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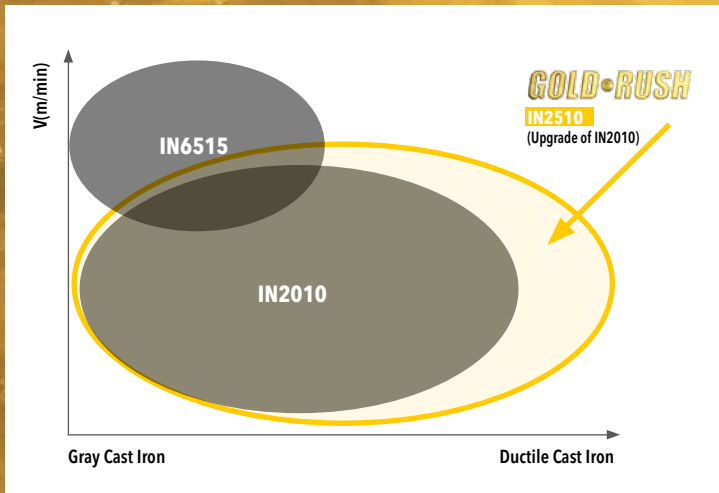


# GOLD•RUSH Grades

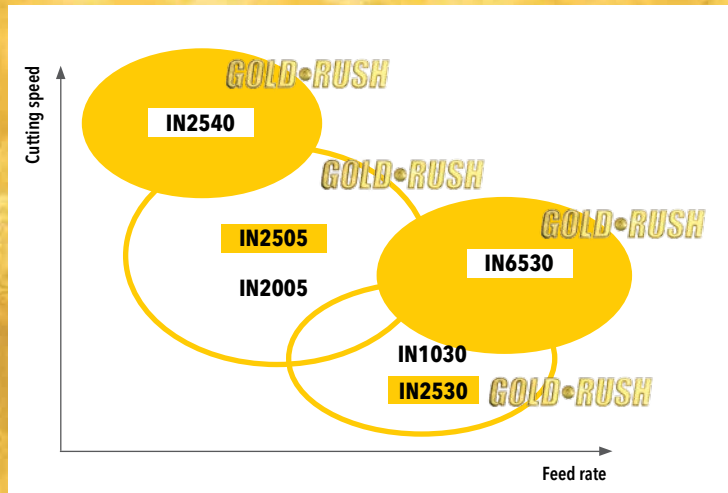
The ingenious solution that takes cutting tool materials to another level

- Stable and extended tool life in continuous and interrupted cutting operations
- Reduced cutting friction and minimized built-up edge on exotic materials
- High surface finish on the workpiece
- Improved adhesion and insert chipping resistance

## CAST IRON



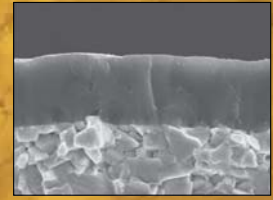
## STEEL



### IN2510 (PVD)

- Grade with high wear resistance for general cast iron machining (Gray and Ductile cast iron milling)
- Extended tool life for medium and low speed machining
- Dedicated substrate for cast iron plus PVD coated grade with surface treatment after coating

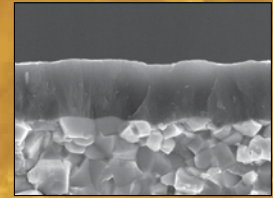
K05-K20 N05-N20 H05-H20



### IN2540 (PVD)

- Excellent for alloy steels, mold steels and normal steels
- Has high wear, thermal crack resistance and high mechanical shock resistance
- Recommended for dry milling
- For medium to rough machining in Die & Mold application
- New yellow colored PVD coated grade with surface treatment after coating

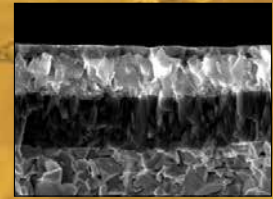
P10-P40



### IN6530 (CVD)

- Grade for roughing of steels, alloy and stainless steels
- Excellent toughness with optimum wear resistance
- CVD coated grade with surface treatment after coating

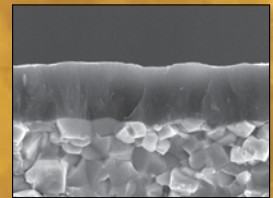
M30-M45 P20-P45



### IN2505 (PVD)

- Excellent for low carbon, low alloy steels, alloy steels, mold steels and stainless steels
- Has high wear resistance and optimum toughness
- For medium to finish machining in Mold & Die
- Sub-micron substrate
- New yellow colored PVD coated grade with surface treatment after coating

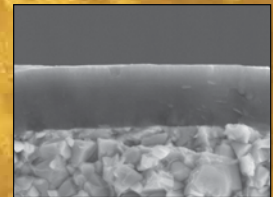
M10-M30 P15-P35 S15-S25



### IN2530 (PVD)

- Grade for steel and stainless steel applications
- Good for medium to low speed application
- PVD coated grade with surface treatment after coating

M25-M40 P30-P45 S15-S30





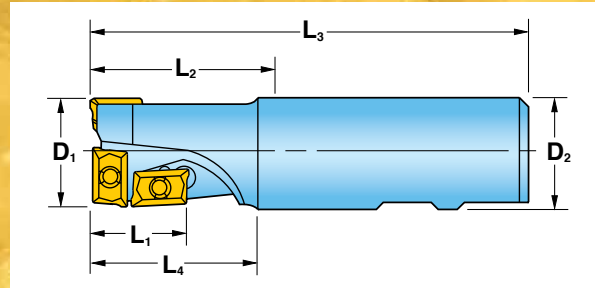
## CENTER CUTTING ENDMILLS

- Upgraded performance with AOMT1805 and AOMT1204 series inserts.
- Cutter diameters from 1.00" thru 1.50" with through the tool coolant.
- Drill, ramp and pocket in one tool.
- Ramping up to 30° angles (without peck or dwell).
- Large variety of corner radii.



### HIPOST+ SERIES 12S1X, 12S1E

#### CENTER CUTTING ENDMILL



D1 Nom. Diameter	Cutter Number	L1 Max DOC	L2 Extension Length	L3 Overall Length	L4 Projection Length	D2 Shank Size/Style	No. of Effective Flutes	No. of Total Flutes	No. of Inserts Center	No. of Inserts Side	Insert Size
1.000	12S1X-1001780R01	0.87	1.75	4.00	1.60	1.000" W	1	2	1	2	1204
1.250	12S1X-1202781R01	0.93	2.75	5.00	2.60	1.250" W	1	2	1	2	1204
1.500	12S1E-1502781R01	1.26	2.75	5.00	2.75	1.250" W	1	2	1	2	1805

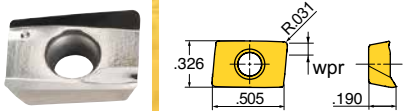
\*Overall Length is measured to the sharp corner of the insert.  
 † Use side inserts with corner radii no larger than .031"R.

Operating Guidelines on page 90.

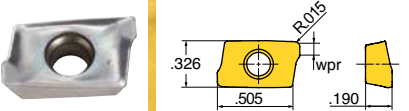


## Hi-POST™ 12MM INSERTS

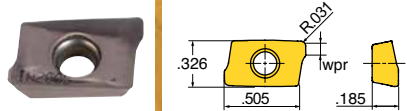
AOCT120408FR-P



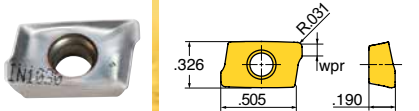
AOMT120404R



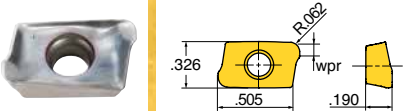
AOMT120408FR



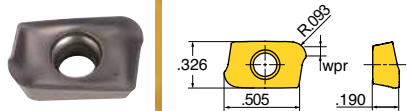
AOMT120408R



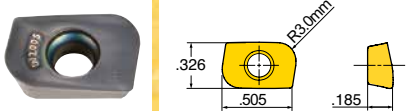
AOMT120416R



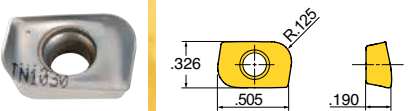
AOMT120424R



AOMT120430FR

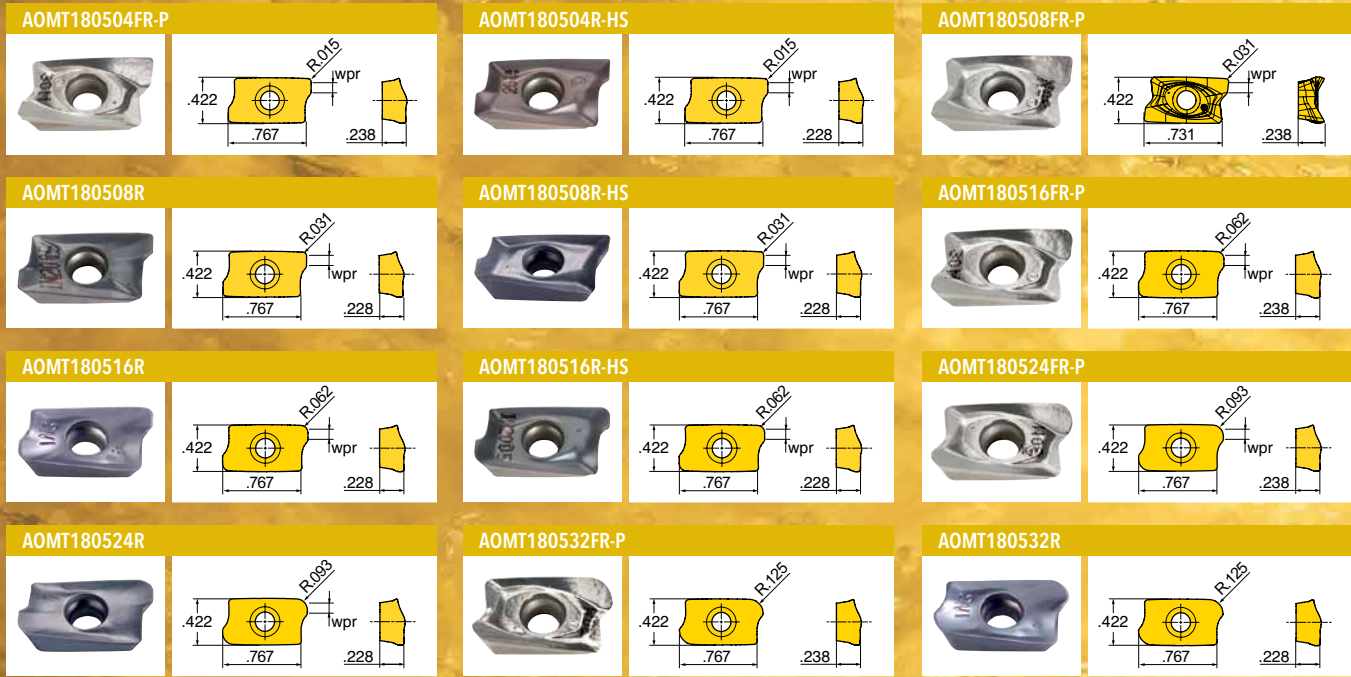


AOMT120432R



Part Number	Corner	Application	Grade									
				IN1030	IN10K	IN2005	IN2040	IN2505	IN2510	IN2530	IN2540	
AOMT120404R	0.015 R	Multi-Purpose		•		•						
AOMT120408R	0.031 R	Multi-Purpose		•		•		•	•	•	•	•
AOMT120416R	0.062 R	Multi-Purpose		•		•			•	•	•	•
AOMT120424R	0.093 R	Multi-Purpose				•						
AOMT120432R	0.125 R	Multi-Purpose		•		•	•					
AOMT120408FR	0.031 R	Hi-Temp/Ti				•					•	
AOMT120430FR	3.00 mm R	Multi-Purpose				•						
AOCT120408FR-P	0.031 R	Grd/Pol for Al				•						

# HI<sup>o</sup>POST<sup>+</sup> 18MM INSERTS



Part Number	Corner	Application	Grate	IN05S	IN1030	IN2005	IN2015	IN2030	IN2040	IN30M
AOMT180508R	0.031 R	Multi-Purpose		•	•	•	•	•		
AOMT180516R	0.062 R	Multi-Purpose		•	•	•	•	•		
AOMT180524R	0.093 R	Multi-Purpose		•	•				•	
AOMT180532R	0.125 R	Multi-Purpose		•	•	•	•	•		
AOMT180504FR-P	0.015 R	Grd/Pol for Al	•							
AOMT180504R-HS	0.015 R	Hi-Temp/Ti						•		
AOMT180508FR-P	0.031 R	Grd/Pol for Al								•
AOMT180508R-HS	0.031 R	Hi-Temp/Ti				•		•		•
AOMT180516FR-P	0.062 R	Grd/Pol for Al								•
AOMT180516R-HS	0.062 R	Hi-Temp/Ti				•				
AOMT180524FR-P	0.093 R	Grd/Pol for Al								•
AOMT180532FR-P	0.125 R	Grd/Pol for Al								•

**HIPOST<sup>™</sup> HARDWARE**

12MM



Screw

SM35-076-10



Driver

DS-T10T

18MM



Screw

SM40-093-20



Driver

DS-T15T

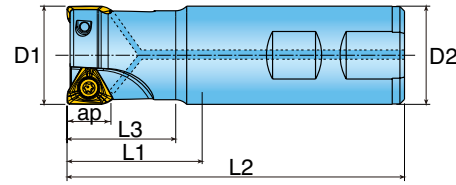


- Diameter Range From .625" to 6.00"
- Hi Positive Design with 3 Cutting Edges for Performance and Economy
- Ramping Capability for Cutting Versatility
- Three Insert Sizes for Complete Diameter Coverage
- Full Range of Insert Radii with Ingersoll Premium Grades

## MILLING SOLUTIONS RAISED TO A TRIPLE GOLD PERFORMANCE STANDARD

### HIPOSOTRIO™ SERIES 1KJ1\_

#### 0 DEGREE LEAD ENDMILL



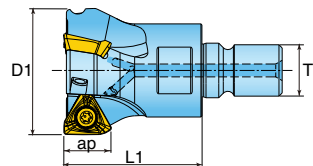
Cutter Number	D1 Effective Diameter	Number of Inserts	L1 Extension Length	L2 Overall Length	L3 Projection Length	D2 Shank Size/Style	Ramp Angle Using .031" R Insert	Insert Series	ap Cut Depth
1KJ1D-0601279R01	0.625	1	1.25	3.25	1.22	.625 W	4	TH_S06	.275
1KJ1D-0702084R01	0.725	2	2.00	4.00	1.80	.750 W	3.1	TH_S06	.275
1KJ1D-0701184R01	0.750	2	1.25	3.25	1.05	.750 W	3.1	TH_S06	.275
1KJ1D-0701784R01	0.750	2	1.75	3.75	1.55	.750 W	3.1	TH_S06	.275
1KJ1D-0703084R01	0.750	2	3.00	5.00	2.80	.750 W	3.1	TH_S06	.275
1KJ1D-0801784R01	0.875	2	1.75	3.75	1.75	.750 W	2.5	TH_S06	.275
1KJ1D-1001784R01	1.000	3	1.75	3.75	1.75	.750 W	2.15	TH_S06	.275
1KJ1D-1001780R01	1.000	3	1.75	4.00	1.55	1.00 W	2.15	TH_S06	.275
1KJ1D-1003780R01	1.000	3	3.75	6.00	3.375	1.00 W	N/A	TH_S06	.275
1KJ1D-1003784R01	1.000	3	3.75	6.00	3.55	.75 W	N/A	TH_S06	.275
1KJ1D-1201784R01	1.250	4	1.75	3.75	1.75	.750 W	1.5	TH_S06	.275
1KJ1D-1201780R01	1.250	5	1.75	4.00	1.75	1.00 W	1.5	TH_S06	.275
1KJ1D-1501784R01	1.500	5	1.75	3.75	1.75	.750 W	1.3	TH_S06	.275
1KJ1D-1501780R01	1.500	6	1.75	4.00	1.75	1.00 W	1.3	TH_S06	.275
1KJ1D-1502281R01	1.500	6	2.25	4.50	2.25	1.25 W	1.3	TH_S06	.275
1KJ1G-1201784R01	1.250	3	1.75	3.75	1.75	.750 W	2.3	TH_S10	.433
1KJ1G-1202281R01	1.250	2	2.25	4.50	2.05	1.25 W	2.3	TH_S10	.433
1KJ1G-1202281R02	1.250	3	2.25	4.50	2.05	1.25 W	2.3	TH_S10	.433
1KJ1G-1204281R01	1.250	3	4.25	6.50	4.05	1.25 W	N/A	TH_S10	.433
1KJ1G-1502281R01	1.500	3	2.25	4.50	2.20	1.25 W	1.8	TH_S10	.433
1KJ1G-1502281R02	1.500	4	2.25	4.50	2.20	1.25 W	1.8	TH_S10	.433
1KJ1G-1504281R01	1.500	3	4.25	6.50	4.25	1.25W	N/A	TH_S10	.433
1KJ1G-2002281R01	2.000	5	2.25	4.50	2.25	1.25 W	1.5	TH_S10	.433
1KJ1P-2002281R01	2.000	4	2.25	4.50	2.25	1.25 W	1.5	TH_S13	.590

Operating Guidelines on page 91-92.



**HIPOSOTRIO™** SERIES 1KJ1\_ (TOP-ON STYLE)

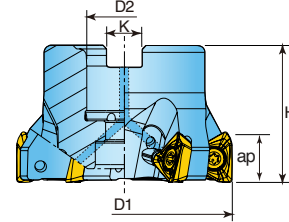
**0 DEGREE LEAD ENDMILL**



Cutter Number	D1 Nominal Diameter	Number of Inserts	L1 Extension Length	T1 Adaption	Wrench Size	Ramp Angle Using .031" R Insert	Insert Series	ap Cut Depth
1KJ1D-07015X6R01	0.750	2	1.50	M10	15mm	3.1	TH_S06	.275
1KJ1D-10015X7R01	1.000	2	1.50	M12	17mm	2.1	TH_S06	.275
1KJ1D-10015X7R02	1.000	3	1.50	M12	17mm	2.1	TH_S06	.275
1KJ1D-12017X8R01	1.250	3	1.75	M16	22mm	2.1	TH_S06	.275
1KJ1D-12017X8R02	1.250	5	1.75	M16	22mm	1.5	TH_S06	.275
1KJ1D-15017X8R01	1.500	5	1.75	M16	22mm	1.3	TH_S06	.275
*1KV1D-10015X7R01	1.000	3	1.50	M12	17mm	NA	TH_S06	.275
*1KV1D-12017X8R01	1.250	5	1.75	M16	22mm	NA	TH_S06	.275
1KJ1G-12017X8R01	1.250	3	1.50	M16	22mm	2.3	TH_S10	.433
1KJ1G-15017X8R01	1.500	4	1.75	M16	22mm	1.8	TH_S10	.433

\* 3° Dovetail Endmill  
Operating Guidelines on page 91-92.

## 0 DEGREE LEAD FACEMILL




Cutter Number	D1 Effective Diameter	Number of Inserts	H Height	D2 Bore Diameter	Retention Bolt	Optional Coolant Bolt	K Keyway	Coolant	Ramp Angle Using .031" R Insert	Insert Series	ap Cut Depth
KJ5D-15R01	1.500	6	1.57	0.50	SD-04-85	-	0.25	Y	1	TH_S06	.275
KJ5D-20R01	2.000	7	1.57	0.75	SD-06-46	SD-06-89	0.31	Y	1	TH_S06	.275
KJ6D-30R01	3.000	9	1.75	1.00	SD-08-46	SD-08-92	0.38	Y	0.4	TH_S06	.275
KJ5G-20R01	2.000	5	1.57	0.75	SD-06-46	SD-06-89	0.31	Y	1.5	TH_S10	.433
KJ5G-25R01	2.500	6	1.57	0.75	SD-06-46	SD-06-89	0.31	Y	1.1	TH_S10	.433
KJ6G-30R01	3.000	5	1.75	1.00	SD-08-46	SD-08-92	0.38	Y	0.8	TH_S10	.433
KJ5G-30R01	3.000	8	1.75	1.00	SD-08-46	SD-08-92	0.38	Y	0.8	TH_S10	.433
KJ6G-40R01	4.000	8	1.75	1.50	-	-	0.62	N	0.6	TH_S10	.433
KJ5G-40R01	4.000	10	1.75	1.50	-	-	0.62	N	0.6	TH_S10	.433
KJ6G-50R01	5.000	11	2.00	1.50	-	-	0.62	N	0.5	TH_S10	.433
KJ6P-30R01	3.000	6	1.75	1.00	SD-08-46	SD-08-92	0.38	Y	1.3	TH_S13	.590
KJ6P-40R01	4.000	6	1.75	1.50	-	-	0.62	N	1	TH_S13	.590
KJ5P-40R01	4.000	8	1.75	1.50	-	-	0.62	N	1	TH_S13	.590
KJ6P-50R01	5.000	9	2.00	1.50	-	-	0.62	N	0.8	TH_S13	.590
KJ6P-60R01	6.000	8	2.00	1.50	-	-	0.62	N	0.6	TH_S13	.590
KJ5P-60R01	6.000	12	2.00	1.50	-	-	0.62	N	0.6	TH_S13	.590

Operating Guidelines on page 91-92.

# HIPOSOTRIO™ INSERTS

TH_S		TH_S_FR				TH_S_FR-P					
											
Part Number	Application	R Corner	a Wiper	t Thick.	ap Cut Depth	Grade	IN10K	IN2505	IN2510	IN2530	IN2540
THLS060404R	Multi-Purpose	.015"R	.051	.157	.275			•			
THLS060408R	Multi-Purpose	.031"R	.035	.157	.275		•		•	•	•
THLS060416R	Multi-Purpose	.062"R	.022	.157	.275		•				
THLS060408FR	Hi-Temp	.031"R	.035	.157	.275		•			•	
THES060408R	Multi-Purpose, Ground Periphery	.031"R	.035	.157	.275		•				
THES060404FR-P	Ground/Polished for Aluminum	.015"R	.051	.157	.275		•				
THES060408FR-P	Ground/Polished for Aluminum	.031"R	.035	.157	.275		•				
THLS100508R	Multi-Purpose	.031"R	.063	.197	.433			•	•	•	•
THLS100516R	Multi-Purpose	.062"R	.032	.197	.433			•			
THLS100524R	Multi-Purpose	.093"R	.020	.197	.433			•			
THLS100508FR	Hi-Temp	.031"R	.063	.197	.433		•			•	
THES100508R	Multi-Purpose, Ground Periphery	.031"R	.063	.197	.433		•				
THES100516R	Multi-Purpose, Ground Periphery	.062"R	.031	.197	.433		•				
THES100508FR-P	Ground/Polished for Aluminum	.031"R	.063	.197	.433		•				
THLS130608R	Multi-Purpose	.031"R	.078	.236	.590			•	•	•	•
THLS130608FR	Hi-Temp	.031"R	.078	.236	.590		•			•	
THLS130616R	Multi-Purpose	.062"R	.047	.236	.590		•			•	
THLS130624R	Multi-Purpose	.093"R	.024	.236	.590		•				
THLS130632R	Multi-Purpose	.125"R	.020	.236	.590		•				
THES130608FR-P	Ground/Polished for Aluminum	.031"R	.078	.236	.590		•				

# HIPOSOTRIO™ HARDWARE

		
	Insert Screw	Driver
KJ_D	SM25-065-R0	DS-T08W
KJ_G	SM40-100-R0	DS-T15T
KJ_P	SM45-120-R0	DS-T20T

# DIPOS HEXA™

6D 90

## DOUBLE SIDED POSITIVE INSERT WITH 6 CUTTING EDGES

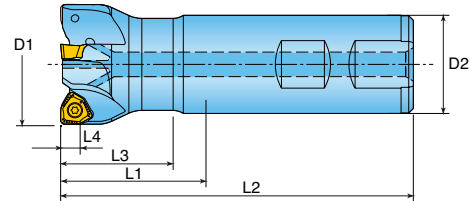
- Diameter Range From 1.00" to 6.00"
- Helical Cutting Edge for 90 Degree Cutting
- Dovetail Insert Pocket Design Provides Increased Security and Insert Clamping
- Internal Coolant Supply
- Double Sided 6 Corner Insert



### DIPOS HEXA™ SERIES 1DJ1F, 1DJ1P

6D 90

0 DEGREE LEAD ENDMILL WITH 6 INDEXES



Cutter Number	D1 Effective Diameter	L4 Length of Cut	L3 Projection Length	L1 Extension Length	L2 Overall Length	D2 Shank Size/Style	Number of Inserts	Insert Series
1DJ1F-1001584R01	1.000	.24	1.50	1.50	3.50	.750 W	2	WNGU09
1DJ1F-1001780R01	1.000	.24	1.55	1.75	4.00	1.00 W	2	WNGU09
1DJ1F-1003780R01	1.000	.24	3.55	3.75	6.00	1.00 W	2	WNGU09
1DJ1F-1201584R01	1.250	.24	1.50	1.50	3.50	.750 W	3	WNGU09
1DJ1F-1202281R01	1.250	.24	2.22	2.25	4.50	1.25 W	3	WNGU09
1DJ1F-1204281R01	1.250	.24	4.22	4.25	6.50	1.25 W	3	WNGU09
1DJ1F-1502281R01	1.500	.24	2.25	2.25	4.50	1.25 W	4	WNGU09

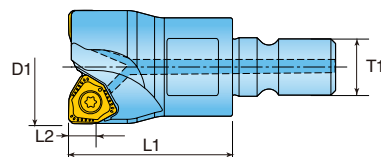
Cutter Number	D1 Effective Diameter	L4 Length of Cut	L3 Projection Length	L1 Extension Length	L2 Overall Length	D2 Shank Size/Style	Number of Inserts	Insert Series
1DJ1P-1202281R01	1.250	.36	2.22	2.25	4.50	1.25 W	2	WNGU13
1DJ1P-1204281R01	1.250	.36	4.22	4.25	6.50	1.25 W	2	WNGU13
1DJ1P-1502281R01	1.500	.36	2.22	2.25	4.50	1.25 W	3	WNGU13
1DJ1P-1504281R01	1.500	.36	4.22	4.25	6.50	1.25 W	3	WNGU13
1DJ1P-2002281R01	2.000	.36	2.22	2.25	4.50	1.25 W	5	WNGU13

Operating Guidelines on page 92.



**DIPOS HEXA™** SERIES 1DJ1F, 1DJ1P (TOP-ON STYLE)

0 DEGREE LEAD ENDMILL WITH 6 INDEXES



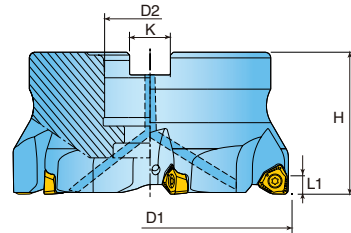
Cutter Number	D1 Effective Diameter	T1 Adaption	L1 Extension Length	L2 Length of Cut	Wrench Size	Number of Inserts	Insert Series
1DJ1F-10015X7R01	1.000	M12	1.50	.24	17mm	2	WNGU09
1DJ1F-12017X8R01	1.250	M16	1.75	.24	22mm	3	WNGU09
1DJ1F-15017X8R01	1.500	M16	1.75	.24	22mm	4	WNGU09

Cutter Number	D1 Effective Diameter	T1 Adaption	L1 Extension Length	L2 Length of Cut	Wrench Size	Number of Inserts	Insert Series
1DJ1P-12017X8R01	1.250	M16	1.75	.36	22mm	2	WNGU13
1DJ1P-15017X8R01	1.500	M16	1.75	.36	22mm	3	WNGU13
1DJ1P-15017X8R02	1.500	M16	1.75	.36	22mm	4	WNGU13

Operating Guidelines on page 92.

# DIPOS<sup>®</sup>HEXA<sup>™</sup> SERIES DJ\_F, DJ\_P

## 0 DEGREE LEAD FACEMILL WITH 6 INDEXES



Cutter Number	D1 Effective Diameter	Number of Inserts	H Height	L1 Length of Cut	D2 Bore Diameter	K Keyway	Retention Bolt	Optional Coolant Bolt	Insert Series
DJ5F-20R01	2.000	5	1.570	.24	0.750	0.312	SD-06-46	SD-06-89	WNGU09
DJ5F-20R02	2.000	6	1.570	.24	0.750	0.312	SD-06-46	SD-06-89	WNGU09
DJ5F-25R01	2.500	6	1.570	.24	0.750	0.312	SD-06-46	SD-06-89	WNGU09
DJ5F-30R01	3.000	7	1.750	.24	1.000	0.375	SD-08-46	SD-08-92	WNGU09
DJ5F-30R02	3.000	9	1.750	.24	1.000	0.375	SD-08-46	SD-08-92	WNGU09
DJ5F-40R01	4.000	11	2.375	.24	1.500	0.625	SD-12-82	SD-12-99	WNGU09
DJ6F-40R01	4.000	8	2.375	.24	1.500	0.625	SD-12-82	SD-12-99	WNGU09

Cutter Number	D1 Effective Diameter	Number of Inserts	H Height	L1 Length of Cut	D2 Bore Diameter	K Keyway	Retention Bolt	Optional Coolant Bolt	Insert Series
DJ5P-20R01	2.000	5	1.570	.36	0.750	0.312	SD-06-46	SD-06-89	WNGU13
DJ6P-20R01	2.000	4	1.570	.36	0.750	0.312	SD-06-46	SD-06-89	WNGU13
DJ5P-25R01	2.500	6	1.570	.36	0.750	0.312	SD-06-46	SD-06-89	WNGU13
DJ5P-30R01	3.000	7	1.750	.36	1.000	0.375	SD-08-46	SD-08-92	WNGU13
DJ5P-30R02	3.000	9	1.750	.36	1.000	0.375	SD-08-46	SD-08-92	WNGU13
DJ5P-40R01	4.000	8	2.375	.36	1.500	0.625	SD-12-82	SD-12-99	WNGU13
DJ5P-40R02	4.000	11	2.375	.36	1.500	0.625	SD-12-82	SD-12-99	WNGU13
DJ6P-60R01*	6.000	12	2.000	.36	1.500	0.625	-	-	WNGU13

\* No Coolant Through  
Operating Guidelines on page 92.

# DIPOS<sup>®</sup>HEXA<sup>™</sup> HARDWARE



Insert Screw

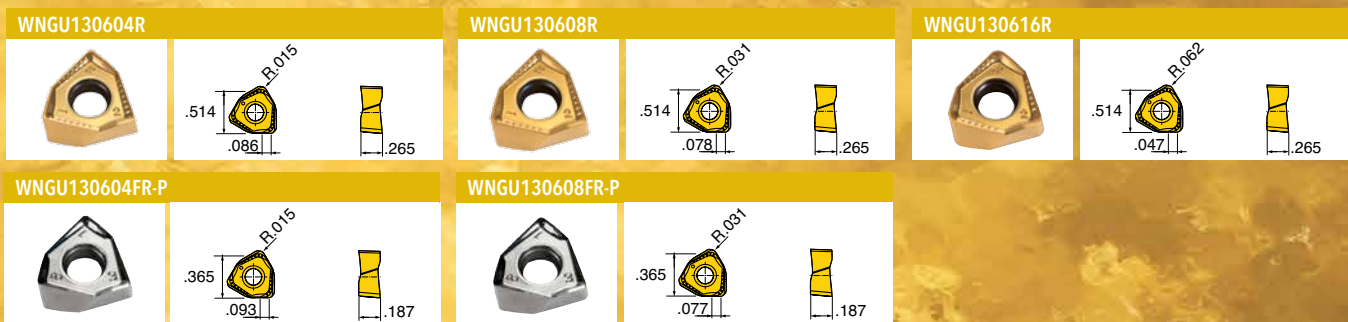
Driver

WNGU09	SM30-085-10	DS-T09W
WNGU13	SM40-100-R0	DS-T15T

# DIPOSOHEXA™ INSERTS



Part Number	Application	Grade	IN2505	IN2510	IN2530	IN2540	IN10K
WNGU090404R	Multi-Purpose - .015" R		●				
WNGU090405R	Multi-Purpose - .020" R (.5mm R)		●				
WNGU090408R	Multi-Purpose - .031" R		●	●	●	●	
WNGU090410R	Multi-Purpose - .039" R (1.0mm R)		●				
WNGU090416R	Multi-Purpose - .062" R		●	●	●		
WNGU090404FR-P	Grd/Pol for Aluminum - .015" R						●
WNGU090408FR-P	Grd/Pol for Aluminum - .031" R						●



Part Number	Application	Grade	IN2505	IN2510	IN2530	IN2540	IN10K
WNGU130604R	Multi-Purpose - .015" R		●				
WNGU130608R	Multi-Purpose - .031" R		●	●	●	●	
WNGU130616R	Multi-Purpose - .062" R		●	●	●	●	
WNGU130604FR-P	Grd/Pol for Aluminum - .015" R						●
WNGU130608FR-P	Grd/Pol for Aluminum - .031" R						●



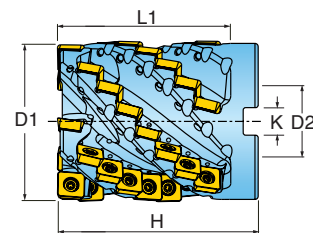
## LONG EDGE CUTTERS

- Extreme efficiency with most positive geometry in the market.
- Inserts offered with keen hi-temp and durable flat face geometries.
- Internal coolant supply.
- Well suited for Stainless Steel and Hi Temp Alloys.



### HIQUAD™ SERIES 25J3P

#### 0 DEGREE LEAD EXT. FLUTE SHELL MILL

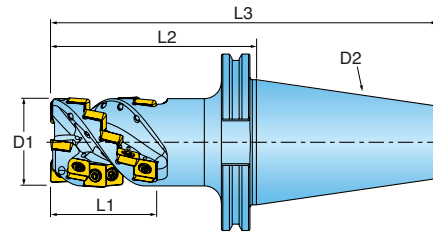
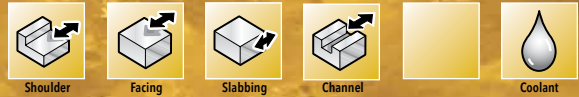


Cutter Number	D1 Effective Diameter	L1 Length of Cut	H Height	D2 Bore Diameter	K Keyway	# of Effective Inserts	# of Total Inserts	Retention Bolt
25J3P-20030D1R00	2.000	2.0	3.00	0.750	0.31	4	20	SD-06-79
25J3P-20030D1R01	2.000	2.0	3.00	0.750	0.31	3	15	SD-06-79
25J3P-30037D4R00	3.000	3.0	3.75	1.250	0.50	5	40	SD-10-54
25J3P-30050D4R10	3.000	4.0	5.00	1.250	0.50	5	55	SD-10-04
25J3P-40050D5R00	4.000	4.0	5.00	1.500	0.62	5	55	SD-12-79

Operating Guidelines on page 93.

# HIQUAD™ SERIES 25J3P

## 0 DEGREE LEAD EXT. FLUTE END MILL

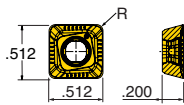


Cutter Number	D1 Effective Diameter	L1 Length of Cut	L2 Ext Length	L3 Overall Length	D2 Adaption	# of Effective Inserts	# of Total Inserts
25J3P-20045D1R00	2.000	2.3	4.50	8.50	ICT #50 V-Flange	3	18
25J3P-20062D1R00	2.000	4.0	6.25	10.25	ICT #50 V-Flange	4	44

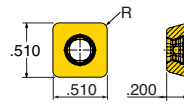
Operating Guidelines on page 93.

# HIQUAD™ INSERTS

### SDMS



### SDES



Part Number	Application	R Corner	Indexes	Grade	IN4005	IN4030	IN4035	IN4015
<b>End Station Options</b>								
SDMS130512R-PP	Hi-Temp	R.047	4			X		
SDMS130516R-PP	Hi-Temp	R.062	4		X	X	X	X
SDES130508N-PF	Multi-Purpose Flat Top	R.031	4		X	X	X	X
SDES130516N-PF	Multi-Purpose Flat Top	R.062	4		X	X	X	X
SDES130524N-PF	Multi-Purpose Flat Top	R.093	4		X	X		
SDES130532N-PF	Multi-Purpose Flat Top	R.125	4		X	X		
SDES130564N-PF*	Multi-Purpose Flat Top	R.250	2		X	X		

\*Cutter body to be relieved to accommodate large radius.

### Side Station Options

SDMS130516R-PP	Hi-Temp	R.062	4		X	X	X	X
SDES130516N-PF	Multi-Purpose Flat Top	R.062	4		X	X	X	X

# HIQUAD™ HARDWARE



Insert Screw

SM40-100-R0



Driver Handle

DS-A00T



Insert Driver Blade

DS-T156B



Optional Torque Wrench

DT-35-02



Optional Insert Driver Blade

DS-T15B1

# ISOPLUS

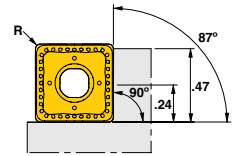
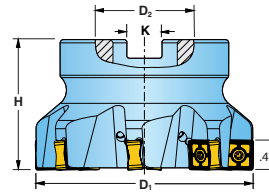
## 90° QUAD EXPANSION

- 8 Positive cutting edges with 90 degree shoulder
- .47" Max depth of cut
- .24" Depth of cut along 90 degree shoulder
- Medium and High Density cutter offerings
- 2.00-8.00 diameter range
- Cutters equipped with coolant through



## ISOPLUS SERIES DJ6T, DJ5T

### 0 DEGREE LEAD FACEMILL WITH 8 INDEXES

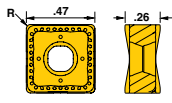


Cutter Number	Nominal Diameter	D1 Overall Diameter	D2 Bore Size	K Keyway	H Height	Number of Inserts	Coolant	Bolt Circle	SHCS	SHCS w/ Coolant Thru*
<b>Medium Density</b>										
DJ6T-20R01	2.000	2.025	0.75	0.31	1.570	5	Yes	-	SD-06-46	SD-06-89
DJ6T-25R01	2.500	2.523	0.75	0.31	1.570	6	Yes	-	SD-06-46	SD-06-89
DJ6T-30R01	3.000	3.021	1.00	0.37	1.750	7	Yes	-	SD-08-46	SD-08-92
DJ6T-40R01	4.000	4.020	1.50	0.62	2.375	8	Yes	-	SD-12-82	SD-12-99
DJ6T-50R01	5.000	5.018	1.50	0.62	2.375	10	Yes	-	SD-12-82	SD-12-99
DJ6T-60R01	6.000	6.018	1.50	0.62	2.375	12	No	-	-	-
DJ6T-80R01	8.000	8.016	2.50	1.00	2.375	14	No	4.00	-	-
<b>High Density</b>										
DJ5T-30R01	3.000	3.021	1.00	0.37	1.750	8	Yes	-	SD-08-46	SD-06-89
DJ5T-40R01	4.000	4.020	1.50	0.62	2.375	10	Yes	-	SD-12-82	SD-12-99
DJ5T-50R01	5.000	5.018	1.50	0.62	2.375	13	Yes	-	SD-12-82	SD-12-99
DJ5T-60R01	6.000	6.018	1.50	0.62	2.375	17	No	-	-	-
DJ5T-80R01	8.000	8.016	2.50	1.00	2.375	21	No	4.00	-	-

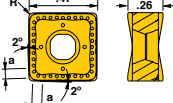
Operating Guidelines on page 94.

# ISO<sup>+</sup>PLUS INSERTS

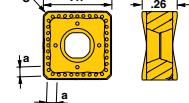
SNGU...N (Only corner)



SNGU...TN (Wiper w/R)



SNGU...ANTN (Wiper w/chamfer)



Part Number	Application	R Corner	a Wiper	Grade	IN2510	IN2530	IN2505	IN2540	IN6515	IN71N
SNGU130604N	Positive Geometry	.015R	-		•		•			
SNGU130608N	Positive Geometry	.031R	-							•
SNGU130608TN	Positive Geometry	.031R w/wiper	.047		•	•	•	•	•	
SNGU130616N	Positive Geometry	.062R	-			•	•	•	•	
SNGU1306ANTN	Positive Geometry	45 x .031 w/wiper	.047		•		•	•	•	

# ISO<sup>+</sup>PLUS HARDWARE



Insert Screw

SM40-100-R0



Driver

DS-T15T



Optional Torque Wrench

DT-35-02



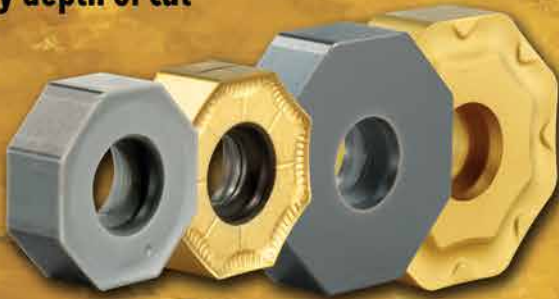
Bit for Torque Driver

DS-T15B1

# OCTOPLUS™

## ECONOMY WITH 16 EDGES

- 16 Cutting Edges for all materials
- Anti-Notch geometry diffuses insert notching and part breakout in iron
- SiNi addresses High RPM applications in iron
- Durable Flat Top battles castings at any depth of cut



## OCTOPLUS™ SERIES ON5H ON6H

45 DEGREE LEAD FACE MILL (SCREW HELD - 5MM INSERT) WITH 16 INDEXES



Lead Angle



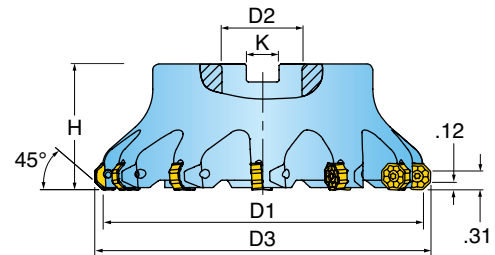
Chamfer



Facing



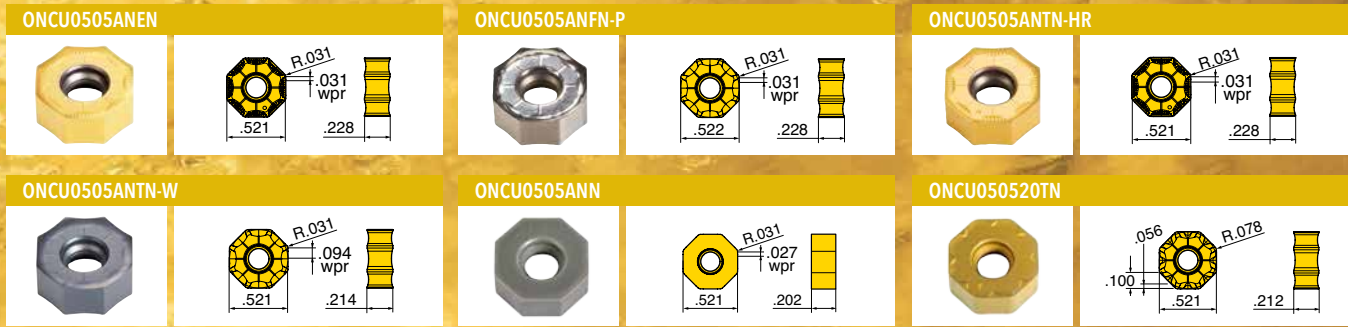
Coolant



Cutter Number	D1 Effective Diameter	D3 Overall Diameter	Number of Inserts	H Height	D2 Bore Dia.	K Keyway	Coolant
ON6H-15R01	1.500	1.83	4	1.570	0.500	0.250	Yes
ON5H-20R01	2.000	2.33	6	1.570	0.750	0.312	Yes
ON6H-20R01	2.000	2.33	4	1.570	0.750	0.312	Yes
ON6H-25R01	2.500	2.83	6	1.570	0.750	0.312	Yes
ON5H-30R01	3.000	3.33	10	1.750	1.000	0.375	Yes
ON6H-30R01	3.000	3.33	7	1.750	1.000	0.375	Yes
ON5H-40R01	4.000	4.33	12	2.375	1.500	0.625	Yes
ON6H-40R01	4.000	4.33	8	2.375	1.500	0.625	Yes
ON6H-50R01	5.000	5.33	10	2.375	1.500	0.625	Yes
ON5H-60R01	6.000	6.33	18	2.375	1.500	0.625	No
ON6H-60R01	6.000	6.33	12	2.375	1.500	0.625	No





Operating Guidelines on page 94.

# OCTOPLUS™ 05 SERIES INSERTS

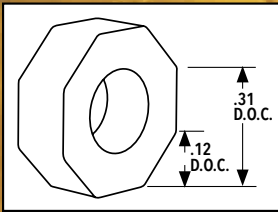


Part Number	Applications	Grade	IN10K	IN2010	IN2030	IN2035	IN2505	IN6515	IN70N	IN6510
ONCU0505ANN	SiNi for Iron								•	
ONCU050520TN	Anti-Notch						•	•		•
ONCU0505ANEN	Medium, pos. rake angle			•		•	•	•		
ONCU0505ANFN-P	Grd/Pol for Al		•							
ONCU0505ANTN-W	Wiper						•			
ONCU0505ANTN-HR	Positive Geometry			•	•		•			

# OCTOPLUS™ HARDWARE

				
	Screw	Driver	Retention Bolt	(Optional) Coolant Bolt
ON6H-15R01	SM40-100-10	DS-T15T	SD-04-86	-
ON5H-20R01	SM40-100-10	DS-T15T	SD-06-46	SD-06-89
ON6H-20R01	SM40-100-10	DS-T15T	SD-06-46	SD-06-89
ON6H-25R01	SM40-100-10	DS-T15T	SD-06-46	SD-06-89
ON5H-30R01	SM40-100-10	DS-T15T	SD-08-46	SD-08-92
ON6H-30R01	SM40-100-10	DS-T15T	SD-08-46	SD-08-92
ON5H-40R01	SM40-100-10	DS-T15T	SD-12-82	SD-12-99
ON6H-40R01	SM40-100-10	DS-T15T	SD-12-82	SD-12-99
ON6H-50R01	SM40-100-10	DS-T15T	SD-12-82	SD-12-99
ON5H-60R01	SM40-100-10	DS-T15T	-	-
ON6H-60R01	SM40-100-10	DS-T15T	-	-

# OCTOPLUS™ 05 SERIES INSERTS

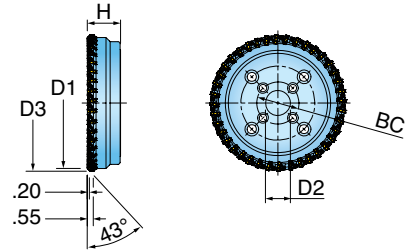


**Cutter Series: ON5H/ON6H**  
**Insert Series: ONCU05**  
**1.50-6.00 Dia. Range**  
**.12 DOC - 45 Degree Lead**

	Part Number	Hone	Corner	Description
<p>16 x .031" Int. Wiper R.031</p>	ONCU0505ANTN-HR	J	R.031	<b>MULTI-PURPOSE</b> Universal insert geometry with landed edge. Integrated wiper flat for surface finishes between RA32-63. Whether it's steel, iron or titanium, this is an excellent first choice.
<p>Indent .094 Crowned Wiper R.031</p>	ONCU0505ANTN-W	J	R.031	<b>MULTI-PURPOSE WIPER</b> Wiper Insert with 8 indexes (4RH, 4LH) and longer wiper flats. When the advance per revolution does not exceed .094", place one wiper insert in one pocket to improve your surface finish by about 20 points. The indentation on the flank marks the edges that should contact the workpiece. To be married with ONCU0505ANTN-HR.
<p>16 x .031" Int. Wiper R.031</p>	ONCU0505ANEN	A	R.031	<b>KEEN EDGE</b> This keen, high positive chip former is beneficial when machining exotics or managing breakout on the workpiece. Integrated wiper flat produces good surface finishes.
<p>16 x .031" Int. Wiper R.031</p>	ONCU0505ANFN-P	S	R.031	<b>NON-FERROUS</b> Machining of aluminum and non-ferrous metals is the target for this up sharp and polished geometry. Integrated wiper flat produces good surface finishes.
<p>16 x .027" Int. Wiper R.031</p>	<b>NEW!</b> ONCU0505ANN	J	R.031	<b>SiNi</b> This 16 edged silicon nitride insert offers the best productivity when machining iron. Integrated wiper in place for good surface finishes.
<p>Reinforced Edge R.078 .056 .100</p>	<b>NEW!</b> ONCU050520TN	A	R.078	<b>ANTI-NOTCH</b> This unique design puts a keen edge at the corner to diffuse piece part breakout in iron AND adds a reinforced edge to resist notching between .059-.100 DOC. Large corner radius adds strength for roughing applications.

# OCTOPLUS™ SERIES OP1N

45 DEGREE LEAD FACE MILL (WEDGE HELD - 9MM INSERT) WITH 16 INDEXES



Cutter Number	D1 Effective Diameter	D3 Overall Diameter	Number of Inserts	H Height	D2 Bore Dia.	K Keyway	Bolt Circle
OP1N-30R01	3.000	3.53	8	1.750	1.000	0.375	NA
OP1N-40R01	4.000	4.53	12	2.375	1.500	0.625	NA
OP1N-50R01	5.000	5.53	15	2.375	1.500	0.625	NA
OP1N-60R01	6.000	6.53	19	2.375	1.500	0.625	NA
OP1N-80L01	8.000	8.53	24	2.375	2.500	1.000	4.00
OP1N-80R01	8.000	8.53	24	2.375	2.500	1.000	4.00
OP1N-10L01	10.000	10.53	30	2.375	2.500	1.000	4.00
OP1N-10R01	10.000	10.53	30	2.375	2.500	1.000	4.00
OP1N-12L01	12.000	12.53	38	2.375	2.500	1.000	4.00, 7.00
OP1N-12R01	12.000	12.53	38	2.375	2.500	1.000	4.00, 7.00

Operating Guidelines on page 94.

# OCTOPLUS™ HARDWARE



Driver

Wedge

Retention Bolt

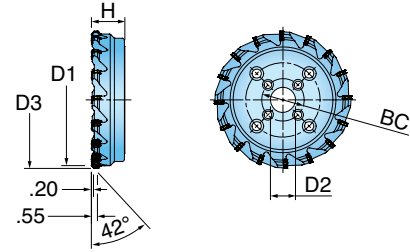
Adjusting Screw

OP1N-30R01	DS-H04T	2M0813-01	SD-08-46	SB080-03
OP1N-40R01	DS-H04T	2M0813-01	SD-12-82	SB080-03
OP1N-50R01	DS-H04T	2M0813-01	SD-12-82	SB080-03
OP1N-60R01	DS-H04T	2M0813-01	SD-12-82	SB080-03
OP1N-80L01	DS-H04T	2M0813-01	-	SB080-03
OP1N-80R01	DS-H04T	2M0813-01	-	SB080-03
OP1N-10L01	DS-H04T	2M0813-01	-	SB080-03
OP1N-10R01	DS-H04T	2M0813-01	-	SB080-03
OP1N-12L01	DS-T20T	2M0813-01	-	SB080-03
OP1N-12R01	DS-H04T	2M0813-01	-	SB080-03



# OCTOPLUS™ SERIES OP6N

45 DEGREE LEAD FACE MILL (SCREW HELD - 9MM INSERT) WITH 16 INDEXES



Cutter Number	D1 Effective Diameter	D3 Overall Diameter	Number of Inserts	H Height	D2 Bore Dia.	K Keyway	Bolt Circle	Coolant
OP6N-25R01	2.500	3.04	5	1.570	0.750	0.312	NA	Yes
OP6N-30R01	3.000	3.54	6	1.750	1.000	0.375	NA	Yes
OP6N-40R01	4.000	4.54	7	2.375	1.500	0.625	NA	Yes
OP6N-50R01	5.000	5.54	8	2.375	1.500	0.625	NA	Yes
OP6N-60R01	6.000	6.54	10	2.375	1.500	0.625	NA	No
OP6N-80R01	8.000	8.54	12	2.375	2.500	1.000	4.00	No
OP6N-10R01	10.000	10.54	14	2.375	2.500	1.000	4.00	No
OP6N-12R01	12.000	12.54	16	2.375	2.500	1.000	4.00, 7.00	No

Operating Guidelines on page 94.

# OCTOPLUS™ HARDWARE



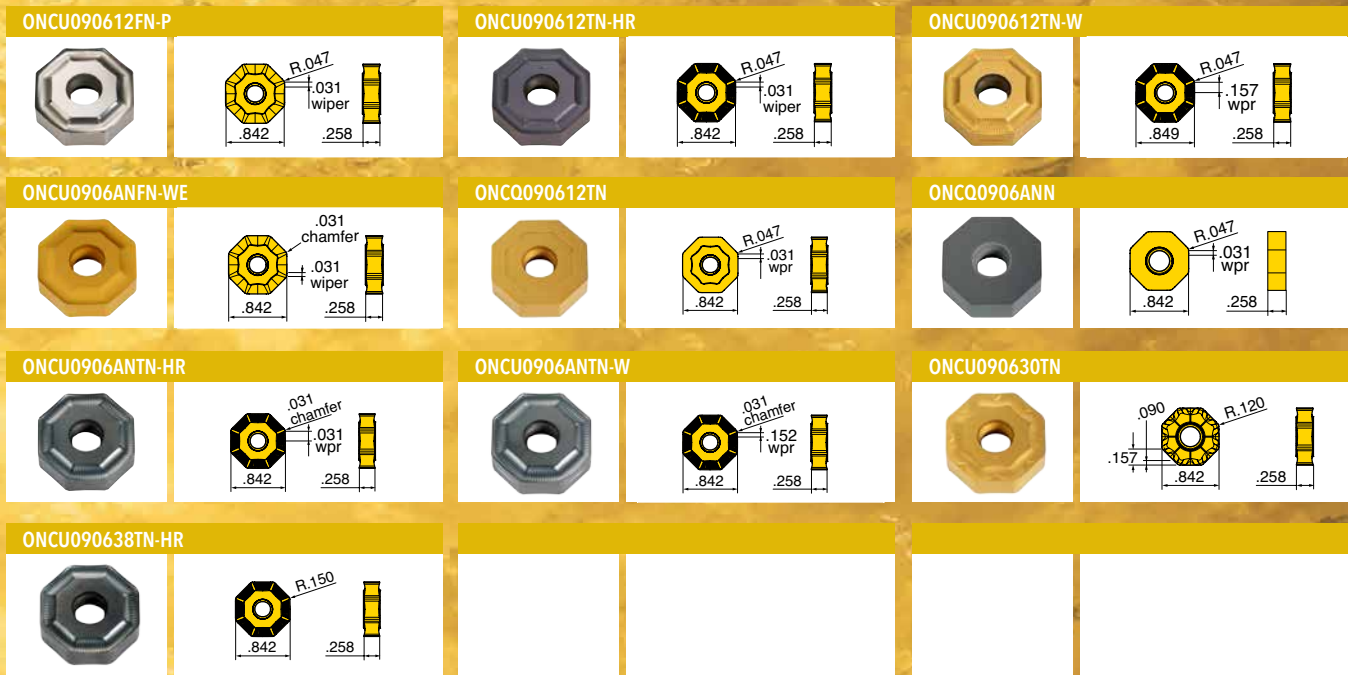
Driver

Retention Bolt

(Optional) Coolant Bolt

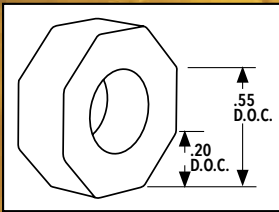
OP6N-25R01	SM50-130-R0	DS-T20T	SD-06-46	SD-06-89
OP6N-30R01	SM50-130-R0	DS-T20T	SD-08-46	SD-08-92
OP6N-40R01	SM50-130-R0	DS-T20T	SD-12-82	SD-12-99
OP6N-50R01	SM50-130-R0	DS-T20T	SD-12-82	SD-12-99
OP6N-60R01	SM50-130-R0	DS-T20T	-	-
OP6N-80R01	SM50-130-R0	DS-T20T	-	-
OP6N-10R01	SM50-130-R0	DS-T20T	-	-
OP6N-12R01	SM50-130-R0	DS-T20T	-	-

# OCTOPLUS™ 09 SERIES INSERTS



Part Number	Applications	Grade	IN10K	IN2004	IN2030	IN2035	IN2040	IN2505	IN2510	IN6510	IN6515	IN70N
ONCQ0906ANN	SiNi for Iron											X
ONCQ090612TN	Flat Top							X		X	X	
ONCU090630TN	Anti-Notch									X	X	
ONCU090612FN-P	Grd/Pol for Al		X									
ONCU090612TN-W	Wiper							X				
ONCU0906ANTN-W	Wiper								X			
ONCU090612TN-HR	Multi-Purpose				X		X	X				
ONCU0906ANFN-WE	Positive Geometry			X		X			X		X	
ONCU0906ANTN-HR	Pos. w/Land							X	X			

# OCTOPLUS™ 09 SERIES INSERTS



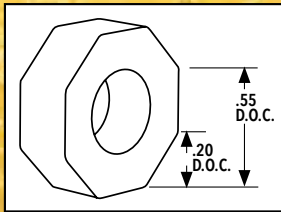
Cutter Series: OP6N RH  
 Insert Series: ONC\_09  
 2.50-12.00 Dia. Range  
 .20 DOC  
 45 Degree Lead



Cutter Series: OP1N RH&LH  
 Insert Series: ONC\_09  
 3.00-12.00 Dia. Range  
 .20 DOC  
 45 Degree Lead

	Part Number	Hone	Corner	Description
	ONCU090612TN-HR	J	R.047	<b>MULTI-PURPOSE</b> Universal insert with landed edge for machining steels, iron and hi-temp alloys. Also equipped with an integrated wiper flat to produce surface finishes between RA32-63. First choice for most applications.
	ONCU090612TN-HR	E	R.047	
	ONCU090612TN-W	J	R.047	<b>MULTI-PURPOSE WIPER</b> Wiper Insert with 8 indexes (4RH, 4LH) and longer wiper flats. When the advance per revolution does not exceed .157", place one wiper insert in one pocket to improve your surface finish by about 20 points. The indentation on the flank marks the edges that should contact the workpiece. To be married with ONCU090612TN-HR.
	ONCU090612FN-P	S	R.047	<b>NON-FERROUS</b> Up sharp and polished insert that targets aluminum and non-ferrous materials. Integrated wiper in place for good surface finishes. Also shows good results in bi-metal with grade IN04S.
	NEW! ONCQ090612TN	A	R.047	<b>FLAT TOP</b> Flat Top geometry with landed edge for heavy duty roughing. Integrated wiper in place for good surface finishes. If other positive geometries notch at the DOC, put this strong edge to work.
	NEW! ONCQ0906ANN	J	R.047	<b>SiNi</b> This 16 edged silicon nitride insert offers the best productivity when machining iron. Integrated wiper in place for good surface finishes.

# OCTOPLUS™ 09 SERIES INSERTS



Cutter Series: OP6N RH  
 Insert Series: ONC\_09  
 2.50-12.00 Dia. Range  
 .20 DOC  
 45 Degree Lead



Cutter Series: OP1N RH&LH  
 Insert Series: ONC\_09  
 3.00-12.00 Dia. Range  
 .20 DOC  
 45 Degree Lead

	Part Number	Hone	Corner	Description
	<b>NEW!</b> ONCU0906ANTN-HR	J	Faceted	<b>FACETED MULTI-PURPOSE</b> A faceted corner with positive geometry helps avoid breakout on an iron workpiece. The landed edge adds strength.
	<b>NEW!</b> ONCU0906ANTN-W	J	Faceted	<b>FACETED WIPER</b> Wiper Insert with 8 indexes (4RH, 4LH) and longer wiper flats. When the advance per revolution does not exceed .152", place one wiper insert in one pocket to improve your surface finish by about 20 points. The indentation on the flank marks the edges that should contact the workpiece. To be married with ONCU0906ANTN-HR.
	ONCU0906ANFN-WE	A	Faceted	<b>KEEN EDGE</b> This keen, high positive chip former in combination with a faceted corner offers benefits when challenged with workpiece breakout. It also performs well in exotics
	<b>NEW!</b> ONCU090630TN	A	R.120	<b>ANTI-NOTCH</b> This unique design puts a positive edge at the corner to diffuse piece part breakout in iron AND adds a reinforced edge to resist notching between .090-.157 DOC. Large corner radius adds strength for roughing applications.
	<b>NEW!</b> ONCU090638TN-HR	E	R.150	<b>POSITIVE ROUGHER</b> The large corner radius and landed edge make this insert well suited for roughing applications in steel and iron

# FORMMASTER<sup>TM</sup>

HIGH-FEED

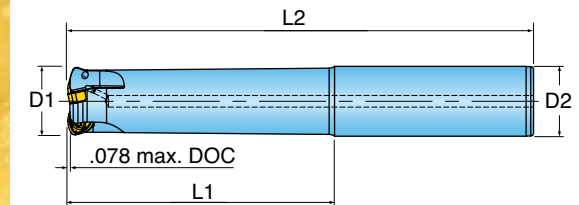
## HIGH FEED CUTTERS

- Particularly Suitable for High Feed Machining
- Low Cutting Forces
- 6 Cutting Edges for Cost Effective Machining
- Excellent Chip Cvacuation
- Through Coolant Cutter Bodies



### FORMMASTER<sup>TM</sup> SERIES 1DG1H

HIGH FEED ENDMILL WITH 6 INDEXES



Cutter Number	D1 Nom. Dia.	L1 Extension Length	L2 Overall Length	D2 Shank Size/Style	Number of Inserts	Coolant Thru	Max. Ramp Angle
1DG1H-1202781R01	1.250	2.750	5.00	1.250" Weldon	2	Yes	3.0
1DG1H-12057S9R01	1.250	4.750	8.00	1.250" Cylindrical	2	Yes	3.0
1DG1H-1503386R01	1.500	3.310	6.00	1.500" Weldon	3	Yes	1.7
1DG1H-15073S5R01	1.500	5.727	10.00	1.500" Cylindrical	3	Yes	1.7

Operating Guidelines on page 95.



**FORM MASTER<sup>™</sup>** SERIES 1DG1H (TOP•ON STYLE)  
HIGH-FEED

**SERIES 1DG1H (TOP•ON STYLE)**

HIGH FEED MODULAR ENDMILL WITH 6 INDEXES



Shoulder



Ramping



Corkscrew



Pocket



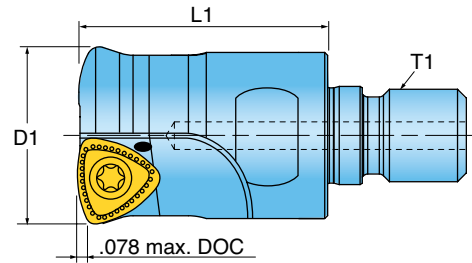
Contour



Plunging



Coolant

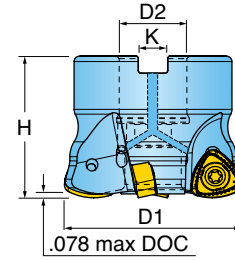


Cutter Number	D1 Nom. Dia.	Number of Inserts	L1 Extension Length	T1 Adaption	Max. Ramp Angle	Wrench Size
1DG1H-12017X8R01	1.250	2	1.75	M16	3	22mm
1DG1H-15017X8R01	1.500	3	1.75	M16	1.75	22mm

Operating Guidelines on page 95.

# FORMMASTER<sup>®</sup> HIGH-FEED SERIES DG6H

HIGH FEED FACEMILL WITH 6 INDEXES



Cutter Number	D1 Effective Diameter	Number of Inserts	H Height	D2 Bore Dia.	K Keyway	Ramp Angle
DG6H-20R01	2.000	3	1.570	0.750	0.312	1.0
DG6H-20R02	2.000	4	1.570	0.750	0.312	1.0
DG6H-20R03	2.000	5	1.570	0.750	0.312	1.0
DG6H-25R01	2.500	4	1.570	0.750	0.312	.5
DG6H-30R01	3.000	5	1.750	1.000	0.375	.5
DG6H-30R02	3.000	5	2.000	1.250	0.500	.5
DG6H-40R01	4.000	6	2.375	1.500	0.625	.4
DG6H-60R01	6.000	8	2.375	1.500	0.625	.2

Operating Guidelines on page 95.

# FORMMASTER<sup>®</sup> HIGH-FEED INSERTS

UNEU1205R



Part Number	Application	Grade	IN2530	IN2505	IN2540	IN6530
UNEU1205R	High-Feed - 0.118" R*		•	•	•	•

\*Program Radius

# FORMMASTER<sup>®</sup> HIGH-FEED HARDWARE



Screw



Driver



Retention Bolt



(Optional) Coolant Bolt

DG6H-20R01	SM40-120-20	DS-T15T	SD-06-46	SD-06-89
DG6H-20R02	SM40-120-20	DS-T15T	SD-06-46	SD-06-89
DG6H-25R01	SM40-120-20	DS-T15T	SD-06-46	SD-06-89
DG6H-30R01	SM40-120-20	DS-T15T	SD-08-46	SD-08-92
DG6H-30R02	SM40-120-20	DS-T15T	SD-10-47	SD-10-99
DG6H-40R01	SM40-120-20	DS-T15T	SD-12-82	SD-12-99
DG6H-60R01	SM40-120-20	DS-T15T	SD-12-82	SD-12-99



# HI FEED MINI™

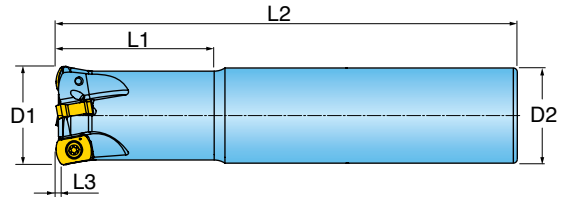
## GENERAL MACHINING, DIE & MOLD, AEROSPACE

- Insert Technology provides 4 cutting edges per insert
- Robustly designed insert with exceptionally strong cutting edge
- Premium cutter bodies, with through coolant standard
- Ingersoll technology, designed to deliver economy, strength and performance
- Depth of cut up to .039" (1mm)



### HI FEED MINI SERIES 1TG1F

HIGH FEED ENDMILL WITH 4 INDEXES



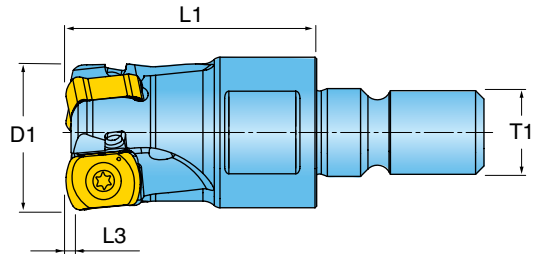
Cutter Number	D1 Nom. Dia.	L1 Extension Length	L2 Overall Length	L3 Max. DOC	D2 Shank Size/Style	Number of Inserts	Ramp Angle
1TG1F-06015ULR01	0.625	1.250	4.00	0.027	15.5mm Cyl	2	1.5
1TG1F-06015S6R01	0.625	1.260	4.00	0.027	.625" Cyl	2	1.5
1TG1F-07017UMR01	0.750	1.500	5.00	0.030	18.5mm Cyl	3	1.4
1TG1F-07017UMR02	0.750	1.500	6.25	0.027	18.5mm Cyl	3	1.4
1TG1F-07022S7R01	0.750	2.000	5.00	0.027	.750" Cyl	3	1.4
1TG1F-07032S7R01	0.750	3.000	6.25	0.027	.750" Cyl	3	1.4
1TG1F-08019UNR01	0.875	1.750	7.75	0.039	21.5mm Cyl	3	1.1
1TG1F-10022T5R01	1.000	2.000	7.00	0.039	25mm Cyl	4	.8
1TG1F-10022S1R01	1.000	2.000	10.00	0.039	1.000" Cyl	4	.8
1TG1F-10022T5R02	1.000	2.000	10.00	0.039	25mm Cyl	4	.8
1TG1F-10032S1R01	1.000	3.000	7.00	0.039	1.000" Cyl	4	.8
1TG1F-1203281R01	1.250	3.000	5.50	0.039	1.250" W	5	.6
1TG1F-12050E2R01	1.250	4.750	8.00	0.039	1.250" W	5	.6
1TG1F-15015E2R01	1.500	N/A	6.00	0.039	1.250" W	6	.5

Operating Guidelines on page 95.



## HI•FEED<sup>MINI</sup> SERIES 1TG1F (TOP•ON STYLE)

HIGH FEED MODULAR ENDMILL WITH 4 INDEXES



Cutter Number	D1 Nom. Dia.	M Adaption	L1 Extension Length	L3 Max. DOC	Number of Inserts	Wrench Size	Ramp Angle
1TG1F-06010X5R01	0.625	M8	0.98	0.027	2	10mm	.5
1TG1F-07011X6R01	0.750	M10	1.18	0.027	3	15mm	1.4
1TG1F-10013X7R01	1.000	M12	1.37	0.039	4	17mm	.8
1TG1F-12015X8R01	1.250	M16	1.57	0.039	5	22mm	.6
1TG1F-15015X8R10	1.500	M16	1.57	0.039	6	22mm	.5

Operating Guidelines on page 95.

# HI-FEED<sup>MINI</sup> SERIES TG1F

## HIGH FEED FACEMILL WITH 4 INDEXES



Ramping



Corkscrew



Pocket



Facing



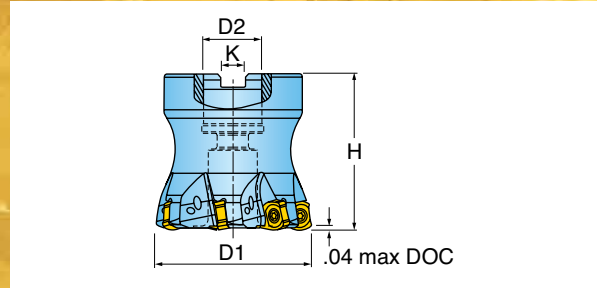
Contour



Channeling



Coolant

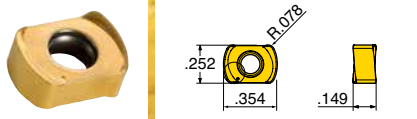


Cutter Number	D1 Eff. Dia.	Number of Inserts	H Height	D2 Bore Dia.	K Keyway	Max. Ramp Angle
TG1F-20R01	2.000	7	1.968	0.750	0.312	.3

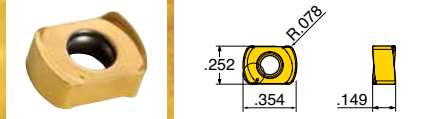
Operating Guidelines on page 95.

## HI-FEED<sup>MINI</sup> INSERTS

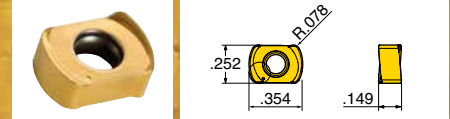
UNLU0603MOTR



UNLU0603MOTR-ML



UNLU0603MOTR-MM

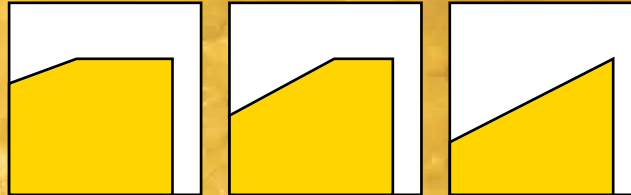


Part Number	Corner	Application	Grade	IN2030	IN2035	IN2505	IN2530	IN6530
UNLU0603MOTR	0.078 R	High-Feed		•	•	•	•	•
UNLU0603MOTR-ML	0.078 R	High-Feed			•	•	•	
UNLU0603MOTR-MM	0.078 R	High-Feed			•	•	•	

M

MM

ML



## HI-FEED<sup>MINI</sup> HARDWARE



Screw



Driver

TG1F/1TG1F

SM25-064-00

DS-T08W

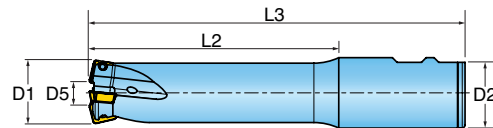
## NEW QUAD FEED CUTTER 13MM AND 19MM IC INSERT SIZES

- Positive lead angle - High Feed Technology.
- Ultra-strong, super free cutting insert geometries.
- 4 indexes per insert.
- Up to 8 different insert geometry types.
- Application flexibility.
- Premium milling grades.
- Latest post coating treatment technology to ensure long lasting performance.



### HIQUAD<sup>F</sup>™ SERIES 15M1P

13MM INSERTED CUTTERS, HIGH FEED

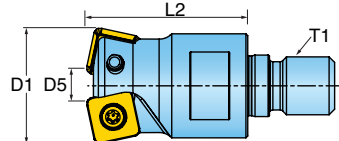
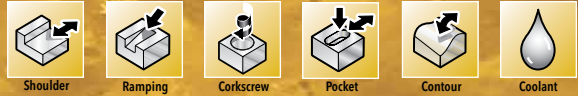


Cutter Number	Nom. Dia.	# of Inserts	L3 OAL	D2 Shank Style	Coolant	SDES1305MDR, SDMS1305MDR-PH, SDES1305MDR-001, SDES130515N-001, SDES130515N, SDMS130515R-PH, SDMS130512R-PP				SDES1305MPR, SDES1305MPR-001			
						D1 Program OD Dia.	D5 Effective Dia.	L2 Ext. Length	Max. Ramp Angle	D1 Program OD Dia.	D5 Effective Dia.	L2 Ext. Length	Max. Ramp Angle
15M1P-1202781R01	1.250	2	5.000	1.25 Weldon	yes	1.250	0.423	2.750	5.6	1.220	0.533	2.735	4.7
15M1P-12047S9R01	1.250	2	8.000	1.25 Cylindrical	yes	1.250	0.423	4.750	5.6	1.220	0.533	4.735	4.7
15M1P-1502786R01	1.500	3	5.410	1.50 Weldon	yes	1.500	0.673	2.750	3.1	1.470	0.784	2.735	2.8
15M1P-1505386R01	1.500	3	8.000	1.50 Weldon	yes	1.500	0.673	5.340	3.1	1.470	0.784	5.325	2.8

Operating Guidelines on page 96.

## HIQUAD<sup>F</sup>™ SERIES 15M1P (TOP•ON STYLE)

13MM INSERTED CUTTERS, HIGH FEED



Cutter Number	Nom. Dia.	# of Inserts	T1 Adaption	Coolant	SDES1305MDR, SDMS1305MDR-PH, SDES1305MDR-001, SDES130515N-001, SDES130515N, SDMS130515R-PH, SDMS130512R-PP				SDES1305MPR, SDES1305MPR-001			
					D1 Program OD Dia.	D5 Effective Dia.	L2 Ext. Length	Max. Ramp Angle	D1 Program OD Dia.	D5 Effective Dia.	L2 Ext. Length	Max. Ramp Angle
15M1P-12017X8R01	1.250	2	M16	Yes	1.250	0.423	1.750	5.6	1.220	0.533	1.735	4.7




Operating Guidelines on page 60.

## HIQUAD<sup>F</sup>™ SERIES 15M1P (TOP•ON STYLE) - METRIC

Cutter Number	Nom. Dia.	# of Inserts	T1 Adaption	Coolant	SDES1305MDR, SDMS1305MDR-PH, SDES1305MDR-001, SDES130515N-001, SDES130515N, SDMS130515R-PH, SDMS130512R-PP				SDES1305MPR, SDES1305MPR-001			
					D1 Program OD Dia.	D5 Effective Dia.	L2 Ext. Length	Max. Ramp Angle	D1 Program OD Dia.	D5 Effective Dia.	L2 Ext. Length	Max. Ramp Angle
15M1P032043X8R00	32mm	2	M16	Yes	32mm	11mm	43mm	5.0	31.23mm	13.8mm	42.63mm	4.5
15M1P035043X8R00	35mm	2	M16	Yes	35mm	14.2mm	43mm	4.0	34.23mm	16.81mm	42.63mm	3.5
15M1P040043X8R00	40mm	2	M16	Yes	40mm	19mm	43mm	2.7	39.23mm	21.8mm	1.678mm	2.5

Operating Guidelines on page 96.

## HIQUAD<sup>F</sup>™ ENDMILL HARDWARE

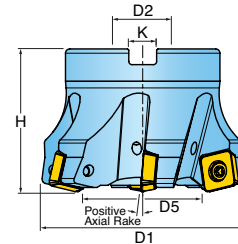
Cutter Number			
	Screw	Driver	Driver Bit
15M1P-1202781R01	SM40-100-R0	DS-A00T	BLD T15/S7
15M1P-1204759R01	SM40-100-R0	DS-A00T	BLD T15/S7
15M1P-1502786R01	SM40-100-R0	DS-A00T	BLD T15/S7
15M1P-1505386R01	SM40-100-R0	DS-A00T	BLD T15/S7

## HIQUAD<sup>F</sup>™ ENDMILL HARDWARE - METRIC

		
Screw	Driver	Driver Bit
SM40-100-R0	DS-A00T	BLD T15/S7

# HIQUAD<sup>F</sup>™ SERIES 5M\_P

13MM INSERTED CUTTERS, HIGH FEED



Cutter Number	Nom. Dia.	# of Inserts	D2 Bore Dia.	K Keyway	Coolant	SDES1305MDR, SDMS1305MDR-PH, SDES1305MDR-001, SDES130515N-001, SDES130515N, SDMS130515R-PH, SDMS130512R-PP				SDES1305MPR, SDES1305MPR-001			
						D1 Program OD Dia.	D5 Effective Dia.	H Height	Max. Ramp Angle	D1 Program OD Dia.	D5 Effective Dia.	H Height	Max. Ramp Angle
5M5P-20R01	2.000	5	0.750	0.312	yes	2.000	1.170	2.000	1.7	1.970	1.281	1.985	1.5
5M6P-20R01	2.000	4	0.750	0.312	yes	2.000	1.170	2.000	1.7	1.970	1.281	1.985	1.5
5M5P-25R01	2.500	6	0.750	0.312	yes	2.500	1.670	2.000	1.1	2.470	1.781	1.985	1.1
5M6P-25R01	2.500	5	0.750	0.312	yes	2.500	1.670	2.000	1.1	2.470	1.781	1.985	1.1
5M5P-30R01	3.000	8	1.000	0.375	yes	3.000	2.170	2.000	0.9	2.970	2.280	1.985	0.8
5M6P-30R01	3.000	6	1.000	0.375	yes	3.000	2.170	2.000	0.9	2.970	2.280	1.985	0.8
5M5P-30R02	3.000	8	1.250	0.500	yes	3.000	2.170	2.000	0.9	2.970	2.280	1.985	0.8
5M6P-30R02	3.000	6	1.250	0.500	yes	3.000	2.170	2.000	0.9	2.970	2.280	1.985	0.8
5M5P-40R01	4.000	10	1.500	0.625	yes	4.000	3.170	2.500	0.6	3.970	3.280	2.485	0.6
5M6P-40R01	4.000	8	1.500	0.625	yes	4.000	3.170	2.500	0.6	3.970	3.280	2.485	0.6
5M5P-50R01	5.000	11	1.500	0.625	yes	5.000	4.170	2.500	0.4	4.970	4.280	2.485	0.4
5M6P-50R01	5.000	9	1.500	0.625	yes	5.000	4.170	2.500	0.4	4.970	4.280	2.485	0.4

Operating Guidelines on page 96.

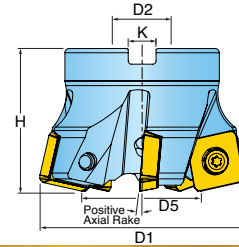
# HIQUAD<sup>F</sup>™ SERIES 5M\_P - METRIC

Cutter Number	Nom. Dia.	# of Inserts	D2 Bore Dia.	K Keyway	Coolant	SDES1305MDR, SDMS1305MDR-PH, SDES1305MDR-001, SDES130515N-001, SDES130515N, SDMS130515R-PH, SDMS130512R-PP				SDES1305MPR, SDES1305MPR-001			
						D1 Program OD Dia.	D5 Effective Dia.	H Height	Max. Ramp Angle	D1 Program OD Dia.	D5 Effective Dia.	H Height	Max. Ramp Angle
5M5P050R00	50mm	5	22mm	10.4mm	Yes	50mm	28.92mm	50mm	1.5	49.237mm	31.74mm	49.627mm	1.5
5M5P052R00	52mm	5	22mm	10.4mm	Yes	52mm	30.92mm	50mm	1.5	51.233mm	33.736mm	49.627mm	1.5
5M5P063R00	63mm	6	22mm	10.4mm	Yes	63mm	41.9mm	50mm	1	62.23mm	44.72mm	49.63mm	1
5M5P066R00	66mm	6	27mm	12.4mm	Yes	66mm	44.89mm	50mm	1	65.23mm	47.72mm	49.63mm	1
5M5P100R00	100mm	9	32mm	14.4mm	Yes	100mm	78.91mm	60mm	0.5	99.24mm	81.74mm	59.62mm	0.5
5M6P052R00	52mm	4	22mm	10.4mm	Yes	52mm	30.92mm	50mm	1.5	51.233mm	33.736mm	49.627mm	1.5
5M6P063R00	63mm	5	22mm	10.4mm	Yes	63mm	41.9mm	50mm	1	62.23mm	44.72mm	49.63mm	1
5M6P080R00	80mm	6	27mm	12.4mm	Yes	80mm	58.91mm	50mm	0.5	79.25mm	61.73mm	49.63mm	1
5M6P100R00	100mm	7	32mm	14.4mm	Yes	100mm	78.91mm	60mm	0.5	99.24mm	81.74mm	59.62mm	0.5

Operating Guidelines on page 96.

# HIQUAD<sup>F</sup>™ SERIES 5G\_M






## 19MM INSERTED CUTTERS, HIGH FEED



Cutter Number	Nom. Dia.	# of Inserts	D2 Bore Dia.	K Keyway	Coolant	SDES1906MDR, SDMS1906MDR-PH, SDES190620N, SDES190620N-001, SDMS190620R-PH				SDES1906MPR, SDES1906MPR-001			
						D1 Program OD Dia.	D5 Effective Dia.	H Height	Max. Ramp Angle	D1 Program OD Dia.	D5 Effective Dia.	H Height	Max. Ramp Angle
5G5M-30R01	3.000	6	1.00	0.375	yes	3.000	1.766	2.000	1.6	2.961	1.903	1.981	1.2
5G6M-30R01	3.000	5	1.00	0.375	no	3.000	1.755	2.000	1.6	2.961	1.894	1.981	1.2
5G5M-40R01	4.000	8	1.50	0.625	yes	4.000	2.769	2.500	1.0	3.961	2.906	2.481	0.8
5G6M-40R01	4.000	6	1.50	0.625	no	4.000	2.755	2.500	1.0	3.961	2.894	2.481	0.8
5G5M-50R01	5.000	9	1.50	0.625	yes	5.000	3.759	2.500	1.7	4.961	3.897	2.481	0.6
5G6M-50R01	5.000	7	1.50	0.625	no	5.000	3.755	2.500	0.7	4.961	3.894	2.481	0.6
5G5M-60R01	6.000	10	1.50	0.625	no	6.000	4.757	2.500	0.6	5.961	4.896	2.481	0.4
5G6M-60R01	6.000	8	1.50	0.625	no	6.000	4.755	2.500	0.6	5.961	4.894	2.481	0.4

Operating Guidelines on page 96.

# HIQUAD<sup>F</sup>™ FACEMILL HARDWARE

Cutter Number					
	Screw	Driver	Driver Bit	Retention Bolt	Coolant Thru Retention Bolt
5G5M-30R01	SM60-135-R0	DS-T25T	n/a	SD-08-47	SD08-C9
5G6M-30R01	SM60-135-R0	DS-T25T	n/a	SD-08-47	-
5G5M-40R01	SM60-135-R0	DS-T25T	n/a	SD-12-82	SD12-99
5G6M-40R01	SM60-135-R0	DS-T25T	n/a	SD-12-82	-
5G5M-50R01	SM60-135-R0	DS-T25T	n/a	SD-12-82	SD12-99
5G6M-50R01	SM60-135-R0	DS-T25T	n/a	SD-12-82	-
5G5M-60R01	SM60-135-R0	DS-T25T	n/a	SD-12-82	-
5G6M-60R01	SM60-135-R0	DS-T25T	n/a	SD-12-82	-
5M5P-20R01	SM40-100-R0	DS-A00T	BLD T15/S7	SD-06-48	SD06-A6
5M6P-20R01	SM40-100-R0	DS-A00T	BLD T15/S7	SD-06-48	SD06-A6
5M6P-25R01	SM40-100-R0	DS-A00T	BLD T15/S7	SD-06-48	SD06-A6
5M5P-25R01	SM40-100-R0	DS-A00T	BLD T15/S7	SD-06-48	SD06-A6
5M5P-30R01	SM40-100-R0	DS-A00T	BLD T15/S7	SD-08-47	SD08-C9
5M6P-30R01	SM40-100-R0	DS-A00T	BLD T15/S7	SD-08-47	SD08-C9
5M5P-30R02	SM40-100-R0	DS-A00T	BLD T15/S7	SD-10-47	SD10-99
5M6P-30R02	SM40-100-R0	DS-A00T	BLD T15/S7	SD-10-47	SD10-99
5M5P-40R01	SM40-100-R0	DS-A00T	BLD T15/S7	SD-12-82	SD12-99
5M6P-40R01	SM40-100-R0	DS-A00T	BLD T15/S7	SD-12-82	SD12-99
5M5P-50R01	SM40-100-R0	DS-A00T	BLD T15/S7	SD-12-82	SD12-99
5M6P-50R01	SM40-100-R0	DS-A00T	BLD T15/S7	SD-12-82	SD12-99



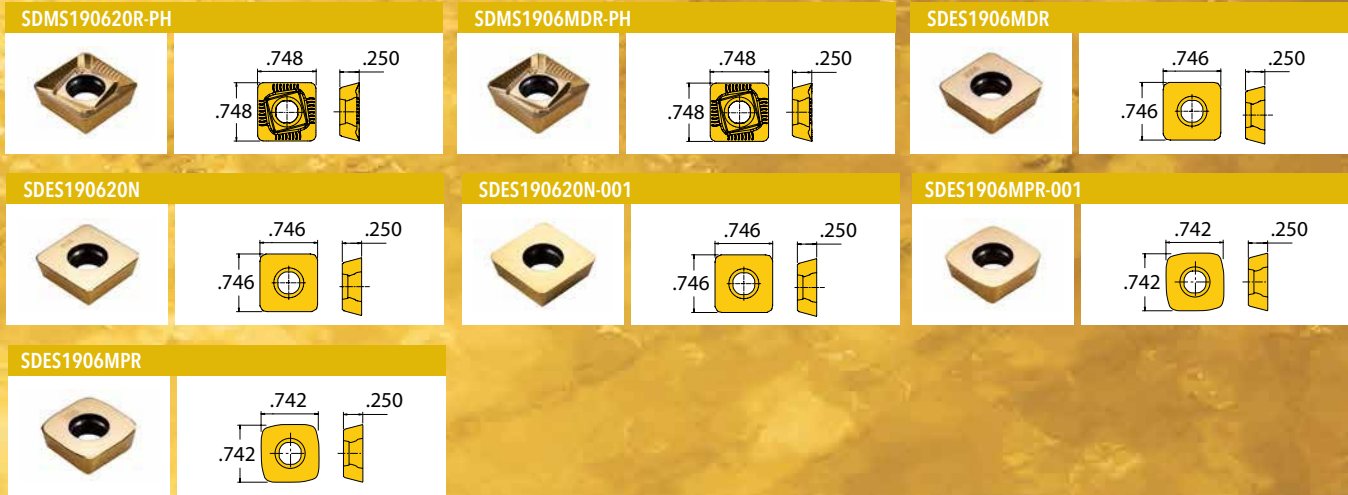
Cutter Number				
	Screw	Driver	Driver Bit	Retention Bolt
5M5P050R00	SM40-100-R0	DS-A00T	BLDT15/S7	SD06-74
5M5P052R00	SM40-100-R0	DS-A00T	BLDT15/S7	SD06-74
5M5P063R00	SM40-100-R0	DS-A00T	BLDT15/S7	SD06-74
5M5P066R00	SM40-100-R0	DS-A00T	BLDT15/S7	SD07-40
5M5P100R00	SM40-100-R0	DS-A00T	BLDT15/S7	SD10-89
5M6P052R00	SM40-100-R0	DS-A00T	BLDT15/S7	SD06-74
5M6P063R00	SM40-100-R0	DS-A00T	BLDT15/S7	SD06-74
5M6P080R00	SM40-100-R0	DS-A00T	BLDT15/S7	SD08-A4
5M6P100R00	SM40-100-R0	DS-A00T	BLDT15/S7	SD10-89

<b>SDMS130515R-PH</b> 	<b>SDMS1305MDR-PH</b> 	<b>SDES1305MDR</b> 
<b>SDES130515N</b> 	<b>SDES130515N-001</b> 	<b>SDES1305MDR-001</b> 
<b>SDES1305MPR-001</b> 	<b>SDES1305MPR</b> 	

Insert Number	Applications	Max DOC	Program Corner Radius	Grade	IN2505	IN2530	IN4005	IN4030	IN4035
SDES1305MDR	Hi-Feed, Flat Face / Wiper - Facets	.078 (2mm)	.125		•	•			
SDES130515N	Hi-Feed, Flat Face / Corner Radius	.078 (2mm)	.125		•	•			
SDES130515N-001	Hi-Feed, Precision Flat Face / Corner Radius	.078 (2mm)	.125		•	•			
SDMS1305MDR-PH	Hi-Feed, Pos Precision / Wiper - Facets	.078 (2mm)	.125		•	•	•	•	•
SDMS130515R-PH	Hi-Feed, Pos Precision / Corner Radius	.078 (2mm)	.125		•	•	•	•	•
SDES1305MDR-001	Hi-Feed, Precision Flat Face / Wiper - Facets	.078 (2mm)	.125		•	•			
SDES1305MPR	Hi-Feed, Heavy Duty - Standard	.088 (2.24mm)	.140		•	•	•		•
SDES1305MPR-001	Hi-Feed, Heavy Duty - Precision	.088 (2.24mm)	.140		•	•	•	•	•

\*Note: Please refer to the New Product Announcement for detailed programming information.

# HIQUAD<sup>F</sup>™ 19MM INSERTS



Insert Number	Applications	Max DOC	Program Corner Radius	Grade	IN2505	IN2530	IN4005	IN4030	IN4035
SDES1906MDR	Hi-Feed, Flat Face / Wiper - Facets	.118 (3mm)	.180		•	•			
SDES190620N	Hi-Feed, Flat Face / Corner Radius	.118 (3mm)	.180		•	•			
SDES190620N-001	Hi-Feed, Precision Flat Face / Corner Radius	.118 (3mm)	.180		•	•			
SDMS1906MDR-PH	Hi-Feed, Pos Precision / Wiper - Facets	.118 (3mm)	.180		•	•	•	•	•
SDMS190620R-PH	Hi-Feed, Pos Precision / Corner Radius	.118 (3mm)	.180		•	•	•	•	•
SDES1906MPR	Hi-Feed, Heavy Duty - Standard	.147 (3.7mm)	.212		•	•	•		•
SDES1906MPR-001	Hi-Feed, Heavy Duty - Precision	.147 (3.7mm)	.212		•	•	•	•	•

\*Note: Please refer to the New Product Announcement for detailed programming information.

## PLUNGING CUTTERS

- Excels in general plunge roughing & long reach plunge applications.
- Inserts offered with clean shearing Hi-Temp Alloy geometry and strong Flat Top geometry.
- Internal coolant supply.



## HIQUAD™ SERIES QHU

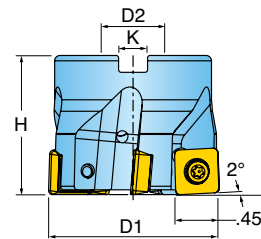
### BACKDRAFT PLUNGE CUTTERS



Plunge



Coolant

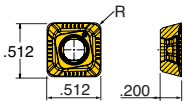


Cutter Number	D1 Effective Diameter	# of Inserts	H Height	D2 Bore Diameter	K Keyway	Retention Bolt	Optional Coolant Bolt
QHU-20015D1R01	2.000	5	1.570	0.750	0.31	SD-06-46	SD-06-89
QHU-20015D1R02	2.000	4	1.570	0.750	0.31	SD-06-46	SD-06-89
QHU-25015D1R01	2.500	5	1.570	0.750	0.31	SD-06-46	SD-06-89
QHU-30017D3R01	3.000	7	1.750	1.000	0.38	SD-08-46	SD-08-92
QHU-30017D3R02	3.000	5	1.750	1.000	0.38	SD-08-46	SD-08-92
QHU-40023D4R01	4.000	9	2.375	1.500	0.63	SD-12-82	SD-12-99
QHU-40023D4R02	4.000	7	2.375	1.500	0.63	SD-12-82	SD-12-99

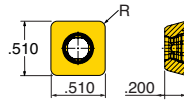
Operating Guidelines on page 96.

# HIQUAD™ INSERTS

## SDMS



## SDES



Part Number	Application	R Corner	Indexes	Grade			
				IN4005	IN4030	IN4035	IN4015
SDMS130512R-PP	Hi-Temp	R.047	4		•		
SDMS130516R-PP	Hi-Temp	R.062	4	•	•	•	•
SDES130508N-PF	Multi-Purpose Flat Top	R.031	4	•	•	•	•
SDES130516N-PF	Multi-Purpose Flat Top	R.062	4	•	•	•	•
SDES130524N-PF	Multi-Purpose Flat Top	R.093	4	•	•		
SDES130532N-PF	Multi-Purpose Flat Top	R.125	4	•	•		

\*Cutter body to be relieved to accommodate large radius.

# HIQUAD™ HARDWARE



Insert Screw

SM40-100-R0



Driver Handle

DS-A00T



Insert Driver Blade

DS-T156B



Optional Torque Wrench

DT-35-02



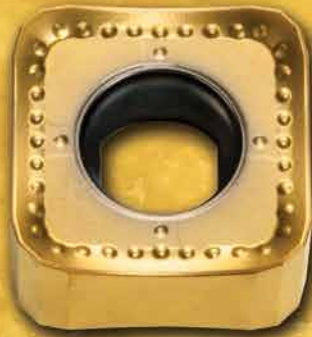
Optional Insert Driver Blade

DS-T15B1

# ISOPLUS

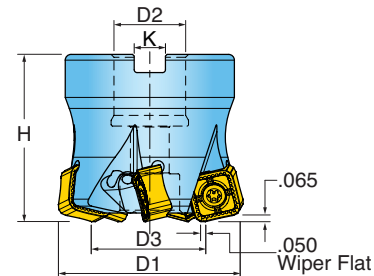
## HI FEED MILL WITH 8 INDEXES

- Value with 8 strong cutting edges (4 + 4).
- Near net shape flexibility with .065 axial depth of cut capability.
- Chip evacuation via coolant through the tool capability.
- Deck surface finish capability with .050 integrated wiper flat.
- Clearance angles for corkscrew and ramping applications.
- Utilizes the same insert used on our 45° lead (series DN6H) and 15° lead (series DL6H) cutters.



## ISOPLUS SERIES DD6H

### HIGH FEED FACE MILL WITH 8 INDEXES

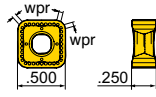


Cutter Number	D1 Effective Diameter	D3 Inner Diameter	D2 Bore Diameter	H Height	# of Effective Inserts	Keyway	Ramp Angle
DD6H-20R01	2.000	1.252	0.750	1.650	5	0.312	1.2
DD6H-25R01	2.500	1.752	.75	1.650	6	0.312	.80
DD6H-30R01	3.000	2.252	1.000	1.750	7	0.375	.66
DD6H-40R01	4.000	3.252	1.500	2.375	9	0.625	.45
DD6H-50R01	5.000	4.252	1.500	2.375	11	0.625	.20
DD6H-60R01	6.000	5.252	1.500	2.000	13	0.625	.10

Operating Guidelines on page 97.

## ISOPLUS INSERT

SNGU1205ENN



Part Number	Program Corner Radius	Application	Grade	IN2035	IN2505	IN2510	IN2530	IN2540	IN6515
SNGU1205ENN	R.155	Multi-Purpose		•	•	•	•	•	•

## ISOPLUS HARDWARE



Insert Screw



Driver Handle



Insert Driver Blade



Retention Bolt



Coolant Bolt (Optional)

DD6H-20R01	SM40-100-R0	DS-A00T	DS-T156B	SD-06-47	SD-06-89
DD6H-25R01	SM40-100-R0	DS-A00T	DS-T156B	SD-06-46	SD-06-89
DD6H-30R01	SM40-100-R0	DS-A00T	DS-T156B	SD-08-46	SD-08-92
DD6H-40R01	SM40-100-R0	DS-A00T	DS-T156B	SD-12-82	SD-12-99
DD6H-50R01	SM40-100-R0	DS-A00T	DS-T156B	SD-12-82	SD-12-99
DD6H-60R01	SM40-100-R0	DS-A00T	DS-T156B	-	-

# DIPOSOTETRA™

4D 90

## 90 DEGREE LINE WITH 4 CUTTING EDGES

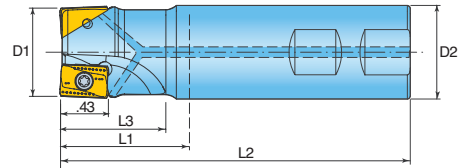
- High Density Cutter Maximizes Productivity
- High Positive Cutting Edges - Smooth Cutting Action
- Thick Insert Design - Stable and Reliable Performance
- Ground Edge & Top Polished Insert Available for Aluminum Machining



## DIPOSOTETRA™ SERIES 1TJ1Q

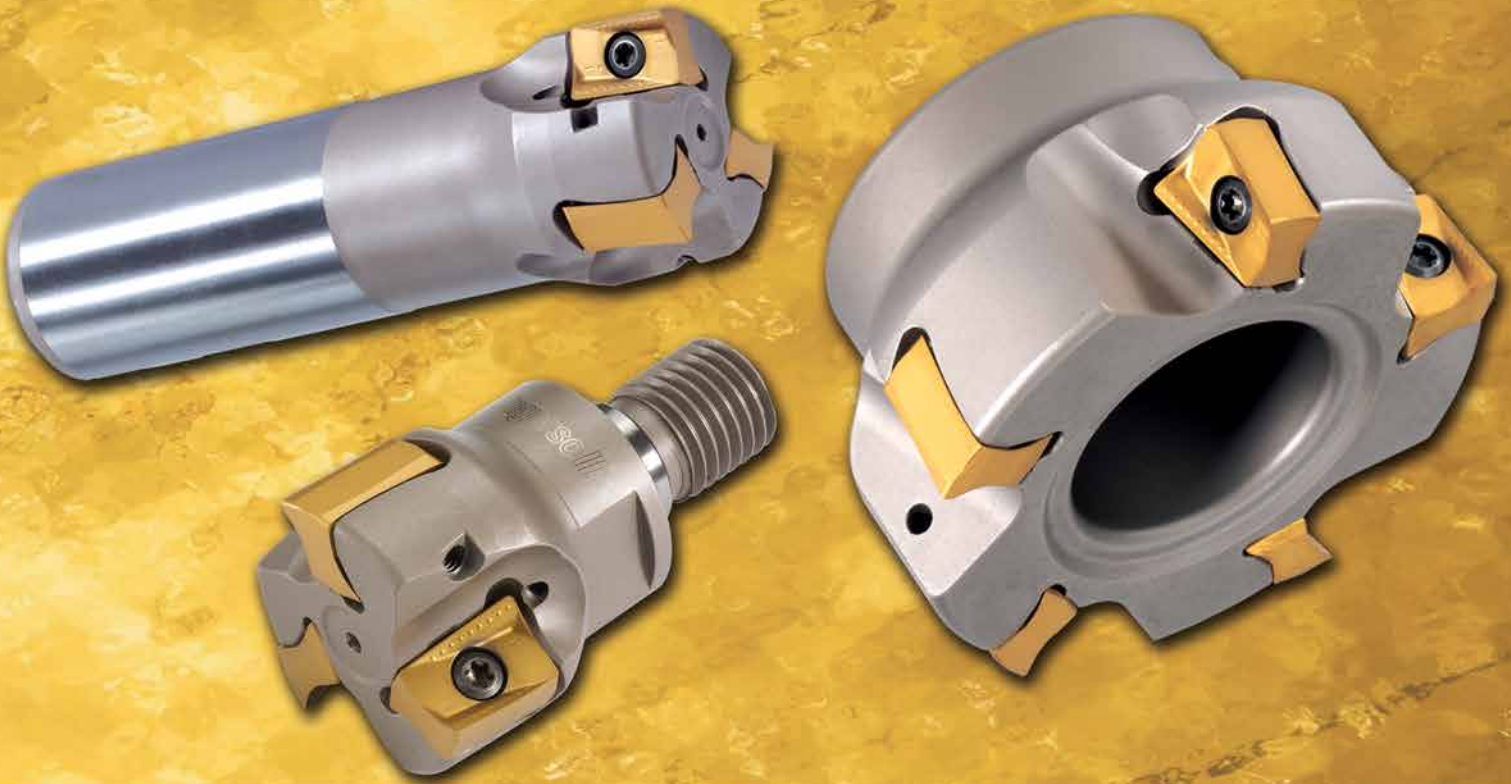
4D 90

### 0 DEGREE LEAD ENDMILL WITH 4 INDEXES



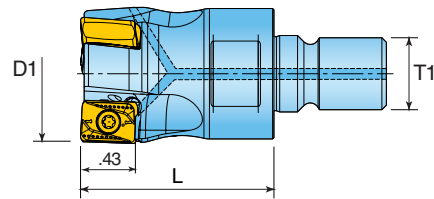
Cutter Number	D1 Effective Diameter	L1 Extension Length	L2 Overall Length	L3 Projection Length	D2 Shank Size/Style	# of Inserts	Ramp Angle
1TJ1Q-1001784R01	1.000	1.75	3.75	1.75	.750 W	2	1.09
1TJ1Q-1001780R01	1.000	1.75	4.00	1.55	1.00 W	2	1.09
1TJ1Q-1003780R01	1.000	3.75	6.00	3.55	1.00 W	2	1.09
1TJ1Q-1201784R01	1.250	1.75	3.75	1.75	.750 W	3	.73
1TJ1Q-1202281R01	1.250	2.25	4.50	2.22	1.25 W	3	.73
1TJ1Q-1204281R01	1.250	4.25	6.50	4.22	1.25 W	3	.73
1TJ1Q-1502281R01	1.500	2.25	4.50	2.25	1.25 W	4	.58
1TJ1Q-2002281R01	2.000	2.25	4.50	2.22	1.25 W	5	.40

Operating Guidelines on page 97.



**DIPOSOTETRA™** SERIES 1TJ1Q (TOP•ON STYLE)

0 DEGREE LEAD ENDMILL WITH 4 INDEXES



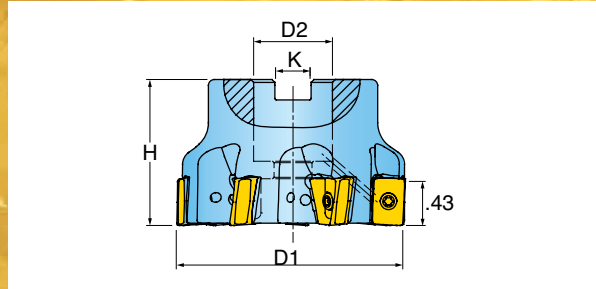
Cutter Number	D1 Effective Diameter	T1 Adaption	L1 Extension Length	Number of Inserts	Wrench Size	Ramp Angle
1TJ1Q-10015X7R01	1.000	M12	1.50	2	17mm	1.09
1TJ1Q-12017X8R01	1.250	M16	1.75	3	22mm	.73
1TJ1Q-15017X8R01	1.500	M16	1.75	4	22mm	.58

Operating Guidelines on page 97.



**DIPOSOTETRA™** SERIES TJ5Q, TJ6Q  
4D 50

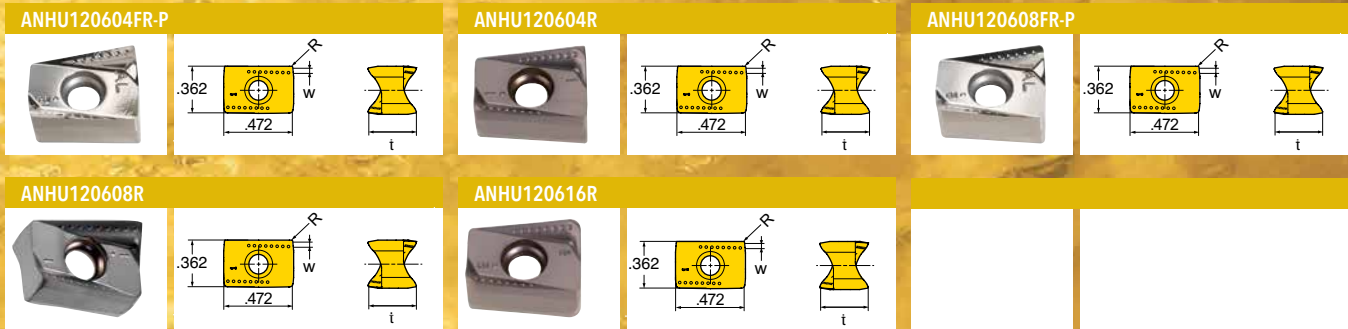
**0 DEGREE LEAD FACEMILL WITH 4 INDEXES**



Cutter Number	D1 Effective Diameter	# of Inserts	H Height	D2 Bore Diameter	Retention Bolt	Optional Coolant Bolt	K Keyway	Ramp Angle
TJ5Q-20R01	2.000	6	1.570	0.75	SD-06-46	SD-06-89	0.31	.40
TJ6Q-20R01	2.000	3	1.570	0.75	SD-06-46	SD-06-89	0.31	.40
TJ6Q-25R01	2.500	6	1.570	0.75	SD-06-46	SD-06-89	0.31	.30
TJ5Q-30R01	3.000	9	1.750	1.00	SD-08-46	SD-08-92	0.38	.25
TJ6Q-30R01	3.000	7	1.750	1.00	SD-08-46	SD-08-92	0.38	.25
TJ5Q-40R01	4.000	11	2.375	1.50	SD-12-82	SD-12-99	0.62	.18
TJ6Q-40R01	4.000	7	2.375	1.50	SD-12-82	SD-12-99	0.62	.18

Operating Guidelines on page 97.

# DIPOSOTETRA™ INSERTS



Part Number	Application	R Corner	w Wiper	t Thick.	Grate	IN10K	IN2505	IN2510	IN2530	IN2540
ANHU120604R	Multi-Purpose	.015" R	0.060	0.338			•			
ANHU120608R	Multi-Purpose	.031" R	0.043	0.338			•	•	•	•
ANHU120616R	Multi-Purpose	.062" R	0.028	0.338			•		•	
ANHU120604FR-P	Ground/Polished for Alum.	.015" R	0.060	0.338		•				
ANHU120608FR-P	Ground/Polished for Alum.	.031" R	0.047	0.338		•				

# DIPOSOTETRA™ HARDWARE

		
ANHU12	SM35-088-10	DS-T10T

# DIPOSOTETRA™

4D 90

## DOUBLE YOUR CUTTING EDGES FROM 2 TO 4!

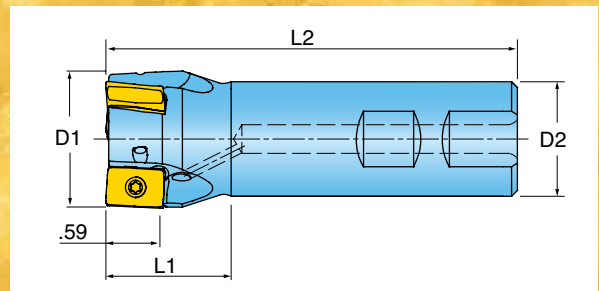
- Two Sided Insert Adds Value by Doubling You Cutting Edges!
- Thick and Robust Insert Adds Durability to Demanding Cutting Conditions
- Double Positive Geometry Benefits Machining Efficiency and Slices Super Alloy Msterials
- Integrated Wiper Flat Produces Exceptional Surface Finishes
- Coolant Through the Tool Offered
- Various Corner Radii Offered



### DIPOSOTETRA™ SERIES 1TJ1N

4D 90

0 DEGREE LEAD ENDMILL WITH 4 INDEXES



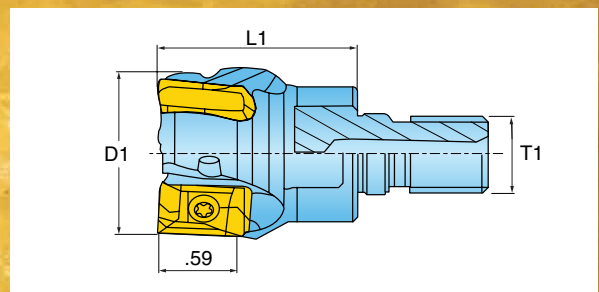
Cutter Number	D1 Nominal Diameter	L1 Extension Length	L2 Overall Length	D2 Shank Size/Style	Number of Inserts	Ramp Angle
1TJ1N-1202281R01	1.250	2.25	4.50	1.250" Weldon	2	1.2
1TJ1N-1204281R01	1.250	4.25	6.50	1.250" Weldon	2	1.2
1TJ1N-1206281R01	1.250	6.25	8.50	1.250" Weldon	2	1.2
1TJ1N-1502281R01	1.500	2.25	4.50	1.250" Weldon	3	1.1
1TJ1N-1504281R01	1.500	4.25	6.50	1.250" Weldon	3	1.1
1TJ1N-2002281R01	2.000	2.25	4.50	1.250" Weldon	4	1.0

Operating Guidelines on page 97.



**DIPOSOTETRA™** SERIES 1TJ1N (TOP•ON STYLE)

0 DEGREE LEAD ENDMILL WITH 4 INDEXES

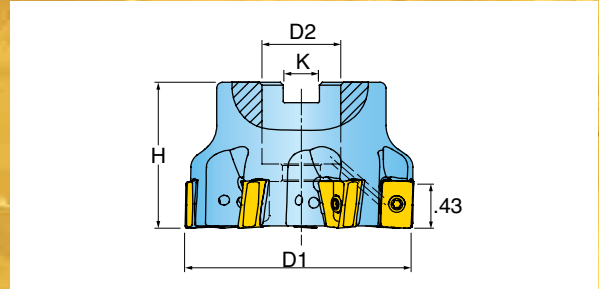


Cutter Number	D1 Nom. Dia.	T1 Adaption	L1 Extension Length	Number of Inserts	Wrench Size	Ramp Angle
1TJ1N-12015X8R01	1.250	M16	1.50	2	22mm	1.2
1TJ1N-15015X8R01	1.500	M16	1.50	3	22mm	1.1

Operating Guidelines on page 97.

# DIPOSOTETRA™ SERIES TJ5N, TJ6N

## 0 DEGREE LEAD FACEMILL WITH 4 INDEXES



Cutter Number	D1 Nominal Diameter	Number of Inserts	H Height	D2 Bore Dia.	K Keyway	Bolt Circle Diameter	Ramp Angle
TJ5N-20R01	2.000	4	1.570	0.750	0.312	NA	1.0
TJ6N-20R01	2.000	3	1.570	0.750	0.312	NA	1.0
TJ5N-25R01	2.500	5	1.750	1.000	0.375	NA	.60
TJ5N-30R01	3.000	7	1.750	1.000	0.375	NA	.50
TJ6N-30R01	3.000	5	1.750	1.000	0.375	NA	.50
TJ5N-40R01	4.000	8	2.000	1.500	0.625	NA	.35
TJ6N-40R01	4.000	5	2.000	1.500	0.625	NA	.35
TJ5N-50R01	5.000	10	2.000	1.500	0.625	NA	.25
TJ6N-50R01	5.000	7	2.000	1.500	0.625	NA	.25
TJ5N-60R01	6.000	11	2.480	1.500	0.625	NA	.15
TJ6N-60R01	6.000	8	2.480	1.500	0.625	NA	.15
TJ5N-80R01	8.000	14	2.480	2.500	1.000	4.00	.05

Operating Guidelines on page 97.

# DIPOSOTETRA™ INSERTS



Part Number	Applications	Corner	Grade	IN10K	IN2510	IN2530	IN2505	IN2540	IN6515
ANHU160704FR-P	Ground/Polished for Alum.	0.015" R		•					
ANHU160704R	Multi-Purpose	0.015" R				•			
ANHU160708FR	Hi-Temp/Ti	0.031" R				•			
ANHU160708FR-P	Ground/Polished for Alum.	0.031" R		•					
ANHU160708R	Multi-Purpose	0.031" R			•	•	•	•	•
ANHU160716R	Multi-Purpose	0.062" R			•	•	•	•	
ZNHU160708R	Chip Splitters	0.031" R				•	•		

# DIPOSOTETRA™ HARDWARE

	 Screw	 Retention Bolt	 (Optional) Coolant Bolt
1TJ1N	SM40-120-20	DS-T15T	-
TJ5N-20R01	SM40-120-20	DS-T15T	SD-06-46
TJ6N-20R01	SM40-120-20	DS-T15T	SD-06-46
TJ5N-25R01	SM40-120-20	DS-T15T	SD-08-46
TJ5N-30R01	SM40-120-20	DS-T15T	-
TJ6N-30R01	SM40-120-20	DS-T15T	-
TJ5N-40R01	SM40-120-20	DS-T15T	-
TJ6N-40R01	SM40-120-20	DS-T15T	-
TJ5N-50R01	SM40-120-20	DS-T15T	-
TJ6N-50R01	SM40-120-20	DS-T15T	-
TJ5N-60R01	SM40-120-20	DS-T15T	-
TJ6N-60R01	SM40-120-20	DS-T15T	-
TJ5N-80R01	SM40-120-20	DS-T15T	-

# DIPOSOTETRA™

4D 45

## HIGH SHEER 45° LEAD WITH 4 CUTTING EDGES

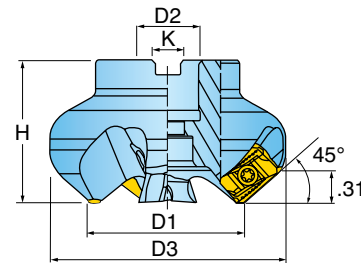
- Combination of High Positive Insert with 45° Entry Angle: Extremely Smooth and Silent Cutting Action
- High Helix 4 Corner Insert
- Excellent Surface Finish with Wide Wiper Flat
- Maximum .31" Depth of Cut



### DIPOSOTETRA™ SERIES TN1N

4D 90

45 DEGREE LEAD FACEMILL WITH 4 INDEXES



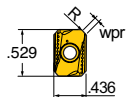
Cutter Number	D1 Nominal Diameter	D3 Overall Diameter	Number of Inserts	D2 Bore Dia.	H Height	K Keyway
TN1N-20R01	2.000	2.68	4	0.750	1.750	0.312
TN1N-30R01	3.000	3.68	5	1.000	1.750	0.375
TN1N-30R02	3.000	3.68	7	1.000	1.750	0.375
TN1N-40R01	4.000	4.67	6	1.500	2.375	0.625
TN1N-40R02	4.000	4.67	8	1.500	2.375	0.625
TN1N-60R01	6.000	6.67	10	1.500	2.375	0.625

Operating Guidelines on page 97.



**DIPOSOTETRA™ INSERTS**

ANHU1607ANR



Part Number	Applications	Wiper	R Corner	Grade	IN2510	IN2530	IN2540
ANHU1607ANR	Multi-Purpose	.062	0.015" R		•	•	•

**DIPOSOTETRA™ HARDWARE**



Screw

SM40-120-20



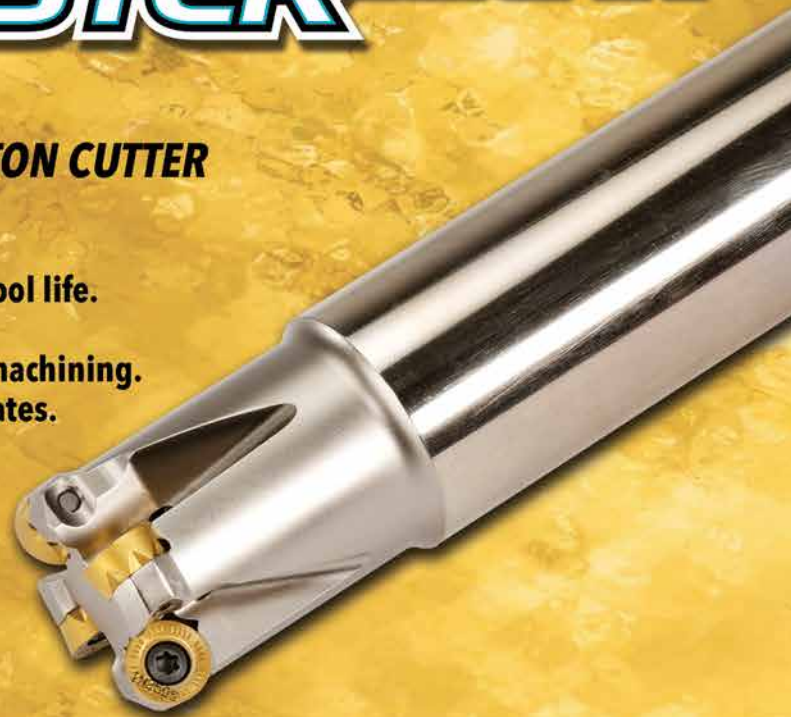
DS-T15T



# FORMMASTER SHEAR™

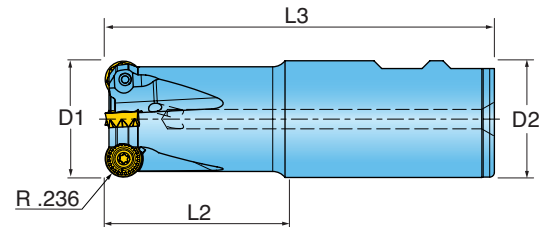
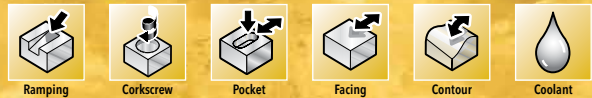
## ULTRA-SHEAR HIGH PERFORMANCE BUTTON CUTTER

- Robust thick insert design.
- Larger, stronger insert geometries promote longer tool life.
- Strong clamping screw for demanding applications.
- Anti-rotating system, inserts will not rotate during machining.
- Ultra reliable machining performance at high feed rates.
- Premium milling grades to cut all materials.
- Latest post coating treatment technology to ensure long lasting performance.



### FORMMASTER SHEAR™ SERIES 15B1B

#### 12MM IC BUTTON CUTTERS



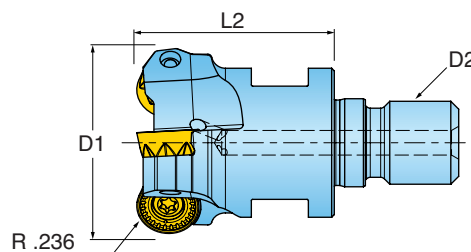
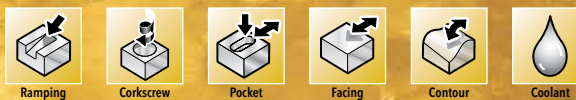
Cutter Number	D1 Nominal Diameter	L2 Extension Length	Number of Inserts	L3 Overall Length	D2 Shank Size/Style	Coolant Through	Max. Ramp Angle	Insert Series
15B1B02404480R00	24mm(.945)	1.750	2	4.000	1.00 Weldon	Yes	2.9	RJLT12
15B1B-1001780R01	1.000	1.750	2	4.500	1.00 Weldon	Yes	3.3	RJLT12
15B1B-1002051R01	1.000	2.000	2	6.000	1.000 Cyl.	Yes	3.3	RJLT12
15B1B-1202781R01	1.250	2.750	3	5.000	1.25 Weldon	Yes	5.0	RJLT12
15B1B-1202059R01	1.250	2.000	3	6.000	1.25 Cyl.	Yes	5.0	RJLT12
15B1B-1502386R01	1.500	2.340	4	5.000	1.500 Weldon	Yes	6.8	RJLT12
15B1B-1502055R01	1.500	2.000	4	6.000	1.500 Cyl.	Yes	6.8	RJLT12

Operating Guidelines on page 98.



## FORMMASTER<sup>®</sup>SHEAR™ SERIES 15B1B (TOP-ON STYLE)

12MM IC BUTTON CUTTERS

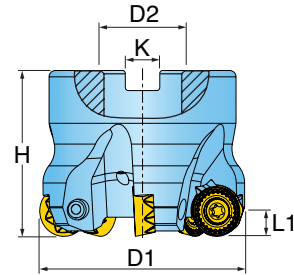
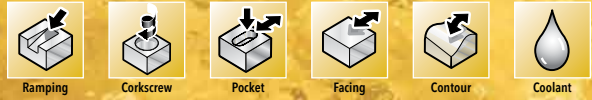


Cutter Number	D1 Nominal Diameter	L2 Extension Length	D2 Thread Size	Number of Inserts	Coolant Through	Max. Ramp Angle	Insert Series	Wrench Size
15B1B024044X7R00	24mm(.945)	1.500	M12	2	Yes	2.9	RJLT12	17mm
15B1B-10015X7R01	1.000	1.500	M12	2	Yes	3.3	RJLT12	17mm
15B1B-12015X8R01	1.250	1.500	M16	3	Yes	5.0	RJLT12	22mm
15B1B-15015X8R01	1.500	1.500	M16	3	Yes	6.8	RJLT12	22mm

Operating Guidelines on page 98.

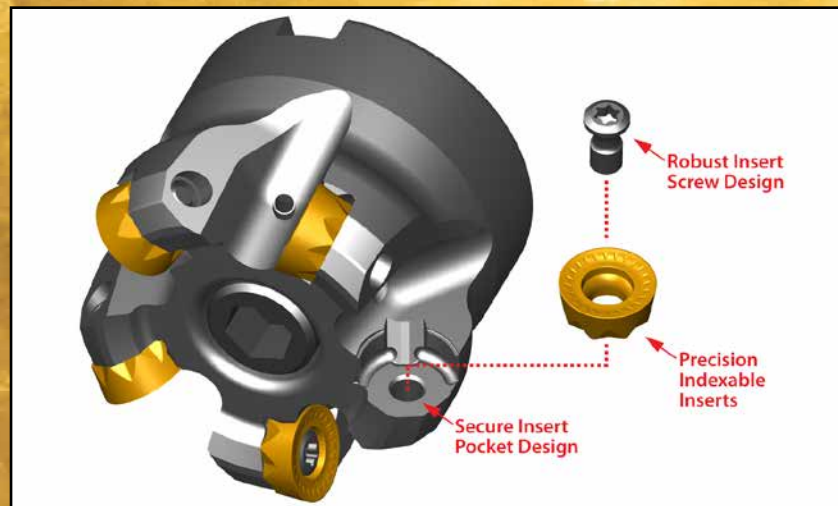
# FORMMASTER<sup>®</sup>SHEAR™ SERIES 1A7\_

## 12MM AND 16MM IC BUTTON CUTTERS

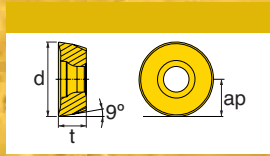
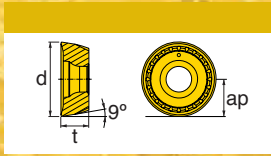


Cutter Number	D1 Nominal Diameter	D2 Bore Dia.	L1 Cut Length	H Height	Number of Insert	K Keyway	Coolant Through	Max. Ramp Angle	Insert Series
1A7H-20R01	2.000	0.750	0.236	1.570	5	0.312	Yes	6	RJLT12
1A7H-25R01	2.500	0.750	0.236	1.570	5	0.312	Yes	4	RJLT12
1A7H-30R01	3.000	1.000	0.236	1.750	6	0.375	Yes	3	RJLT12
1A7H-40R01	4.000	1.500	0.236	2.500	7	0.625	Yes	2	RJLT12
1A7H-50R01	5.000	1.500	0.236	2.500	8	0.625	No	1.75	RJLT12
1A7H-60R01	6.000	1.500	0.236	2.500	9	0.625	No	1.5	RJLT12
1A7K-20R01	2.000	0.750	0.315	1.570	4	0.312	Yes	9	RJLT16
1A7K-25R01	2.500	0.750	0.315	1.570	5	0.312	Yes	7	RJLT16
1A7K-30R01	3.000	1.000	0.315	1.750	5	0.375	Yes	5	RJLT16
1A7K-40R01	4.000	1.500	0.315	2.500	7	0.625	Yes	3.75	RJLT16
1A7K-50R01	5.000	1.500	0.315	2.500	7	0.625	No	2.75	RJLT16
1A7K-60R01	6.000	1.500	0.315	2.500	7	0.625	No	2	RJLT16

Operating Guidelines on page 98.








# FORMMASTER<sup>®</sup>SHEAR™ INSERTS



Insert Number	Description	d	t	Grade	IN1030	IN6530	IN2530	IN2540	IN2505	IN055
RJLT1204MON	Precision, Pos - 6.000 mm R	12mm	.189		•	•	•		•	
RJLT1204MOTN	Standard, Pos - 6.000 mm R	12mm	.189			•	•	•	•	
RJLW1204MOTN	Heavy Duty, Flt - 6.000 mm R	12mm	.189				•	•	•	
RJET1204MOFN	Grd/Pol for Al - 6.000 mm R	12mm	.189							•
RJLT1605MON	Precision, Pos - 8.000 mm R	16mm	.240			•	•		•	
RJLT1605MOTN	Standard, Pos - 8.000 mm R	16mm	.240		•	•	•	•	•	
RJLW1605MOTN	Heavy Duty, Flt - 8.000 mm R	16mm	.240			•		•	•	
RJET1605MOFN	Grd/Pol for Al - 8.000 mm R	16mm	.240							•

# FORMMASTER<sup>®</sup>SHEAR™ HARDWARE

Cutter Number	Insert Series					
		Screw	Driver Bit	Driver Bit	Retention Bolt	Retention Bolt
1A7H-20R01	RJLT12	SM40-093-20	DS-A00T	BLD T15/S7	SD06-46	SD-06-89
1A7H-25R01	RJLT12	SM40-093-20	DS-A00T	BLD T15/S7	SD06-46	SD-06-89
1A7H-30R01	RJLT12	SM40-093-20	DS-A00T	BLD T15/S7	SD08-46	SD-08-92
1A7H-40R01	RJLT12	SM40-093-20	DS-A00T	BLD T15/S7	SD-12-82	SD-12-99
1A7H-50R01	RJLT12	SM40-093-20	DS-A00T	BLD T15/S7	SD-12-82	n/a
1A7H-60R01	RJLT12	SM40-093-20	DS-A00T	BLD T15/S7	SD-12-82	n/a
1A7K-20R01	RJLT16	SM50-113-20	DS-A00T	BLD T20/S7	SD06-46	SD-06-89
1A7K-25R01	RJLT16	SM50-113-20	DS-A00T	BLD T20/S7	SD06-46	SD-06-89
1A7K-30R01	RJLT16	SM50-113-20	DS-A00T	BLD T20/S7	SD08-46	SD-08-92
1A7K-40R01	RJLT16	SM50-113-20	DS-A00T	BLD T20/S7	SD-12-82	SD-12-99
1A7K-50R01	RJLT16	SM50-113-20	DS-A00T	BLD T20/S7	SD-12-82	n/a
1A7K-60R01	RJLT16	SM50-113-20	DS-A00T	BLD T20/S7	SD-12-82	n/a
15B1B02404480R00	RJLT12	SM40-093-20	DS-A00T	BLD T15/S7	n/a	n/a
15B1B-1001780R01	RJLT12	SM40-093-20	DS-A00T	BLD T15/S7	n/a	n/a
15B1B-1002051R01	RJLT12	SM40-093-20	DS-A00T	BLD T15/S7	n/a	n/a
15B1B-1202781R01	RJLT12	SM40-093-20	DS-A00T	BLD T15/S7	n/a	n/a
15B1B-1202059R01	RJLT12	SM40-093-20	DS-A00T	BLD T15/S7	n/a	n/a
15B1B-1502386R01	RJLT12	SM40-093-20	DS-A00T	BLD T15/S7	n/a	n/a
15B1B-1502055R01	RJLT12	SM40-093-20	DS-A00T	BLD T15/S7	n/a	n/a
15B1B024044X7R00	RJLT12	SM40-093-20	DS-A00T	BLD T15/S7	n/a	n/a
15B1B-10015X7R01	RJLT12	SM40-093-20	DS-A00T	BLD T15/S7	n/a	n/a
15B1B-12015X8R01	RJLT12	SM40-093-20	DS-A00T	BLD T15/S7	n/a	n/a
15B1B-15015X8R01	RJLT12	SM40-093-20	DS-A00T	BLD T15/S7	n/a	n/a

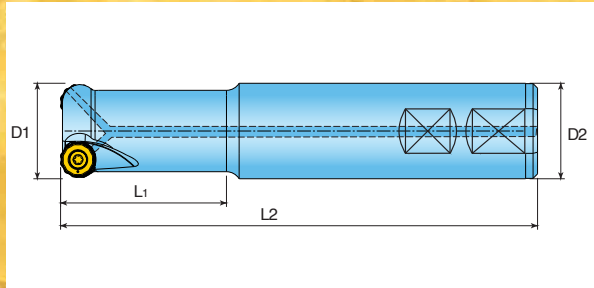
## ECONOMICAL DOUBLE SIDED INSERT FOR MOLD & DIE

- Anti-Rotation Insert Clamping System
- Two Different Double Sided Insert Designs, Round & Serrated
- Free Cutting Geometry for All Materials
- Serrated Style Insert for Extended Reach Applications Provides Increased Stability
- Though the Tool Coolant, Delivered to the Cutting Edge



### FORMMASTER<sup>®</sup> PROFILE SERIES 1DE1H

BUTTON ENDMILL WITH 8-16 INDEXES

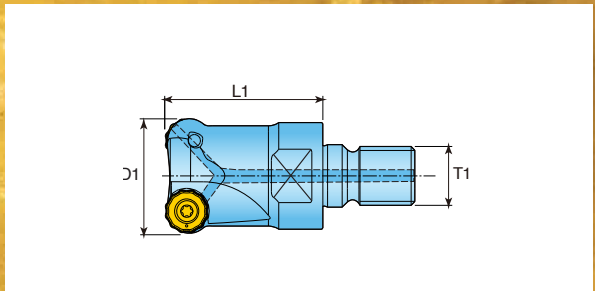


Cutter Number	D1 Nominal Diameter	L1 Extension Length	Number of Inserts	L2 Overall Length	D2 Shank Size/Style
1DE1H-1202781R01	1.250	2.750	3	5.000	1.250 Weldon
1DE1H-1202259R01	1.250	2.250	3	6.000	1.250 Cylindrical
1DE1H-1202059R01	1.250	2.000	3	9.000	1.250 Cylindrical
1DE1H-1502786R01	1.500	2.750	4	5.410	1.500 Weldon
1DE1H-1502255R01	1.500	2.250	4	6.000	1.500 Cylindrical
1DE1H-1502055R01	1.500	2.000	4	9.000	1.500 Cylindrical



**FORMMASTER<sup>®</sup> PROFILE SERIES 1DE1H (TOP-ON STYLE)**

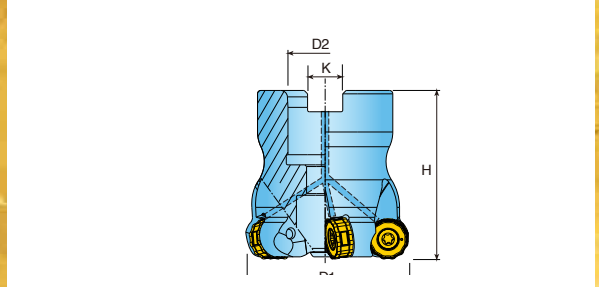
**BUTTON ENDMILL WITH 8-16 INDEXES**



Cutter Number	D1 Nom. Dia.	L1 Extension Length	T1 Thread Size	Number of Inserts
1DE1H-12015X8R01	1.250	1.500	M16	3
1DE1H-15015X8R01	1.500	1.500	M16	4

Operating Guidelines on page 98.

**BUTTON FACEMILL WITH 8-16 INDEXES**

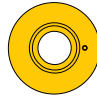
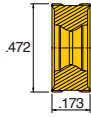


Cutter Number	D1 Nominal Diameter	Number of Inserts	L1 Max DOC	H Height	D2 Bore Diameter	K Keyway
DE6H-20R01	2.000	5	.236	1.750	0.750	0.312
DE6H-25R01	2.500	6	.236	1.750	0.750	0.312
DE6H-30R01	3.000	7	.236	1.750	1.000	0.375

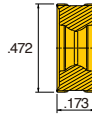
Operating Guidelines on page 98.

# FORMMASTER<sup>®</sup> PROFILE INSERTS

RNLU1205MON-M



RNLU1205MON-S



Part Number	Applications	Grade						
			IN6530	IN2530	IN2505			
RNLU1205MON-M*	Standard - 6.000 mm R		•	•	•			
RNLU1205MON-S**	Serrated - 6.000 mm R		•	•	•			

\*16 Indexes (Achieved with DOC .070" or less.)

\*\*8 Indexes

# FORMMASTER<sup>®</sup> PROFILE HARDWARE



Screw



Driver

1DE1H / DE6H

SM40-110-00

DS-T15T





## FINISH BALL™ SERIES 12A9, 12A5

### BALL NOSE ENDMILL



Ramping



Corkscrew



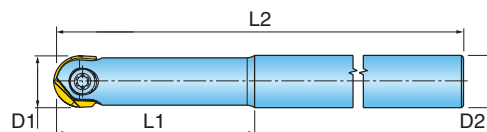
Pocket



Contour

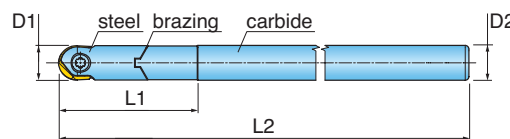


### STEEL



Cutter Number	D1 Effective Diameter	D2 Shank Size/Style	L1 Extension	L2 Overall Length	Effective Cutting Edge	Insert Series
12A9F-03017S4R01	0.375	.500" Cylindrical	1.85	6.00	2	09
12A9H-05019S4R01	0.500	.500" Cylindrical	1.92	7.00	2	12
12A9K-06015S6R01	0.625	.625" Cylindrical	1.58	8.00	2	15
12A9M-07018S7R01	0.750	.750" Cylindrical	1.85	8.00	2	19
12A9R-10018S1R01	1.000	1.000" Cylindrical	1.81	8.00	2	25
12A9S-12030S9R01	1.250	1.250" Cylindrical	3.03	11.81	2	31

### CARBIDE



Cutter Number	D1 Effective Diameter	D2 Shank Size/Style	L1 Extension	L2 Overall Length	Effective Cutting Edges	Insert Series
12A5F-03015S8R01	0.375	.375" Cylindrical	1.50	6.00	2	09
12A5H-05015S4R02	0.500	.500" Cylindrical	1.50	4.00	2	12
12A5H-05015S4R01	0.500	.500" Cylindrical	1.50	7.00	2	12
12A5K-06018S6R02	0.625	.625" Cylindrical	1.88	4.00	2	15
12A5K-06018S6R01	0.625	.625" Cylindrical	1.88	7.00	2	15
12A5M-07022S7R02	0.750	.750" Cylindrical	2.25	4.00	2	19
12A5M-07022S7R01	0.750	.750" Cylindrical	2.25	7.50	2	19

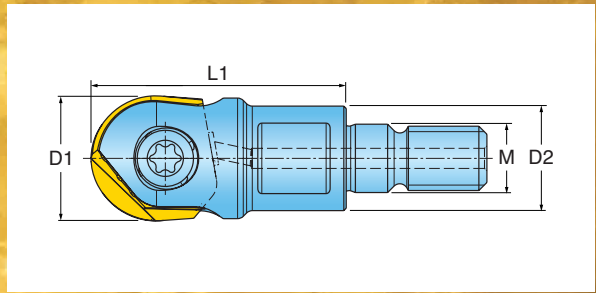
# BALL NOSE CUTTING SYSTEM FOR DIE & MOLD COUNTOUR MILLING

- Ultra Stable Clamping System and Excellent Repeatability
- Through the Tool Coolant, Delivered to the Cutting Edge (Top•On)
- Premium Ground Cutter Bodies
- Die & Mold, Aero Space and General Purpose
- End Mill, Top-On (Modular) and Solid Carbide (Braze Shanks)



## FINISH•BALL™ SERIES 12A9 (TOP•ON STYLE)

### BALL NOSE ENDMILL

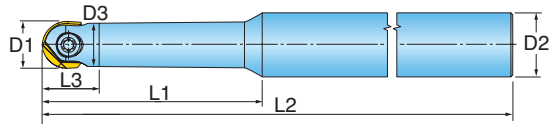


Cutter Number	D1 Effective Diameter	D2 Flange Diameter	T1 Thread Size	L1 Extension	Effective Cutting Edges	Wrench Size	Insert Series
12A9F-03011X5R01	.375	.510	M8	1.00	2	10mm	09
12A9H-05011X5R01	.500	.510	M8	1.00	2	10mm	12
12A9K-06015X5R01	.625	.510	M8	1.25	2	10mm	15
12A9M-07016X6R01	.750	.710	M10	1.25	2	15mm	19
12A9M-07021X7R01	.750	.830	M12	1.50	2	17mm	25
12A9R-10023X7R01	1.000	.975	M12	1.50	2	17mm	31
12A9R-10023X7R02	1.000	.820	M12	1.50	2		
12A9S-12063X8R01	1.250	1.140	M16	2.50	2		

Operating Guidelines on page 99.

# FINISH BALL™ SERIES 12A8

## BALL NOSE, TAPER STEEL CUTTER BODIES



12A8F-03013S4R01	0.375	0.500	.34	1.35	3.50	.63	2	09
12A8F-03018S4R01	0.375	0.500	.34	1.88	6.00	.63	2	09
12A8H-05025S4R01	0.500	0.625	.41	2.50	6.00	.75	2	12
12A8M-07035S7R01	0.750	1.000	.67	3.50	7.50	1.00	2	19

Operating Guidelines on page 99.

## HARDWARE



	Screw	Driver	
12A9F-03017S4R01	SM30-083-B1	DS-TP10S	-
12A9H-05019S4R01	SM40-106-B1	DS-TP15S	-
12A9K-06015S6R01	SM50-139-B1	-	DS-T20T
12A9M-07018S7R01	SM60-167-B1	-	DS-T25T
12A9R-10018S1R01	SM70-210-B1	-	DS-T25T
12A9S-12030S9R01	SM80-250-B1	-	DS-T30T
12A5F-03015S8R01	SM30-083-B1	DS-TP10S	-
12A5H-05015S4R02	SM40-106-B1	DS-TP15S	-
12A5H-05015S4R01	SM40-106-B1	DS-TP15S	-
12A5K-06018S6R02	SM50-139-B1	-	DS-T20T
12A5K-06018S6R01	SM50-139-B1	-	DS-T20T
12A5M-07022S7R02	SM60-167-B1	-	DS-T25T
12A5M-07022S7R01	SM60-167-B1	-	DS-T25T
12A8F-03013S4R01	SM30-083-B1	DS-TP10S	-
12A8F-03018S4R01	SM30-083-B1	DS-TP10S	-
12A8H-05025S4R01	SM40-106-B1	DS-TP15S	-
12A8M-07035S7R01	SM60-167-B1	-	DS-T25T
12A9F-03011X5R01	SM30-083-B1	DS-TP10S	-
12A9H-05011X5R01	SM40-106-B1	DS-TP15S	-
12A9K-06015X5R01	SM50-139-B1	-	DS-T20T
12A9M-07016X6R01	SM60-167-B1	-	DS-T25T
12A9R-07021X7R01	SM60-167-B1	-	DS-T25T
12A9S-10023X7R01	SM70-210-B1	-	DS-T25T
12A9R-10023X7R02	SM70-210-B1	-	DS-T25T

# FINISH BALL™ INSERTS

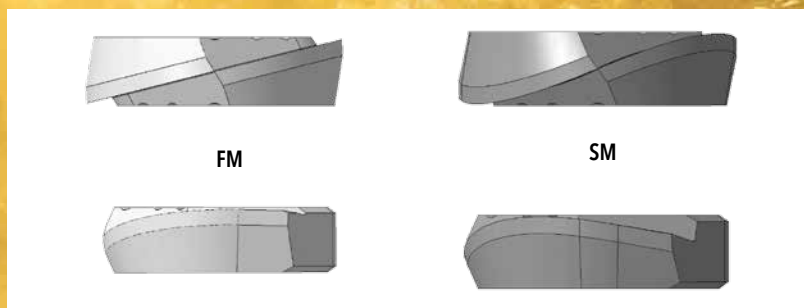
NQHG



GQHG



Eff. Dia.	Part Number	Applications	R Corner	Grade	IN2005	IN2006	IN05S		
0.375	NQHG090200R-FM	Ball Nose, coolant through	0.188		•	•			
0.500	NQHG120300R-FM	Ball Nose, coolant through	0.250		•	•			
0.625	NQHG150400R-FM	Ball Nose, coolant through	0.312		•	•			
0.750	NQHG190500R-FM	Ball Nose, coolant through	0.375		•	•			
1.000	NQHG250600R-FM	Ball Nose, coolant through	0.500		•	•			
1.250	NQHG310700R-FM	Ball Nose, coolant through	0.625		•	•			
0.375	NQHG090200R-SM	Ball Nose, coolant through	0.188		•	•	•		
0.500	NQHG120300R-SM	Ball Nose, coolant through	0.250		•	•	•		
0.625	NQHG150400R-SM	Ball Nose, coolant through	0.312		•	•			
0.750	NQHG190500R-SM	Ball Nose, coolant through	0.375		•	•	•		
1.000	NQHG250600R-SM	Ball Nose, coolant through	0.500		•	•	•		
1.250	NQHG310700R-SM	Ball Nose, coolant through	0.625		•	•			
0.375	GQHG090208R01	Backdraft Blade, coolant through	0.031		•	•			
0.500	GQHG120308R01	Backdraft Blade, coolant through	0.031		•	•			
0.500	GQHG120316R01	Backdraft Blade, coolant through	0.062		•	•			
0.625	GQHG150408R01	Backdraft Blade, coolant through	0.031		•	•			
0.625	GQHG150416R01	Backdraft Blade, coolant through	0.062		•	•			
0.750	GQHG190508R01	Backdraft Blade, coolant through	0.031		•	•			
0.750	GQHG190516R01	Backdraft Blade, coolant through	0.062		•	•			
0.750	GQHG190532R01	Backdraft Blade, coolant through	0.125		•	•			
1.000	GQHG250608R01	Backdraft Blade, coolant through	0.031		•	•			
1.000	GQHG250616R01	Backdraft Blade, coolant through	0.062		•	•			
1.000	GQHG250632R01	Backdraft Blade, coolant through	0.125		•	•			



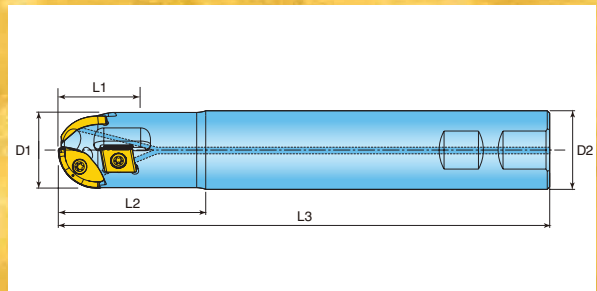
## ROUGH BALL FOR TRIPLE FEED RATES!

- 3 Flute Design Enables Increased Feed Rates
- Unique Double-Sided Insert with 2 Cutting Edges
- Highly Stable Cutting Performance with Exceptionally Strong Cutting Edges
- Coolant Through Provides Excellent Chip Evacuation



### PROTRIO SERIES 2TW7K

BALL NOSE ENDMILL, 3 FLUTES



Cutter Number	D1 Effective Diameter	D2 Shank Size/Style	L1 Length of Cut	L2 Extension	L3 Overall Length	Effective Cutting Edges
2TW7K-1203781R01	1.250	1.250 Weldon	1.50	3.720	6.000	3
2TW7K-1205281R01	1.250	1.250 Weldon	1.50	5.220	7.500	3
2TW7K-1504386R01	1.500	1.500 Weldon	1.80	4.300	7.000	3
2TW7K-1506386R01	1.500	1.500 Weldon	1.80	6.300	9.000	3
2TW7K-2004782R01	2.000	2.000 Weldon	3.30	4.750	8.000	3
2TW7K-2007582R01	2.000	2.000 Weldon	3.30	7.750	11.000	3

Operating Guidelines on page 99.

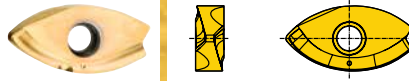


## PRO<sup>o</sup>TRIO PROFILE INSERTS

NCEU...R



NCEU...R-P



DCM



Cutter Dia.	Cutter Number	Center Ball Station	Side Ball Station	Side Station	Grade	IN2505	IN2530	IN6530
1.250	2TW7K-1203781R01	NCEU320500R (1)	NCEU320500R-P (2)	DCM323R01 (2)		•	•	•
1.250	2TW7K-1205281R01	NCEU320500R (1)	NCEU320500R-P (2)	DCM323R01 (2)		•	•	•
1.500	2TW7K-1504386R01	NCEU380600R (1)	NCEU380600R-P (2)	DCM323R01 (2)		•	•	•
1.500	2TW7K-1506386R01	NCEU380600R (1)	NCEU380600R-P (2)	DCM323R01 (2)		•	•	•
2.000	2TW7K-2004782R01	NCEU500700R (1)	NCEU500700R-P (2)	DCM324R01 (4)		•	•	•
2.000	2TW7K-2007582R01	NCEU500700R (1)	NCEU500700R-P (2)	DCM324R01 (4)		•	•	•

## PRO<sup>o</sup>TRIO PROFILE HARDWARE



Screw



Driver

2TW7K-1203781R01	SM40-093-20	DS-T15T
2TW7K-1205281R01	SM40-093-20	DS-T15T
2TW7K-1504386R01	SM40-120-00	DS-T15T
2TW7K-1506386R01	SM40-120-00	DS-T15T
2TW7K-2004782R01	SM50-113-20	DS-T20T
2TW7K-2007582R01	SM50-113-20	DS-T20T

# GOLD<sup>o</sup>MAX<sup>4</sup> FFIN™

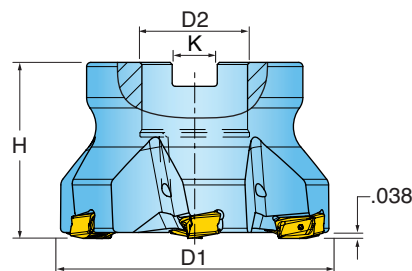
## SUPER FINISHING FACE MILL

- Cutter diameters from Ø3.00" thru Ø8.00"
- High precision cutter bodies with tangentially mounted inserts offering (4) insert indexes.
- Micro Finishing possible at 4X's the typical axial depth of cut.
- Large elliptical wiper follows lead cutting edge.
- Multiple carbide grades for all material types.



### GOLD<sup>o</sup>MAX<sup>4</sup> FFIN™ SERIES EF6J

#### FINISHING FACEMILL

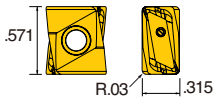


Cutter Number	D1 Nom. Diameter	# Effective Inserts	D2 Bore Diameter	D3 Effective Diameter	Max DOC	Bolt Circle	K Keyway	H Height	Coolant Thru	Insert Series
EF6J-03R01	3.000	5	1.000	2.243	0.038	-	0.380	1.750	Yes	DFH324L001
EF6J-04R01	4.000	6	1.500	3.234	0.038	-	0.630	2.500	Yes	DFH324L001
EF6J-05R01	5.000	7	1.500	4.237	0.038	-	0.630	2.500	Yes	DFH324L001
EF6J-06R01	6.000	9	1.500	5.234	0.038	-	0.630	2.500	Yes	DFH324L001
EF6J-08R01	8.000	9	2.500	7.235	0.038	4.000	1.010	2.500	Yes	DFH324L001

Operating Guidelines on page 100.

# GOLD<sup>o</sup>MAX<sup>4</sup> FFIN™ INSERTS

DFH324



Insert Number	Corner Configuration	Application	Grade	IN2030	IN2505	IN2530	IN4015	IN4030
DFH324L001	4 x .030" R	Finishing Facemill		•	•	•	•	•

# GOLD<sup>o</sup>MAX<sup>4</sup> FFIN™ HARDWARE



Screw

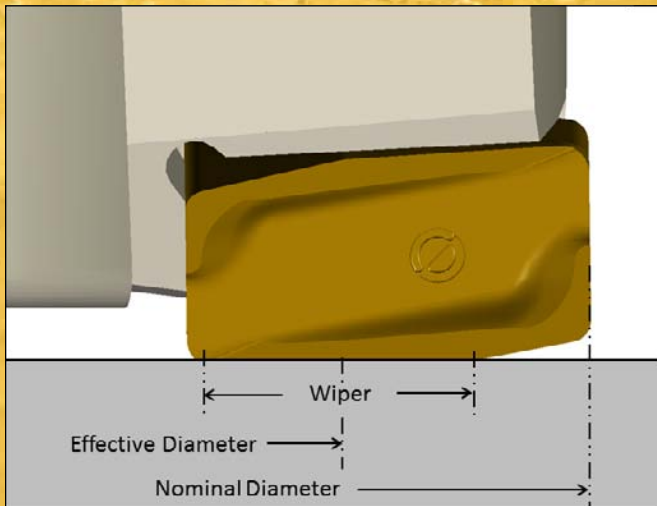
Driver

Retention Bolt

Coolant Plate

Coolant Plate Screw

EF6J-03R01	SM40-143-H0	DS-T15T	SD-08-46	-	-
EF6J-04R01	SM40-143-H0	DS-T15T	SD-12-82	-	-
EF6J-05R01	SM40-143-H0	DS-T15T	SD-12-82	-	-
EF6J-06R01	SM40-143-H0	DS-T15T	SD-12-82	-	-
EF6J-08R01	SM40-143-H0	DS-T15T	SD-10-70	CZ-0187	SE03-66





# GOLD MAX<sup>8</sup>

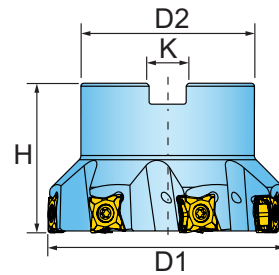
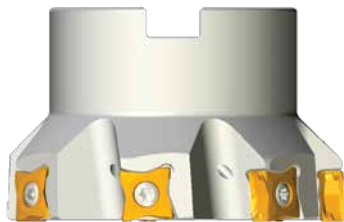
DI-QUAD 90° LINE

## DOUBLE-SIDED TANGENTIAL TECHNOLOGY

- Cutter Diameters from Ø2.00" thru Ø8.00"
- 8 Cutting Edges
- High Positive Geometry Produces True 90° Shoulders
- Unique Multifaceted Insert Offers High Efficiency and Productivity
- Stable Insert Seating Promotes Longer Tool Life

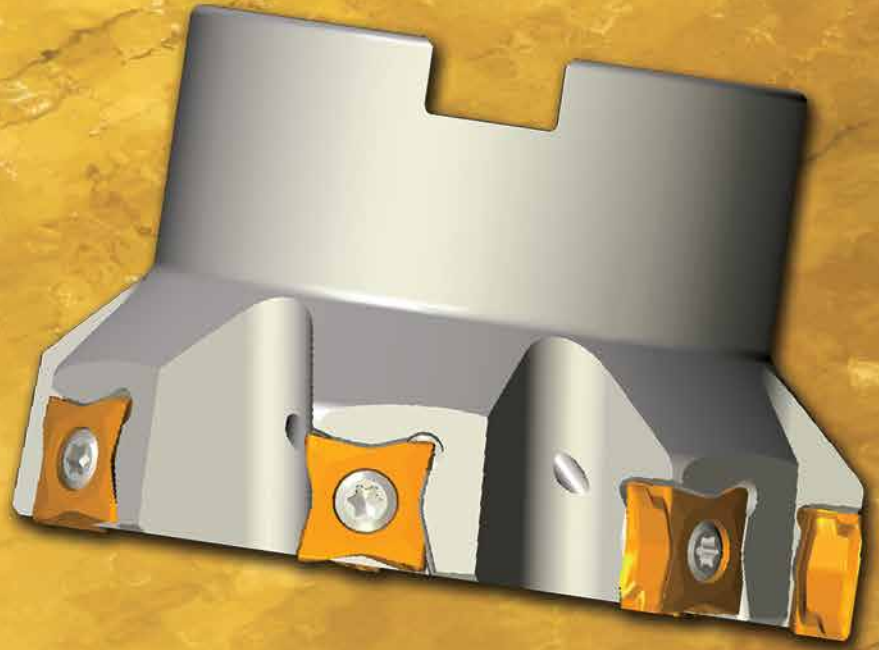
### GOLD MAX<sup>8</sup> SERIES VJ6K

#### 0 DEGREE LEAD FACEMILL



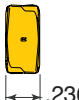
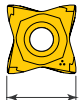
Cutter Number	D1 Nom. Diameter	Number of Inserts	H Height	D2 Bore Diameter	K Keyway	Bolt Circle
VJ6K-02R01	2.000	5	1.500	0.750	0.32	-
VJ6K-02R02	2.500	6	1.570	1.000	0.38	-
VJ6K-03R01	3.000	8	2.375	1.000	0.38	-
VJ6K-04R01	4.000	9	2.375	1.500	0.63	-
VJ6K-06R01	6.000	13	2.375	1.500	0.63	-
VJ6K-08R01	8.000	16	2.375	2.500	1.00	4.00

Operating Guidelines on page 100.



**GOLD-MAX<sup>®</sup> INSERTS**

SGM-44R001



.476

.236

Cutter Number	Corner Configuration	Application	Grade	IN2030	IN2530	IN4030
SGM-44R001	8 x .031R	Multi-Purpose		•	•	•

**GOLD-MAX<sup>®</sup> HARDWARE**

HARDWARE



Screw

SM40-120-20



Driver

DS-T15T

# GOLD MAX<sup>4</sup>

QUAD 90° LINE

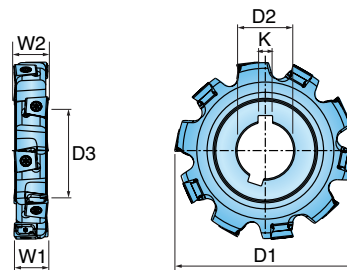
## THE EVOLUTION OF TECHNOLOGY CONTINUES WITH SLOTTERS

- Cutter Diameters from Ø4.00" thru Ø10.00"
- 4 insert indexes available in .031", .062", .093" & .125" corner radii
- Axial & radial drive available in .625", .750" & 1.00" widths of cut
- Same insert for both right-hand & left-hand stations
- Multiple grades for all material types



### GOLD MAX<sup>4</sup> SERIES 3EJ6

#### HEAVY DUTY AXIAL DRIVE SLOTTER



Cutter Number	W1 Cutter Width	D1 Nom. Diameter	D2 Bore Diameter	W2 Hub Width	D3 Hub Diameter	K Keyway	Total No. of Inserts	No. of Effective Inserts	Insert Series
3EJ6F-04062AG-01	0.625	4.000	1.250	0.595	2.25	0.312	10	5	DGM315
3EJ6J-04075AG-01	0.750	4.000	1.250	0.720	2.25	0.312	10	5	DGM325
3EJ6M-04100AG-01	1.000	4.000	1.250	0.970	2.25	0.312	8	4	DGM426
3EJ6F-05062AH-01	0.625	5.000	1.500	0.595	2.75	0.375	12	6	DGM315
3EJ6J-05075AH-01	0.750	5.000	1.500	0.720	2.75	0.375	12	6	DGM325
3EJ6M-05100AH-01	1.000	5.000	1.500	0.970	2.75	0.375	10	5	DGM426
3EJ6F-06062AH-01	0.625	6.000	1.500	0.595	3.50	0.375	14	7	DGM315
3EJ6J-06075AH-01	0.750	6.000	1.500	0.720	3.50	0.375	14	7	DGM325
3EJ6M-06100AH-01	1.000	6.000	1.500	0.970	3.50	0.375	12	6	DGM426
3EJ6F-08062AK-01	0.625	8.000	2.000	0.595	3.50	0.500	16	8	DGM315
3EJ6J-08075AK-01	0.750	8.000	2.000	0.720	3.50	0.500	16	8	DGM325
3EJ6M-08100AK-01	1.000	8.000	2.000	0.970	3.50	0.500	14	7	DGM426
3EJ6F-10062AK-01	0.625	10.000	2.000	0.595	3.50	0.500	18	9	DGM315
3EJ6J-10075AK-01	0.750	10.000	2.000	0.720	3.50	0.500	18	9	DGM325
3EJ6M-10100AK-01	1.000	10.000	2.000	0.970	3.50	0.500	16	8	DGM426

Operating Guidelines on page 101.

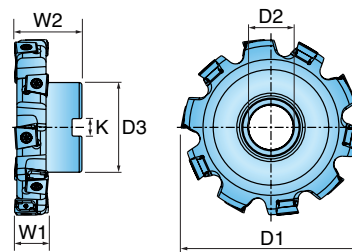


**GOLD<sup>MAX</sup>4** SERIES 3EJ6

HEAVY DUTY RADIAL DRIVE SLOTTER

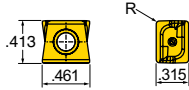
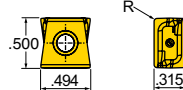


Slotting



Cutter Number	W1 Cutter Width	D1 Nom. Diameter	D2 Bore Diameter	W2 Hub Width	D3 Hub Diameter	K Keyway	Total No. of Inserts	No. of Effective Inserts	Insert Series
3EJ6F-0406257R01	0.625	4.000	1.000	1.500	2.00	0.375	10	5	DGM315
3EJ6J-0407557R01	0.750	4.000	1.000	1.500	2.00	0.375	10	5	DGM325
3EJ6M-0410057R01	1.000	4.000	1.000	1.500	2.00	0.375	8	4	DGM426
3EJ6F-0506257R01	0.625	5.000	1.000	1.500	2.75	0.375	12	6	DGM315
3EJ6J-0507557R01	0.750	5.000	1.000	1.500	2.75	0.375	12	6	DGM325
3EJ6M-0510057R01	1.000	5.000	1.000	1.500	2.75	0.375	10	5	DGM426
3EJ6F-0606258R01	0.625	6.000	1.500	2.000	2.75	0.625	14	7	DGM315
3EJ6J-0607558R01	0.750	6.000	1.500	2.000	2.75	0.625	14	7	DGM325
3EJ6M-0610058R01	1.000	6.000	1.500	2.000	3.81	0.625	12	6	DGM426
3EJ6F-0806258R01	0.625	8.000	1.500	2.000	3.81	0.625	16	8	DGM315
3EJ6J-0807558R01	0.750	8.000	1.500	2.000	3.81	0.625	16	8	DGM325
3EJ6M-0810058R01	1.000	8.000	1.500	2.000	3.81	0.625	14	7	DGM426
3EJ6F-1006261R01	0.625	10.000	2.500	2.000	4.87	1.000	18	9	DGM315
3EJ6J-1007561R01	0.750	10.000	2.500	2.000	4.87	1.000	18	9	DGM325
3EJ6M-1010061R01	1.000	10.000	2.500	2.000	4.87	1.000	16	8	DGM426

Operating Guidelines on page 101.

**DGM315****DGM325****DGM426**

Part Number	R Corner	Applications	Grade									
				IN2505	IN2515	IN2530	IN2540	IN4005	IN4015	IN4030	IN4040	
DGM315-001	0.031 R	Multi-Purpose		•	•	•	•	•	•	•	•	•
DGM315-002	0.062 R	Multi-Purpose		•	•	•	•	•	•	•	•	•
DGM315-003	0.093 R	Multi-Purpose		•	•	•	•	•	•	•	•	•
DGM315-004	0.125 R	Multi-Purpose		•	•	•	•	•	•	•	•	•
DGM325-001	0.031 R	Multi-Purpose		•	•	•	•	•	•	•	•	•
DGM325-002	0.062 R	Multi-Purpose		•	•	•	•	•	•	•	•	•
DGM325-003	0.093 R	Multi-Purpose		•	•	•	•	•	•	•	•	•
DGM325-004	0.125 R	Multi-Purpose		•	•	•	•	•	•	•	•	•
DGM426-001	0.031 R	Multi-Purpose		•	•	•	•	•	•	•	•	•
DGM426-002	0.062 R	Multi-Purpose		•	•	•	•	•	•	•	•	•
DGM426-003	0.093 R	Multi-Purpose		•	•	•	•	•	•	•	•	•
DGM426-004	0.125 R	Multi-Purpose		•	•	•	•	•	•	•	•	•



**GOLD<sup>®</sup>MAX<sup>4</sup>**  
QUAD POINT

## HARDWARE

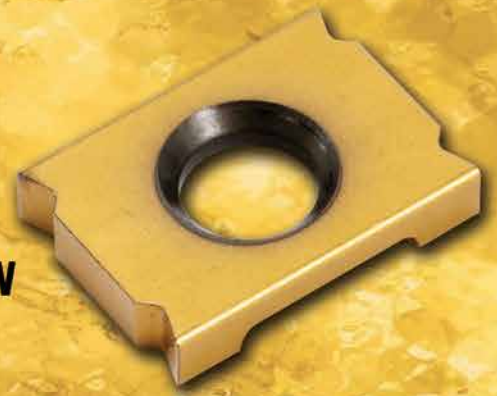


Screw



Driver

DGM315	SM40-143-H0	DS-T15T
DGM325	SM40-143-H0	DS-T15T
DGM426	SM50-160-10	DS-T20T

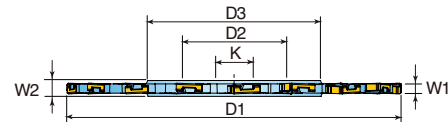


## SUPER-MAX PERFORMANCE IN A THIN SLOTTER DESIGN

- Diameters from Ø3.00" thru Ø8.00"
- Cutting Widths Ranging From .125" thru .312"
- Same 4 Index Insert for Both RH and LH Stations
- Ridgid Bridge-Style Insert Mounting

### THINOMAX™ SERIES 3VJ5V

#### AXIAL DRIVE SLOTTER



Cutter Number	W1 Cutter Width	D1 Nom. Diameter	D2 Bore Diameter	W2 Hub Width	D3 Hub Diameter	K Keyway	Total # of Inserts	# of Effective Inserts	Insert Series
3VJ5V-03012AF-01	0.125	3.000	1.000	0.375	1.560	0.250	10	5	IEE211-001
3VJ5V-04012AF-01	0.125	4.000	1.000	0.375	1.750	0.250	14	7	IEE211-001
3VJ5V-03015AF-01	0.156	3.000	1.000	0.375	1.560	0.250	10	5	IEE311-001
3VJ5V-04015AF-01	0.156	4.000	1.000	0.375	1.750	0.250	12	6	IEE311-001
3VJ5V-06015AG-01	0.156	6.000	1.250	0.375	1.870	0.312	18	9	IEE311-001
3VJ5V-03018AF-01	0.187	3.000	1.000	0.375	1.560	0.250	10	5	IEE312-001
3VJ5V-04018AF-01	0.187	4.000	1.000	0.375	1.750	0.250	12	6	IEE312-001
3VJ5V-05018AG-01	0.187	5.000	1.250	0.375	1.870	0.312	14	7	IEE312-001
3VJ5V-06018AG-01	0.187	6.000	1.250	0.375	1.870	0.312	18	9	IEE312-001
3VJ5V-04025AF-01	0.250	4.000	1.000	0.375	1.750	0.250	10	5	IXE412-001
3VJ5V-05025AF-01	0.250	5.000	1.000	0.375	1.870	0.250	12	6	IXE412-001
3VJ5V-06025AG-01	0.250	6.000	1.250	0.375	1.870	0.312	14	7	IXE412-001
3VJ5V-08025AH-01	0.250	8.000	1.500	0.375	2.750	0.375	18	9	IXE412-001
3VJ5V-04031AG-01	0.312	4.000	1.250	0.375	1.870	0.312	10	5	IXE413-001
3VJ5V-05031AG-01	0.312	5.000	1.250	0.375	1.870	0.312	12	6	IXE413-001
3VJ5V-06031AG-01	0.312	6.000	1.250	0.375	1.870	0.312	14	7	IXE413-001
3VJ5V-08031AH-01	0.312	8.000	1.500	0.375	2.750	0.375	18	9	IXE413-001
3VJ5V-04037AG-01	0.375	4.000	1.250	0.345	1.870	0.312	10	5	IXE414-001
3VJ5V-06037AG-01	0.375	6.000	1.250	0.345	1.870	0.312	14	7	IXE414-001
3VJ5V-08037AH-01	0.375	8.000	1.500	0.345	2.750	0.375	18	9	IXE414-001

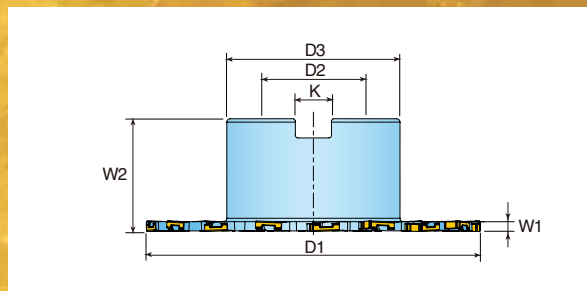


**THINOMAX™** SERIES 3VJ5V  
TANGENTIAL

**RADIAL DRIVE SLOTTER**



Slotting



Cutter Number	W1 Cutter Width	D1 Nom. Diameter	D2 Bore Diameter	W2 Hub Width	D3 Hub Diameter	K Keyway	Total # of Inserts	# of Effective Inserts	Insert Series
3VJ5V-02012D1R01	0.125	2.500	0.750	1.375	1.180	0.312	8	4	IEE211-001
3VJ5V-03012D1R01	0.125	3.000	0.750	1.500	1.500	0.312	10	5	IEE211-001
3VJ5V-04012D3R01	0.125	4.000	1.000	1.500	1.750	0.375	14	7	IEE211-001
3VJ5V-02015D1R01	0.156	2.500	0.750	1.375	1.180	0.312	8	4	IEE311-001
3VJ5V-03015D1R01	0.156	3.000	0.750	1.500	1.500	0.312	10	5	IEE311-001
3VJ5V-04015D3R01	0.156	4.000	1.000	1.500	1.750	0.375	12	6	IEE311-001
3VJ5V-0601558R01	0.156	6.000	1.500	2.000	3.070	0.625	18	9	IEE311-001
3VJ5V-02018D1R01	0.187	2.500	0.750	1.375	1.180	0.312	8	4	IEE312-001
3VJ5V-03018D1R01	0.187	3.000	0.750	1.500	1.500	0.375	10	5	IEE312-001
3VJ5V-04018D3R01	0.187	4.000	1.000	1.500	1.750	0.375	12	6	IEE312-001
3VJ5V-05018D3R01	0.187	5.000	1.000	1.500	2.250	0.375	14	7	IEE312-001
3VJ5V-0601858R01	0.187	6.000	1.500	2.000	3.070	0.625	18	9	IEE312-001
3VJ5V-02025D1R01	0.250	2.500	0.750	1.500	1.180	0.312	6	3	IXE412-001
3VJ5V-03025D1R01	0.250	3.000	0.750	1.500	1.500	0.312	8	4	IXE412-001
3VJ5V-04025D3R01	0.250	4.000	1.000	1.500	1.750	0.312	10	5	IXE412-001
3VJ5V-05025D3R01	0.250	5.000	1.000	1.500	2.250	0.375	12	6	IXE412-001
3VJ5V-0602558R01	0.250	6.000	1.500	2.000	3.070	0.625	14	7	IXE412-001
3VJ5V-04031D3R01	0.312	4.000	1.000	1.500	1.750	0.375	10	5	IXE413-001
3VJ5V-0603158R01	0.312	6.000	1.500	2.000	3.070	0.625	14	7	IXE413-001
3VJ5V-0803158R01	0.312	8.000	1.500	2.000	3.800	0.625	18	9	IXE413-001
3VJ5V-04037D3R01	0.375	4.000	1.000	1.500	1.750	0.375	10	5	IXE414-001
3VJ5V-05037D3R01	0.375	5.000	1.000	1.500	2.250	0.375	12	6	IXE414-001
3VJ5V-0603758R01	0.375	6.000	1.500	2.000	3.070	0.625	14	7	IXE414-001
3VJ5V-0803758R01	0.375	8.000	1.500	2.000	3.800	0.625	18	9	IXE414-001

Operating Guidelines on page 101.



**THINoMAX™** INSERTS  
TANGENTIAL



Insert Number	Corner Configuration	Application	Grade						
				IN2505	IN2515	IN2530	IN4005	IN4015	IN4030
IEE211-001	4 x .015" R	Multi-Purpose		•		•	•		•
IEE311-001	4 x .015" R	Multi-Purpose		•	•	•	•	•	•
IEE311-002	4 x .031" R	Multi-Purpose		•	•	•	•	•	•
IEE312-001	4 x .015" R	Multi-Purpose		•	•	•	•	•	•
IEE312-002	4 x .031" R	Multi-Purpose		•	•	•	•	•	•
IXE412-001	4 x .015" R	Multi-Purpose		•	•	•	•	•	•
IXE412-002	4 x .031" R	Multi-Purpose		•	•	•	•	•	•
IXE412-003	4 x .062" R	Multi-Purpose		•	•	•	•	•	•
IXE413-001	4 x .015" R	Multi-Purpose		•	•	•	•	•	•
IXE413-002	4 x .031" R	Multi-Purpose		•	•	•	•	•	•
IXE413-003	4 x .062" R	Multi-Purpose		•	•	•	•	•	•
IXE414-001	4 x .015" R	Multi-Purpose		•	•	•	•	•	•
IXE414-002	4 x .031" R	Multi-Purpose		•	•	•	•	•	•
IXE414-003	4 x .062" R	Multi-Purpose		•	•	•	•	•	•



Screw



Driver

IEE211	SM25-025-80	DS-T06F	M2.5 x .45MM x 2.5MM
IEE311	SM35-034-50	DS-T09W	M3.5 x .60MM x 3.4MM
IEE312	SM35-042-50	DS-T09W	M3.5 x .60MM x 4.2MM
IXE412	SM40-055-50	DS-T15T	M4.0 x .70MM x 5.5MM
IXE413	SM40-070-50	DS-T15T	M4.0 x .70MM x 7.0MM
IXE414	SM40-080-50	DS-T15T	M4.0 x .70MM x 8.0MM

HiPos + - 12mm I.C. - Series 12S1X		Brinnell Hardness	SFM	Feed per Insert	IN10K	IN2005/2505	IN2510	IN1030	IN2530	IN2040/2540	Coolant
Material											
Aluminum	6061-T6, 7075-T6, 2024	-	1500-8000	.004 - .010	1	3	2				Yes
Cast Iron	Gray	150 - 250	300 - 1000	.004 - .010		2	1				No
	Nodular		300 - 600								
Steel	Low Carbon 1018, 8620	100 - 250	400 - 1000	.004 - .010		2		1	1*	3	No
	High Carbon F-6180	250 - 400	350 - 500	.004 - .008							
	Alloyed Steel 4140, 4340	150 - 300	300 - 700	.004 - .010							
	Tool Steel A-6, D-1, D-2	Up to 300									
Stainless Steel	300 Series, 304, 316	-	300 - 700	.004 - .010		2		1	1*	3	May not be required at high speeds
	400 Series, 15-5 PH, 17-4 PH	-	400 - 900								Yes
	13-8 PH	-	200 - 400								Yes
Nickel Alloys	Inconel 600, 706, 718, 903, Hastelloy, Waspalloy	-	75-120	.003 - .006		2	3	1	1*		Yes
Titanium	6AL-4V, TI-10-2-3, TI-5553	-	100 - 150	.005 - .008		2		1	1		Yes

HiPos + - 18mm I.C. - Series 12S1E		Brinnell Hardness	SFM	Feed per Insert	IN10K	IN2005/2505	IN2510	IN1030	IN2530	IN2040/2540	Coolant
Material											
Aluminum	6061-T6, 7075-T6, 2024	-	1500-8000	.004 - .018	1	3	2				Yes
Cast Iron	Gray	150 - 250	300 - 1000	.004 - .018		2					No
	Nodular		300 - 600								
Steel	Low Carbon 1018, 8620	100 - 250	400 - 1000	.004 - .018		2		1	1*	3	No
	High Carbon F-6180	250 - 400	350 - 500	.004 - .015							
	Alloyed Steel 4140, 4340	150 - 300	300 - 700	.004 - .018							
	Tool Steel A-6, D-1, D-2	Up to 300									
Stainless Steel	300 Series, 304, 316	-	300 - 700	.004 - .018		2	3	1	1*		May not be required at high speeds
	400 Series, 15-5 PH, 17-4 PH	-	400 - 900								Yes
	13-8 PH	-	200 - 400								Yes
Nickel Alloys	Inconel 600, 706, 718, 903, Hastelloy, Waspalloy	-	75-120	.003 - .006		1	3	2	2		Yes
Titanium	6AL-4V, TI-10-2-3, TI-5553	-	100 - 150	.005 - .008		2		1	1		Yes

HiPos Trio - 6mm I.C. - Series 1KJ1D, 1KV1D, KJ5D, KJ6D					IN10K	IN2505	IN2510	IN2530	IN2540	Coolant
Material	Brinnell Hardness	SFM	Feed per Insert							
Aluminum	6061 T6, 7075 T6, 2024	-	1500 - 8000	.003 - .006	1					Yes
Cast Iron	Gray	150 - 250	500 - 1200	.002 - .006		2	1			No
	Nodular		400 - 800							
Steel	Low Carbon 1018, 8620	150 - 250	600 - 1200	.002 - .006		2		1	3	No
	High Carbon F-6180, Nitralloy 52100	250 - 400	400 - 600	.002 .005						
	Alloyed Steel 4140, 4340, 6150	150 - 300	400 - 800							
	Tool Steel A-6, D-1, D-2, P20	Up to 300								
Stainless Steel	300 Series, 304, 316	-	400 - 800	.002 - .005		2		1	3	May not be required at high speeds
	400 Series 15-5 PH, 17-4 PH	Up to 320	500 - 1000							Yes
	13-8 PH	-	200 - 400							
Nickel Alloys	Inconel 600, 706, 718, 903, Hastelloy, Waspalloy	-	75-120	.002 - .004		2	3	1		Yes
Titanium	6AL-4V	-	100 - 150	.002 - .005		2		1		Yes

HiPos Trio - 10mm I.C. - Series 1KJ1G, KJ5G, KJ6G					IN10K	IN2505	IN2510	IN2530	IN2540	Coolant
Material	Brinnell Hardness	SFM	Feed per Insert							
Aluminum	6061 T6, 7075 T6, 2024	-	1500 - 8000	.004 - .010	1					
Cast Iron	Gray	150 - 250	300 - 1000	.004 - .008		2	1			No
	Nodular		300 - 600							
Steel	Low Carbon 1018, 8620	150 - 250	400 - 1000	.004 - .008		2		1	3	No
	High Carbon F-6180, Nitralloy 52100	250 - 400	350 - 500	.004 - .006						
	Alloyed Steel 4140, 4340, 6150	150 - 300	300 - 700	.004 - .008						
	Tool Steel A-6, D-1, D-2, P20	Up to 300								
Stainless Steel	300 Series, 304, 316	-	300 - 700	.004 - .006		2		1	3	May not be required at high speeds
	400 Series 15-5 PH, 17-4 PH	Up to 320	400 - 900							Yes
	13-8 PH	-	200 - 400							
Nickel Alloys	Inconel 600, 706, 718, 903, Hastelloy, Waspalloy	-	75-120	.003 - .005		2	3	1		Yes
Titanium	6AL-4V	-	100 - 150	.005 - .005		2		1		Yes

HiPos Trio - 13mm I.C. - Series 1KJ1P, KJ5P, KJ6P										
Material	Brinell Hardness	SFM	Feed per Insert	IN10K	IN2505	IN2510	IN2530	IN2540	Coolant	
Aluminum	6061 T6, 7075 T6, 2024	-	1500 - 8000	.004 - .010	1					
Cast Iron	Gray	150 - 250	300 - 1000	.004 - .010		2	1			No
	Nodular		300 - 600							
Steel	Low Carbon 1018, 8620	150 - 250	400 - 1000	.004 - .010		2		1	3	No
	High Carbon F-6180, Nitr alloy 52100	250 - 400	350 - 500	.004 - .008						
	Alloyed Steel 4140, 4340, 6150	150 - 300	300 - 700	.004 - .010						
	Tool Steel A-6, D-1, D-2, P20	Up to 300								
Stainless Steel	300 Series, 304, 316	-	300 - 700	.004 - .008		2		1		May not be required at high speeds
	400 Series 15-5 PH, 17-4 PH	Up to 320	400 - 900							Yes
	13-8 PH	-	200 - 400							
Nickel Alloys	Inconel 600, 706, 718, 903, Hastelloy, Waspalloy	-	75-120	.003 - .006		2	3	1		Yes
Titanium	6AL-4V	-	100 - 150	.005 - .006		2		1		Yes

DiPos Hexa - Series 1DJ1F, DJ5F, 1DJ1P, DJ5P, DJ6P										
Material	Brinell Hardness	SFM	Feed per Insert	IN10K	IN2505	IN2510	IN2530	IN2540	Coolant	

Aluminum	6061 T6, 7075 T6, 2024	-	1500-8000	.004 - .010	1					
Cast Iron	Gray	150 - 250	300 - 1000	.004 - .010		2	1			No
	Nodular		300 - 600							
Steel	Low Carbon 1018, 8620	150 - 250	400 - 1000	.004 - .010		2		1	3	No
	High Carbon F-6180, Nitr alloy 52100	250 - 400	350 - 500	.004 - .008						
	Alloyed Steel 4140, 4340, 6150	150 - 300	300 - 700	.004 - .010						
	Tool Steel A-6, D-1, D-2, P20	Up to 300								
Stainless Steel	300 Series, 304, 316	-	300 - 700	.004 - .010		2		1		May not be required at high speeds
	400 Series 15-5 PH, 17-4 PH	Up to 320	400 - 900							Yes
	13-8 PH	-	200 - 400							
Nickel Alloys	Inconel 600, 706, 718, 903, Hastelloy, Waspalloy	-	75-120	.003 - .006		2		1		Yes
Titanium	6AL-4V	-	100 - 150	.005 - .008		2		1		Yes

Hi-Quad Long Edge Cutters - Series 25J3P					IN4005	IN4030	IN4035	IN4015	Coolant
Material	Brinnell Hardness	SFM	Feed per Insert						
Aluminum	6061 T6, 7075 T6, 2024	-	1000 - 5000	.004 - .018				1	Yes
Cast Iron	Gray	150 - 250	300 - 800	.004 - .010	2			1	No
	Nodular		300 - 500						
Steel	Low Carbon 1018, 8620	100 - 250	400 - 800	.004 - .010	3	2	1		No
	High Carbon F-6180	250 - 400	350 - 500	.004 - .008					
	Alloyed Steel 4140, 4340	150 - 300	300 - 600	.004 - .010					
	Tool Steel A-6, D-1, D-2	Up to 300							
Stainless Steel	300 Series, 304, 316	-	300 - 450	.004 - .010	3	2	1		May not be required at high speeds
	400 Series 15-5 PH	Up to 320	350 - 500						Yes
	13-8 PH	-	200 - 400						
Nickel Alloys	Inconel, Hastelloy, Waspalloy	-	65-110	.003 - .006	3	2	1		Yes
Titanium	6AL-4V	-	90 - 120	.005 - .008	3	2	1		Yes

STARTING FEED RATE GUIDELINES FOR EXTENDED FLUTE MILL BASED ON WIDTH OF CUT

Material	Material Specification	Radial WOC	Feed Rate (APT)			
			2.00 Diameter	2.50 Diameter	3.00 Diameter	4.00 Diameter
Aluminum	7075 - T6, 6061 - T6, 2024	0.02	0.050	0.060	0.070	0.080
		Diameter / 8	0.015	0.015	0.015	0.015
		Diameter / 4	0.012	0.012	0.012	0.012
		Diameter / 2	0.010	0.010	0.010	0.010
Cast Iron	Gray / Nodular	0.02	0.035	0.048	0.056	0.064
		Diameter / 8	0.009	0.011	0.011	0.011
		Diameter / 4	0.007	0.008	0.008	0.008
		Diameter / 2	0.006	0.006	0.006	0.006
Steel	Low / Med Carbon 1018, 1045, 8620	0.02	0.035	0.048	0.056	0.064
		Diameter / 8	0.009	0.011	0.011	0.011
		Diameter / 4	0.007	0.008	0.008	0.008
		Diameter / 2	0.006	0.006	0.006	0.006
	Alloyed Steel, 4140, 4340, Tool Steel A-6, D-1, D-2	0.02	0.030	0.042	0.049	0.056
		Diameter / 8	0.008	0.009	0.009	0.009
		Diameter / 4	0.006	0.007	0.007	0.007
		Diameter / 2	0.005	0.005	0.005	0.005
Stainless Steel	300 Series, 304, 316, 13-8PH	0.02	0.030	0.042	0.049	0.056
		Diameter / 8	0.008	0.009	0.009	0.009
		Diameter / 4	0.006	0.007	0.007	0.007
		Diameter / 2	0.005	0.005	0.005	0.005
	400 Series 15-5PH, 17-4PH	0.02	0.035	0.048	0.056	0.064
		Diameter / 8	0.009	0.011	0.011	0.011
		Diameter / 4	0.007	0.008	0.008	0.008
		Diameter / 2	0.006	0.006	0.006	0.006
Nickel Alloys & Titanium	Inconel, Hastelloy, Waspalloy, 6AL-4V	0.02	0.030	0.042	0.049	0.056
		Diameter / 8	0.008	0.009	0.009	0.009
		Diameter / 4	0.006	0.007	0.007	0.007
		Diameter / 2	0.005	0.005	0.005	0.005

IsoPlus - Series DJ6T, DJ5T					IN2510	IN2530	IN2505	IN2540	IN6515	IN71N	Coolant
Material	Brinnell Hardness	SFM	Feed per Insert								
Aluminum	7075 - T6, 6061 - T6, 2024	-	1500-10000	.006-.012	1						Yes
Cast Iron	Gray	150-250	500-1000	.008-.010	1				2		No
			1800+	.005-.008					1		
	Nodular		400-800	.007-.009	2				1		
			1500+	.004-.007						1	
Steel	Low Carbon 1018, 8620	100-250	400-1000	.006-.010							No
	High Carbon F-6180	250-400	400-800			1	3	2			
	Alloyed Steel 4140, 4340	150-300	300-700								
	Tool Steel A-6, D-1, D-2	Up to 300	300-500								
Stainless Steel	300 Series, 304, 316	-	300-700	.005-.008							May not be required at high speeds
	400 Series 15-5 PH	Up to 320	400-700			1	2				
	13-8 PH	-	200-400							Yes	
Nickel Alloys	Inconel, Hastelloy, Waspalloy	-	75-120	.003-.006		2	1				Yes
Titanium	6AL-4V	-	100-150	.004-.007		1	2				Yes

OctoPlus - Series ON5H, ON6H, OP6N					IN10K	IN2004	IN2005/2505	IN2030	IN2035	IN2040	IN6510/2510	IN6515	IN70N	Coolant
Material	Brinnell Hardness	SFM	Feed per Insert											
Aluminum	7075 - T6, 6061 - T6, 2024	-	1500-10000	.006-.012	1									Yes
Cast Iron	Gray	150-250	500-1000	.008-.016		3					1	2		No
			1800+	.005-.008									1	
	Nodular		400-800	.007-.014		3					2	1		
			1500+	.004-.007									1	
Steel	Low Carbon 1018, 8620	100-250	400-1000	.006-.015										No
	High Carbon F-6180	250-400	400-800	.006-.012			2	1		3				
	Alloyed Steel 4140, 4340	150-300	300-700											
	Tool Steel A-6, D-1, D-2	Up to 300	300-500											
Stainless Steel	300 Series, 304, 316	-	300-700		.005-.009									
	400 Series 15-5 PH	Up to 320	400-700			3	2	1	4					
	13-8 PH	-	200-400									Yes		
Nickel Alloys	Inconel, Hastelloy, Waspalloy	-	75-120	.003-.006			1	3	2				Yes	
Titanium	6AL-4V	-	100-150	.004-.007			3	1	2				Yes	

FormMaster F - Series 1DG1H, DG6H					IN2030	IN2505	IN2540	IN6530	Coolant
Material	Brinnell Hardness	SFM	Feed per Insert						
Steel	Mild 1018 - 1045	125 - 425	300 - 650	.035 - .157	1				No
	Low Alloy 4140, 8620, 4340	150 - 425			300 - 700	1	1	3	
	Med Alloy P20, S7, H13, O1, A2								
Stainless Steel	Free Machining 303, 416	150 - 425	200 - 550	.030 - .100	1	2	3	4	No
	300 Series 304, 310, 316								
	400 Series 410, 420, 15-5PH, 17-4 PH								
	PH Series 13-8								
Hardened Steel	ALL	-	200 - 400	.030 - .075	1	2			No

HiFeedMini - Series 1TG1F, TG1F					IN2030	IN2505	IN2540	IN6530	Coolant
Material	Brinnell Hardness	SFM	Feed per Insert						
Steel	Mild 1018 - 1045	125 - 425	500 - 1100	.010 - .035		1	2	2	No
	Low Alloy 4140, 8620, 4340	150 - 425	400 - 1000	.008 - .018	1	3	2	4	
	Med Alloy P20, S7, H13, O1, A2	150 - 425	300 - 900						
	High Alloy A7-D2	200 - 425	300 - 600	.005 - .015	1	2		3	
Stainless Steel	Free Machining 303, 416	150 - 425	300 - 800	.010 - .030	2	1		3	No
	300 Series 304, 310, 316	150 - 425	200 - 600	.005 - .015					
	400 Series 410, 420, 15-5PH, 17-4 PH	150 - 425							
	PH Series 13-8	150 - 425	200 - 500						
Hardened Steel	ALL	-	200 - 400	.002 - .010	1		2	3	No



HiQuad F - Series 15M1P, 5M_P, 5G_M					IN2505	IN2530	IN4005	IN4030	IN4035	Coolant
Material	Brinnell Hardness	SFM	Feed per Insert							
Steel	Mild 1018-1045	125-425	300-650	.025-.115	2	1		3	NO	
	Low Alloy 4140, 8620, 4340	150-425				2	1		3	NO
	Med Alloy P20, S7, H13, O1, A2				2	3	1		3	NO
Stainless Steel	Free Machining 303, 416	150-425	220-550	.025-.110	5	3	4	1	2	NO
	300 Series 304, 310, 316				5	3	4	1	2	NO
	400 Series 410, 420, 15-5PH, 17-4 PH				5	3	4	1	2	YES
	PH Series 13-8				5	3	4	1	2	YES
Hardened Steel	ALL	-	200-400	.030-.050	2		1		3	NO
Titanium	6AL-4V	-	90-200	.030-.060	5	3	4	1	2	YES

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases. Additionally, DOC and WOC may need to be revised to optimize the tools performance.

HiQuad Plungers - Series QHU, 5J1P					IN4005	IN4030	IN4035	IN4015	Coolant
Material	Brinnell Hardness	SFM	Feed per Insert						
Aluminum	6061 T6, 7075 T6, 2024	-	1500 - 8000	.004 - .010				1	Yes
Cast Iron	Gray	150 - 250	250 - 800	.005 - .012	2			1	No
	Nodular		200 - 800						
Steel	Low Carbon 1018, 8620	100 - 250	250 - 800	.004 - .012	2	1			No
	High Carbon F-6180	250 - 400	200 - 700	.005 - .012					
	Alloyed Steel 4140, 4340	150 - 300	250 - 700						
	Tool Steel A-6, D-1, D-2	Up to 300							
Stainless Steel	300 Series, 304, 316	-	250 - 600	.004 - .008	3	2	1		May not be required at high speeds
	400 Series 15-5 PH	Up to 320	300 - 700	.005 - .010					
	13-8 PH	-	200 - 250	.004 - .008					Yes
Nickel Alloys	Inconel, Hastelloy, Waspalloy	-	75-120	.004 - .008	3	2	1		Yes
Titanium	6AL-4V	-	100 - 150	.004 - .008	3	2	1		Yes

IsoPlus High Feed - Series DD6H					IN2530	IN2505	IN2540	IN2510	IN6515	IN2035	Coolant
Material	Brinnell Hardness	SFM	Feed per Insert								
Cast Iron	Gray	150-250	600-1000	.030-.130				1	2		No
	Nodular		150-250					2	1		
Steel	Mild 1018, 1045	125-425	300-650	.025-.115	1	2	3				No
	Low Alloy 4140, 4340, 8620	150-425						300-700			
	Med Alloy P20, S7, H13, A2										
Stainless Steel	300 Series, 304, 316	Up to 320	200-550	.025-.110	2	3	4			1	May not be required at high speeds
	400 Series, 15-5 PH, 17-4 PH										
	13-8 PH										
Hardened Steel	All	-	200-400	.030-.050	2	1					No
Nickel Alloys	Inconel, Hastelloy, Waspalloy	-	75-120	.030-.080		3	2			1	Yes
Titanium	6AL-4V	-	100-150	.030-.060		2	3			1	Yes

DiPos TETRA - Series 1TJ10, TJ50, TJ60, 1TJ1N, TJ5N, TJ6N, TN1N											
Material	Brinnell Hardness	SFM	Feed per Insert	IN10K	IN2505	IN2510	IN2530	IN2540	IN6515	Coolant	
Aluminum	6061-T6, 7075-T6, 2024	-	1500 - 8000	.004 - .018	1					Yes	
Cast Iron	Gray	150 - 250	300 - 1000	.004 - .009		3	1			2	No
	Nodular		300 - 600			3	2		1		
Steel	Low Carbon 1018, 8620	150 - 250	400 - 1000	.004 - .009	2		1	3		No	
	High Carbon F-6180, Nitalloy 52100	250 - 400	350 - 500	.004 - .007							
	Alloyed Steel 4140, 4340, 6150	150 - 300	300 - 700	.004 - .009							
	Tool Steel A-6, D-1, D-2, P20	Up to 300									
Stainless Steel	300 Series, 304, 316	-	300 - 550	.004 - .009	2		1	3		May not be required at high speeds	
	400 Series 15-5 PH, 17-4 PH	Up to 320	350 - 600							Yes	
	13-8 PH	-	200 - 400								
Nickel Alloys	Inconel 600, 706, 718, 903, Hastelloy, Waspalloy	-	75-120	.003 - .006	2		1			Yes	
Titanium	6AL-4V	-	100 - 150	.005 - .008	2		1			Yes	

FormMasterShear - Series 15B1B, 1A7_					IN1030	IN6530	IN2530	IN2540	IN2505	IN055	Coolant
Material	Brinnell Hardness	SFM	Feed per Insert								
Aluminum	6061-T6, 7075-T6		1300-1650	.0075 - .047						1	YES
Cast Iron	Gray	190-220	360 - 690	.005 - .022		3	2		1		NO
	Nodular	140-200	140-200			3	2		1		NO
Steel	Low Carbon 1018-8620	85-175	721 - 985	.005 - .024			2		1		NO
	High Carbon F-6180	175 - 225	490 - 820	.005 - .024			2		1		NO
	Alloyed Steel 4140	275-325	325 - 590	.005 - .022			2	3	1		NO
	Tool Steel P20-H13	200-250	275 - 495	.005 - .022			2		1		NO
Stainless Steel	300 Series, 304, 316	-	360 - 590	.005 - .021	3	2	1		4		OPTIONAL
	400 Series 15-5 PH, 17-4 PH	-	360 - 720	.005 - .021	3	2	1		4		OPTIONAL
	13-8 PH	-	200 - 600	.005 - .015	3	2	1		4		OPTIONAL
Nickel Alloys	Inconel 600, 706, 718,	-	80 - 150	.004 - .017		2	1		3		YES
Titanium	903, Hastelloy	-	115 - 195	.004 - .017		2	1		3		YES

FormMaster R - Series 1DE1H, DE6H					Feed per Insert			Coolant	
Material	Brinnell Hardness	SFM	RNLU1205 MON-S	RNLU1205 MON-M	IN2505	IN6530	IN2530		
Cast Iron	Gray	150 - 250	500 - 800	.007 - .020	.015 - .035	2	1		No
	Nodular		450 - 800						
Steel	Low Carbon 1018, 8620	150 - 250	500 - 700	.007 - .020	.015 - .035	1	3	2	No
	High Carbon F-6180	250 - 400	450 - 500	.007 - .020	.015 - .040	1	3	2	
	Alloyed Steel 4140	150 - 300							
	Tool Steel P20 - H13	Up to 300							
Stainless Steel	300 Series, 304, 316	Up to 320	250 - 500	.005 - .015	.010 - .020	2	3	1	Yes
	400 Series 15-5 PH, 17-4 PH								
	13-8 PH								
Nickel Alloys	Inconel 600, 706, 718, 903, Hastelloy	-	50 - 250	.003 - .015	.003 - .012	2	3	1	Yes
Titanium	6AL-4V	-	50 - 250	.003 - .008	.003 - .008	2		1	Yes

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases. Additionally, DOC and WOC may need to be revised to optimize the tools performance.

FinishBall - Series 12A9, 12A5, 12A8					IN2005	IN2006	IN055	Coolant
Material		Brinnell Hardness	SFM	Feed per Insert				
Aluminum	6061-T6, 7075-T6	-	1000 - 8000	.003 - .006	2		1	Yes
Cast Iron	Gray	150 - 250	500 - 1200	.002 - .006	1			No
	Nodular		400 - 800					
Steel	Low Carbon 1018, 8620	150 - 250	600 - 1200	.002 - .006	1			No
	High Carbon F-6180	250 - 400*	400 - 600	.002 - .005	2	1		
	Alloyed Steel 4140	150 - 300	400 - 800		1	2		
	Tool Steel P20 - H13	Up to 460*			2	1		
Stainless Steel	300 Series, 304, 316	-	400 - 800	.002 - .005	1	2		No
	400 Series 15-5 PH, 17-4 PH	Up to 320	500-1000					Yes
	13-8 PH	-	200 - 400					
Nickel Alloys	Inconel 600, 706, 718, 903, Hastelloy	75-120	75-120	.002 - .004	1	2		Yes
Titanium	6AL-4V	-	80 - 150	.002 - .005	1	2		Yes

\*58 Rc & Above use IN2006

Pro-Trio - Series 2TW7K					IN2505	IN2530	IN6530	Coolant
Material		Brinnell Hardness	SFM	Feed per Insert				
Cast Iron	Gray	-	785-1250	.004-.020	1	2	3	No
	Nodular		590-940					
Steel	Low Carbon 1018, 8620	85-175	650-1150	.004-.020	1	2	3	No
	High Carbon F-6180	175-225	590-1050	.004-.016				
	Alloyed Steel 4140	275-325	390-820	.002-.014				
	Tool Steel P20 - H13	200-250	330-660	.006-.016				
Stainless Steel	300 Series, 304, 316	-	590-918	.003-.014	2	1	3	No
	400 Series 15-5 PH, 17-4 PH	-	650-985	.002-.018				Yes
	13-8 PH	-	200-400	.003-.015				
Nickel Alloys	Inconel 600, 706, 718, 903, Hastelloy	-	65-265	.002-.008	2	1	3	Yes
Titanium	6AL-4V	-	130-360	.002-.012	2	1	3	Yes

\*58 Rc & Above use IN2006

GoldMax4FFin - Series EF6J		Brinnell Hardness	SFM	Feed per Insert	IN2505	IN2530	IN4015	IN4030	Coolant
Material									
Cast Iron	Gray	150 - 250	800 - 1200	.025 - .050	2		1		No
	Nodular		500 - 900						
Steel	Carbon Steel 1018, A-36, 1045	100 - 250	600 - 900	.025 - .050	1	3		2	No
	Alloyed Steel 4140, 4340, 8620		500 - 800						
	Tool Steel A2, 01, P20, H13	200 - 400	300 - 500						
Stainless Steel	Free Machining 303, 416	150 - 250	500 - 800	.025 - .050	3	2		1	Yes
	300 Series, 304, 316		300 - 500						
	400 Series 15-5 PH	200 - 400							
	13-8 PH								
Nickel Alloys	Inconel 600, 706, 718, 903, Hastelloy, Waspalloy	200 - 350	75-150	.010 - .030	3	2		1	Yes
Titanium	6AL-4V, Ti-10-2-3, Ti-5553	250 - 450	75 - 200	.020 - .040	3	2		1	Yes

GoldMax 8 - Series VJ6V		Brinnell Hardness	SFM	Feed per Insert	IN2030	IN2530	IN4030	Coolant
Material								
Aluminum	6061-T6, 7075-T6, 2024	-	1500 - 8000	.004 - .016	1			Yes
Cast Iron	Gray	150 - 250	400 - 750	.004 - .012	2	3	1	No
	Nodular		300 - 650					
Steel	Low Carbon 1018, 8620	100 - 250	350 - 650	.004 - .012	2	3	1	No
	High Carbon F-6180	250 - 400	300 - 600	.004 - .008				
	Alloyed Steel 4140, 4340	150 - 300	250 - 500	.004 - .008				
	Tool Steel A2, 01, D2, P20	Up to 300						
Stainless Steel	300 Series, 304, 316	-	250 - 450	.004 - .010	2	3	1	May not be required at high speeds
	400 Series, 15-5 PH	Up to 320	300 - 600					
	13-8 PH	-	200 - 400					Yes
Nickel Alloys	Inconel, Hastelloy, Waspalloy	-	75-120	.003 - .006	2	3	1	Yes
Titanium	6-4, 10-2-3, 5-5-5-3	-	75 - 200	.003 - .006	2	3	1	Yes

\*IN6515 preferred for higher SFM

GoldMax4 - Series 3EJ6_					IN2515	IN4015	IN2505	IN4005	IN2530	IN4030	IN2540	IN4040	Coolant
Material	Brinnell Hardness	SFM	Feed per Insert										
Cast Iron	Gray	150 - 280	400 - 750	.003 - .010	2	1		3					No
	Nodular		300 - 650										
Steel	Low Carbon 1018, 8620	100 - 250	250 - 500	.003 - .010									No
	High Carbon F-6180	250 - 400	200 - 350										
	Alloyed Steel 4140, 4340	150 - 300	250 - 400										
	Tool Steel A2, 01, D2, P20	Up to 300											
Stainless Steel	300 Series, 304, 316	-	400 - 600	.003 - .008				3	2	1			Yes
	400 Series, 15-5 PH	Up to 320	300 - 600										
	13-8 PH	-	200 - 600										
Nickel Alloys	Inconel 600, 706, 718, 903, Hastelloy, Waspalloy	-	75 - 150	.003 - .005				3	2	1			Yes
Titanium	6-4, 10-2-3, 5-5-5-3	-	75 - 150	.003 - .008				3	2	1			Yes

ThinMax - Series 3VJ5V					Feed per Insert WOC		IN2505	IN2515	IN2530	IN4005	IN4015	IN4030	Coolant
Material	Brinnell Hardness	SFM	.125"-.156"	.187"-.375"									
Aluminum	6062 T-6, 70705 T6	-	1500-1800	.004 - .008	.006 - .015		1						Yes
Cast Iron	Gray	150 - 250	400 - 750	.002 - .006	.004 - .010		2				1		No
	Nodular		300 - 650										
Steel	Low Carbon 1018, 8620	100 - 250	250 - 500	.002 - .006	.004 - .010	2		4	1		3		No
	High Carbon F-6180, Nitralloy 52100	250 - 400	250 - 350										
	Alloyed Steel 4140, 4340, 6150	150 - 300	250 - 400										
	Tool Steel A2, 01, D2, P20	Up to 300											
Stainless Steel	300 Series, 304, 316	-	250 - 400	.002 - .006	.004 - .010	4		2	3		1		Yes
	400 Series 15-5 PH, 17-4 PH	Up to 320	300 - 600										
	13-8 PH	-	200 - 250										
Nickel Alloys	Inconel 600, 706, 718, 903, Hastelloy, Waspalloy	-	75-120	.002 - .006	.004 - .010	4		2	3		1		Yes
Titanium	6AL-4V	-	100 - 150	.002 - .006	.004 - .010	4		2	3		1		Yes