

General Purpose End Mills

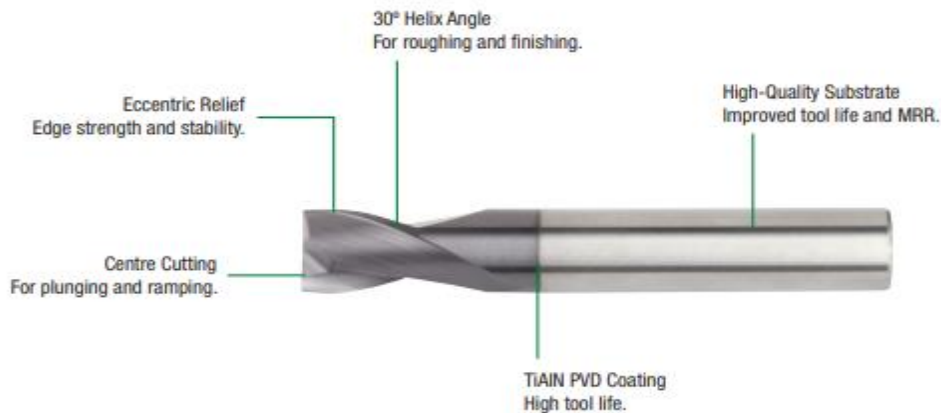
2-, 3-, and 4-Flute General Purpose Solid Carbide End Mills

A wide range of diameters, lengths, and corner styles (such as chamfered, sharp edge, and ball nose) are available from stock.

2-, 4-Flute Materials:



3-Flute Materials:



2-Flute



D002/D012/4002/4012

- Wide range of lengths-of-cut — short, regular, long, and extra long.
- Steel, stainless steel, and cast iron.
- Centre cut.

4-Flute



4004/4014/2528/4004/4014/4024

- Wide range of lengths-of-cut — short, regular, long, and extra long.
- Steel, stainless steel, and cast iron.



D001/D011/2838/4001/4011/4021

- Wide range of lengths-of-cut — short, regular, long, and extra long.
- Steel, stainless steel, and cast iron.
- Centre cut ball nose.



D010/4000/4010

- Wide range of lengths-of-cut — short, regular, long, and extra long.
- Steel, stainless steel, and cast iron.
- Centre cut ball nose.

3-Flute



4003/4013/D003/D013

- Centre cutting.
- Short length-of-cut and overall length for ramping applications.
- Steel, stainless, and cast iron.



4004/4014/4024

- Regular length-of-cut with corner radius.
- Steel, stainless steel, and cast iron.
- Centre cut.

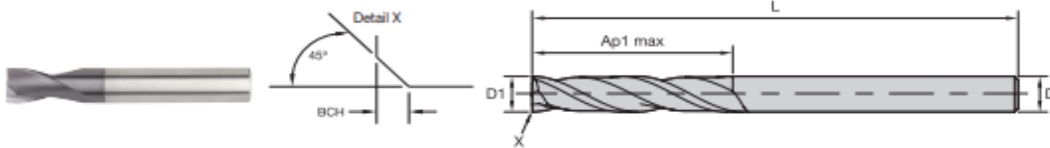


FOR MORE INFORMATION ON THE PRODUCTS SHOWN, PLEASE SEE PAGES B61–B78.

General Purpose Solid Carbide End Mills • Roughing/Finishing

Series 4002 4012 • Metric

(continued)



P	●
M	●
K	●
N	●
S	●
H	●

catalogue number	D1	D	length of cut Ap1 max	length L	BCH	TIALN
40021400T050S	14,0	14	50,00	100	—	6092653
40021400T050	14,0	14	50,00	100	0,30	5873518
40121400T075S	14,0	14	75,00	150	—	6092654
40121400T075	14,0	14	75,00	150	0,30	5873519
40021600T032	16,0	16	32,00	89	0,30	5873520
40021600T032S	16,0	16	32,00	89	—	6092657
40021600T056S	16,0	16	56,00	110	—	6092658
40021600T056	16,0	16	56,00	110	0,30	5873531
40121600T075S	16,0	16	75,00	150	—	6092659
40121600T075	16,0	16	75,00	150	0,30	5873532
40021800T038	18,0	18	38,00	100	0,30	5873533
40021800T038S	18,0	18	38,00	100	—	6092660
40021800T060	18,0	18	60,00	125	0,30	5873534
40021800T060S	18,0	18	60,00	125	—	6092681
40022000T038S	20,0	20	38,00	104	—	6092683
40022000T038	20,0	20	38,00	104	0,30	5873536
40022000T056S	20,0	20	56,00	125	—	6092684
40122000T075S	20,0	20	75,00	150	—	6092685
40122000T075	20,0	20	75,00	150	0,30	5873538

INDEXABLE MILLING

SOLID END MILLING

HOLE MAKING

TAPPING

TURNING



THE ALL-STAR PROGRAMME FEATURES ONLY THE MOST POPULAR PLATFORMS, GRADES, AND SIZES. FOR THE COMPLETE OFFERING, VISIT WIDIA NOVO™ OR WIDIA.COM.



General Purpose Solid Carbide End Mills • Roughing/Finishing

INDEXABLE MILLING

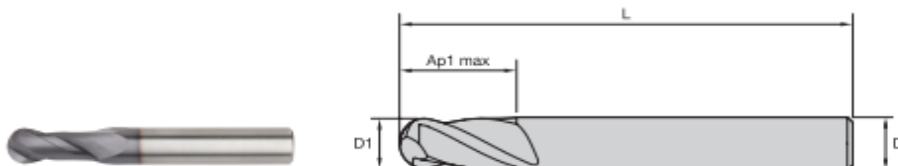
SOLID END MILLING

HOLEMAKING

TAPPING

TURNING

Series D001 D011 • Metric

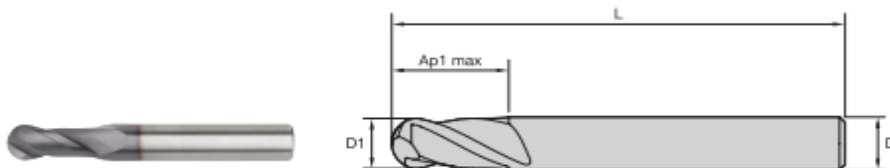


- first choice
- alternate choice

P	●
M	●
K	●
N	●
S	●
H	●

catalogue number	D1	D	length of cut Ap1 max	length L	TIALN
D0110200T006	2,0	6	6,00	57	5880362
D0010300T004	3,0	6	4,00	50	5880363
D0110700T013	7,0	8	13,00	63	5880369
D0111000T019	10,0	10	19,00	72	5880381

Series 2838 • Metric



- first choice
- alternate choice

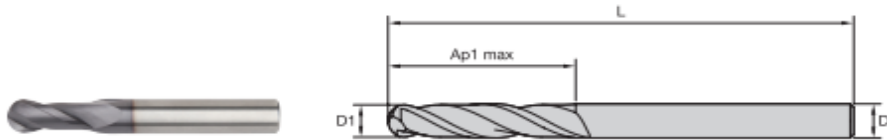
P	●
M	●
K	●
N	●
S	●
H	●

catalogue number	D1	D	length of cut Ap1 max	length L	TIALN
28381600T026	16,0	16	26,00	92	5880460



THE ALL-STAR PROGRAMME FEATURES ONLY THE MOST POPULAR PLATFORMS, GRADES, AND SIZES. FOR THE COMPLETE OFFERING, VISIT WIDIA NOVO™ OR WIDIA.COM.

Series 4001 4011 4021 • Metric



- first choice
- alternate choice

P	●
M	●
K	●
N	●
S	○
H	○

catalogue number	D1	D	length of cut Ap1 max	length L	TIALN
40010100T004	1,0	3	4,00	38	5880387
40010150T005	1,5	3	5,00	38	5880388
40010200T006	2,0	3	6,30	38	5880389
40010250T007	2,5	3	7,00	38	5880390
40010300T009	3,0	3	9,50	38	5880391
40010400T012	4,0	4	12,00	50	5880393
40110400T019	4,0	4	19,00	63	5880395
40210400T031	4,0	4	31,00	75	5880396
40010500T014	5,0	5	14,00	50	6209446
40210500T014	5,0	6	14,00	50	5880397
40110500T020	5,0	5	20,00	63	6209447
40010600T020	6,0	6	20,00	63	5880398
40110600T028	6,0	6	28,00	76	5880399
40210600T038	6,0	6	38,00	100	5880400
40010800T020	8,0	8	20,00	63	5880401
40011000T022	10,0	10	22,00	76	5880404
40211000T045	10,0	10	45,00	100	5880406
40011200T025	12,0	12	25,00	75	5880407
40111200T045	12,0	12	45,00	100	5880408
40211600T075	16,0	16	75,00	150	6209449
40012000T038	20,0	20	38,00	100	5880412

INDEXABLE MILLING

SOLID END MILLING

HOLEMAKING

TAPPING

TURNING

General Purpose Solid Carbide End Mills • Roughing/Finishing

INDEXTABLE MILLING




SOLID END MILLING

HOLE MAKING

TAPPING


TURNING

Application Data • Series D002 4002 • Metric

																				
		Side Milling (A) and Slotting (B)		TiAlN		Recommended feed per tooth (fz = mm/th) for side milling (A). For slotting (B), reduce fz by 20%.														
Material Group	A		B		Cutting Speed – vc m/min		D1 – Diameter													
	ap	ae	ap	min	max	mm	1,0	2,0	3,0	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0	
P	0	Ap1 max 0,1 x D	0,5 x D	150	–	200	fz	0,007	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	1	Ap1 max 0,1 x D	0,5 x D	150	–	200	fz	0,007	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	2	Ap1 max 0,1 x D	0,5 x D	140	–	190	fz	0,007	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	3	Ap1 max 0,1 x D	0,5 x D	120	–	160	fz	0,006	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
M	4	Ap1 max 0,1 x D	0,5 x D	90	–	150	fz	0,005	0,010	0,016	0,021	0,027	0,033	0,045	0,054	0,062	0,070	0,077	0,083	0,088
	1	Ap1 max 0,1 x D	0,5 x D	90	–	115	fz	0,006	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101
K	2	Ap1 max 0,1 x D	0,5 x D	60	–	80	fz	0,005	0,009	0,014	0,019	0,024	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081
	1	Ap1 max 0,1 x D	0,5 x D	120	–	150	fz	0,007	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114
	2	Ap1 max 0,1 x D	0,5 x D	110	–	140	fz	0,006	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
Above parameters are based on ideal conditions. For smaller taper machining centres, please adjust parameters accordingly on >12mm diameters.

Application Data • Series D012 4012 • Metric

																				
		Side Milling (A)	TiAlN		Recommended feed per tooth (fz = mm/th) for side milling (A).															
Material Group	A		Cutting Speed – vc m/min		D1 – Diameter															
	ap	ae	min	max	mm	2,0	3,0	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0			
P	0	Ap1 max 0,1 x D	150	–	200	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114		
	1	Ap1 max 0,1 x D	150	–	200	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114		
	2	Ap1 max 0,1 x D	140	–	190	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114		
	3	Ap1 max 0,1 x D	120	–	160	fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101		
M	4	Ap1 max 0,1 x D	90	–	150	fz	0,010	0,016	0,021	0,027	0,033	0,045	0,054	0,062	0,070	0,077	0,083	0,088		
	1	Ap1 max 0,1 x D	90	–	115	fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101		
K	2	Ap1 max 0,1 x D	60	–	80	fz	0,009	0,014	0,019	0,024	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081		
	1	Ap1 max 0,1 x D	120	–	150	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114		
	2	Ap1 max 0,1 x D	110	–	140	fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101		

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
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Above parameters are based on ideal conditions. For smaller taper machining centres, please adjust parameters accordingly on >12mm diameters.

 = ALL-STAR PORTFOLIO PRODUCT. ALL-STAR PRODUCTS ARE PROVEN SOLUTIONS THAT ARE ALWAYS AVAILABLE.

Application Data • Series D001 D011 2838 4001 • Metric

				★																
		Side Milling (A) and Slotting (B)		TiAlN		Recommended feed per tooth (fz = mm/th) for side milling (A). For slotting (B), reduce fz by 20%.														
Material Group	A		B		Cutting Speed – vc m/min		D1 – Diameter													
	ap	ae	ap	min	max	mm	1,0	2,0	3,0	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0	
P	0	Ap1 max 0,1 x D	0,5 x D	150	– 200	fz	0,007	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114	
	1	Ap1 max 0,1 x D	0,5 x D	150	– 200	fz	0,007	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114	
	2	Ap1 max 0,1 x D	0,5 x D	140	– 190	fz	0,007	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114	
	3	Ap1 max 0,1 x D	0,5 x D	120	– 160	fz	0,006	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101	
M	4	Ap1 max 0,1 x D	0,5 x D	90	– 150	fz	0,005	0,010	0,016	0,021	0,027	0,033	0,045	0,054	0,062	0,070	0,077	0,083	0,088	
	1	Ap1 max 0,1 x D	0,5 x D	90	– 115	fz	0,006	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101	
K	2	Ap1 max 0,1 x D	0,5 x D	60	– 80	fz	0,005	0,009	0,014	0,019	0,024	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081	
	1	Ap1 max 0,1 x D	0,5 x D	120	– 150	fz	0,007	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114	
K	2	Ap1 max 0,1 x D	0,5 x D	110	– 140	fz	0,006	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101	

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
Above parameters are based on ideal conditions.
For smaller taper machining centres, please adjust parameters accordingly on >12mm diameters.

Application Data • Series 4011 4021 • Metric

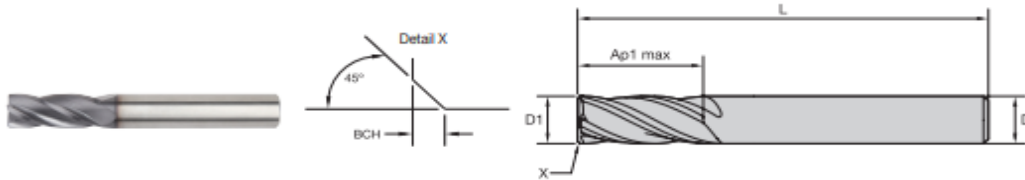
				★															
		Side Milling (A)		TiAlN		Recommended feed per tooth (fz = mm/th) for side milling (A).													
Material Group	A		Cutting Speed – vc m/min		D1 – Diameter														
	ap	ae	min	max	mm	2,0	3,0	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0		
P	0	Ap1 max 0,1 x D	150	– 200	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114		
	1	Ap1 max 0,1 x D	150	– 200	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114		
	2	Ap1 max 0,1 x D	140	– 190	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114		
	3	Ap1 max 0,1 x D	120	– 160	fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101		
M	4	Ap1 max 0,1 x D	90	– 150	fz	0,010	0,016	0,021	0,027	0,033	0,045	0,054	0,062	0,070	0,077	0,083	0,088		
	1	Ap1 max 0,1 x D	90	– 115	fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101		
K	2	Ap1 max 0,1 x D	60	– 80	fz	0,009	0,014	0,019	0,024	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081		
	1	Ap1 max 0,1 x D	120	– 150	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114		
K	2	Ap1 max 0,1 x D	110	– 140	fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101		

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
Above parameters are based on ideal conditions.
For smaller taper machining centres, please adjust parameters accordingly on >12mm diameters.

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General Purpose Solid Carbide End Mills • Roughing/Finishing

Series D004 D014 • Metric



- first choice
- alternate choice

P	●
M	●
K	●
N	●
S	●
H	●

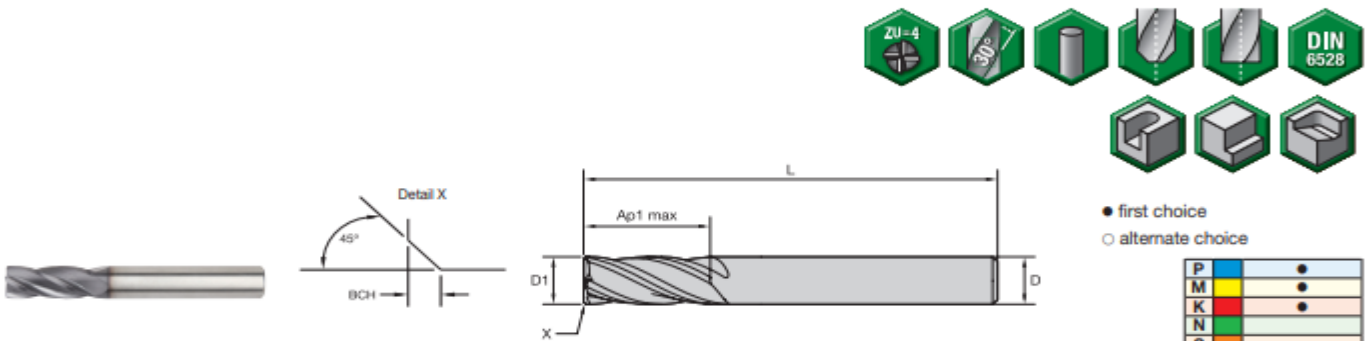
catalogue number	D1	D	length of cut Ap1 max	length L	BCH	TIALN
D0040200T004	2,0	6	4,00	50	—	5825894
D0140200T007	2,0	6	7,00	57	—	5825895
D0140250T008	2,5	6	8,00	57	—	5825896
D0040300T005	3,0	6	5,00	50	—	5825897
D0140300T008	3,0	6	8,00	57	—	5825898
D0140350T010	3,5	6	10,00	57	—	5825899
D0040400T008S	4,0	6	8,00	54	—	6085348
D0140400T011S	4,0	6	11,00	57	—	6085349
D0140400T011	4,0	6	11,00	57	0,10	5825931
D0040500T009S	5,0	6	9,00	54	—	6085361
D0140500T013	5,0	6	13,00	57	0,10	5825934
D0140550T013S	5,5	6	13,00	57	—	6085363
D0040600T010	6,0	6	10,00	54	0,10	5825936
D0140600T013S	6,0	6	13,00	57	—	6085365
D0140600T013	6,0	6	13,00	57	0,10	5825937
D0140750T019	7,5	8	19,00	63	0,10	5825941
D0040800T012	8,0	8	12,00	58	0,20	5825942
D0140800T019S	8,0	8	19,00	63	—	6085371
D0140800T019	8,0	8	19,00	63	0,20	5825943
D0041000T014	10,0	10	14,00	66	0,20	5825946
D0141000T022S	10,0	10	22,00	72	—	6085375
D0141000T022	10,0	10	22,00	72	0,20	5825947
D0041200T016S	12,0	12	16,00	73	—	6085376
D0141200T026	12,0	12	26,00	83	0,30	5825949
D0141200W026S	12,0	12	26,00	83	—	6085397
D0041600T022	16,0	16	22,00	82	0,30	5825952
D0141600T032	16,0	16	32,00	92	0,30	5825953
D0141600W032	16,0	16	32,00	92	0,30	5825963



THE ALL-STAR PROGRAMME FEATURES ONLY THE MOST POPULAR PLATFORMS, GRADES, AND SIZES. FOR THE COMPLETE OFFERING, VISIT WIDIA NOVO™ OR WIDIA.COM.

General Purpose Solid Carbide End Mills • Roughing/Finishing

Series 2528 • Metric



catalogue number	D1	D	length of cut Ap1 max	length L	BCH	TIALN
25280800T019S	8,0	8	19,00	63	—	6086495
25280800T019	8,0	8	19,00	63	0,20	5825981
25281000T022	10,0	10	22,00	72	0,20	5825982

- * INDEXABLE MILLING
- * SOLID END MILLING
- * HOLEMAKING
- * TAPPING
- * TURNING

General Purpose Solid Carbide End Mills • Roughing/Finishing

INDEXABLE MILLING

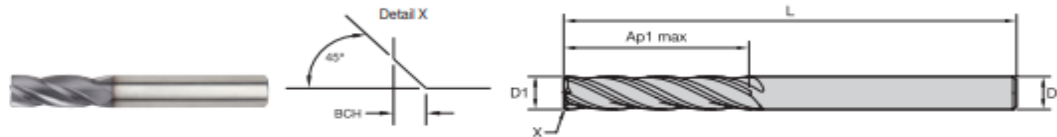
SOLID END MILLING

HOLE MAKING

TAPPING

TURNING

Series 4004 4014 4024 • Metric



- first choice
- alternate choice

P	●
M	●
K	●
N	●
S	●
H	●

catalogue number	D1	D	length of cut Ap1 max	length L	BCH	TIALN
40040100T004	1,0	3	4,00	38	—	5826016
40040150T004	1,5	3	4,00	38	—	5826017
40040200T006	2,0	3	6,30	38	—	5826018
40040250T006	2,5	3	6,30	38	—	5826019
40040300T009	3,0	3	9,50	38	—	5826020
40140300T019	3,0	3	19,00	63	—	5826021
40240300T025	3,0	3	25,00	75	—	5826022
40040350T012	3,5	4	12,00	50	—	5826023
40040400T011	4,0	4	11,00	50	0,10	5826024
40040400T011S	4,0	4	11,00	50	—	6085576
40140400T019S	4,0	4	19,00	63	—	6085577
40140400T019	4,0	4	19,00	63	0,10	5826025
40240400T031S	4,0	4	31,00	75	—	6085578
40240400T031	4,0	4	31,00	75	0,10	5826026
40040450T014S	4,5	5	14,00	50	—	6085579
40040450T014	4,5	5	14,00	50	0,10	5826027
40040500T013S	5,0	5	13,00	50	—	6085580
40040500T013	5,0	5	13,00	50	0,10	5826028
40040500T020S	5,0	5	20,00	63	—	6085581
40040500T020	5,0	5	20,00	63	0,10	5826029
40140500T030S	5,0	5	30,00	75	—	6085582
40140500T030	5,0	5	30,00	75	0,10	5826030
40240500T031S	5,0	5	31,00	100	—	6085583
40240500T031	5,0	5	31,00	100	0,10	5826031
40040600T016S	6,0	6	16,00	50	—	6085584
40040600T016	6,0	6	16,00	50	0,10	5826032
40140600T028S	6,0	6	28,00	75	—	6085585
40140600T028	6,0	6	28,00	75	0,10	5826033
40240600T038S	6,0	6	38,00	100	—	6085586
40240600T038	6,0	6	38,00	100	0,10	5826034
40040700T020S	7,0	8	20,00	63	—	6085587
40040700T020	7,0	8	20,00	63	0,10	5826035
40040800T021S	8,0	8	20,00	63	—	6200965
40040800T020S	8,0	8	20,00	50	—	6085588
40040800T020	8,0	8	20,00	50	0,20	5826036
40140800T028S	8,0	8	28,00	75	—	6085589
40140800T028	8,0	8	28,00	75	0,20	5826037
40240800T041S	8,0	8	41,00	100	—	6085590
40240800T041	8,0	8	41,00	100	0,20	5826038
40040900T020S	9,0	9	20,00	63	—	6085591
40040900T020	9,0	9	20,00	63	0,20	5826039
40041000T022	10,0	10	22,00	72	0,20	5826040
40041000T022S	10,0	10	22,00	72	—	6085592
40141000T032S	10,0	10	32,00	89	—	6085593
40141000T032	10,0	10	32,00	89	0,20	5826041
40241000T045S	10,0	10	45,00	100	—	6085594
40241000T045	10,0	10	45,00	100	0,20	5826042
40041200T025S	12,0	12	25,00	89	—	6085595
40041200T025	12,0	12	25,00	89	0,30	5826043
40141200T045	12,0	12	45,00	100	0,30	5826044
40141200W045S	12,0	12	45,00	100	—	6085611
40141200T045S	12,0	12	45,00	100	—	6085596
40241200T075S	12,0	12	75,00	150	—	6085597
40241200T075	12,0	12	75,00	150	0,30	5826045
40041400T032S	14,0	14	32,00	83	—	6085598
40041400T032	14,0	14	32,00	83	0,30	5826046

General Purpose Solid Carbide End Mills • Roughing/Finishing

INDEXABLE MILLING

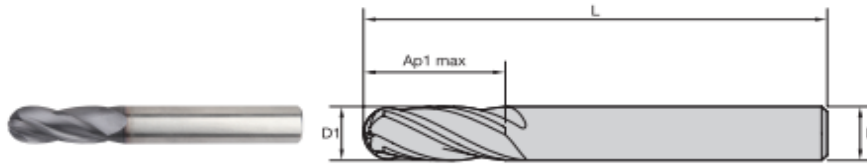
SOLID END MILLING

HOLE MAKING

TAPPING

TURNING

Series D010 • Metric

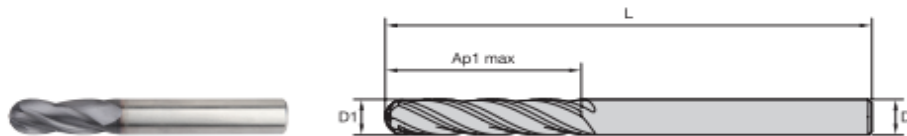


- first choice
- alternate choice

P	●
M	●
K	●
N	●
S	●
H	●

catalogue number	D1	D	length of cut Ap1 max	length L	TIALN
D0100400T011	4,0	6	11,00	57	5825528
D0100500T013	5,0	6	13,00	57	5825529
D0100800T019	8,0	8	19,00	63	5825531
D0101000T022	10,0	10	22,00	72	5825532
D0101200T026	12,0	12	26,00	83	5825533

Series 4000 4010 • Metric



- first choice
- alternate choice

P	●
M	●
K	●
N	●
S	●
H	●

catalogue number	D1	D	length of cut Ap1 max	length L	TIALN
40000200T006	2,0	3	6,30	38	5825555
40000300T009	3,0	3	9,50	38	6231685
40000300T020	3,0	3	20,00	75	5825556
40000400T014	4,0	4	14,00	50	5825557
40100400T025	4,0	4	25,00	75	5825558
40000500T016	5,0	5	16,00	50	5825559
40100500T030	5,0	5	30,00	75	5825560
40000600T016	6,0	6	16,00	50	5825573
40100600T019	6,0	6	19,00	63	5825574
40100600T030	6,0	6	30,00	75	5825575
40000800T019	8,0	8	19,00	63	5825576
40100800T028	8,0	8	28,00	76	6232638
40100800T040	8,0	8	40,00	100	5825577
40001000T022	10,0	10	22,00	72	5825578
40101000T032	10,0	10	32,00	89	6232639
40101000T040	10,0	10	40,00	100	5825579
40001200T025	12,0	12	25,00	75	5825580
40101200T045	12,0	12	45,00	150	5825581
40001600T032	16,0	16	32,00	89	5825585
40101600T065	16,0	16	65,00	150	5825586

Application Data • Series D014 2528 4014 4024 • Metric

Material Group	Side Milling (A)		Recommended feed per tooth (fz = mm/th) for side milling (A).																		
	A		Cutting Speed – vc m/min		mm	D1 – Diameter															
	ap	ae	min	max		2,0	3,0	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0				
	ap1 max	0,1 x D	150	– 200	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114				
P	0	Ap1 max	0,1 x D	150	– 200	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114			
	1	Ap1 max	0,1 x D	150	– 200	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114			
	2	Ap1 max	0,1 x D	140	– 190	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114			
	3	Ap1 max	0,1 x D	120	– 160	fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101			
M	4	Ap1 max	0,1 x D	90	– 150	fz	0,010	0,016	0,021	0,027	0,033	0,045	0,054	0,062	0,070	0,077	0,083	0,088			
	1	Ap1 max	0,1 x D	90	– 115	fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101			
K	2	Ap1 max	0,1 x D	60	– 80	fz	0,009	0,014	0,019	0,024	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081			
	1	Ap1 max	0,1 x D	120	– 150	fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114			
	2	Ap1 max	0,1 x D	110	– 140	fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101			

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
Above parameters are based on ideal conditions. For smaller taper machining centres, please adjust parameters accordingly on >12mm diameters.

Application Data • 4004 Series • Metric

Material Group	Side Milling (A) and Slotting (B)		Recommended feed per tooth (fz = mm/th) for side milling (A). For slotting (B), reduce fz by 20%.																				
	A		B		Cutting Speed – Vc m/min		mm	D1 – Diameter															
	ap	ae	ap	min	max	1,0		2,0	3,0	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0				
	ap1 max	0,1 x D	0,5 x D	150	– 200	fz	0,007	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114				
P	0	Ap1 max	0,1 x D	0,5 x D	150	– 200	fz	0,007	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114			
	1	Ap1 max	0,1 x D	0,5 x D	150	– 200	fz	0,007	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114			
	2	Ap1 max	0,1 x D	0,5 x D	140	– 190	fz	0,007	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114			
	3	Ap1 max	0,1 x D	0,5 x D	120	– 160	fz	0,006	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101			
M	4	Ap1 max	0,1 x D	0,5 x D	90	– 150	fz	0,005	0,010	0,016	0,021	0,027	0,033	0,045	0,054	0,062	0,070	0,077	0,083	0,088			
	1	Ap1 max	0,1 x D	0,5 x D	90	– 115	fz	0,006	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101			
K	2	Ap1 max	0,1 x D	0,5 x D	60	– 80	fz	0,005	0,009	0,014	0,019	0,024	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081			
	1	Ap1 max	0,1 x D	0,5 x D	120	– 150	fz	0,007	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114			
	2	Ap1 max	0,1 x D	0,5 x D	110	– 140	fz	0,006	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101			

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
Above parameters are based on ideal conditions. For smaller taper machining centres, please adjust parameters accordingly on greater than 12mm diameters.

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INDEXABLE MILLING
★ SOLID END MILLING
★ HOLE MAKING
★ TAPPING
★ TURNING

General Purpose Solid Carbide End Mills • Roughing/Finishing

INDEXABLE MILLING



SOLID END MILLING

HOLE MAKING

TAPPING



TURNING

Application Data • Series 4000 4010 • Metric

			★																	
		Side Milling (A) and Slotting (B)	TiAlN		Recommended feed per tooth (fz = mm/th) for side milling (A). For slotting (B), reduce fz by 20%.															
Material Group	A		B		Cutting Speed – vc m/min		D1 – Diameter													
	ap	ae	ap		min	max	mm	3,0	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0		
P	0	Ap1 max	0,1 x D	0,5 x D	150	–	200	fz	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114	
	1	Ap1 max	0,1 x D	0,5 x D	150	–	200	fz	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114	
	2	Ap1 max	0,1 x D	0,5 x D	140	–	190	fz	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114	
	3	Ap1 max	0,1 x D	0,5 x D	120	–	160	fz	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101	
M	4	Ap1 max	0,1 x D	0,5 x D	90	–	150	fz	0,016	0,021	0,027	0,033	0,045	0,054	0,062	0,070	0,077	0,083	0,088	
	1	Ap1 max	0,1 x D	0,5 x D	90	–	115	fz	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101	
	2	Ap1 max	0,1 x D	0,5 x D	60	–	80	fz	0,014	0,019	0,024	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081	
	1	Ap1 max	0,1 x D	0,5 x D	120	–	150	fz	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114	
K	2	Ap1 max	0,1 x D	0,5 x D	110	–	140	fz	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101	

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
Above parameters are based on ideal conditions. For smaller taper machining centres, please adjust parameters accordingly on >12mm diameters.

Application Data • Series D010 • Metric

			★																	
		Side Milling (A)	TiAlN		Recommended feed per tooth (fz = mm/th) for side milling (A).															
Material Group	A				Cutting Speed – vc m/min		D1 – Diameter													
	ap	ae	min	max	mm	3,0	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0				
P	0	Ap1 max	0,1 x D	150	–	200	fz	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114		
	1	Ap1 max	0,1 x D	150	–	200	fz	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114		
	2	Ap1 max	0,1 x D	140	–	190	fz	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114		
	3	Ap1 max	0,1 x D	120	–	160	fz	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101		
M	4	Ap1 max	0,1 x D	90	–	150	fz	0,016	0,021	0,027	0,033	0,045	0,054	0,062	0,070	0,077	0,083	0,088		
	1	Ap1 max	0,1 x D	90	–	115	fz	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101		
	2	Ap1 max	0,1 x D	60	–	80	fz	0,014	0,019	0,024	0,029	0,040	0,048	0,056	0,063	0,070	0,076	0,081		
	1	Ap1 max	0,1 x D	120	–	150	fz	0,021	0,028	0,036	0,044	0,060	0,072	0,083	0,092	0,101	0,108	0,114		
K	2	Ap1 max	0,1 x D	110	–	140	fz	0,017	0,023	0,030	0,036	0,050	0,061	0,070	0,079	0,087	0,095	0,101		

NOTE: Lower value of cutting speed is used for high stock removal applications or for higher hardness (machinability) within group.
Higher value of cutting speed is used for finishing applications or for lower hardness (machinability) within group.
Above parameters are based on ideal conditions. For smaller taper machining centres, please adjust parameters accordingly on >12mm diameters.

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