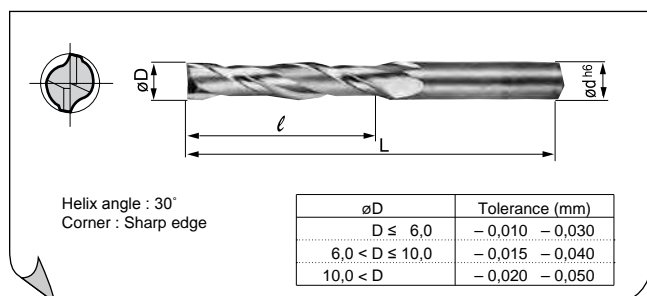


Extra Long Spiral Endmills ELSM 2000 Type

Carbide grade: A1 (Micrograin)



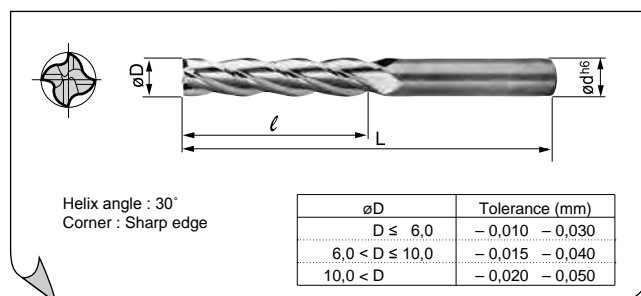
Endmills

(mm)

	Cat. No.	Stock	øD	ℓ	L	ød
2	ELSM 2030	●	3,0	20	55	6
	ELSM 2040	●	4,0	25	60	6
	ELSM 2050	●	5,0	30	65	6
	ELSM 2060	●	6,0	30	65	6
	ELSM 2070	●	7,0	40	85	8
	ELSM 2080	●	8,0	40	85	8
	ELSM 2090	●	9,0	40	85	10
	ELSM 2100	●	10,0	50	100	10
	ELSM 2110	●	11,0	50	100	12
	ELSM 2120	●	12,0	50	100	12
	ELSM 2130	●	13,0	70	140	16
	ELSM 2140	●	14,0	70	140	16
	ELSM 2150	□	15,0	70	140	16
	ELSM 2160	□	16,0	70	140	16
	ELSM 2180	□	18,0	80	160	20
	ELSM 2200	●	20,0	85	165	20
	ELSM 2220	●	22,0	95	180	25
	ELSM 2250	□	25,0	100	185	25

Extra Long Spiral Endmills ELSM 4000 Type

Carbide grade: A1 (Micrograin)



Endmills

(mm)

	Cat. No.	Stock	øD	ℓ	L	ød
4	ELSM 4030	●	3,0	20	55	6
	ELSM 4040	●	4,0	25	60	6
	ELSM 4050	●	5,0	30	65	6
	ELSM 4060	●	6,0	30	65	6
	ELSM 4070	●	7,0	40	85	8
	ELSM 4080	●	8,0	40	85	8
	ELSM 4090	●	9,0	40	85	10
	ELSM 4100	●	10,0	50	100	10
	ELSM 4110	●	11,0	50	100	12
	ELSM 4120	●	12,0	50	100	12
	ELSM 4130	●	13,0	70	140	16
	ELSM 4140	●	14,0	70	140	16
	ELSM 4150	●	15,0	70	140	16
	ELSM 4160	●	16,0	70	140	16
	ELSM 4170	●	17,0	80	160	20
	ELSM 4180	●	18,0	80	160	20
	ELSM 4190	●	19,0	85	165	20
	ELSM 4200	●	20,0	85	165	20
	ELSM 4210	●	21,0	95	180	25
	ELSM 4220	●	22,0	95	180	25
	ELSM 4230	●	23,0	95	180	25
	ELSM 4240	●	24,0	100	180	25
	ELSM 4250	●	25,0	100	180	25

Recommended conditions

(Slotting) øD ≥ ø3 ; d_{oc} = 1,0 x øD

øD	Material	Carbon steel, Alloy steel			Cast iron
		(BelowHRC30)	(BelowHRC40)	(BelowHRC45)	
3 ~ 5,9	v _c	40-50-60	30-40-50	20-30-40	40-50-60
	f _t	0,006-0,012	0,006-0,012	0,003-0,006	0,009-0,020
6 ~ 12,9	v _c	40-50-60	30-40-50	20-30-40	40-50-60
	f _t	0,013-0,025	0,013-0,025	0,006-0,013	0,023-0,053
13 ~ 19,9	v _c	40-50-60	30-40-50	20-30-40	40-50-60
	f _t	0,028-0,043	0,028-0,043	0,015-0,025	0,055-0,085
20 ~	v _c	40-50-60	30-40-50	20-30-40	40-50-60
	f _t	0,048-0,060	0,048-0,060	0,027-0,035	0,092-0,130

v_c = m/min f_t = mm/tooth

Recommended conditions

(Shoulder processing) d_{oc} = 1,5 x øD
w_{oc} = 0,05 x øD

øD	Material	Carbon steel, Alloy steel			Cast iron
		(BelowHRC30)	(BelowHRC40)	(BelowHRC45)	
3 ~ 5,9	v _c	40-60	30-40-50	20-30-40	40-50-60
	f _t	0,009-0,018	0,009-0,018	0,005-0,009	0,014-0,030
6 ~ 12,9	v _c	40-50-60	30-40-50	20-30-40	40-50-60
	f _t	0,019-0,035	0,019-0,035	0,010-0,018	0,033-0,079
13 ~ 19,9	v _c	40-50-60	30-40-50	20-30-40	40-50-60
	f _t	0,038-0,063	0,038-0,063	0,020-0,038	0,080-0,125
20 ~	v _c	40-50-60	30-40-50	20-30-40	40-50-60
	f _t	0,067-0,085	0,067-0,085	0,042-0,055	0,128-0,195

v_c = m/min f_t = mm/tooth