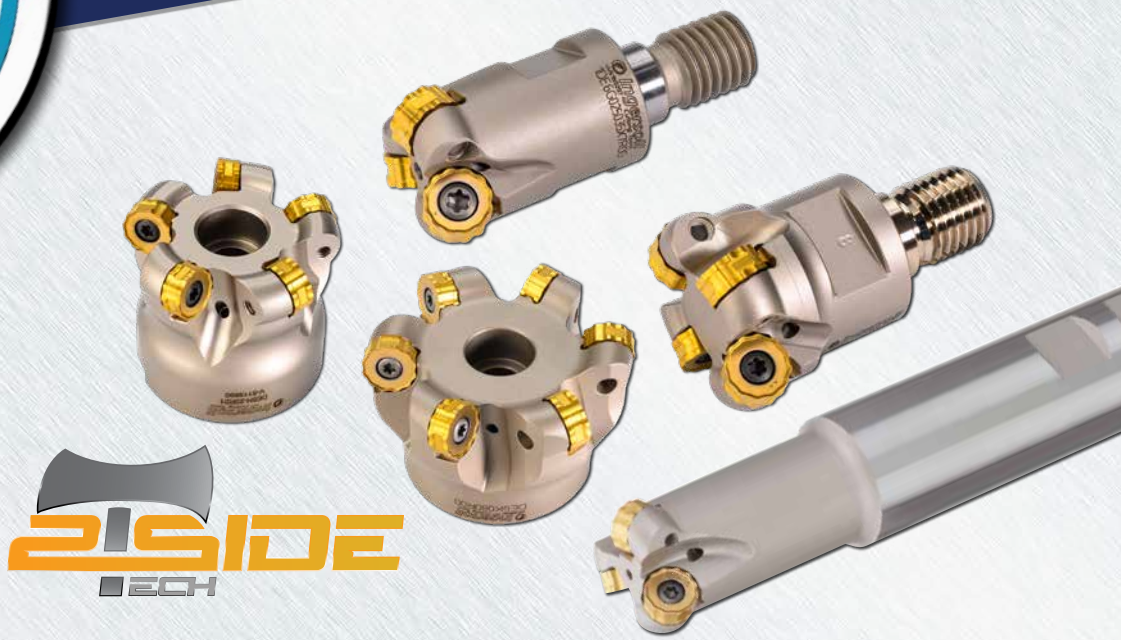
INDUSTRY 4.0
PRODUCT ANNOUNCEMENT
UPDATE
2020

FORMMASTER™



Cutter Series:
Face Mill – DE6G, DE6H, DE6K
End Mill - 1DE1H
Top-on - 1DE6G, 1DE1H, 1DE6H

Diameters:
1.250" to 3.000"
25mm TO 160mm

Insert Series:
RNLU1004MON-M
RNLU1004MON-S
RNLU1205MON-M
RNLU1205MON-S
RNLU1606MON-M
RNLU1606MON-S

Insert Grades:
IN2505
IN2530
IN2035
IN2504
IN7035

Applications:
Die & Mold
Aero Space
General Purpose

Contour Button Milling, Offering Extended Economy With Outstanding Performance!!

FEATURES & BENEFITS:

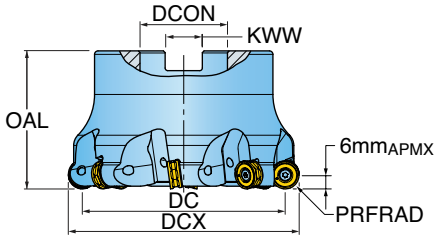
- Cutter body options include: End Mill, Modular and Face Mill
- Cutter diameter range, 1.25 up to 3.00 inch and 25mm to 160mm
- Depth of cut (DOC) capability from 5mm (.197) to 8mm (.315)
- Two uniquely designed double-sided insert geometries round and serrated
- Inserts offer 8 and 16 cutting edges for cost-effective machining and economy!
- Serrated Style Insert for:
  - Extended Reach Applications
  - Increased Milling Stability
  - Excellent Chip & Heat Management
  - Lower cutting forces promote efficient and higher productivity milling!
- Super strong insert clamping system ensures stable milling performance

Member IMC Group
Ingersoll Cutting Tools

FORMMASTER R™ SERIES DE6H - INCH

BUTTON FACEMILL WITH 8-16 INDEXES

Facing | Channeling | Ramping | Pocket | Corkscrew | Contour | Coolant

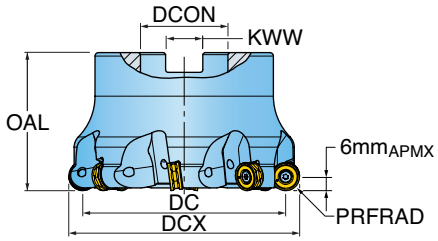


Part Number	DCX Cutting Dia. Max.	DC Cutting Dia.	OAL Overall Length	ZEFF Eff. Teeth	DCON Shank Dia.	KWW Keyway	PRFRAD Profile Radius	CSP Coolant
DE6H-20R01	2.000	1.528	1.750	5	0.750	0.312	6.00 mm	Yes
DE6H-25R01	2.500	2.028	1.750	6	0.750	0.312	6.00 mm	Yes
DE6H-30R01	3.000	2.529	1.750	7	1.000	0.375	6.00 mm	Yes

FORMMASTER R™ SERIES DE6H - METRIC

BUTTON FACEMILL WITH 8-16 INDEXES

Facing | Channeling | Ramping | Pocket | Corkscrew | Contour | Coolant

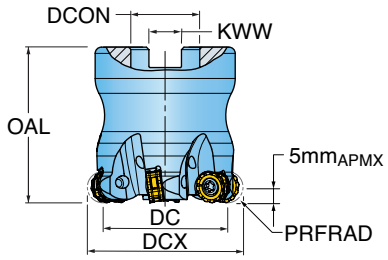


	Part Number	DCX Cutting Dia. Max.	DC Cutting Dia.	OAL Overall Length	ZEFF Eff. Teeth	DCON Shank Dia.	KWW Keyway	PRFRAD Profile Radius	CSP Coolant
NEW	DE6H050R00	50.00 mm	38.00 mm	50.00 mm	5	22.00 mm	10.40 mm	6.00 mm	Yes
NEW	DE6H052R00	52.00 mm	40.00 mm	50.00 mm	5	22.00 mm	10.40 mm	6.00 mm	Yes
NEW	DE6H063R00	63.00 mm	51.00 mm	50.00 mm	6	22.00 mm	10.40 mm	6.00 mm	Yes
NEW	DE6H066R00	66.00 mm	54.00 mm	50.00 mm	6	27.00 mm	12.40 mm	6.00 mm	Yes
NEW	DE6H080R00	80.00 mm	78.00 mm	50.00 mm	6	27.00 mm	12.40 mm	6.00 mm	Yes

FORMMASTER R™ SERIES DE6G - METRIC

BUTTON FACEMILL WITH 8-16 INDEXES

Facing | Channeling | Ramping | Pocket | Corkscrew | Contour | Coolant

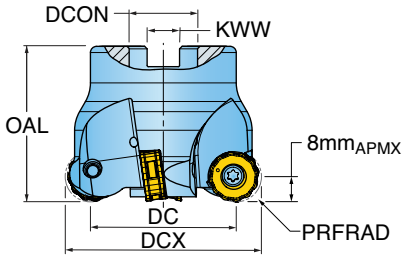


	Part Number	DCX Cutting Dia. Max.	DC Cutting Dia.	OAL Overall Length	ZEFF Eff. Teeth	DCON Shank Dia.	KWW Keyway	PRFRAD Profile Radius	CSP Coolant
NEW	DE6G050R00	50.00 mm	40.00 mm	50.00 mm	6	22.00 mm	10.40 mm	5.00 mm	Yes
NEW	DE6G052R00	52.00 mm	42.00 mm	50.00 mm	6	22.00 mm	10.40 mm	5.00 mm	Yes

FORMMASTER R™ SERIES DE6K - METRIC

BUTTON FACEMILL WITH 8-16 INDEXES

Facing | Channeling | Ramping | Pocket | Corkscrew | Contour | Coolant

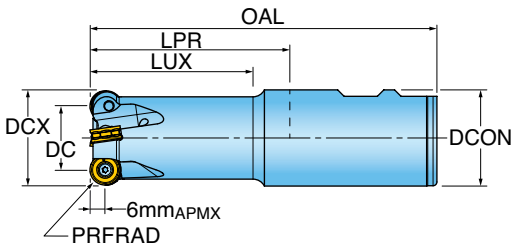


	Part Number	DCX Cutting Dia. Max.	DC Cutting Dia.	OAL Overall Length	ZEFF Eff. Teeth	DCON Shank Dia.	KWW Keyway	PRFRAD Profile Radius	CSP Coolant
NEW	DE6K050R00	50.00 mm	34.00 mm	50.00 mm	4	16.00 mm	8.40 mm	8.00 mm	Yes
NEW	DE6K052R00	52.00 mm	36.00 mm	50.00 mm	4	22.00 mm	10.40 mm	8.00 mm	Yes
NEW	DE6K063R00	63.00 mm	47.00 mm	50.00 mm	4	22.00 mm	10.40 mm	8.00 mm	Yes
NEW	DE6K066R01	66.00 mm	50.00 mm	50.00 mm	6	27.00 mm	12.40 mm	8.00 mm	Yes
NEW	DE6K080R00	80.00 mm	64.00 mm	50.00 mm	6	27.00 mm	12.40 mm	8.00 mm	Yes
NEW	DE6K100R00	100.00 mm	84.00 mm	50.00 mm	6	32.00 mm	14.40 mm	8.00 mm	Yes
NEW	DE6K160R00	160.00 mm	144.00 mm	63.00 mm	9	40.00 mm	16.40 mm	8.00 mm	Yes

FORMMASTER R™ SERIES 1DE1H - INCH

WELDON BUTTON ENDMILL WITH 8-16 INDEXES

Facing | Channeling | Ramping | Pocket | Corkscrew | Contour | Coolant

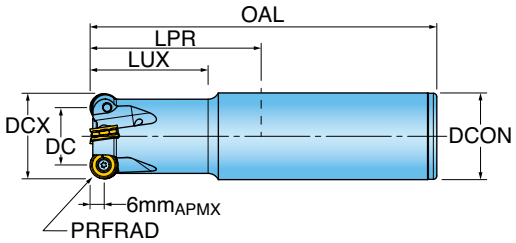


Part Number	DCX Cutting Dia. Max.	DC Cutting Dia.	LUX Usable Length Max.	LPR Protruding Length	OAL Overall Length	ZEFF Eff. Teeth	DCON Shank Dia.	PRFRAD Profile Radius	CSP Coolant
1DE1H-1202781R01	1.250	0.779	2.72	2.75	5.00	3	1.250	6.00 mm	Yes
1DE1H-1502786R01	1.500	1.029	2.72	2.75	5.41	4	1.500	6.00 mm	Yes

FORMMASTER R™ SERIES 1DE1H - INCH

CYLINDRICAL BUTTON ENDMILL WITH 8-16 INDEXES

Facing | Channeling | Ramping | Pocket | Corkscrew | Contour | Coolant

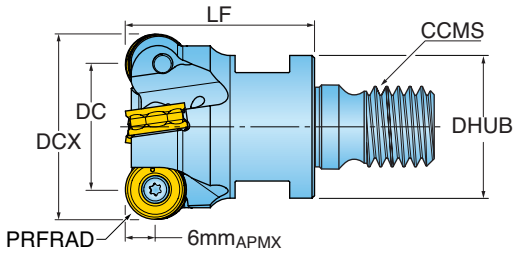


Part Number	DCX Cutting Dia. Max.	DC Cutting Dia.	LUX Usable Length Max.	LPR Protruding Length	OAL Overall Length	ZEFF Eff. Teeth	DCON Shank Dia.	PRFRAD Profile Radius	CSP Coolant
1DE1H-12020S9R01	1.250	0.779	1.97	2.00	9.00	3	1.250	6.00 mm	Yes
1DE1H-12022S9R01	1.250	0.779	2.22	2.25	6.00	3	1.250	6.00 mm	Yes
1DE1H-15020S5R01	1.500	1.029	1.97	2.00	9.00	4	1.500	6.00 mm	Yes
1DE1H-15022S5R01	1.500	1.029	2.22	2.25	6.00	4	1.500	6.00 mm	Yes

FORMMASTER R™ SERIES 1DE1H - INCH

TOP•ON BUTTON ENDMILL WITH 8-16 INDEXES

Facing | Channeling | Ramping | Pocket | Corkscrew | Contour | Coolant

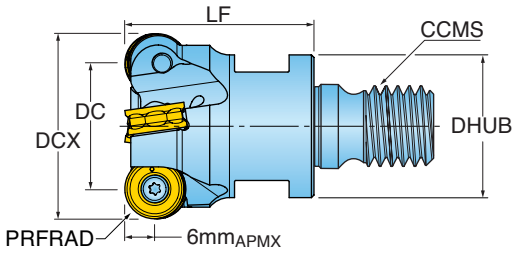


Part Number	DCX Cutting Diameter Max.	DC Cutting Diameter	LF Functional Length	ZEFF Effective Teeth	DHUB Hub Diameter	CCMS Connection Code Machine Side	PRFRAD Profile Radius	CSP Coolant
1DE1H-12015X8R01	1.250	0.779	1.50	3	1.13	TopOn M16	6.00 mm	Yes
1DE1H-15015X8R01	1.500	1.029	1.50	4	1.13	TopOn M16	6.00 mm	Yes

FORMMASTER R™ SERIES 1DE6H - METRIC

TOP•ON BUTTON ENDMILL WITH 8-16 INDEXES

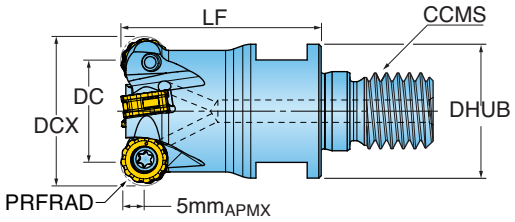
Facing | Channeling | Ramping | Pocket | Corkscrew | Contour | Coolant



Part Number	DCX Cutting Diameter Max.	DC Cutting Diameter	LF Functional Length	ZEFF Effective Teeth	DHUB Hub Diameter	CCMS Connection Code Machine Side	PRFRAD Profile Radius	CSP Coolant
NEW 1DE6H032043X8R00	32.00 mm	30.00 mm	43.0 mm	3	29.0 mm	TopOn M16	6.00 mm	Yes
NEW 1DE6H040043X8R00	40.00 mm	28.00 mm	43.0 mm	4	29.0 mm	TopOn M16	6.00 mm	Yes

FORMOMASTER R™ SERIES 1DE6G - METRIC

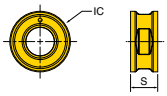
TOP•ON BUTTON ENDMILL WITH 8-16 INDEXES



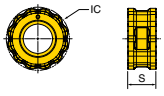
	Part Number	DCX Cutting Diameter Max.	DC Cutting Diameter	LF Functional Length	ZEFF Effective Teeth	DHUB Hub Diameter	CCMS Connection Code Machine Side	PRFRAD Profile Radius	CSP Coolant
NEW	1DE6G025035X7R00	25.00 mm	15.00 mm	35.0 mm	3	21.0 mm	TopOn M12	5.00 mm	Yes
NEW	1DE6G032043X8R00	32.00 mm	22.00 mm	43.0 mm	4	29.0 mm	TopOn M16	5.00 mm	Yes
NEW	1DE6G042043X8R00	42.00 mm	32.00 mm	43.0 mm	5	29.0 mm	TopOn M16	5.00 mm	Yes

FORMOMASTER R™ INSERTS

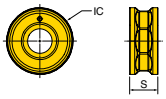
RNLU1004MON-M



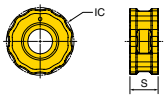
RNLU1004MON-S



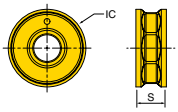
RNLU1205MON-M



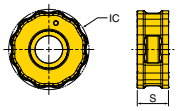
RNLU1205MON-S



RNLU1606MON-M



RNLU1606MON-S



	Part Number	Application	IC Inscribed Circle Dia.	S Thickness	IH Insert Hand	Grade	IN2505	IN2035	IN7035	IN2504	IN2530
NEW	RNLU1004MON-M	Multi-Purpose	10mm	0.160	Neutral		•				•
NEW	RNLU1004MON-S	Multi-Purpose, Serrated	10mm	0.160	Neutral		•				•
	RNLU1205MON-M	Multi-Purpose	12mm	0.173	Neutral		•	•	•	•	•
	RNLU1205MON-S	Multi-Purpose, Serrated	12mm	0.173	Neutral		•	•	•	•	•
NEW	RNLU1606MON-M	Multi-Purpose	16mm	0.240	Neutral		•				•
NEW	RNLU1606MON-S	Multi-Purpose, Serrated	16mm	0.240	Neutral		•				•

FORMMASTER R™ HARDWARE

	 Insert Screw	 Retention Bolt	 Driver Handle	 Driver Bit	 Wrench	 **OPTIONAL** Torque Driver Handle	 **OPTIONAL** Torque Driver Bit	 **OPTIONAL** Preset Torque Bit	 **OPTIONAL** Retention Bolt w/Coolant
DE6H-20R01	SM40-110-00	SD-06-47	DS-A00T	DS-T156B	-	DS-A00-.25-T	DS-T15B1	-	SD-06-89
DE6H-25R01	SM40-110-00	SD-06-47	DS-A00T	DS-T156B	-	DS-A00-.25-T	DS-T15B1	-	SD-06-89
DE6H-30R01	SM40-110-00	SD-08-47	DS-A00T	DS-T156B	-	DS-A00-.25-T	DS-T15B1	-	SD08-C9
DE6H050R00	SM40-110-00	SD06-81	DS-A00T	DS-T156B	-	DS-A00-.25-T	DS-T15B1	DT-30-.25	-
DE6H052R00	SM40-110-00	SD06-81	DS-A00T	DS-T156B	-	DS-A00-.25-T	DS-T15B1	DT-30-.25	-
DE6H063R00	SM40-110-00	SD06-81	DS-A00T	DS-T156B	-	DS-A00-.25-T	DS-T15B1	DT-30-.25	-
DE6H066R00	SM40-110-00	SD08-A4	DS-A00T	DS-T156B	-	DS-A00-.25-T	DS-T15B1	DT-30-.25	-
DE6H080R00	SM40-110-00	SD08-A4	DS-A00T	DS-T156B	-	DS-A00-.25-T	DS-T15B1	DT-30-.25	-
DE6G050R00	SM35-087-70	SD06-81	DS-A00T	DS-T156B	-	DS-A00-.25-T	DS-T15B1	DT-30-.25	-
DE6G052R00	SM35-087-70	SD06-81	DS-A00T	DS-T156B	-	DS-A00-.25-T	DS-T15B1	DT-30-.25	-
DE6K050R00	TS50A121I/HG(M5X12.1MM)	SHM8X1.25X30	DS-A00T	DS-T206B	-	DS-A00-.25-T	DS-T20B1	DT-44-.25	-
DE6K052R00	TS50A121I/HG(M5X12.1MM)	SD06-81	DS-A00T	DS-T206B	-	DS-A00-.25-T	DS-T20B1	DT-44-.25	-
DE6K063R00	TS50A121I/HG(M5X12.1MM)	SD06-81	DS-A00T	DS-T206B	-	DS-A00-.25-T	DS-T20B1	DT-44-.25	-
DE6K066R01	TS50A121I/HG(M5X12.1MM)	SD08-A4	DS-A00T	DS-T206B	-	DS-A00-.25-T	DS-T20B1	DT-44-.25	-
DE6K080R00	TS50A121I/HG(M5X12.1MM)	DIN912M12X35-12.9	DS-A00T	DS-T206B	-	DS-A00-.25-T	DS-T20B1	DT-44-.25	-
DE6K100R00	TS50A121I/HG(M5X12.1MM)	SHM16X2X35	DS-A00T	DS-T206B	-	DS-A00-.25-T	DS-T20B1	DT-44-.25	-
DE6K160R00	TS50A121I/HG(M5X12.1MM)	-	DS-A00T	DS-T206B	-	DS-A00-.25-T	DS-T20B1	DT-44-.25	-
1DE1H-1202781R01	SM40-110-00	-	DS-A00T	DS-T156B	-	DS-A00-.25-T	DS-T15B1	DT-30-.25	-
1DE1H-1502786R01	SM40-110-00	-	DS-A00T	DS-T156B	-	DS-A00-.25-T	DS-T15B1	DT-30-.25	-
1DE1H-12020S9R01	SM40-110-00	-	DS-A00T	DS-T156B	-	DS-A00-.25-T	DS-T15B1	DT-30-.25	-
1DE1H-12022S9R01	SM40-110-00	-	DS-A00T	DS-T156B	-	DS-A00-.25-T	DS-T15B1	DT-30-.25	-
1DE1H-15020S5R01	SM40-110-00	-	DS-A00T	DS-T156B	-	DS-A00-.25-T	DS-T15B1	DT-30-.25	-
1DE1H-15022S5R01	SM40-110-00	-	DS-A00T	DS-T156B	-	DS-A00-.25-T	DS-T15B1	DT-30-.25	-
1DE1H-12015X8R01	SM40-110-00	-	DS-A00T	DS-T156B	622MM	DS-A00-.25-T	DS-T15B1	DT-30-.25	-
1DE1H-15015X8R01	SM40-110-00	-	DS-A00T	DS-T156B	622MM	DS-A00-.25-T	DS-T15B1	DT-30-.25	-
1DE6H032043X8R00	SM40-110-00	-	DS-A00T	DS-T156B	622MM	DS-A00-.25-T	DS-T15B1	DT-30-.25	-
1DE6H040043X8R00	SM40-110-00	-	DS-A00T	DS-T156B	622MM	DS-A00-.25-T	DS-T15B1	DT-30-.25	-
1DE6G025035X7R00	SM35-087-70	-	DS-A00T	DS-T156B	617MM	DS-A00-.25-T	DS-T15B1	DT-30-.25	-
1DE6G032043X8R00	SM35-087-70	-	DS-A00T	DS-T156B	622MM	DS-A00-.25-T	DS-T15B1	DT-30-.25	-
1DE6G042043X8R00	SM35-087-70	-	DS-A00T	DS-T156B	622MM	DS-A00-.25-T	DS-T15B1	DT-30-.25	-

FORMMASTER R™ OPERATING GUIDELINES

RNLU1606MON-M / RNLU1606MON-S													
Starting Recommendations								Grades					
Materials				Hardness (HB)	Cutting Speed VC (SFM)	Feed Per Tooth FZ (in) RNLU/-M	Feed Per Tooth FZ (in) RNLU/-S	IN2504	IN2505	IN2530	IN2035	IN7035	Coolant
ISO Class	Group	Type	Examples					Harder <----------> Tougher					
P	1 - 5	CARBON STLS	1018, A36, 1045, A572, 1070	85-175	590 - 985	.004 - .031	.004 - .014		1	2			No
	6 - 9	LOW - MED ALLOY STLS.	4140, 4340, P20, 8620, 300M	85-175	590 -985	.004 - .031	.004 - .014		1	2			No
	10 -11	HIGH ALLOY & TOOL STLS	H13, A2, D2, M2, T1	175-225	425 - 920	.004 - .028	.004 - .014		1	2			No
M	12 - 13	STAINLESS STLS (ferritic & martensitic)	410, 416, 440,	_	330 - 690	.004 - .028	.004 .014		3	2		1	Yes
	14	STAINLESS STLS (austenitic)	303, 304, 316, 15-5, 17-4	_	305 - 650	.004 - .028	.004 .014		3	2		1	Yes
K	15 - 16	GRAY CAST IRON	CLS. 20, 30, 45	140 - 220	490 - 1300	.004 - .031	.004 .014		1				Yes
	17 - 18	NODULAR CAST IRON	60-40-18 100-70-03						1				Yes
S	31- 35	HIGH TEMP ALLOYS	Inconel, Hastelloy, Nimonic, Monel	_	65 - 195	.004 - .016	.004 .014		3	2		1	Yes
	36 - 37	TITANIUM ALLOYS	6Al-4V, 5Al-5Mo-5V-3Cr	_	95 - 260	.004 - .024	.004 .014		3	2		1	Yes
H	38- 39	HARDENED STL > 48	A2, O1, D2	495 - 630	165 - 360	.004 - .018	.004 .014	1					No

RNLU1205MON-M / RNLU1205MON-S													
Starting Recommendations								Grades					
Materials				Hardness (HB)	Cutting Speed VC (SFM)	Feed Per Tooth FZ (in) RNLU/-M	Feed Per Tooth FZ (in) RNLU/-S	IN2504	IN2505	IN2530	IN2035	IN7035	Coolant
ISO Class	Group	Type	Examples					Harder <----------> Tougher					
P	1 - 5	CARBON STLS	1018, A36, 1045, A572, 1070	85-175	590 - 985	.005 - .024	.005 - .010		1	2			No
	6 - 9	LOW - MED ALLOY STLS.	4140, 4340, P20, 8620, 300M	85-175	590 -985	.005 - .024	.005 - .010		1	2			No
	10 -11	HIGH ALLOY & TOOL STLS	H13, A2, D2, M2, T1	175-225	425 - 920	.005 - 022	.005 - .010		1	2			No
M	12 - 13	STAINLESS STLS (ferritic & martensitic)	410, 416, 440,	_	330 - 690	.005 - .020	.005 - .010		4	3	1	2	Yes
	14	STAINLESS STLS (austenitic)	303, 304, 316, 15-5, 17-4	_	305 - 650	.005 - .020	.005 - .010		4	3	1	2	Yes
K	15 - 16	GRAY CAST IRON	CLS. 20, 30, 45	140 - 220	490 - 1300	.005 - .020	.005 - .010		1				Yes
	17 - 18	NODULAR CAST IRON	60-40-18 100-70-03						1				Yes
S	31- 35	HIGH TEMP ALLOYS	Inconel, Hastelloy, Nimonic, Monel	_	65 - 195	.004 - .012	.004 .010		4	3	1	2	Yes
	36 - 37	TITANIUM ALLOYS	6Al-4V, 5Al-5Mo-5V-3Cr	_	95 - 260	.004 - .016	.004 .010		4	3	1	2	Yes
H	38- 39	HARDENED STL > 48	A2, O1, D2	495 - 630	165 - 360	.004 - .012	.004 .010	1					No

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.

FORMMASTER R™ OPERATING GUIDELINES

RNLU1004MON-M / RNLU1004MON-S													
Starting Recommendations						Grades							Coolant
Materials				Hardness (HB)	Cutting Speed VC (SFM)	Feed Per Tooth FZ (in) RNLU/-M	Feed Per Tooth FZ (in) RNLU/-S	IN2504	IN2505	IN2530	IN2035	IN7035	
ISO Class	Group	Type	Examples					Harder <----------> Tougher					
P	1 - 5	CARBON STLS	1018, A36, 1045, A572, 1070	85-175	590 - 985	.003 - .022	.003 - .008		1	2			No
	6 - 9	LOW - MED ALLOY STLS.	4140, 4340, P20, 8620, 300M	85-175	590 -985	.003 - .022	.003 - .008		1	2			No
	10 -11	HIGH ALLOY & TOOL STLS	H13, A2, D2, M2, T1	175-225	425 - 920	.002 - .020	.003 - .008		1	2			No
M	12 - 13	STAINLESS STLS (ferritic & martensitic)	410, 416, 440,	_	330 - 690	.003 - .018	.003 - .008		3	2	1		Yes
	14	STAINLESS STLS (austenitic)	303, 304, 316, 15-5, 17-4	_	305 - 650	.003 - .018	.003 - .008		3	2	1		Yes
K	15 - 16	GRAY CAST IRON	CLS. 20, 30, 45	140 - 220	490 - 1300	.005 - .020	.003 - .008		1				Yes
	17 - 18	NODULAR CAST IRON	60-40-18 100-70-03						1				Yes
S	31- 35	HIGH TEMP ALLOYS	Inconel, Hastelloy, Nimonic, Monel	_	65 - 195	.002 - .012	.003 - .008			2	1		Yes
	36 - 37	TITANIUM ALLOYS	6Al-4V, 5Al-5Mo-5V-3Cr	_	95 - 260	.002 - .016	.003 - .008			2	1		Yes
H	38- 39	HARDENED STL > 48	A2, O1, D2	495 - 630	165 - 360	.002 - .012	.003 - .008	1					No

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