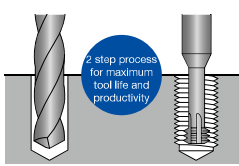

Standard without Pilot Hole (Metric 2.5 x D_{NOM})

Work piece material	Cutting Parameter	Thread	M2	M2.5	M3	M4	M5	M6	M8	M10	M12	M16	M20
		Pitch	0,4	0,5	0,5	0,7	0,8	1	1,25	1,5	1,75	2	2,5
		DC	1,4	1,8	2,4	3,1	3,8	4,6	6,2	7,5	9	11,5	15
Tool steels (25 – 35HRC)	V _c	m/min	65	65	65	65	65	65	65	65	65	65	65
	n	min ⁻¹	14800	11500	8600	6700	5400	4500	3300	2800	2300	1800	1400
	f _z	mm/t	0.0057	0.0076	0.0105	0.0143	0.0171	0.0219	0.0295	0.0361	0.0428	0.0523	0.0665
	Vf (peripheral)	mm/min	337	350	361	383	369	394	389	404	394	377	372
	V _r (center)	mm/min	101	98	72	86	89	92	88	101	98	106	93
Pre-hardened steels (35 – 45HRC)	V _c	m/min	55	55	55	55	55	55	55	55	55	55	55
	n	min ⁻¹	12500	9700	7300	5600	4600	3800	2800	2300	1900	1500	1200
	f _z	mm/t	0.0054	0.0072	0.0099	0.0135	0.0162	0.0207	0.0279	0.0342	0.0405	0.0495	0.063
	Vf (peripheral)	mm/min	270	279	289	302	298	315	312	315	308	297	302
	V _r (center)	mm/min	81	78	58	68	72	73	70	79	77	84	76
Hardened steels (45 – 55HRC)	V _c	m/min	45	45	45	45	45	45	45	45	45	45	45
	n	min ⁻¹	10200	8000	6000	4600	3800	3100	2300	1900	1600	1200	1000
	f _z	mm/t	0.0051	0.0068	0.0094	0.0128	0.0153	0.0196	0.0264	0.0323	0.0383	0.0468	0.0595
	Vf (peripheral)	mm/min	208	218	226	236	233	243	243	245	245	225	238
	V _r (center)	mm/min	62	61	45	53	56	57	55	61	61	63	60
Hardened steels (55 – 62HRC)	V _c	m/min	35	35	35	35	35	35	35	35	35	35	35
	n	min ⁻¹	8000	6200	4600	3600	2900	2400	1800	1500	1200	1000	700
	f _z	mm/t	0.0045	0.006	0.0083	0.0113	0.0135	0.0173	0.0233	0.0285	0.0338	0.0413	0.0525
	Vf (peripheral)	mm/min	144	149	153	163	157	166	168	171	162	165	147
	V _r (center)	mm/min	43	42	31	37	38	39	38	43	41	46	37
Hardened steels (62 – 66HRC)	V _c	m/min	25	25	25	25	25	25	25	25	25	25	25
	n	min ⁻¹	5700	4400	3300	2600	2100	1700	1300	1100	900	700	500
	f _z	mm/t	0.0039	0.0052	0.0072	0.0098	0.0117	0.015	0.0202	0.0247	0.0293	0.0358	0.0455
	Vf (peripheral)	mm/min	89	92	95	102	98	102	105	109	105	100	91
	V _r (center)	mm/min	27	26	19	23	24	24	24	27	26	28	23
Stainless steels	V _c	m/min	35	35	35	35	35	35	35	35	35	35	35
	n	min ⁻¹	8000	6200	4600	3600	2900	2400	1800	1500	1200	1000	700
	f _z	mm/t	0.0048	0.0064	0.0088	0.012	0.0144	0.0184	0.0248	0.0304	0.036	0.044	0.056
	Vf (peripheral)	mm/min	154	159	162	173	167	177	179	182	173	176	157
	V _r (center)	mm/min	46	44	32	39	40	41	40	46	43	50	39
Cast irons Carbon steels	V _c	m/min	70	70	70	70	70	70	70	70	70	70	70
	n	min ⁻¹	15900	12400	9300	7200	5900	4800	3600	3000	2500	1900	1500
	f _z	mm/t	0.006	0.008	0.011	0.015	0.018	0.023	0.031	0.038	0.045	0.055	0.07
	Vf (peripheral)	mm/min	382	397	409	432	425	442	446	456	450	418	420
	V _r (center)	mm/min	114	111	82	97	102	103	100	114	113	118	105

Efficient without Pilot Hole (Metric 2.5 x D_{NOM})

Work piece material	Cutting Parameter	Thread	M2	M2.5	M3	M4	M5	M6	M8	M10	M12	M16	M20
		Pitch	0,4	0,5	0,5	0,7	0,8	1	1,25	1,5	1,75	2	2,5
		DC	1,4	1,8	2,4	3,1	3,8	4,6	6,2	7,5	9	11,5	15
Tool steels (25 – 35HRC)	V _c	m/min	75	75	75	75	75	75	75	75	75	75	75
	n	min ⁻¹	17100	13300	9900	7700	6300	5200	3900	3200	2700	2100	1600
	f _z	mm/t	0.0058	0.0078	0.0107	0.0146	0.0175	0.0223	0.0301	0.0369	0.0437	0.0534	0.0679
	Vf (peripheral)	mm/min	397	415	424	450	441	464	470	472	472	449	435
	V _r (center)	mm/min	119	116	85	101	106	108	106	118	118	126	109
Pre-hardened steels (35 – 45HRC)	V _c	m/min	65	65	65	65	65	65	65	65	65	65	65
	n	min ⁻¹	14800	11500	8600	6700	5400	4500	3300	2800	2300	1800	1400
	f _z	mm/t	0.0056	0.0074	0.0102	0.014	0.0167	0.0214	0.0288	0.0353	0.0419	0.0512	0.0651
	Vf (peripheral)	mm/min	332	340	351	375	361	385	380	395	385	369	365
	V _r (center)	mm/min	99	95	70	84	87	90	86	99	96	104	91
Hardened steels (45 – 55HRC)	V _c	m/min	55	55	55	55	55	55	55	55	55	55	55
	n	min ⁻¹	12500	9700	7300	5600	4600	3800	2800	2300	1900	1500	1200
	f _z	mm/t	0.0053	0.007	0.0097	0.0132	0.0158	0.0202	0.0273	0.0334	0.0396	0.0484	0.0616
	Vf (peripheral)	mm/min	265	272	283	296	291	307	306	307	301	290	296
	V _r (center)	mm/min	80	76	57	67	70	72	69	77	75	82	74
Hardened steels (55 – 62HRC)	V _c	m/min	45	45	45	45	45	45	45	45	45	45	45
	n	min ⁻¹	10200	8000	6000	4600	3800	3100	2300	1900	1600	1200	1000
	f _z	mm/t	0.0048	0.0064	0.0088	0.012	0.0144	0.0184	0.0248	0.0304	0.036	0.044	0.056
	Vf (peripheral)	mm/min	196	205	211	221	219	228	228	231	230	211	224
	V _r (center)	mm/min	59	57	42	50	53	53	51	58	58	59	56
Hardened steels (62 – 66HRC)	V _c	m/min	35	35	35	35	35	35	35	35	35	35	35
	n	min ⁻¹	8000	6200	4600	3600	2900	2400	1800	1500	1200	1000	700
	f _z	mm/t	0.0045	0.006	0.0083	0.0113	0.0135	0.0173	0.0233	0.0285	0.0338	0.0413	0.0525
	Vf (peripheral)	mm/min	144	149	153	163	157	166	168	171	162	165	147
	V _r (center)	mm/min	43	42	31	37	38	39	38	43	41	46	37
Stainless steels	V _c	m/min	45	45	45	45	45	45	45	45	45	45	45
	n	min ⁻¹	10200	8000	6000	4600	3800	3100	2300	1900	1600	1200	1000
	f _z	mm/t	0.0051	0.0068	0.0094	0.0128	0.0153	0.0196	0.0264	0.0323	0.0383	0.0468	0.0595
	Vf (peripheral)	mm/min	208	218	226	236	233	243	243	245	245	225	238
	V _r (center)	mm/min	62	61	45	53	56	57	55	61	61	63	60
Cast irons Carbon steels	V _c	m/min	85	85	85	85	85	85	85	85	85	85	85
	n	min ⁻¹	19300	15000	11300	8700	7100	5900	4400	3600	3000	2400	1800
	f _z	mm/t	0.006	0.008	0.011	0.015	0.018	0.023	0.031	0.038	0.045	0.055	0.07
	Vf (peripheral)	mm/min	463	480	497	522	511	543	546	547	540	528	504
	V _r (center)	mm/min	139	134	99	117	123	127	123	137	135	149	126

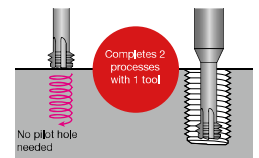


Standard with Pilot Hole (Metric 2.5 x D_{NOM})

Work piece material	Cutting Parameter	Thread	M2	M2.5	M3	M4	M5	M6	M8	M10	M12	M16	M20
		Pitch	0,4	0,5	0,5	0,7	0,8	1	1,25	1,5	1,75	2	2,5
		DC	1,4	1,8	2,4	3,1	3,8	4,6	6,2	7,5	9	11,5	15
Tool steels (25 – 35HRC)	V _c	m/min	85	85	85	85	85	85	85	85	85	85	85
	n	min ⁻¹	19300	15000	11300	8700	7100	5900	4400	3600	3000	2400	1800
	f _z	mm/t	0.006	0.008	0.011	0.015	0.018	0.0229	0.0309	0.0379	0.0449	0.0549	0.0698
	Vf (peripheral)	mm/min	463	480	497	522	511	540	544	546	539	527	503
	V _r (center)	mm/min	139	134	99	117	123	126	122	136	135	148	126
Pre-hardened steels (35 – 45HRC)	V _c	m/min	75	75	75	75	75	75	75	75	75	75	75
	n	min ⁻¹	17100	13300	9900	7700	6300	5200	3900	3200	2700	2100	1600
	f _z	mm/t	0.0057	0.0076	0.0104	0.0142	0.017	0.0217	0.0293	0.0359	0.0425	0.052	0.0662
	Vf (peripheral)	mm/min	390	404	412	437	428	451	457	460	459	437	424
	V _r (center)	mm/min	117	113	82	98	103	105	103	115	115	123	106
Hardened steels (45 – 55HRC)	V _c	m/min	65	65	65	65	65	65	65	65	65	65	65
	n	min ⁻¹	14800	11500	8600	6700	5400	4500	3300	2800	2300	1800	1400
	f _z	mm/t	0.0054	0.0071	0.0098	0.0134	0.0161	0.0205	0.0277	0.0339	0.0402	0.0491	0.0625
	Vf (peripheral)	mm/min	320	327	337	359	348	369	366	380	370	354	350
	V _r (center)	mm/min	96	91	67	81	83	86	82	95	92	99	88
Hardened steels (55 – 62HRC)	V _c	m/min	55	55	55	55	55	55	55	55	55	55	55
	n	min ⁻¹	12500	9700	7300	5600	4600	3800	2800	2300	1900	1500	1200
	f _z	mm/t	0.0047	0.0063	0.0087	0.0118	0.0142	0.0181	0.0244	0.0299	0.0354	0.0433	0.0551
	Vf (peripheral)	mm/min	235	244	254	264	261	275	273	275	269	260	264
	V _r (center)	mm/min	71	68	51	59	63	64	61	69	67	73	66
Hardened steels (62 – 66HRC)	V _c	m/min	45	45	45	45	45	45	45	45	45	45	45
	n	min ⁻¹	10200	8000	6000	4600	3800	3100	2300	1900	1600	1200	1000
	f _z	mm/t	0.0041	0.0055	0.0075	0.0102	0.0123	0.0157	0.0212	0.0259	0.0307	0.0375	0.0478
	Vf (peripheral)	mm/min	167	176	180	188	187	195	195	197	196	180	191
	V _r (center)	mm/min	50	49	36	42	45	45	44	49	49	51	48
Stainless steels	V _c	m/min	55	55	55	55	55	55	55	55	55	55	55
	n	min ⁻¹	12500	9700	7300	5600	4600	3800	2800	2300	1900	1500	1200
	f _z	mm/t	0.005	0.0067	0.0092	0.0126	0.0151	0.0193	0.026	0.0319	0.0378	0.0462	0.0588
	Vf (peripheral)	mm/min	250	260	269	282	278	293	291	293	287	277	282
	V _r (center)	mm/min	75	73	54	64	67	68	66	73	72	78	71
Cast irons Carbon steels	V _c	m/min	95	95	95	95	95	95	95	95	95	95	95
	n	min ⁻¹	21600	16800	12600	9800	8000	6600	4900	4000	3400	2600	2000
	f _z	mm/t	0.0063	0.0084	0.0116	0.0158	0.0189	0.0242	0.0326	0.0399	0.0473	0.0578	0.0735
	Vf (peripheral)	mm/min	544	564	585	619	605	639	639	638	643	601	588
	V _r (center)	mm/min	163	158	117	139	145	149	144	160	161	169	147

NOTE:

1. Epoch D Thread Mill is capable of simultaneous boring and threading.
2. The above cutting conditions are for the thread diameters stated in the table. Cutting conditions for other thread diameters should be calculated taking into consideration the Cautions on use.
3. The feed rate stated in the above conditions table is the feed rate at the tool center during threading. In addition, the per-tooth feed rate is the numerical value at the cutting point.
4. Since there is a risk of cutting chips getting inside the machine, when using tools equipped with oil holes, be sure to use the oil holes.
5. Use the appropriate coolant for the work material and machining shape.
6. These conditions are for general guidance; in actual machining conditions adjust the parameters according to your actual machine conditions.

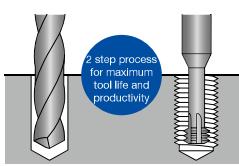


Standard without Pilot Hole (Metric 5 x D_{NOM})

Work piece material	Cutting Parameter	Thread	M3	M4	M5	M6	M8	M10	M12
		Pitch	0,5	0,7	0,8	1	1,25	1,5	1,75
		DC	2,4	3,1	3,8	4,6	6,2	7,5	9
Tool steels (25 – 35HRC)	V _c	m/min	60	60	60	60	60	60	60
	n	min ⁻¹	8000	6200	5000	4200	3100	2500	2100
	f _z	mm/t	0.0078	0.011	0.0135	0.0177	0.0244	0.0307	0.0363
	Vf (peripheral)	mm/min	250	273	270	297	303	307	305
	V _f (center)	mm/min	50	61	65	69	68	77	76
Pre-hardened steels (35 – 45HRC)	V _c	m/min	50	50	50	50	50	50	50
	n	min ⁻¹	6600	5100	4200	3500	2600	2100	1800
	f _z	mm/t	0.0074	0.0104	0.0128	0.0168	0.0232	0.0291	0.0344
	Vf (peripheral)	mm/min	195	212	215	235	241	244	248
	V _f (center)	mm/min	39	48	52	55	54	61	62
Hardened steels (45 – 55HRC)	V _c	m/min	42	42	42	42	42	42	42
	n	min ⁻¹	5600	4300	3500	2900	2200	1800	1500
	f _z	mm/t	0.007	0.0098	0.0121	0.0158	0.0219	0.0275	0.0325
	Vf (peripheral)	mm/min	157	169	169	183	193	198	195
	V _f (center)	mm/min	31	38	41	43	43	50	49
Hardened steels (55 – 62HRC)	V _c	m/min	33	33	33	33	33	33	33
	n	min ⁻¹	4400	3400	2800	2300	1700	1400	1200
	f _z	mm/t	0.0062	0.0087	0.0107	0.014	0.0193	0.0242	0.0287
	Vf (peripheral)	mm/min	109	118	120	129	131	136	138
	V _f (center)	mm/min	22	27	29	30	30	34	34
Hardened steels (62 – 66HRC)	V _c	m/min	25	25	25	25	25	25	25
	n	min ⁻¹	3300	2600	2100	1700	1300	1100	900
	f _z	mm/t	0.0054	0.0075	0.0092	0.0121	0.0167	0.021	0.0249
	Vf (peripheral)	mm/min	71	78	77	82	87	92	90
	V _f (center)	mm/min	14	18	19	19	20	23	22
Stainless steels	V _c	m/min	33	33	33	33	33	33	33
	n	min ⁻¹	4400	3400	2800	2300	1700	1400	1200
	f _z	mm/t	0.0066	0.0092	0.0114	0.0149	0.0206	0.0258	0.0306
	Vf (peripheral)	mm/min	116	125	128	137	140	144	147
	V _f (center)	mm/min	23	28	31	32	32	36	37
Cast Irons Carbon steels	V _c	m/min	65	65	65	65	65	65	65
	n	min ⁻¹	8600	6700	5400	4500	3300	2800	2300
	f _z	mm/t	0.0083	0.0116	0.0142	0.0186	0.0257	0.0323	0.0383
	Vf (peripheral)	mm/min	286	311	307	335	339	362	352
	V _f (center)	mm/min	57	70	74	78	76	90	88

Efficient without Pilot Hole (Metric 5 x D_{NOM})

Work piece material	Cutting Parameter	Thread	M3	M4	M5	M6	M8	M10	M12
		Pitch	0,5	0,7	0,8	1	1,25	1,5	1,75
		DC	2,4	3,1	3,8	4,6	6,2	7,5	9
Tool steels (25 – 35HRC)	V _c	m/min	70	70	70	70	70	70	70
	n	min ⁻¹	9300	7200	5900	4800	3600	3000	2500
	f _z	mm/t	0.008	0.0112	0.0138	0.0181	0.025	0.0313	0.0371
	Vf (peripheral)	mm/min	298	323	326	348	360	376	371
	V _f (center)	mm/min	60	73	78	81	81	94	93
Pre-hardened steels (35 – 45HRC)	V _c	m/min	62	62	62	62	62	62	62
	n	min ⁻¹	8200	6400	5200	4300	3200	2600	2200
	f _z	mm/t	0.0077	0.0107	0.0132	0.0173	0.0239	0.03	0.0356
	Vf (peripheral)	mm/min	253	274	275	298	306	312	313
	V _f (center)	mm/min	51	62	66	69	69	78	78
Hardened steels (45 – 55HRC)	V _c	m/min	55	55	55	55	55	55	55
	n	min ⁻¹	7300	5600	4600	3800	2800	2300	1900
	f _z	mm/t	0.0073	0.0102	0.0125	0.0164	0.0226	0.0284	0.0337
	Vf (peripheral)	mm/min	213	228	230	249	253	261	256
	V _f (center)	mm/min	43	51	55	58	57	65	64
Hardened steels (55 – 62HRC)	V _c	m/min	45	45	45	45	45	45	45
	n	min ⁻¹	6000	4600	3800	3100	2300	1900	1600
	f _z	mm/t	0.0066	0.0092	0.0114	0.0149	0.0206	0.0258	0.0306
	Vf (peripheral)	mm/min	158	169	173	185	190	196	196
	V _f (center)	mm/min	32	38	42	43	43	49	49
Hardened steels (62 – 66HRC)	V _c	m/min	35	35	35	35	35	35	35
	n	min ⁻¹	4600	3600	2900	2400	1800	1500	1200
	f _z	mm/t	0.0062	0.0087	0.0107	0.014	0.0193	0.0242	0.0287
	Vf (peripheral)	mm/min	114	125	124	134	139	145	138
	V _f (center)	mm/min	23	28	30	31	31	36	34
Stainless steels	V _c	m/min	45	45	45	45	45	45	45
	n	min ⁻¹	6000	4600	3800	3100	2300	1900	1600
	f _z	mm/t	0.007	0.0098	0.0121	0.0158	0.0219	0.0275	0.0325
	Vf (peripheral)	mm/min	168	180	184	196	201	209	208
	V _f (center)	mm/min	34	41	44	46	45	52	52
Cast Irons Carbon steels	V _c	m/min	80	80	80	80	80	80	80
	n	min ⁻¹	10600	8200	6700	5500	4100	3400	2800
	f _z	mm/t	0.0083	0.0116	0.0142	0.0186	0.0257	0.0323	0.0383
	Vf (peripheral)	mm/min	352	380	381	409	421	439	429
	V _f (center)	mm/min	70	86	91	95	95	110	107



Standard with Pilot Hole (Metric 5 x D_{NOM})

Work piece material	Cutting Parameter	Thread	M3	M4	M5	M6	M8	M10	M12
		Pitch	0,5	0,7	0,8	1	1,25	1,5	1,75
		DC	2,4	3,1	3,8	4,6	6,2	7,5	9
Tool steels (25 – 35HRC)	V _c	m/min	80	80	80	80	80	80	80
	n	min ⁻¹	10600	8200	6700	5500	4100	3400	2800
	f _z	mm/t	0.0093	0.0127	0.0153	0.0195	0.0263	0.0322	0.0382
	Vf (peripheral)	mm/min	394	417	410	429	431	438	428
	V _f (center)	mm/min	79	94	98	100	97	109	107
Pre-hardened steels (35 – 45HRC)	V _c	m/min	70	70	70	70	70	70	70
	n	min ⁻¹	9300	7200	5900	4800	3600	3000	2500
	f _z	mm/t	0.0088	0.012	0.0145	0.0185	0.0249	0.0305	0.0361
	Vf (peripheral)	mm/min	327	346	342	355	359	366	361
	V _f (center)	mm/min	65	78	82	83	81	92	90
Hardened steels (45 – 55HRC)	V _c	m/min	65	65	65	65	65	65	65
	n	min ⁻¹	8600	6700	5400	4500	3300	2800	2300
	f _z	mm/t	0.0083	0.0114	0.0137	0.0174	0.0235	0.0288	0.0341
	Vf (peripheral)	mm/min	286	306	296	313	310	323	314
	V _f (center)	mm/min	57	69	71	73	70	81	78
Hardened steels (55 – 62HRC)	V _c	m/min	55	55	55	55	55	55	55
	n	min ⁻¹	7300	5600	4600	3800	2800	2300	1900
	f _z	mm/t	0.0074	0.01	0.012	0.0154	0.0208	0.0254	0.0301
	Vf (peripheral)	mm/min	216	224	221	234	233	234	229
	V _f (center)	mm/min	43	50	53	55	52	58	57
Hardened steels (62 – 66HRC)	V _c	m/min	42	42	42	42	42	42	42
	n	min ⁻¹	5600	4300	3500	2900	2200	1800	1500
	f _z	mm/t	0.0064	0.0087	0.0104	0.0133	0.018	0.022	0.0261
	Vf (peripheral)	mm/min	143	150	146	154	158	158	157
	V _f (center)	mm/min	29	34	35	36	36	40	39
Stainless steels	V _c	m/min	55	55	55	55	55	55	55
	n	min ⁻¹	7300	5600	4600	3800	2800	2300	1900
	f _z	mm/t	0.0079	0.0107	0.0129	0.0164	0.0221	0.0271	0.0321
	Vf (peripheral)	mm/min	231	240	237	249	248	249	244
	V _f (center)	mm/min	46	54	57	58	56	62	61
Cast irons Carbon steels	V _c	m/min	95	95	95	95	95	95	95
	n	min ⁻¹	12600	9800	8000	6600	4900	4000	3400
	f _z	mm/t	0.0098	0.0134	0.0161	0.0205	0.0277	0.0339	0.0402
	Vf (peripheral)	mm/min	494	525	515	541	543	542	547
	V _f (center)	mm/min	99	118	124	126	122	136	137

NOTE:

1. Epoch D Thread Mill is capable of simultaneous boring and threading.
2. The above cutting conditions are for the thread diameters stated in the table. Cutting conditions for other thread diameters should be calculated taking into consideration the Cautions on use.
3. The feed rate stated in the above conditions table is the feed rate at the tool center during threading. In addition, the per-tooth feed rate is the numerical value at the cutting point.
4. Since there is a risk of cutting chips getting inside the machine, when using tools equipped with oil holes, be sure to use the oil holes.
5. Use the appropriate coolant for the work material and machining shape.
6. These conditions are for general guidance; in actual machining conditions adjust the parameters according to your actual machine conditions.

Standard without Pilot Hole (G-Type)

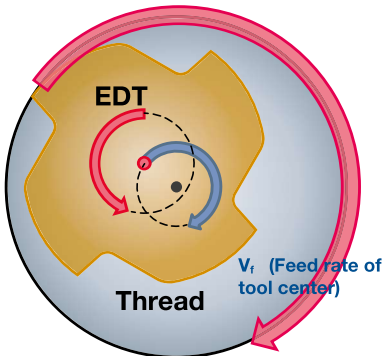
Work piece material	Cutting Parameter	Thread	G 1/16-18	G 1/8-19	G 1/4-28	G 3/8-28	G 1/2-35	G 1-45
		Thread Dia.	7,722	9,728	13,157	16,662	20,955	33,249
		Pitch	0,9071	0,9071	1,3368	1,3368	1,8143	2,3091
		DC	5,8	7,3	9,8	11,8	15,7	15,8
Tool steels (25 – 35HRC)	V _c	m/min	70	70	70	70	70	70
	n	min ⁻¹	3800	3100	2300	1900	1400	1400
	f _z	mm/t	0.0266	0.0326	0.0386	0.0472	0.06	0.06
	Vf (peripheral)	mm/min	404	404	355	359	336	336
	V _f (center)	mm/min	101	101	91	105	84	176
Pre-hardened steels (35 – 45HRC)	V _c	m/min	60	60	60	60	60	60
	n	min ⁻¹	3300	2600	1900	1600	1200	1200
	f _z	mm/t	0.0252	0.0309	0.0366	0.0447	0.0569	0.0569
	Vf (peripheral)	mm/min	333	321	278	286	273	273
	V _f (center)	mm/min	83	80	71	83	68	143
Hardened steels (45 – 55HRC)	V _c	m/min	50	50	50	50	50	50
	n	min ⁻¹	2700	2200	1600	1300	1000	1000
	f _z	mm/t	0.0238	0.0292	0.0345	0.0422	0.0537	0.0537
	Vf (peripheral)	mm/min	257	257	221	219	215	215
	V _f (center)	mm/min	64	64	56	64	54	113
Hardened steels (55 – 62HRC)	V _c	m/min	40	40	40	40	40	40
	n	min ⁻¹	2200	1700	1300	1100	800	800
	f _z	mm/t	0.021	0.0257	0.0305	0.0372	0.0474	0.0474
	Vf (peripheral)	mm/min	185	175	159	164	152	152
	V _f (center)	mm/min	46	44	40	48	38	80
Hardened steels (62 – 66HRC)	V _c	m/min	30	30	30	30	30	30
	n	min ⁻¹	1600	1300	1000	800	600	600
	f _z	mm/t	0.0182	0.0223	0.0264	0.0323	0.0411	0.0411
	Vf (peripheral)	mm/min	116	116	106	103	99	99
	V _f (center)	mm/min	29	29	27	30	25	52
Stainless steels	V _c	m/min	40	40	40	40	40	40
	n	min ⁻¹	2200	1700	1300	1100	800	800
	f _z	mm/t	0.0224	0.0274	0.0325	0.0397	0.0505	0.0505
	Vf (peripheral)	mm/min	197	186	169	175	162	162
	V _f (center)	mm/min	49	47	43	51	41	85
Cast irons Carbon steels	V _c	m/min	75	75	75	75	75	75
	n	min ⁻¹	4100	3300	2400	2000	1500	1500
	f _z	mm/t	0.028	0.0343	0.0406	0.0496	0.0632	0.0632
	Vf (peripheral)	mm/min	459	453	390	397	379	379
	V _f (center)	mm/min	114	113	99	116	95	199

Standard with Pilot Hole (G-Type)

Work piece material	Cutting Parameter	Thread	G 1/16-18	G 1/8-19	G 1/4-28	G 3/8-28	G 1/2-35	G 1-45
		Thread Dia.	7,722	9,728	13,157	16,662	20,955	33,249
		Pitch	0,9071	0,9071	1,3368	1,3368	1,8143	2,3091
		DC	5,8	7,3	9,8	11,8	15,7	15,8
Tool steels (25 – 35HRC)	V _c	m/min	85	85	85	85	85	85
	n	min ⁻¹	4700	3700	2800	2300	1700	1700
	f _z	mm/t	0.028	0.0343	0.0406	0.0496	0.0632	0.0632
	Vf (peripheral)	mm/min	526	508	455	456	430	430
	V _f (center)	mm/min	131	127	116	133	108	226
Pre-hardened steels (35 – 45HRC)	V _c	m/min	75	75	75	75	75	75
	n	min ⁻¹	4100	3300	2400	2000	1500	1500
	f _z	mm/t	0.0265	0.0325	0.0385	0.047	0.0599	0.0599
	Vf (peripheral)	mm/min	435	429	370	376	359	359
	V _f (center)	mm/min	108	107	94	110	90	189
Hardened steels (45 – 55HRC)	V _c	m/min	65	65	65	65	65	65
	n	min ⁻¹	3600	2800	2100	1800	1300	1300
	f _z	mm/t	0.025	0.0307	0.0363	0.0444	0.0565	0.0565
	Vf (peripheral)	mm/min	360	344	305	320	294	294
	V _f (center)	mm/min	90	86	78	93	74	154
Hardened steels (55 – 62HRC)	V _c	m/min	55	55	55	55	55	55
	n	min ⁻¹	3000	2400	1800	1500	1100	1100
	f _z	mm/t	0.0221	0.0271	0.0321	0.0392	0.0499	0.0499
	Vf (peripheral)	mm/min	265	260	231	235	220	220
	V _f (center)	mm/min	66	65	59	69	55	115
Hardened steels (62 – 66HRC)	V _c	m/min	45	45	45	45	45	45
	n	min ⁻¹	2500	2000	1500	1200	900	900
	f _z	mm/t	0.0191	0.0235	0.0278	0.034	0.0432	0.0432
	Vf (peripheral)	mm/min	191	188	167	163	156	156
	V _f (center)	mm/min	48	47	43	48	39	82
Stainless steels	V _c	m/min	55	55	55	55	55	55
	n	min ⁻¹	3000	2400	1800	1500	1100	1100
	f _z	mm/t	0.0236	0.0289	0.0342	0.0418	0.0532	0.0532
	Vf (peripheral)	mm/min	283	277	246	251	234	234
	V _f (center)	mm/min	70	69	63	73	59	123
Cast irons Carbon steels	V _c	m/min	95	95	95	95	95	95
	n	min ⁻¹	5200	4100	3100	2600	1900	1900
	f _z	mm/t	0.0295	0.0361	0.0428	0.0523	0.0665	0.0665
	Vf (peripheral)	mm/min	614	592	531	544	505	505
	V _f (center)	mm/min	153	148	135	159	127	265

EDT-ATH General usage instruction

About tool feed rate



$$v_f = f_z \times z \times n \times \frac{D_1 - DC}{D_1}$$

v_f : Feed rate	(mm/min)
f_z : Feed per tooth	(mm/t)
z : No. of flutes	
n : Rotation	(min ⁻¹)
D_1 : Thread diameter	(mm)
DC : Tool diameter	(mm)

When performing thread milling by helical interpolation, the cutting point feed rate should be multiplied by a coefficient to determine the tool center feed rate.

The equation for calculating the tool center feed rate is shown at left.

The standard cutting conditions for PT and NPT threads are calculated based on the thread diameter D_1' at the machinable maximum depth (neck length) .

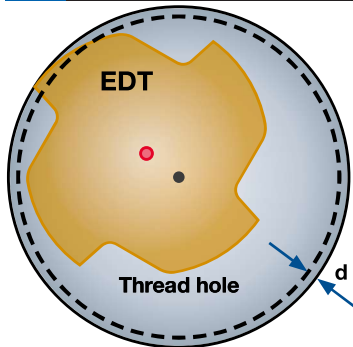
PT-thread milling example with EDT-PT1/8-19-ATH:

$$D_1' = D_1 - (\text{underneck length} \times \text{thread taper}) = 9.728 - (19 \times 1/16) = 8.5405 \quad (\text{mm})$$

Note:

1/16 (thread taper angle in arc dimension) is valid for all PT/NPT threads!

About the correction of tool dimension (cylindrical threads)

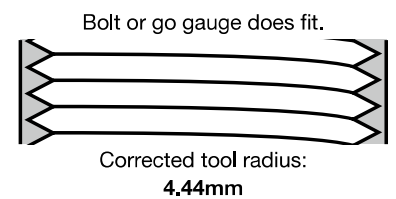
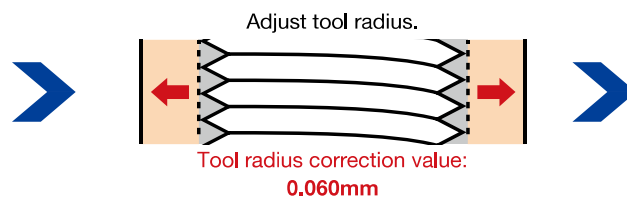
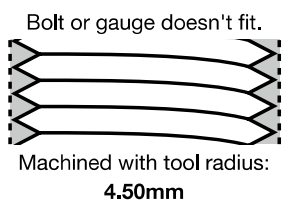


The machined thread diameter may need to be adjusted if reduced by wear and/or deflection of tool. Tool diameter correction or repeated zero-cut could be helpful to reach the requested thread size.

Correction example: Machining an M12 × 1.75 thread with EDT-1.75-30-TH (DC 9mm)

$$\text{Corrected tool radius} = DC/2 - d = 9.0 / 2 - 0.060 = 4.44 \text{ (mm)}$$

Possible situation



About coolant

Work material	EDT	
	Air-blow	Water-base
Hardened steel, Pre-hardened steel Tool steel, Cast iron, Carbon steel	◎	△
Stainless steel	×	◎
Super heat resistant alloy, Titanium alloy	×	◎
Aluminium alloy, Copper alloy, Resin	×	◎

- ◎ : First recommended
- : Second recommended
- △ : Tendency to decrease tool life
- X : Not recommended

The first recommended coolant shown in the table tends to have the superior tool life. When priority is given to finished surface quality, water-soluble cutting fluids are effective.

Oil-based cutting fluids are not suitable because they degrade chip removal characteristics.

In addition, coolant pressure should be adjusted so that it removes cutting chips. If the setting is bad, cutting chip clogging may lead to flute tip damage or tool breakage.

