

Member IMC Group
Ingersoll
Cutting Tools

• **UPDATED** •

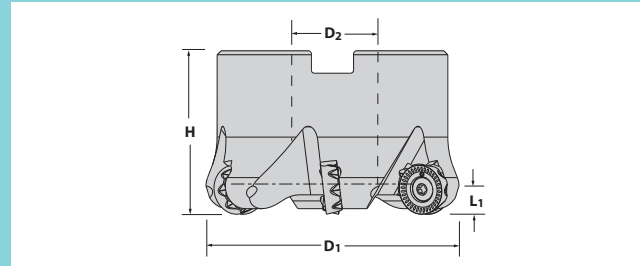
FORMMASTER ^{WAVE}™

**BUTTON
CUTTERS**

Part of the
Ingersoll ^{D&M} **line**

FORMMASTER^{WAVE} FACE MILL, .500 I.C. BUTTON

Diameters
2.000" to 6.000"

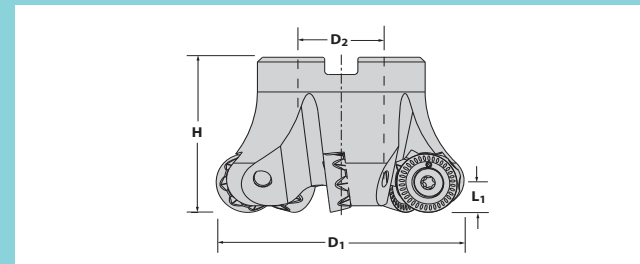


D ₁ Nominal Diameter	Cutter Number	L ₁ Cutting Edge Length	H Height	Number of Inserts	D ₂ Bore Diameter	Keyway Dimensions	Retension Bolt
2.00	5W6J-20R01	0.25	1.57	5	0.75	0.32	SD06-46
2.00	5W6J-20R10	0.25	1.57	3	0.75	0.32	SD06-46
2.00	5W6J-20R12*	0.25	2.00	3	-	-	-
3.00	5W6J-30R01	0.25	1.75	6	1.00	0.38	SD08-46
4.00	5W6J-40R01	0.25	2.50	7	1.50	0.64	SD12-82
5.00	5W6J-50R01	0.25	2.50	8	1.50	0.64	SD12-82
6.00	5W6J-60R01	0.25	2.50	9	1.50	0.64	SD12-82

* HI-TORQ™ STYLE, Precision Components

FORMMASTER^{WAVE} FACE MILL, .750 I.C. BUTTON

Diameters
3.000" to 6.000"



D ₁ Nominal Diameter	Cutter Number	L ₁ Cutting Edge Length	H Height	Number of Inserts	D ₂ Bore Diameter	Keyway Dimensions	Retension Bolt
3.00	5W6N-30R01	0.375	1.975	5	1.000	0.380	SD08-46
4.00	5W6N-40R01	0.375	2.480	6	1.500	0.620	SD12-82
6.00	5W6N-60R01	0.375	2.375	8	1.500	0.620	-

Diameters
1.00" to 1.50"

Cutting Edge Radius
.250"



Facing



Ramping



Pocketing



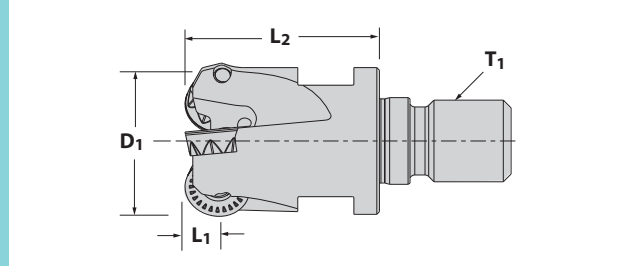
Corkscrew



Contouring



Coolant Thru



D ₁ Nominal Diameter	Cutter Number	L ₁ Cutting Edge Length	Number of Inserts	L ₂ Extension From Holder	T ₁ Thread Size	Coolant Thru
1.000	*15B4J-10015X7R01	0.25	2	1.500	M12	No
1.250	15B4J-12017X8R01	0.25	3	1.500	M16	Yes
1.500	15B4J-15017X8R01	0.25	3	1.500	M16	Yes

* 1.00 diameter end mills have a neutral axial insert orientation, max ramp .5 degrees.

Diameters
1.000" to 1.500"



Facing



Ramping



Pocketing



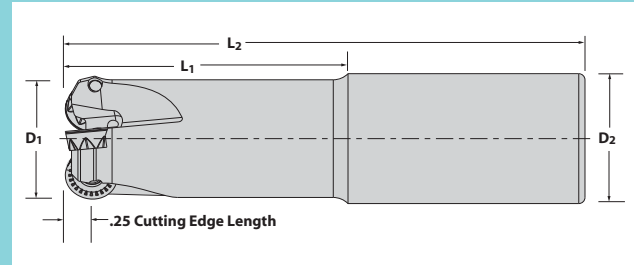
Corkscrew



Contouring



Coolant Thru

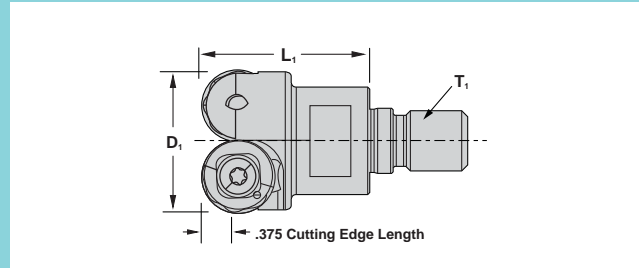


D ₁ Nominal Diameter	Cutter Number	L ₁ Extension	Number of Inserts	L ₂ Overall Legth	D ₂ Shank Style	Coolant Thru
1.00	*15B4H-1002280R01	1.750	2	4.500	1.00 weldon	No
1.00	*15B4H-10037S1R01	2.000	2	6.000	1.00 straight	No
1.25	15B4H-1252781R01	2.750	3	5.000	1.25 weldon	Yes
1.25	15B4H-12537S9R01	2.000	3	6.000	1.25 straight	Yes
1.50	15B4H-1502386R01	2.340	4	5.000	1.50 weldon	Yes
1.50	15B4H-15033S5R01	2.000	4	6.000	1.50 straight	Yes

* 1.00 diameter end mills have a neutral axial insert orientation, max ramp .5 degrees.

FORMMASTER^{WAVE} TOP•ON, .750 I.C. BUTTON

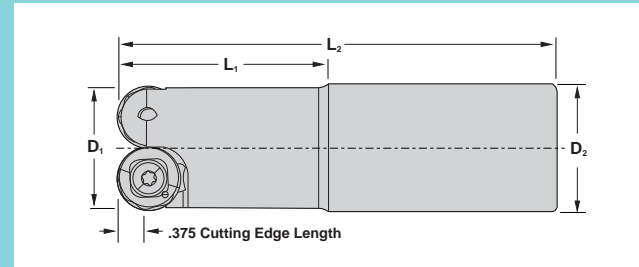
Diameters 1.500"
Cutting Edge Radius .375"



D ₁ Nominal Diameter	Cutter Number	L ₁ Cutting Edge Length	Number of Inserts	L ₂ Extension Length	T ₁ Thread Size	Coolant Thru
1.500	15B4M-15017X8R01	2	1.750	5	M16	NO

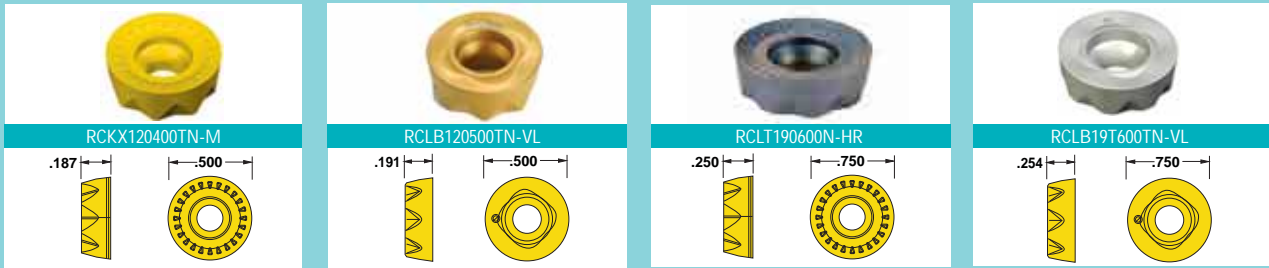
FORMMASTER^{WAVE} END MILL, .750 I.C. BUTTON

Diameters 1.500"
Cutting Edge Radius .375"



D ₁ Nominal Diameter	Cutter Number	L ₁ Extension	Number of Inserts	L ₂ Overall Legth	D ₂ Shank Style	Coolant Thru
1.50	15B4M-1502586r01	2.50	2	5.16	1.50 weldon	No
1.50	15B4M-1503555R01	3.50	2	7.50	1.50 straight	No

INSERTS



Insert Number	Application	D Insert Diameter	Corner Radius	Cutting Edge Configuration	Indexes per Insert	Grade				
						IN	2005	2030	2040	5515
RCLB120500TN-VL	Heavy Duty	.500	.250	Variable Land	4*	■			■	■
RCKX120400TN-M	STD.	.500	.250	Positive	8	■	■			■
RCLB19T600TN-VL	Heavy Duty	.750	.375	Variable Land	4*	■			■	■
RCLT190600N-HR	STD.	.750	.375	Positive	8	■	■	■		

* 4 indexes when maximizing wave. Benefits, see next page.

HARDWARE

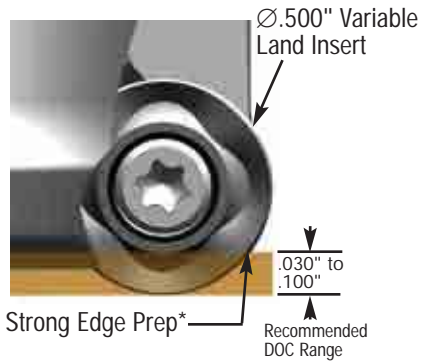
Insert Diameter	Insert Screw Part No.	Torque	Driver Part No.
.500	SM35-110-00	25-30 IN LBS	DS-T15T (TX-15)
.750	SM60-150-00	72-77 IN LBS	DS-T25T (TX-25)

PRODUCTIVITY TIPS

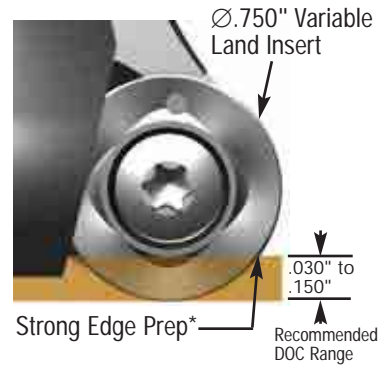
- During setup, maximize rigidity of tool assembly and piece part fixturing.
- Always minimize length to diameter ratio of the tool when possible.
- Maximize use of all CAM features and machine tool control features to create toolpath that provides constant chip load and predictability.
- Climb cut whenever possible
- If available utilize through spindle air, unless coolant is required.
- Eliminate interrupted cuts and abusive cutting conditions, when possible.

BENEFITS

.500 Variable Land Insert



.750 Variable Land Insert

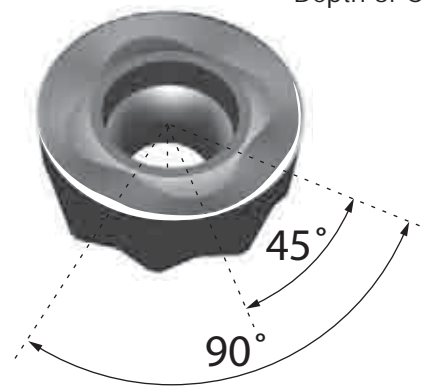
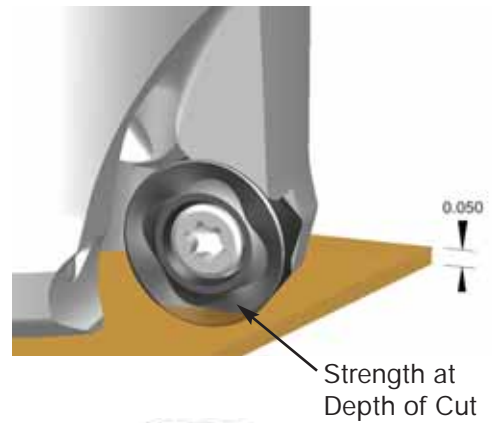


* Cross sectional area increases as depth of cut increases, providing greater strength where and when needed.

VARIABLE LAND INSERT TECHNOLOGY (.500 I.C. INSERT SHOWN)



Designed for Aggressive Machining



Material	Material	Brinell Hardness	SFM	Feed per Insert	Grades					Coolant
					INV2005	INV5115	INV2030	INV2040	INV5330	
Aluminum	6061 T-6, 7075 T-6	-	1500-3000	.010-.025						Yes
Cast Iron	Gray	150-250	250-800	.008-.025	2	3			1	No
	Nodular		200-800							
	GM190	-	200-800	.008-.025	2			1	No	
Steel	Armor Plate	-	200-800	.008-.025	2			1	No	
	Low Carbon 1018-8620	150-250	250-1000	.008-.025	1	3			2	No
	High Carbon F-6180	250-400	200-750	.008-.025						
	Alloyed Steel 4140,	150-300	150-300		2	3			1	
Tool Steel P20-H13	Up to 300	Up to 300								
Stainless Steel	300 Series, 304, 316	-	250-750	.007-.018						Yes
	400 Series 15-5 PH, 17-4 PH	Up to 320	300-800		2	4	1		3	
	13-8 PH	-	200-600							
Nickel Alloys	Inconel 600, 706, 718,	-	75-120	.005-.015	2	1	3	3	Yes	
	903, Hastelloy									
Titanium	6AL-4V	-	100-150	.004-.008	1	2		3	Yes	

FEEDS & SPEED recommendations are starting operating parameters. They are guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause reductions in feeds and speed or dramatic increases. Additionally, DOC and WOC may need to be revised to optimize the tool's performance.



Ingersoll Cutting Tools for the Americas

Marketing & Technology Center

845 S. Lyford Road
Rockford, IL 61108-2749 U.S.A.
Tel: 815.387.6600
Fax: 815.387.6968
Email: info@ingersoll-imc.com
Internet: www.ingersoll-imc.com

Ingersoll Cutting Tools de México S.A. de C.V.

Carr. Saltillo Monterrey Km. 5.5, Local 2 y 3
Saltillo, Coahuila C.P. 25200, México
Tel: (844) 432.2546, (844) 432.2547
Fax: (844) 432.2544

Ingersoll Cutting Tools for Europe

Marketing & Technology Center

Ingersoll Werkzeuge GmbH
Kalteiche-Ring 21-25
35708 Haiger, Germany
Tel: 02773.742 0
Fax: 02773.742 812/814
Email: info@ingersoll-imc.de
Internet: www.ingersoll-imc.de

Ingersoll France s.a.r.l.

21, rue Galilée
F-77420 CHAMPS-sur-MARNE
Telefon: +33 (0)1 64 68 45 36
Telefax: +33 (0)1 64 68 45 24
e-mail: info@ingersoll-imc.fr

Ingersoll Italien

Via Monte Grappa, 78
20020 Arese (Milano)
Telefon: +39 02 99 76 67 00
Telefax: +39 02 99 76 67 10
e-mail: crespi@taegutec.it