AHB

TOOLING & MACHINERY

COMPLETE METALWORKING SOLUTIONS

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GOLD-QUADF

Cutter Styles:
- End Mill 15G1F
- Face Mill 5G5F, 5G6F

Cutter Diameters:
- 1.000" - 3.000"

Max. Depth of Cut:
- .060"

Inserts:
- SDXS0904MPR-MM
- SDXS0904MPR-MR
- SDXS0904MPR-MR1
- SDXS0904MPR-MRH

Grades:
- IN2504
- IN2505 NEW
- IN2530 NEW
- IN2535
- IN4004
- IN4005
- IN4030
- IN4035

PRODUCT ANNOUNCEMENT UPDATE 2020

Member IMC Group Ingersoll Cutting Tools

Blistering Speed in Any Material

Gold-QuadF™ 9mm IC Insert

Features and Benefits:

- End Mills, Face Mills & Modular adaptions
- Includes extended-length cylindrical and Weldon End Mills
- Integrated radial wiper can produce uniform finishes and remove secondary finish operations
- 4 unique insert geometries for the broadest range of material and application conditions

SDXS0904MPR-MM: Free-machining multi-purpose geometry ideal for machining ductile carbon, alloy and stainless steels.

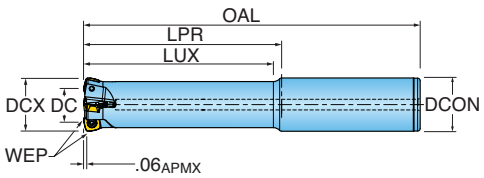
SDXS0904MPR-MR: Strong geometry with landed edge for steels, hardened steels and abusive conditions

SDXS0904MPR-MRH: Strong geometry is heavily-landed for maximum edge strength in steels and in the most abusive conditions

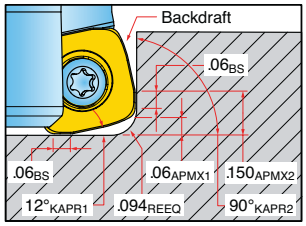
SDXS0904MPR-MR1: Keen cutting edge with reinforced flank geometry developed for Ti and other high-temp materials

GOLD QUAD F HIGH-FEED END MILLS - CYLINDRICAL

09MM INSERTED CUTTERS



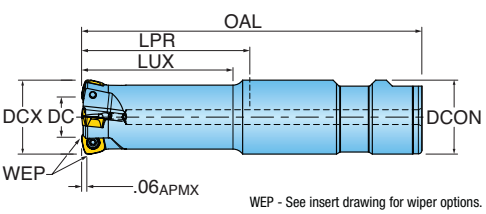
WEP - See insert drawing for wiper options.



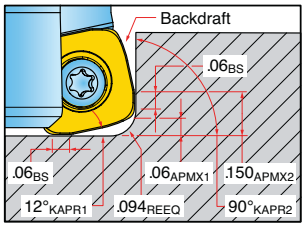
Part Number	DCX Cutting Dia. Max	DC Cutting Diameter	LUX Usable Length Max.	LPR Protruding Length	OAL Overall Length	ZEFF Effective Teeth	REEQ Program Radius Equivalent	KAPR Cutting Edge Angle	DCON Shank Diameter	RMPX Ramp Angle Max.
15G1F-10019S1R01	1.000	0.524	1.78	1.97	7.00	3	0.094	12.0	1.000	5.5
15G1F-10020S1R01	1.000	0.524	1.81	2.00	10.00	3	0.094	12.0	1.000	5.5
15G1F-12047S9R01	1.250	0.773	4.55	4.75	8.00	3	0.094	12.0	1.250	3.3
15G1F-12047S9R02	1.250	0.773	4.55	4.75	8.00	4	0.094	12.0	1.250	3.3
15G1F-15060S9R01	1.500	1.022	6.00	6.00	10.00	4	0.094	12.0	1.250	2.3
15G1F-15060S9R02	1.500	1.022	6.00	6.00	10.00	5	0.094	12.0	1.250	2.3

GOLD QUAD F HIGH-FEED END MILLS - WELDON

09MM INSERTED CUTTERS



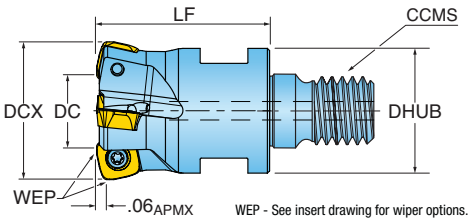
WEP - See insert drawing for wiper options.



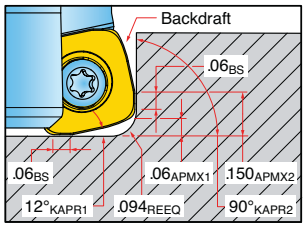
Part Number	DCX Cutting Dia. Max	DC Cutting Diameter	LUX Usable Length Max.	LPR Protruding Length	OAL Overall Length	ZEFF Effective Teeth	REEQ Program Radius Equivalent	KAPR Cutting Edge Angle	DCON Shank Diameter	RMPX Ramp Angle Max.
15G1F-12027E2R01	1.250	0.773	2.55	2.75	5.75	3	0.094	12°	1.250	3.3
15G1F-12027E2R02	1.250	0.773	2.55	2.75	5.75	4	0.094	12°	1.250	3.3
15G1F-12047E2R01	1.250	0.773	4.55	4.75	7.75	3	0.094	12°	1.250	3.3
15G1F-15016E2R01	1.500	1.022	1.69	1.69	6.00	4	0.094	12°	1.250	2.3
15G1F-15016E2R02	1.500	1.022	1.69	1.69	6.00	5	0.094	12°	1.250	2.3

GOLD QUAD F HIGH-FEED END MILLS - TOP-ON

09MM INSERTED CUTTERS



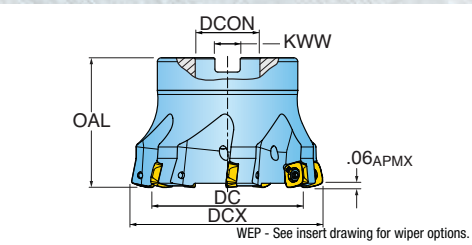
WEP - See insert drawing for wiper options.



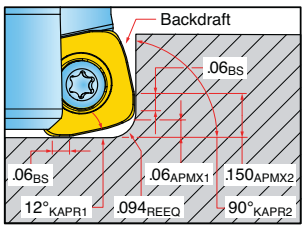
Part Number	DCX Cutting Dia. Max	DC Cutting Diameter	LF Functional Length	ZEFF Effective Teeth	REEQ Program Radius Equivalent	KAPR Cutting Edge Angle	DHUB Hub. Dia.	CCMS Connection Code	RMPX Ramp Angle Max.
15G1F-10015X7R01	1.000	0.524	1.57	3	0.094	12.0	.82	TopOn M12	5.5
15G1F-12015X8R02	1.250	0.773	1.57	4	0.094	12.0	1.13	TopOn M16	3.3
15G1F-15017X9R01	1.500	1.022	1.57	5	0.094	12.0	1.42	TopOn M20	2.3

GOLD QUAD F HIGH-FEED FACE MILLS

09MM INSERTED CUTTERS



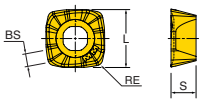
WEP - See insert drawing for wiper options.



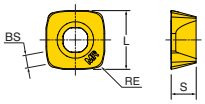
Part Number	DCX Cutting Dia. Max	DC Cutting Diameter	OAL Overall Length	ZEFF Effective Teeth	REEQ Program Radius Equivalent	DCON Bore Diameter	KWW Keyway	RMPX Ramp Angle Max.
5G5F-20R01	2.000	1.521	1.97	7	0.094	0.750	0.31	1.5
5G6F-20R01	2.000	1.521	1.97	6	0.094	0.750	0.31	1.5
5G5F-25R01	2.500	2.020	1.97	8	0.094	0.750	0.31	1.1
5G5F-30R01	3.000	2.520	2.00	9	0.094	1.000	0.38	.8
5G6F-30R01	3.000	2.520	2.00	7	0.094	1.000	0.38	.8

GOLD QUAD F 09MM INSERTS

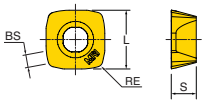
SDXS0904MPR-MM



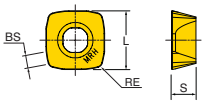
SDXS0904MPR-MR



SDXS0904MPR-MR1



SDXS0904MPR-MRH



Part Number	Application	RE Corner Radius	BS Wiper Length	L Cutting Edge Length	S Thickness	Grade	Harder ⟷ Tougher							
							IN2504	IN4005	IN2505	IN4030	IN2530	IN7035	IN4035	IN2535
SDXS0904MPR-MM	Multi-Purpose	.040	.060	.370	.158			•	•	•	•	•	•	•
SDXS0904MPR-MR	Heavy-Duty	.040	.060	.370	.158			•	•	•	•		•	•
SDXS0904MPR-MR1	Flat-Top, Keen Edge	.040	.060	.370	.158					•	•	•	•	•
SDXS0904MPR-MRH	Hardened Steels	.040	.060	.370	.158		•							

GOLD QUAD F HARDWARE

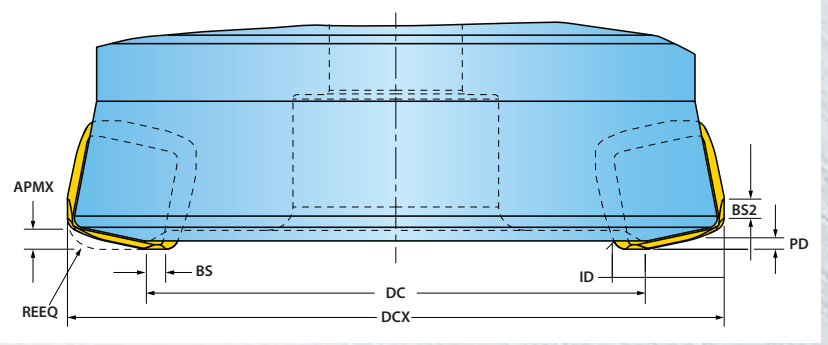
DCX Max. Diameter	Part Number	 Screw	Insert Screw Torque	 Driver	 Retention Bolt	 (Optional) Coolant Bolt
1.000	15G1F-10019S1R01	SM30-075-R0	14-18 in. lbs.	DS-T09W	n/a	n/a
1.000	15G1F-10020S1R01	SM30-075-R0	14-18 in. lbs.	DS-T09W	n/a	n/a
1.000	15G1F-10015X7R01	SM30-075-R0	14-18 in. lbs.	DS-T09W	n/a	n/a
1.250	15G1F-12047S9R02	SM30-075-R0	14-18 in. lbs.	DS-T09W	n/a	n/a
1.250	15G1F-12047S9R01	SM30-075-R0	14-18 in. lbs.	DS-T09W	n/a	n/a
1.250	15G1F-12027E2R02	SM30-075-R0	14-18 in. lbs.	DS-T09W	n/a	n/a
1.250	15G1F-12027E2R01	SM30-075-R0	14-18 in. lbs.	DS-T09W	n/a	n/a
1.250	15G1F-12047E2R01	SM30-075-R0	14-18 in. lbs.	DS-T09W	n/a	n/a
1.250	15G1F-12015X8R02	SM30-075-R0	14-18 in. lbs.	DS-T09W	n/a	n/a
1.500	15G1F-15060S9R02	SM30-075-R0	14-18 in. lbs.	DS-T09W	n/a	n/a
1.500	15G1F-15060S9R01	SM30-075-R0	14-18 in. lbs.	DS-T09W	n/a	n/a
1.500	15G1F-15016E2R02	SM30-075-R0	14-18 in. lbs.	DS-T09W	n/a	n/a
1.500	15G1F-15016E2R01	SM30-075-R0	14-18 in. lbs.	DS-T09W	n/a	n/a
1.500	15G1F-15017X9R01	SM30-075-R0	14-18 in. lbs.	DS-T09W	n/a	n/a
2.000	5G5F-20R01	SM30-075-R0	14-18 in. lbs.	DS-T09W	SD-06-48	SD06-A6
2.000	5G6F-20R01	SM30-075-R0	14-18 in. lbs.	DS-T09W	SD-06-48	SD06-A6
2.500	5G5F-25R01	SM30-075-R0	14-18 in. lbs.	DS-T09W	SD-06-48	SD06-A6
3.000	5G5F-30R01	SM30-075-R0	14-18 in. lbs.	DS-T09W	SD-08-47	SD-08-C9
3.000	5G6F-30R01	SM30-075-R0	14-18 in. lbs.	DS-T09W	SD-08-47	SD-08-C9

GOLD QUAD F OPERATING GUIDELINES

Material		Brinnell Hardness	SFM	Feed per Insert (FRM Included)	Harder ⟷ Tougher								Coolant
					IN2504	IN4005	IN2505	IN4030	IN2530	IN7035	IN4035	IN2535	
Steel	Low Carbon, 1018, 8620	80-250	600-1000	.030-.080		1	2	3	4				NO
	High Carbon F-6180	250-375	500-800	.025-.070		1	2	3	4				NO
	Alloyed Steel, 4140	375-480	500-800	.020-.060		1	2	3	4				NO
	Tool Steel: P20 - H13	250-480	400-700	.020-.050		1	2	3	4				
Hardened Steel	ALL	480+	150-400	.010-.020	1	2	3						NO
Stainless Steel	300 Series, 304, 316	-	250-550	.020-.050				2	1	5	4	3	YES
	400 Series, 15-5PH, 17-4 PH		350-650										
Nickel Alloys	Inconel 600, 706, 718, 903, Hastelloy	-	60-120	.010-.025				5	4	2	3	1	YES
Titanium	6AL-4V	-	90-200	.020-.040						3	2	1	YES

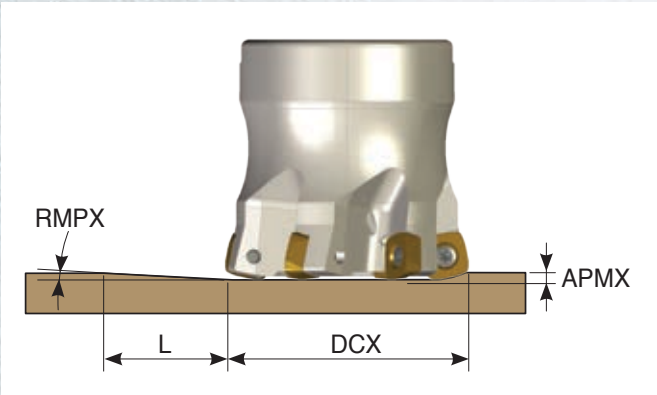
Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause reductions or increases in feeds and speeds. Additionally, DOC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

GOLD QUAD F PROGRAMMING TECHNICAL DATA



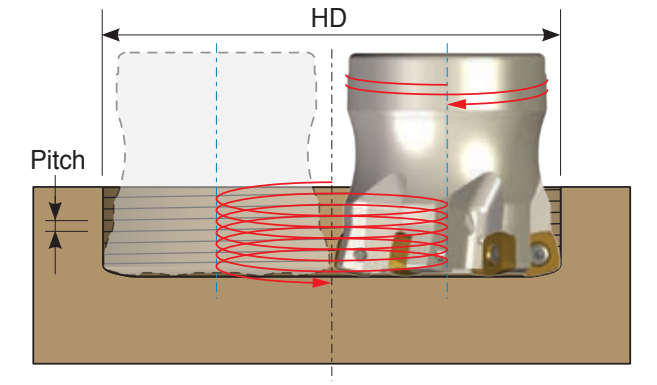
Cutter Number	DCX Max. Diameter	DC Effective Diameter	APMX Maximum DOC	REEQ Program Corner Radius	ID Width	PD Max. Plunge Depth	BS Wiper	BS2 Wiper
15G1F-10015X7R01	1.000	0.524	0.06	0.094	0.338	.035	0.06	0.06
15G1F-10019S1R01	1.000	0.524	0.06	0.094	0.338	.035	0.06	0.06
15G1F-10020S1R01	1.000	0.524	0.06	0.094	0.338	.035	0.06	0.06
15G1F-12015X8R02	1.250	0.773	0.06	0.094	0.339	.035	0.06	0.06
15G1F-12027E2R01	1.250	0.773	0.06	0.094	0.339	.035	0.06	0.06
15G1F-12027E2R02	1.250	0.773	0.06	0.094	0.339	.035	0.06	0.06
15G1F-12047E2R01	1.250	0.773	0.06	0.094	0.339	.035	0.06	0.06
15G1F-12047S9R01	1.250	0.773	0.06	0.094	0.339	.035	0.06	0.06
15G1F-12047S9R02	1.250	0.773	0.06	0.094	0.339	.035	0.06	0.06
15G1F-15016E2R01	1.500	1.022	0.06	0.094	0.34	.035	0.06	0.06
15G1F-15016E2R02	1.500	1.022	0.06	0.094	0.34	.035	0.06	0.06
15G1F-15060S9R01	1.500	1.022	0.06	0.094	0.34	.035	0.06	0.06
15G1F-15060S9R02	1.500	1.022	0.06	0.094	0.34	.035	0.06	0.06
5G5F-20R01	2.000	1.521	0.06	0.094	0.34	.035	0.06	0.06
5G6F-20R01	2.000	1.521	0.06	0.094	0.34	.035	0.06	0.06
5G5F-25R01	2.500	2.02	0.06	0.094	0.335	.035	0.06	0.06
5G5F-30R01	3.000	2.52	0.06	0.094	0.34	.035	0.06	0.06
5G6F-30R01	3.000	2.52	0.06	0.094	0.34	.035	0.06	0.06

GOLD QUAD F STRAIGHT RAMPING



DCX Max. Diameter	RMPX Ramp Angle Max.	L	APMX Depth of Cut Max.
1.000	5.5	0.623	.060
1.250	3.3	1.041	.060
1.500	2.3	1.494	.060
2.000	1.5	2.291	.060
2.500	1.1	3.125	.060
3.000	0.8	4.297	.060

GOLD QUAD F HELICAL RAMPING



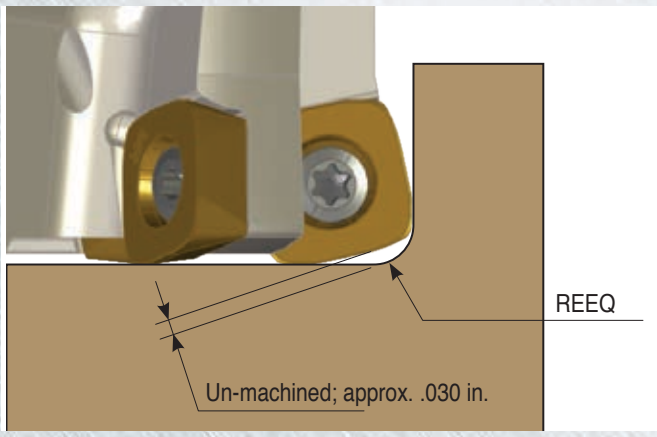
This chart lists the min and max hole diameters (HD) for interpolating a hole from solid stock.

Example:

1. The min. hole dia. that a 1.000" dia. cutter can interpolate is 1.324".
2. The max. hole dia. that a 1.000" dia. cutter can interpolate is 2.000".
3. The max. hole dia. that a 1.000" dia. cutter can interpolate while leaving a flat-bottom (no cusp) is 1.524".

Cutter Diameter	HD Min.	HD Max.	HD Max. w/o Cusp	Max Pitch Per Revolution
1.000	1.324	2.000	1.524	.060"
1.250	1.822	2.500	2.023	.060"
1.500	2.320	3.000	2.522	.060"
2.000	3.320	4.000	3.520	.060"
2.500	4.330	5.000	4.520	.060"
3.000	5.320	6.000	5.520	.060"

GOLD QUAD F PROGRAMMING TIPS



- During programming verify the tool is defined correctly within the CAM system
- Program corner radius (REEQ) is .094"
- Maintain the shortest allowable tool length (L/D Ratio) for maximum rigidity
- Climb cut when possible
- Utilize favorable stock entry techniques to increase tool life. (Example: Ramping, horizontal arcing and vertical arcing)

GOLD•QUAD F PROGRAMMING RADIUS

Detail	Part Number	Corner	Description
	SDXS0904MPR-MM	0.094 Radius	MULTI-PURPOSE Extra strong positive rake face geometry for machining steel and various high-temp alloys.
	SDXS0904MPR-MR	0.094 Radius	HEAVY-DUTY Strong edge prep for aggressive machining in steel applications. Well-suited to abusive cutting conditions.
	SDXS0904MPR-MR1	0.094 Radius	FLAT TOP, KEEN EDGE Keen edge for machining hi-temp alloys, titaniums and stainless steels.
	SDXS0904MPR-MRH	0.094 Radius	HARDENED STEELS Reinforced cutting edge ideal for continuous machining of hardened steels

Note: All inserts use the same programming dimensions. There is no change in the outside diameter.