



Diameters:
0.250" - 1.000"

Cutting Edge Length:
0.500" - 2.000"

Overall Length:
2.50" - 4.50"

Number of Flutes:
4

Radius:
0.010" - 0.050"

Helix Angle:
35° and 37°

Grade:
IN2005



Series 47D...RQ (4 Flute) Solid Carbide Endmills with Variable Pitch and Different Helix Angles

Ingersoll's new 4 Flute Series 47D...RQ features a solid carbide endmill with different helix and variable pitch. This endmill is designed to improve dampening performance, resulting in 20 to 25 percent prolonged tool life when compared to a standard variable pitch endmill.

The new HyperRounds endmills with 4 flutes includes the standard feature of a variable pitch endmill as well as different helix flutes: two 35° helix flutes and two 37° helix flutes. Designed to maximize stock removal rate and reduce cycle time in most milling operations. The unique geometry provides excellent surface finish and long tool life while machining at high material removal rates.

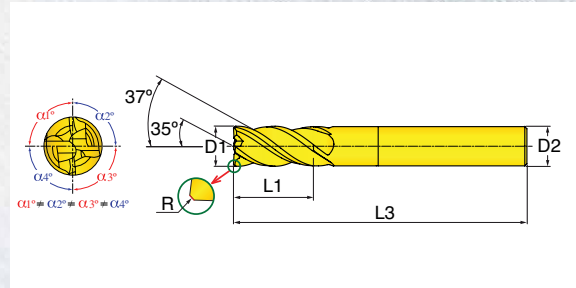
Features and Benefits:

- Excellent chatter dampening due to their variable pitch
- With radius and relieved neck up to 2XD
- Excellent solution for low power machines with CAT40 and BT40 adaptations, improving their material removal rates and minimizing vibration
- Suitable for all type of steel and high temperature alloys
- Combination different helix (35° and 37°) and variable pitch



HYPERROUNDS™ SERIES 47D_RQ (4 FLUTE)

4 FLUTE ENDMILLS, WITH DIFFERENT HELIX AND VARIABLE PITCH FOR CHATTER DAMPENING, WITH CORNER RADII



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	R Radius	L3 Overall Length	L1 Cut Length	D2 Shank Size/Style
47D-2550R6RQ011	35 & 37	0.250	4	0.010	2.50	0.50	.250" C
47D-3162R7RQ011	35 & 37	0.312	4	0.015	2.50	0.63	.312" C
47D-3775R8RQ021	35 & 37	0.375	4	0.020	3.00	0.75	.375" C
47D-377577RQ021	35 & 37	0.375	4	0.020	3.00	0.75	.375" W
47D-5010S4RQ021	35 & 37	0.500	4	0.023	3.00	1.00	.500" C
47D-501078RQ021	35 & 37	0.500	4	0.023	3.00	1.00	.500" W
47D-6212S6RQ031	35 & 37	0.625	4	0.030	3.50	1.25	.625" C
47D-621279RQ031	35 & 37	0.625	4	0.030	3.50	1.25	.625" W
47D-7515S7RQ041	35 & 37	0.750	4	0.040	4.00	1.50	.750" C
47D-751584RQ041	35 & 37	0.750	4	0.040	4.00	1.50	.750" W
47D-1020S1RQ05	35 & 37	1.000	4	0.050	4.50	2.00	1.000" C
47D-102080RQ05	35 & 37	1.000	4	0.050	4.50	2.00	1.000" W

HYPERROUNDS™ 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		Feed rate per tooth fz ft/min		Cutting depth ap recomm. for	Cutting Width
		End mill		End mill			
		Full slot	Shoulder	Full slot	Shoulder	End mill in	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 $n_{max} = 40000 \text{ min}^{-1}$