	–	80	IPR	0.020–0.035	0.024–0.041	0.024–0.043
	6	30	–	70	IPR	0.014–0.026	0.016–0.031	0.020–0.035
M	1	30	–	70	IPR	0.014–0.026	0.016–0.031	0.020–0.035
	2	30	–	70	IPR	0.014–0.026	0.016–0.031	0.020–0.035
	3	20	–	50	IPR	0.014–0.026	0.016–0.031	0.020–0.035
K	1	100	–	160	IPR	0.024–0.047	0.028–0.051	0.031–0.055
	2	100	–	160	IPR	0.024–0.047	0.028–0.051	0.031–0.055
	3	100	–	130	IPR	0.024–0.047	0.028–0.051	0.031–0.055
N	1	420	–	490	IPR	0.024–0.047	0.028–0.051	0.031–0.055
	2	460	–	520	IPR	0.024–0.047	0.028–0.051	0.031–0.055
	3	460	–	520	IPR	0.024–0.047	0.028–0.051	0.031–0.055
	4	420	–	490	IPR	0.024–0.047	0.028–0.051	0.031–0.055
	5	390	–	460	IPR	0.024–0.047	0.028–0.051	0.031–0.055
	6	470	–	540	IPR	0.024–0.047	0.028–0.051	0.031–0.055
S	1	30	–	70	IPR	0.012–0.020	0.012–0.024	0.014–0.026
	2	20	–	50	IPR	0.012–0.020	0.012–0.024	0.014–0.026
	3	80	–	110	IPR	0.014–0.026	0.016–0.031	0.020–0.035
	4	80	–	110	IPR	0.014–0.026	0.016–0.031	0.020–0.035

■ Series 050280 • Uncoated • Carbide-Tipped • Straight Flute • Grade K10F™ • Metric

Material Group								
		Cutting Speed — vc Range — m/min			Recommended Feed Rate per Rev			
		min		max	Tool Diameter	12,70–15,00	15,00–20,00	20,00–32,00
P	1	50	–	70	mm/r	0,50–0,90	0,60–1,05	0,60–1,20
	2	40	–	60	mm/r	0,50–0,90	0,60–1,05	0,60–1,20
	3	40	–	60	mm/r	0,50–0,90	0,60–1,05	0,60–1,20
	4	30	–	40	mm/r	0,50–0,90	0,60–1,05	0,60–1,20
	5	20	–	30	mm/r	0,50–0,90	0,60–1,05	0,60–1,20
	6	10	–	20	mm/r	0,35–0,65	0,40–0,80	0,50–0,90
M	1	10	–	20	mm/r	0,35–0,65	0,40–0,80	0,50–0,90
	2	10	–	20	mm/r	0,35–0,65	0,40–0,80	0,50–0,90
	3	10	–	20	mm/r	0,35–0,65	0,40–0,80	0,50–0,90
K	1	30	–	50	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
	2	30	–	50	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
	3	30	–	40	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
N	1	130	–	150	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
	2	140	–	160	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
	3	140	–	160	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
	4	130	–	150	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
	5	120	–	140	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
	6	150	–	170	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
S	1	10	–	20	mm/r	0,30–0,50	0,30–0,60	0,35–0,65
	2	10	–	20	mm/r	0,30–0,50	0,30–0,60	0,35–0,65
	3	30	–	40	mm/r	0,35–0,65	0,40–0,80	0,50–0,90
	4	30	–	40	mm/r	0,35–0,65	0,40–0,80	0,50–0,90

■ Series 450280 • Coated • Carbide-Tipped • Straight Flute • Grade K10F-DCFD™ • Inch

Material Group								
		Cutting Speed – vc			Recommended Feed Rate per Rev			
		Range – SFM						
		min		max	Tool Diameter	0.5–0.590	0.590–0.787	0.787–1.181
P	1	360	–	420	IPR	0.020–0.035	0.024–0.041	0.024–0.043
	2	340	–	410	IPR	0.020–0.035	0.024–0.041	0.024–0.043
	3	310	–	380	IPR	0.020–0.035	0.024–0.041	0.024–0.043
	4	200	–	260	IPR	0.020–0.035	0.024–0.041	0.024–0.043
	5	100	–	160	IPR	0.020–0.035	0.024–0.041	0.024–0.043
	6	100	–	130	IPR	0.014–0.026	0.016–0.031	0.020–0.035
M	1	100	–	130	IPR	0.014–0.026	0.016–0.031	0.020–0.035
	2	100	–	130	IPR	0.014–0.026	0.016–0.031	0.020–0.035
	3	70	–	100	IPR	0.014–0.026	0.016–0.031	0.020–0.035
K	1	250	–	310	IPR	0.024–0.047	0.028–0.051	0.031–0.055
	2	250	–	310	IPR	0.024–0.047	0.028–0.051	0.031–0.055
	3	230	–	290	IPR	0.024–0.047	0.028–0.051	0.031–0.055
S	1	100	–	130	IPR	0.012–0.020	0.012–0.024	0.014–0.026
	2	70	–	100	IPR	0.012–0.020	0.012–0.024	0.014–0.026

■ Series 450280 • Coated • Carbide-Tipped • Straight Flute • Grade K10F-DCFD™ • Metric

Material Group								
		Cutting Speed – vc			Recommended Feed Rate per Rev			
		Range – m/min						
		min		max	Tool Diameter	12,70–15,00	15,00–20,00	20,00–32,00
P	1	110	–	130	mm/r	0,50–0,90	0,60–1,05	0,60–1,10
	2	110	–	130	mm/r	0,50–0,90	0,60–1,05	0,60–1,10
	3	100	–	120	mm/r	0,50–0,90	0,60–1,05	0,60–1,10
	4	60	–	80	mm/r	0,50–0,90	0,60–1,05	0,60–1,10
	5	30	–	50	mm/r	0,50–0,90	0,60–1,05	0,60–1,10
	6	30	–	40	mm/r	0,35–0,65	0,40–0,80	0,50–0,90
M	1	30	–	40	mm/r	0,35–0,65	0,40–0,80	0,50–0,90
	2	30	–	40	mm/r	0,35–0,65	0,40–0,80	0,50–0,90
	3	20	–	30	mm/r	0,35–0,65	0,40–0,80	0,50–0,90
K	1	80	–	100	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
	2	80	–	100	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
	3	70	–	90	mm/r	0,60–1,20	0,70–1,30	0,80–1,40
S	1	30	–	40	mm/r	0,30–0,50	0,30–0,60	0,35–0,65
	2	20	–	30	mm/r	0,30–0,50	0,30–0,60	0,35–0,65

■ Series 456680 • Cermet-Tipped • Straight Flute • Grade CERMET-DCFD™ • Inch

Material Group		 					
		Cutting Speed — vc Range — SFM		Recommended Feed Rate per Rev			
		min	max	Tool Diameter	0.5–0.590	0.590–0.787	
P	1	360	–	420	IPR	0.020–0.035	0.024–0.041
	2	340	–	410	IPR	0.020–0.035	0.024–0.041
	3	310	–	380	IPR	0.020–0.035	0.024–0.041
	4	200	–	260	IPR	0.020–0.035	0.024–0.041
	5	100	–	160	IPR	0.020–0.035	0.024–0.041
	6	100	–	130	IPR	0.014–0.026	0.016–0.031

■ Series 456680 • Cermet-Tipped • Straight Flute • Grade CERMET-DCFD™ • Metric

Material Group		 					
		Cutting Speed — vc Range — m/min		Recommended Feed Rate per Rev			
		min	max	Tool Diameter	12,70–15,00	15,00–20,00	
P	1	110	–	130	mm/r	0,50–0,90	0,60–1,05
	2	110	–	130	mm/r	0,50–0,90	0,60–1,05
	3	100	–	120	mm/r	0,50–0,90	0,60–1,05
	4	60	–	80	mm/r	0,50–0,90	0,60–1,05
	5	30	–	50	mm/r	0,50–0,90	0,60–1,05
	6	30	–	40	mm/r	0,35–0,65	0,40–0,80