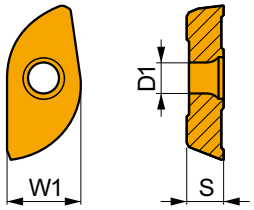
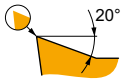
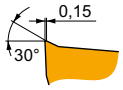
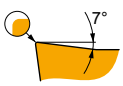
ZP

PRAMET

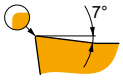
	W1 [mm]	D1 [mm]	S [mm]
10	10.000	2.20	1.70
12	12.000	2.90	2.38
16	16.000	2.90	3.18
20	20.000	4.00	3.97
25	25.000	4.70	4.76
32	32.000	5.90	6.35
40	40.000	7.00	7.94
50	50.000	9.60	7.94



Suitability and starting values for cutting speed (vc), feed (f) and depth of cut (ap). Refer to our Machining Calculator app for further calculations.

Product		RE [mm]	P vc [m/min]	P f [mm/tooth]	P ap [mm]	M vc [m/min]	M f [mm/tooth]	M ap [mm]	K vc [m/min]	K f [mm/tooth]	K ap [mm]	N vc [m/min]	N f [mm/tooth]	N ap [mm]	S vc [m/min]	S f [mm/tooth]	S ap [mm]	H vc [m/min]	H f [mm/tooth]	H ap [mm]
			F																	
			F geometry with highly positive design for light machining.																	
ZP 20ER-F	**M8310**	–	305	0.27	1.0	155	0.24	1.0	–	–	–	–	–	–	–	–	–	–	–	–
			E																	
			FM geometry with sharp neutral design for light to medium machining.																	
ZP 10ER-FM	**M8310**	–	305	0.36	0.5	–	–	–	285	0.36	0.5	–	–	–	–	–	–	60	0.15	1.0
	M8345	–	210	0.36	0.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZP 12ER-FM	**M8310**	–	300	0.36	0.6	–	–	–	285	0.36	0.6	–	–	–	–	–	–	60	0.15	1.0
	M8345	–	205	0.36	0.6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZP 16ER-FM	**M8310**	–	290	0.36	0.8	–	–	–	275	0.36	0.8	–	–	–	–	–	–	55	0.15	1.0
	M8345	–	200	0.36	0.8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZP 20ER-FM	**M8310**	–	285	0.36	1.0	–	–	–	270	0.36	1.0	–	–	–	–	–	–	55	0.15	1.0
	M8345	–	195	0.36	1.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZP 25ER-FM	**M8310**	–	275	0.36	1.3	–	–	–	260	0.36	1.3	–	–	–	–	–	–	55	0.15	1.0
	M8345	–	190	0.36	1.3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZP 32ER-FM	**M8310**	–	270	0.36	1.6	–	–	–	255	0.36	1.6	–	–	–	–	–	–	50	0.15	1.0
	M8345	–	185	0.36	1.6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
			1 S																	
			M geometry with very positive design for medium machining.																	
ZP 12ER-M	**M8330**	–	280	0.36	0.6	165	0.32	0.6	265	0.36	0.6	–	–	–	70	0.25	0.5	–	–	–
	M8340	–	260	0.36	0.6	155	0.32	0.6	245	0.36	0.6	–	–	–	65	0.25	0.5	–	–	–
	M8345	–	205	0.36	0.6	120	0.32	0.6	–	–	–	–	–	–	50	0.25	0.5	–	–	–
ZP 16ER-M	**M8330**	–	270	0.36	0.8	160	0.32	0.8	255	0.36	0.8	–	–	–	65	0.25	0.6	–	–	–
	M8340	–	250	0.36	0.8	150	0.32	0.8	235	0.36	0.8	–	–	–	60	0.25	0.6	–	–	–
	M8345	–	200	0.36	0.8	120	0.32	0.8	–	–	–	–	–	–	50	0.25	0.6	–	–	–
ZP 20ER-M	**M8330**	–	265	0.36	1.0	155	0.32	1.0	250	0.36	1.0	–	–	–	65	0.25	0.8	–	–	–
	M8345	–	195	0.36	1.0	115	0.32	1.0	–	–	–	–	–	–	45	0.25	0.8	–	–	–
ZP 25ER-M	**M8330**	–	260	0.36	1.3	155	0.32	1.3	245	0.36	1.3	–	–	–	65	0.25	1.0	–	–	–
	M8345	–	190	0.36	1.3	110	0.32	1.3	–	–	–	–	–	–	45	0.25	1.0	–	–	–
ZP 32ER-M	**M8330**	–	255	0.36	1.6	150	0.32	1.6	240	0.36	1.6	–	–	–	60	0.25	1.3	–	–	–
	M8345	–	185	0.36	1.6	110	0.32	1.6	–	–	–	–	–	–	45	0.25	1.3	–	–	–
			U E																	
			R geometry with sharp slightly positive design for light to medium machining.																	
ZP 16ER-R	**M8345**	–	190	0.45	0.8	110	0.41	0.8	–	–	–	–	–	–	45	0.32	0.6	–	–	–
ZP 20ER-R	**M8345**	–	185	0.45	1.0	110	0.41	1.0	–	–	–	–	–	–	45	0.32	0.8	–	–	–

Suitability and starting values for cutting speed (vc), feed (f) and depth of cut (ap). Refer to our Machining Calculator app for further calculations.

Product		RE	P			M			K			N			S			H		
			vc [m/min]	f [mm/tooth]	ap [mm]	vc [m/min]	f [mm/tooth]	ap [mm]	vc [m/min]	f [mm/tooth]	ap [mm]	vc [m/min]	f [mm/tooth]	ap [mm]	vc [m/min]	f [mm/tooth]	ap [mm]	vc [m/min]	f [mm/tooth]	ap [mm]
			U E																	
			R geometry with sharp slightly positive design for light to medium machining.																	
ZP 25ER-R	**M8345**	–	■ 180	0.45	1.3	■ 105	0.41	1.3	–	–	–	–	–	–	◪ 45	0.32	1.0	–	–	–
ZP 32ER-R	**M8330**	–	■ 240	0.45	1.6	■ 140	0.41	1.6	◪ 225	0.45	1.6	–	–	–	◪ 60	0.32	1.3	◪ 45	0.15	1.0
	M8345	–	■ 175	0.45	1.6	■ 105	0.41	1.6	–	–	–	–	–	–	◪ 40	0.32	1.3	–	–	–
ZP 40ER-R	**M8345**	–	■ 170	0.45	2.0	■ 100	0.41	2.0	–	–	–	–	–	–	◪ 40	0.32	1.6	–	–	–
ZP 50ER-R	**M8345**	–	■ 165	0.45	2.5	■ 95	0.41	2.5	–	–	–	–	–	–	◪ 40	0.32	2.0	–	–	–