POWER•ROUNDS™

Diameters:
0.125" - 1.00"

Cutting Edge Length:
0.250" - 2.500"

Overall Length:
1.500" - 6.00"

Number of Flutes:
2, 3, 4, 6

Corner Configurations:
Chamfer, Sharp to 0.060"

Helix Angle:
30°, 38°, 45°

Grade:
IN05S, IN2005

Ingersoll Power-Rounds

A Wide Array of Precision Solid Carbide End Mills

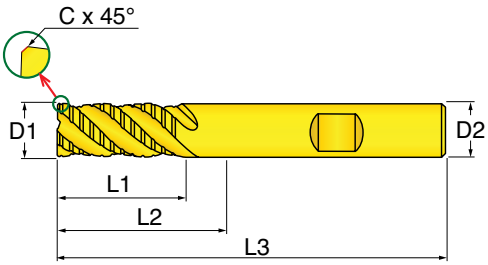
Ingersoll's new Power-Rounds line-up of solid carbide end mills offers a wide range of geometry and flute styles so you can match your new precision Power-Round end mill to your specific milling application.

Member IMC Group
Ingersoll Cutting Tools

POWER•ROUNDS™ SERIES 46C_RM

3 FLUTE, 38° HELIX, MEDIUM LENGTH SOLD CARBIDE ROUGHING ENDMILLS WITH CHIP SPLITTING CUTTING EDGES FOR HIGH STOCK REMOVAL RATES.

Shoulder | Channel | Countersinking



Grade	P	M	K	$N_{(K)}$	$S_{(M)}$	$H_{(P/K)}$
IN2005	+	+	+		+	

+ Preferred choice ○ Second choice

e9
h6

λ = 38°
≤44 HRC

Cutter Number	Helix (deg)	D1 Diameter	Z Flutes	C Chamfer	L3 Overall Length	L2 Height	L1 Cut Length	D2 Shank Size/Style
46C-2505R6RM00	38.0	0.250	3	.010x45deg	2.50	0.75	0.50	.250" C
46C-3106R7RM01	38.0	0.312	3	.015x45deg	2.50	1.00	0.63	.312" C
46C-3707R8RM01	38.0	0.375	3	.015x45deg	3.00	1.25	0.75	.375" C
46C-5010S4RM01	38.0	0.500	3	.015x45deg	3.50	1.50	1.00	.500" C
46C-6212S6RM02	38.0	0.625	3	.020x45deg	3.50	1.70	1.25	.625" C
46C-7515S7RM02	38.0	0.750	3	.020x45deg	5.00	2.25	1.50	.750" C
46C-1020S1RM02	38.0	1.000	3	.024x45deg	6.00	3.00	2.00	1.000" C

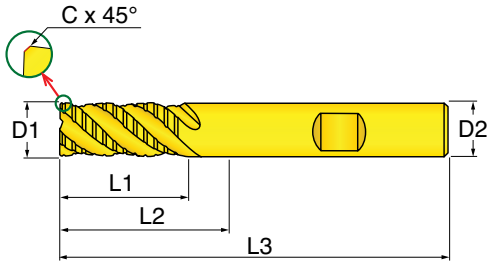
POWER•ROUNDS™ SERIES 47C_RM

4 FLUTE, 38° HELIX, MEDIUM LENGTH SOLD CARBIDE ROUGHING ENDMILLS WITH CHIP SPLITTING CUTTING EDGES FOR HIGH STOCK REMOVAL RATES.


Shoulder


Channel


Countersinking



Grade	P	M	K	$N_{(K)}$	$S_{(M)}$	$H_{(P/K)}$
IN2005	+	+	+		+	

+ Preferred choice ○ Second choice

△	e9
□	h6

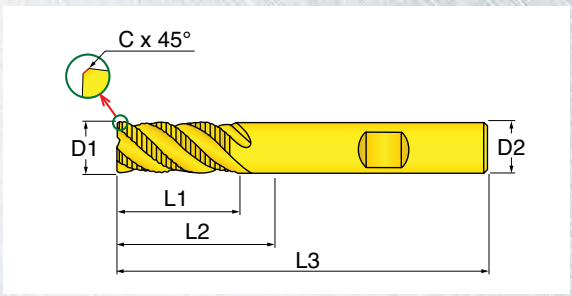
λ = 38° | ≤44 HRC

Cutter Number	Helix (deg)	D1 Diameter	Z Flutes	C Chamfer	L3 Overall Length	L2 Height	L1 Cut Length	D2 Shank Size/Style
47C-2550R6RM01	38.0	0.250	4	.010x45deg	2.50	0.75	0.50	.250" C
47C-3162R7RM01	38.0	0.312	4	.015x45deg	2.50	1.00	0.63	.312" C
47C-3775R8RM01	38.0	0.375	4	.015x45deg	3.00	1.25	0.75	.375" C
47C-5010S4RM01	38.0	0.500	4	.015x45deg	3.50	1.50	1.00	.500" C
47C-6212S6RM02	38.0	0.625	4	.020x45deg	3.50	1.70	1.25	.625" C
47C-7515S7RM02	38.0	0.750	4	.020x45deg	5.00	2.25	1.50	.750" C
47C-1020S1RM02	38.0	1.000	4	.024x45deg	6.00	3.00	2.00	1.000" C

POWER-ROUNDS™ SERIES 46C_RM

ROUGHING END MILLS, 3, 4, 6 FLUTE, 30 AND 38 DEGREE HELIX, FINE PITCH, MEDIUM LENGTH FOR ALLOY STEEL, STAINLESS STEEL

Shoulder | Channel | Ramping | Helical Interp. | Countersinking



Grade	P	M	K	N (K)	S (M)	H (P/K)
IN2005	+	+	+		+	

+ Preferred choice ○ Second choice

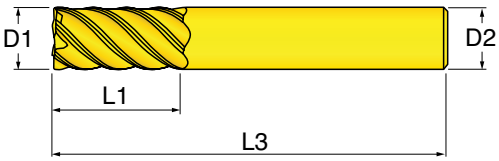
e8
h6

λ = 38° | ≤54 HRC

Cutter Number	Helix (deg)	D1 Diameter	Z Flutes	C Chamfer	L3 Overall Length	L2 Height	L1 Cut Length	D2 Shank Size/Style
46C-2550R6RM01	38.0	0.250	3	.016x45deg	2.50	0.815	0.50	.250" C
46C-3162R7RM01	38.0	0.312	3	.016x45deg	2.50	0.941	0.63	.312" C
46C-377577RM02	38.0	0.375	3	.020x45deg	3.00	1.421	0.75	.375" W
46C-4310R9RM02	30.0	0.438	4	.020x45deg	2.75	1.315	1.00	.438" C
46C-501078RM02	30.0	0.500	4	.020x45deg	3.50	1.669	1.00	.500" W
46C-621179RM02	30.0	0.625	4	.020x45deg	3.50	1.598	1.13	.625" W
46C-751284RM02	30.0	0.750	4	.024x45deg	4.00	2.000	1.25	1.000" W
46C-101580RM02	30.0	1.000	6	.024x45deg	4.50	2.248	1.50	1.000" W

POWER•ROUNDS™ SERIES 47J_RD, 48J_RD

GENERAL APPLICATION, 4 AND 6 FLUTE, 45 DEGREE HELIX, MEDIUM & LONG LENGTH



Grade	P	M	K	N (K)	S (M)	H (P/K)
IN2005	+	+	+		+	

+ Preferred choice ○ Second choice

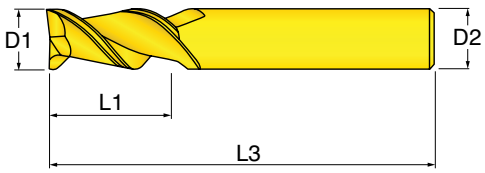
e8
h6

Cutter Number	Length	Helix (deg)	D1 Diameter	Z Flutes	R Radius	L3 Overall Length	L1 Cut Length	D2 Shank Size/Style
47J-1203R4RD15	Medium	45	0.125	4	Sharp	1.50	0.37	.125" C
47J-1805R5RD20	Medium	45	0.188	4	Sharp	2.00	0.50	.188" C
47J-2506R6RD25	Medium	45	0.250	4	Sharp	2.50	0.62	.250" C
47J-3107R7RD25	Medium	45	0.313	4	Sharp	2.50	0.75	.312" C
47J-3708R8RD25	Medium	45	0.375	4	Sharp	2.50	0.81	.375" C
47J-4310R9RD27	Medium	45	0.437	4	Sharp	2.75	1.00	.438" C
47J-5010S4RD30	Medium	45	0.500	4	Sharp	3.00	1.00	.500" C
47J-6212S6RD35	Medium	45	0.625	4	Sharp	3.50	1.25	.625" C
47J-7515S7RD40	Medium	45	0.750	4	Sharp	4.00	1.50	.750" C
48J-2506R6RD25	Medium	45	0.250	6	Sharp	2.50	0.62	.250" C
48J-2510R6RD30	Long	45	0.250	6	Sharp	3.00	1.00	.250" C
48J-3107R7RD25	Medium	45	0.313	6	Sharp	2.50	0.81	.312" C
48J-3112R7RD30	Long	45	0.313	6	Sharp	3.00	1.25	.312" C
48J-3708R8RD25	Medium	45	0.375	6	Sharp	3.00	0.87	.375" C
48J-3715R8RD40	Long	45	0.375	6	Sharp	4.00	1.50	.375" C
48J-4310R9RD30	Medium	45	0.438	6	Sharp	2.75	1.00	.438" C
48J-5010S4RD30	Medium	45	0.500	6	Sharp	3.00	1.00	.500" C
48J-5020S4RD42	Long	45	0.500	6	Sharp	4.25	2.00	.500" C
48J-6212S6RD35	Medium	45	0.625	6	Sharp	3.50	1.25	.625" C
48J-6225S6RD50	Long	45	0.625	6	Sharp	5.00	2.50	.625" C
48J-7515S7RD40	Medium	45	0.750	6	Sharp	4.00	1.50	.750" C
48J-7525S7RD50	Long	45	0.750	6	Sharp	5.00	2.50	.750" C
48J-1017S1RD45	Medium	45	1.000	6	Sharp	4.50	1.75	1.000" C

POWER-ROUNDS™ SERIES 45J_RD, 46J_RD

END MILLS FOR ALUMINUM, 2 AND 3 FLUTE, 45 DEGREE HELIX, MEDIUM LENGTH

Shoulder | Channel | Ramping | Helical Interp.



Grade	P	M	K	N (K)	S (M)	H (P/K)
IN05S				+		

+ Preferred choice ○ Second choice

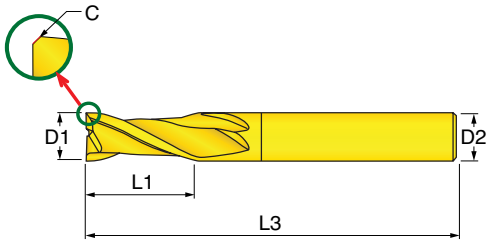
h6
h6

λ =45° | ALU

Cutter Number	Length	Helix (deg)	D1 Diameter	Z Flutes	R Radius	L3 Overall Length	L1 Cut Length	D2 Shank Size/Style
45J-2505R6RD25	Medium	45	0.250	2	Sharp	2.50	0.50	.250" C
45J-3106R7RD25	Medium	45	0.313	2	Sharp	2.50	0.63	.312" C
45J-3707R8RD30	Medium	45	0.375	2	Sharp	3.00	0.75	.375" C
45J-5010S4RD30	Medium	45	0.500	2	Sharp	3.00	1.00	.500" C
45J-6210S6RD35	Medium	45	0.625	2	Sharp	3.50	1.00	.625" C
45J-7512S7RD40	Medium	45	0.750	2	Sharp	4.00	1.25	.750" C
45J-1015S1RD45	Medium	45	1.000	2	Sharp	4.50	1.50	1.000" C
46J-2505R6RD25	Medium	45	0.250	3	Sharp	2.50	0.50	.250" C
46J-3106R7RD25	Medium	45	0.312	3	Sharp	2.50	0.63	.312" C
46J-3707R8RD30	Medium	45	0.375	3	Sharp	3.00	0.75	.375" C
46J-5010S4RD35	Medium	45	0.500	3	Sharp	3.50	1.00	.500" C
46J-6210S6RD35	Medium	45	0.625	3	Sharp	3.50	1.00	.625" C
46J-7512S7RD40	Medium	45	0.750	3	Sharp	4.00	1.25	.750" C
46J-1015S1RD45	Medium	45	1.000	3	Sharp	4.50	1.50	1.000" C

POWER-ROUNDS™ SERIES 45C_RB

GENERAL APPLICATION, 2-FLUTE, 30 DEGREE HELIX, MEDIUM LENGTH



Grade	P	M	K	N (K)	S (M)	H (P/K)
IN2005	+	+	+		+	

e8
h6

λ = 30°

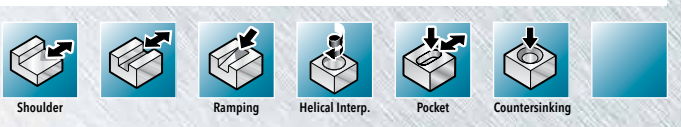
≤54 HRC

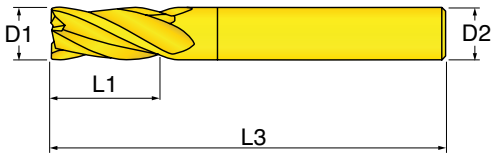
+ Preferred choice ○ Second choice

Cutter Number	Helix (deg)	D1 Diameter	Z Flutes	C Chamfer	L3 Overall Length	L1 Cut Length	D2 Shank Size/Style
45C-1205R4RB00	30.0	0.125	2	.004x45deg	1.50	0.50	.125" C
45C-1803R5RB00	30.0	0.188	2	.006x45deg	2.00	0.38	.188" C
45C-2505R6RB00	30.0	0.250	2	.006x45deg	2.50	0.50	.250" C
45C-2507R6RB00	30.0	0.250	2	.006x45deg	2.50	0.75	.250" C
45C-3108R7RB00	30.0	0.313	2	.006x45deg	2.50	0.81	.312" C
45C-3707R8RB00	30.0	0.375	2	.006x45deg	2.50	0.75	.375" C
45C-370777RB00	30.0	0.375	2	.006x45deg	2.50	0.75	.375" W
45C-3710R8RB00	30.0	0.375	2	.006x45deg	2.50	1.00	.375" C
45C-4310R9RB00	30.0	0.437	2	.010x45deg	2.75	1.00	.438" C
45C-5010S4RB00	30.0	0.500	2	.010x45deg	3.00	1.00	.500" C
45C-501078RB00	30.0	0.500	2	.010x45deg	3.00	1.00	.500" W
45C-6210S6RB00	30.0	0.625	2	.010x45deg	3.50	1.00	.625" C
45C-7584S7RB00	30.0	0.750	2	.010x45deg	4.00	1.25	.750" C

POWER•ROUNDS™ SERIES 47J_RC, 47D_RC

GENERAL APPLICATION, 4-FLUTE, 38 DEGREE HELIX, MEDIUM LENGTH





Grade	P	M	K	$N_{(K)}$	$S_{(M)}$	$H_{(P/K)}$
IN2005	+	+	+		+	

+ Preferred choice ○ Second choice

e8
h6

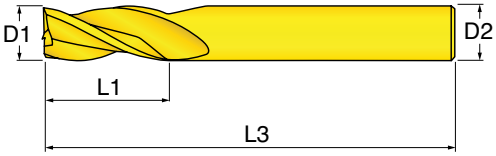
λ = 38°

≤54 HRC

Cutter Number	Helix (deg)	D1 Diameter	Z Flutes	C Corner	L3 Overall Length	L1 Cut Length	D2 Shank Size/Style
47J-1203R4RC15	38.0	0.125	4	Sharp	1.50	0.38	.125" C
47D-1203R4RC001	38.0	0.125	4	.010	1.50	0.38	.125" C
47J-1503R2RC15	38.0	0.156	4	Sharp	1.50	0.38	.156" C
47D-1203R4RC00	38.0	0.156	4	.010	1.50	0.38	.156" C
47J-1803R5RC15	38.0	0.188	4	Sharp	2.00	0.38	.188" C
47D-1203R5RC00	38.0	0.188	4	.010	2.00	0.38	.188" C
47J-2103R3RC20	38.0	0.218	4	Sharp	2.00	0.38	.218" C
47D-2103R3RC00	38.0	0.218	4	.010	2.00	0.38	.218" C
47J-2505R6RC25	38.0	0.250	4	Sharp	2.50	0.50	.250" C
47D-2505R6RC00	38.0	0.250	4	.010	2.50	0.50	.250" C
47D-2505R6RC02	38.0	0.250	4	.020	2.50	0.50	.250" C
47D-2505R6RC03	38.0	0.250	4	.030	2.50	0.50	.250" C
47D-2505R6RC06	38.0	0.250	4	.060	2.50	0.50	.250" C
47J-3106R7RC25	38.0	0.313	4	Sharp	2.50	0.63	.312" C
47D-3106R7RC00	38.0	0.313	4	.010	2.50	0.63	.312" C
47D-3106R7RC02	38.0	0.313	4	.020	2.50	0.63	.312" C
47D-3106R7RC03	38.0	0.313	4	.030	2.50	0.63	.312" C
47D-3106R7RC06	38.0	0.313	4	.060	2.50	0.63	.312" C
47J-3707R8RC25	38.0	0.375	4	Sharp	2.50	0.75	.375" C
47J-370777RC25	38.0	0.375	4	Sharp	2.50	0.75	.375" W
47D-3707R8RC00	38.0	0.375	4	.010	2.50	0.75	.375" C
47D-3707R8RC02	38.0	0.375	4	.020	2.50	0.75	.375" C
47J-3707R8RC03	38.0	0.375	4	.030	2.50	0.75	.375" C
47J-3707R8RC06	38.0	0.375	4	.060	2.50	0.75	.375" C
47D-4307R9RC27	38.0	0.438	4	Sharp	2.75	0.75	.438" C
47J-4307R9RC02	38.0	0.438	4	.020	2.75	0.75	.438" C
47D-5010S4RC30	38.0	0.500	4	Sharp	3.00	1.00	.500" C
47D-501078RC30	38.0	0.500	4	Sharp	3.00	1.00	.500" W
47J-5010S4RC30	38.0	0.500	4	.010	3.00	1.00	.500" C
47J-5010S4RC02	38.0	0.500	4	.020	3.00	1.00	.500" C
47J-5010S4RC03	38.0	0.500	4	.030	3.00	1.00	.500" C
47J-5010S4RC06	38.0	0.500	4	.060	3.00	1.00	.500" C
47D-6210S6RC35	38.0	0.625	4	Sharp	3.50	1.00	.625" C
47D-621079RC35	38.0	0.625	4	Sharp	3.50	1.00	.625" W
47J-6210S6RC00	38.0	0.625	4	.010	3.50	1.00	.625" C
47J-6210S6RC03	38.0	0.625	4	.030	3.50	1.00	.625" C
47J-6210S6RC06	38.0	0.625	4	.060	3.50	1.00	.625" C
47D-7510S7RC40	38.0	0.750	4	Sharp	4.00	1.50	.750" C
47D-751584RC40	38.0	0.750	4	Sharp	4.00	1.50	.750" W
47J-7515S7RC00	38.0	0.750	4	.010	4.00	1.50	.750" C
47J-7515S7RC02	38.0	0.750	4	.020	4.00	1.50	.750" C
47J-7515S7RC03	38.0	0.750	4	.030	4.00	1.50	.750" C
47J-7515S7RC06	38.0	0.750	4	.060	4.00	1.50	.750" C

POWER-ROUNDS™ SERIES 46J_RC, 46D_RC

GENERAL APPLICATION 3 FLUTE END MILLS, 38 DEGREE HELIX, MEDIUM LENGTH



Grade	P	M	K	N (K)	S (M)	H (P/K)
IN2005	+	+	+		+	

+ Preferred choice ○ Second choice

△	e8
□	h6

Cutter Number	Helix (deg)	D1 Diameter	Z Flutes	C Corner	L3 Overall Length	L1 Cut Length	D2 Shank Size/Style
46J-1202R4RC15	38.0	0.125	3	Sharp	1.50	0.25	.125" C
46D-1202R4RC00	38.0	0.125	3	.010	1.50	0.25	.125" C
46J-1803R5RC20	38.0	0.188	3	Sharp	2.00	0.38	.188" C
46D-1803R5RC00	38.0	0.188	3	.010	2.00	0.38	.188" C
46J-2505R6RC25	38.0	0.250	3	Sharp	2.50	0.50	.250" C
46D-2505R6RC02	38.0	0.250	3	.020	2.50	0.50	.250" C
46J-3106R7RC25	38.0	0.313	3	Sharp	2.50	0.63	.312" C
46D-3106R7RC02	38.0	0.313	3	.020	2.50	0.63	.312" C
46J-3707R8RC25	38.0	0.375	3	Sharp	2.50	0.75	.375" C
46J-370777RC25	38.0	0.375	3	Sharp	2.50	0.75	.375" W
46D-3707R8RC02	38.0	0.375	3	.020	2.50	0.75	.375" C
46D-3710S4RC30	38.0	0.500	3	Sharp	3.00	1.00	.500" C
46D-501078RC30	38.0	0.500	3	Sharp	3.00	1.00	.500" W
46J-5010S4RC03	38.0	0.500	3	.030	3.00	1.00	.500" C
46J-6210R4RC35	38.0	0.625	3	Sharp	3.50	1.00	.625" C
46J-621079RC35	38.0	0.625	3	Sharp	3.50	1.00	.625" W
46D-6210R4RC03	38.0	0.625	3	.030	3.50	1.00	.625" C
46J-7512S7RC40	38.0	0.750	3	Sharp	4.00	1.25	.750" C
46J0751284RC40	38.0	0.750	3	Sharp	4.00	1.25	.750" W
46D-7512S7RC03	38.0	0.750	3	.030	4.00	1.25	.750" C
46JE1015S1RC15	38.0	1.000	3	Sharp	4.00	1.50	1.000" C
46JE1015S1RC40	38.0	1.000	3	Sharp	4.00	1.50	1.000" W
46DE1015S1RC03	38.0	1.000	3	.030	4.00	1.50	1.000" C

POWER•ROUNDS™ OPERATING GUIDELINES

ROUND LINE - STANDARD END MILLS - Series 45B, 45D, 45J, 45M, 45N, 45P, 45X, 46D, 47C, 47D, 47J, 47N, 48C, 48D, 48J, 48N, 48U, 49D, 49J

Workpiece Material	DC in	Cutting speed vc in/min End mill Full slot	Cutting speed vc in/min End mill Shoulder	Feed rate per tooth fz ft/min End mill Full slot	Feed rate per tooth fz ft/min End mill Shoulder	Cutting depth ap recomm. for End mill in	Cutting Width Recommended ae %
Unalloyed steel **P**	.125-.250	300-600	450-800	.0006 - .0010	.0018 - .0030	.050 x D	40%
	.312-.500	300-600	450-800	.0025 -.0040	.0040 - .0055	.050 x D	40%
	.625-1.00	300-600	450-800	.0030 - .0040	.0060 - .0090	.050 x D	40%
High Carbon steel < 1100N/mm² **P**	.125-.250	250-500	325-725	.0006 - .0018	.0007 - .0025	.030 x D	30%
	.312-.500	300-600	400-650	.0020 -.0030	.0030 - .0040	.030 x D	30%
	.625-1.00	300-600	400-650	.0025 - .0040	.0040 - .0080	.030 x D	30%
Alloyed / Tool steel < 1400N/mm² **P**	.125-.250	250-450	325-525	.0006 - .0018	.0007 - .0020	.030 x D	25%
	.312-.500	250-450	325-600	.0015 -.0028	.0028 - .0040	.030 x D	25%
	.625-1.00	250-450	325-600	.0020 - .0030	.0040 - .0070	.030 x D	25%
Stainless steel **M**	.125-.250	165-300	250-450	.0040 - .0007	.0040 - .0013	.030 x D	30%
	.312-.500	165-300	250-450	.0015 - .0025	.0028 - .0040	.030 x D	30%
	.625-1.00	165-300	250-450	.0025 - .0040	.0040 - .0080	.030 x D	30%
Gray cast iron **K**	.125-.250	325-525	500-975	.0006 - .0010	.0018 - .0030	.030 x D	40%
	.312-.500	325-525	500-900	.0025 -.0040	.0040 - .0055	.030 x D	40%
	.625-1.00	250-550	500-900	.0030 - .0040	.0060 - .0090	.030 x D	40%
Cast alloys **K**	.125-.250	250-550	400-650	.0006 - .0018	.0007 - .0025	.030 x D	30%
	.312-.500	250-550	400-650	.0020 -.0030	.0030 - .0040	.030 x D	30%
	.625-1.00	250-550	400-650	.0025 - .0040	.0040 - .0080	.030 x D	30%
Aluminum **N**	.125-.250	825-2500	825-2500	.0007 - .0015	.0010 - .0030	.040 x D	30%
	.312-.500	2500-3500	3000-5000	.0035 - .0040	.0040 - .0070	.040 x D	30%
	.625-1.00	2500-3500	5000-6500	.0060 - .0070	.0070 - .0090	.040 x D	30%
Plastics **N**	.125-.250	400-650	650-1300	.0040 - .0018	.0070 - .0015	.040 x D	10%
	.312-.500	400-650	650-1300	.0020 - .0030	.0028 - .0040	.040 x D	10%
	.625-1.00	400-650	650-1300	.0028 - .0040	.0040 - .0080	.040 x D	10%
Super alloys **S**	.125-.250	65-165	100-200	.0040 - .0060	.0040 - .0010	.020 x D	10%
	.312-.500	65-165	100-200	.0010 - .0020	.0020 - .0040	.020 x D	10%
	.625-1.00	65-165	100-200	.0020 - .0030	.0040 - .0070	.020 x D	10%
Hardened steel 48 - 54 HRC	.125-.250	130-325	200-400	.0006 - .0018	.0007 - .0020	.030 x D	25%
	.312-.500	130-325	200-400	.0015 -.0028	.0028 - .0040	.030 x D	25%
	.625-1.00	130-325	200-400	.0020 - .0030	.0040 - .0070	.030 x D	25%
Hardened steel 54 - 63 HRC	.125-.250	65-165	150-250	.0040 - .0007	.0040 - .0015	.027 x D	20%
	.312-.500	65-200	150-250	.0010 -.0020	.0020 - .0030	.027 x D	20%
	.625-1.00	65-200	150-250	.0015 - .0028	.0030 - .0060	.027 x D	20%
Hardened steel > 63 HRC	.125-.250	65-100	100-200	.0040 - .0040	.0040 - .0010	.024 x D	10%
	.312-.500	65-130	100-200	.0007 -.0015	.0015 - .0025	.024 x D	10%
	.625-1.00	65-130	100-200	.0010 - .0025	.0025 - .0060	.024 x D	10%

General Information:
Machining of aluminum and duroplastics with grade IN05S, any other materials with IN2005 / IN2006. Max. cutting depth of end mills is determined by cutting length a = xxx in; for ball nose cutters max. cutting depth is determined by radius.
Please consider the limitation of max. RPM of the machine! Cutting values refer to n_{max} = 40000 min^{-1}