



# *Cyclone SF*

## **Super Finishing Carbide End-Mills for Machining Titanium, Stainless and High Temp Alloys**

- *Five, seven and nine flute geometry*
- *High helix with uneven flute design eliminating vibration*
- *Supreme coating for extreme wear resistance*
- *Increased metal removal rates in finishing operations*
- *Exceptional surface finish*
- *Eccentric relief for stronger cutting edges*



# Superfinishing In Titanium And High Tensile Alloys

## INCH SERIES

• *Designed for exceptional performance in titanium, inconel, stainless steels and high tensile alloys.*

• *Performances exceptionnelles dans titan, inconel, aciers inoxydables et matériaux exotiques.*

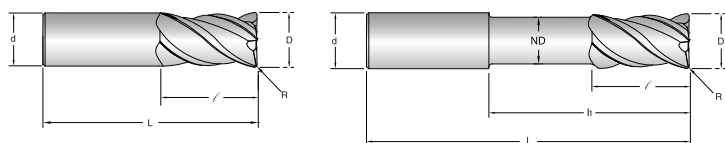
• *Excelentes prestaciones en titanio, aceros inoxidable, inconel y otras leaciones de alta temperatura.*

• *Überragende Leistungen bei der Bearbeitung von titan, inconel, inox und anderen hochfesten Legierungen.*

### LIST 5045



D	d	ℓ	ℓ <sub>1</sub>	ND	L	EDP NUMBER					
						Uncoated			Supreme Coating		
						5 FLUTES	7 FLUTES	9 FLUTES	5 FLUTES	7 FLUTES	9 FLUTES
1/4	1/4	1/2	-	-	2	37300	-	-	37475	-	-
1/4	1/4	3/4	-	-	2-1/2	37305	-	-	37480	-	-
1/4	1/4	1-1/8	-	-	3	37310	-	-	37485	-	-
1/4	1/4	1-1/2	-	-	4	37315	-	-	37490	-	-
1/4	1/4	1-1/2	4-1/4	.230	6	37320	-	-	37495	-	-
5/16	5/16	13/16	-	-	2-1/2	37325	-	-	37500	-	-
5/16	5/16	1-1/8	-	-	3	37330	-	-	37505	-	-
5/16	5/16	1-5/8	-	-	4	37335	-	-	37510	-	-
5/16	5/16	1-1/2	4-1/4	.283	6	37340	-	-	37515	-	-
3/8	3/8	5/8	-	-	2	37345	-	-	37520	-	-
3/8	3/8	1	-	-	2-1/2	37350	-	-	37525	-	-
3/8	3/8	1-1/8	-	-	3	37355	-	-	37530	-	-
3/8	3/8	1-3/4	-	-	4	37360	-	-	37535	-	-
3/8	3/8	1-1/2	4-1/4	.355	6	37365	-	-	37540	-	-
1/2	1/2	5/8	-	-	2-1/2	37370	37473	-	37545	37730	-
1/2	1/2	1	-	-	3	37375	37474	-	37550	37735	-
1/2	1/2	2	-	-	4	37380	37476	-	37555	37740	-
1/2	1/2	3	-	-	6	37385	37477	-	37560	37745	-
1/2	1/2	1-1/2	4-1/4	.470	6	37390	37478	-	37565	37750	-
5/8	5/8	1	-	-	3	37395	37479	-	37570	37755	-
5/8	5/8	1-1/2	-	-	4	37400	37481	-	37575	37760	-
5/8	5/8	2-1/4	-	-	5	37405	37482	-	37580	37765	-
5/8	5/8	3	-	-	6	37410	37483	-	37585	37770	-
5/8	5/8	1-1/2	4-1/4	.595	6	37415	37484	-	37590	37775	-
3/4	3/4	1	-	-	3	37420	37660	-	37595	37790	-
3/4	3/4	1-1/2	-	-	4	37425	37665	-	37600	37795	-
3/4	3/4	2-1/4	-	-	5	37430	37670	-	37605	37800	-
3/4	3/4	3-1/4	-	-	6	37435	37675	-	37610	37805	-
3/4	3/4	4	-	-	7	37440	37680	-	37615	37810	-
3/4	3/4	1-1/2	4-1/4	.720	6	37445	37685	-	37620	37815	-
1	1	1-3/4	-	-	4	37450	37690	37755	37625	37820	37885
1	1	2-1/4	-	-	5	37455	37695	37760	37630	37825	37890
1	1	3-1/4	-	-	6	37460	37700	37765	37635	37830	37895
1	1	4-1/4	-	-	7	37465	37705	37770	37640	37835	37900
1	1	1-1/2	4-1/4	.960	6	37470	37710	37775	37645	37840	37905
1-1/4	1-1/4	4-1/4	-	-	7	37471	37715	37780	37650	37845	37910
1-1/4	1-1/4	1-1/2	4-1/4	1.210	7	37472	37720	37785	37655	37850	37915



Note: Other radii and dimensions available upon request.



# Superfinishing In Titanium And High Tensile Alloys

## METRIC SERIES

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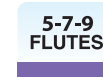
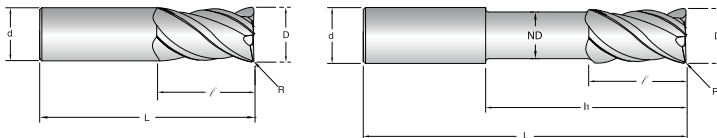
• *Überragende Leistungen bei der Bearbeitung von titan, inconel, inox und anderen hochfesten Legierungen.*

### LIST 5045M



D	d	ℓ	ℓ <sub>1</sub>	ND	L	EDP NUMBER					
						Uncoated			Supreme Coating		
						5 FLUTES	7 FLUTES	9 FLUTES	5 FLUTES	7 FLUTES	9 FLUTES
6	6	10	21	5.7	57	33305	-	-	33530	-	-
8	8	16	24	7.7	63	33310	-	-	33535	-	-
10	10	22	-	-	72	33315	-	-	33465	-	-
10	10	32	-	-	83	33320	-	-	33470	-	-
10	10	16	30	9.7	83	33323	-	-	33473	-	-
12	12	25	-	-	83	33325	33448	-	33475	33460	-
12	12	50	-	-	104	33330	33450	-	33480	33462	-
12	12	18	38	11.4	83	33333	33452	-	33483	33464	-
16	16	32	-	-	92	33335	33454	-	33485	33466	-
16	16	50	-	-	104	33340	33456	-	33490	33468	-
16	16	24	42	15.4	92	33343	33458	-	33493	33470	-
20	20	38	-	-	104	33345	33368	-	33495	33412	-
20	20	50	-	-	104	33350	33372	-	33500	33414	-
20	20	30	52	19.4	104	33353	33374	-	33503	33416	-
25	25	38	-	-	104	33355	33376	33396	33505	33418	33436
25	25	75	-	-	150	33360	33378	33398	33510	33420	33438
25	25	38	100	24.4	150	33363	33382	33402	33513	33422	33442
32	32	110	-	-	180	33364	33384	33404	33515	33424	33444
32	32	38	110	31.4	180	33366	33386	33406	33520	33426	33446

Note: Other radii and dimensions available upon request.



## TECHNICAL DATA

### Recommended Cutting Parameters

### Vitesses de coupe suggérées

### Velocidades y Avances Recomendados

### Empfohlene Schnittparameter

## INCH SERIES

Ø		Titanium 6AL4V	Titanium 5553	Stainless Steels Inconel	Alloy Steels Tool Steels
		165-200 SFM	100-165 SFM	290-370 SFM	460-520 SFM
<b>CHIP LOAD PER TOOTH</b>					
1/4		0.0010	0.0010	0.0011	0.0015
		0.0011	0.0011	0.0013	0.0017
5/16		0.0012	0.0012	0.0014	0.0018
		0.0014	0.0014	0.0016	0.0020
3/8		0.0015	0.0015	0.0016	0.0020
		0.0017	0.0017	0.0019	0.0023
1/2		0.0020	0.0020	0.0023	0.0025
		0.0023	0.0023	0.0028	0.0030
5/8		0.0023	0.0023	0.0024	0.0025
		0.0027	0.0027	0.0029	0.0030
3/4		0.0024	0.0024	0.0027	0.0032
		0.0028	0.0028	0.0032	0.0038
1		0.0030	0.0030	0.0032	0.0040
		0.0034	0.0034	0.0038	0.0045
1 1/4		0.0034	0.0034	0.0038	0.0040
		0.0040	0.0040	0.0045	0.0048

## METRIC SERIES

Ø		Titanium 6AL4V	Titanium 5553	Stainless Steels Inconel	Alloy Steels Tool Steels
		50-75 M/min	30-50 M/min	90-110 M/min	140-160 M/min
<b>CHIP LOAD PER TOOTH</b>					
6		0.025	0.025	0.028	0.038
		0.028	0.028	0.033	0.043
8		0.030	0.030	0.036	0.046
		0.036	0.036	0.041	0.051
10		0.038	0.038	0.041	0.051
		0.043	0.043	0.048	0.058
12		0.051	0.051	0.058	0.064
		0.058	0.058	0.071	0.076
16		0.058	0.058	0.061	0.064
		0.069	0.069	0.074	0.076
20		0.061	0.061	0.069	0.081
		0.071	0.071	0.081	0.097
25		0.076	0.076	0.081	0.102
		0.086	0.086	0.097	0.114
32		0.086	0.086	0.097	0.102
		0.102	0.102	0.114	0.122



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