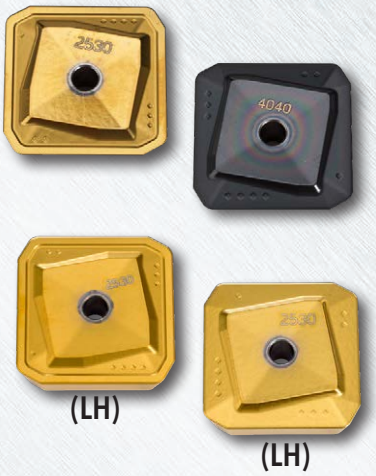
COUGAR MILL HSHR™

MILLING PRODUCTS

INDUSTRY 4.0 PRODUCT ANNOUNCEMENT UPDATE 2022



Diameters:
4.00" – 14.00" (RH)
10.00" – 14.00" (LH)

Depth of Cut:
.484"

Insert Style:
SEXN2007DFTR-HDP
SEXN2007DFTR-MR
SEXN2007DFTL-HDP (LH)
SEXN2007DFTL-MR (LH)

Insert Grades:
IN4040, IN4030,
IN2530, IN2535

Materials:
Steels: Low-High Carbon, Low-High Alloy, HSLA, Tool, Impact Resistant, Abrasion Resistant

Stainless Steels: PH Series, Martensitic

Irons: Ductile, Nodular

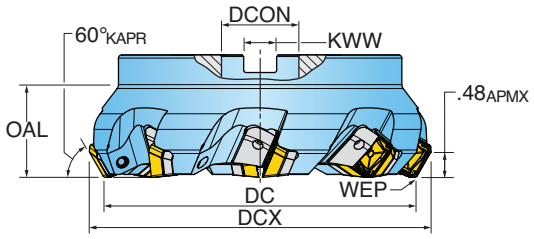
Features & Benefits:

- 60° lead family of face-mills with unique wedge-clamp design that mechanically secures and heavily pre-loads the insert for superior stability
- 20% lower cutting forces, higher metal removal rates and better tool life in heavy machining applications
- POWERSHEAR™ designed inserts with robust rake face geometries are ideal for heavy continuous chip loads in the most hardened and abrasive materials
- Inserts are designed with an integrated axial wiper producing lower Ra surface finishes

Member IMC Group Ingersoll Cutting Tools

COUGARMILL HSHR™ SERIES 5C4M FACE MILLS

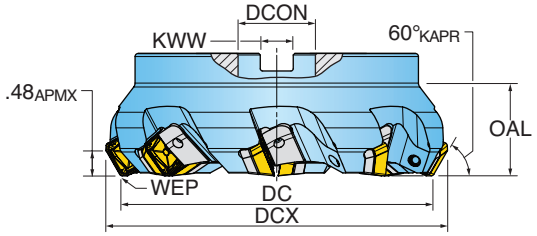
HEAVY DUTY 60° LEAD FACE MILL



WEP - See insert drawing for wiper options.

RIGHT HAND

Part Number	DC Cutting Diameter	DCX Cutting Dia. Max.	OAL Overall Length	ZEFF Effective Teeth	DCON Bore Dia.	KWW Keyway Width	DBC Bolt Circle Dia.
5C4M-04R01	4.000	4.640	2.500	6	1.500	0.625	N/A
5C4M-06R01	6.000	6.650	2.375	8	1.500	0.625	N/A
5C4M-08R01	8.000	8.660	2.375	10	2.500	1.000	4.00"
5C4M-10R01	10.000	10.660	2.375	12	2.500	1.000	4.00",4.750",7.00"
5C4M-12R01	12.000	12.660	2.375	14	2.500	1.000	4.00",4.750",7.00"
5C4M-14R01	14.000	14.660	2.375	16	2.500	1.000	4.00",4.750",7.00"



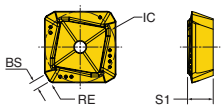
WEP - See insert drawing for wiper options.

LEFT HAND

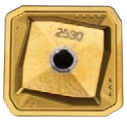
Part Number	DC Cutting Diameter	DCX Cutting Dia. Max.	OAL Overall Length	ZEFF Effective Teeth	DCON Bore Dia.	KWW Keyway Width	DBC Bolt Circle Dia.
5C4M-10L01	10.000	10.660	2.375	12	2.500	1.000	4.00",4.75",7.00"
5C4M-12L01	12.000	12.660	2.375	14	2.500	1.000	4.00",4.75",7.00"
5C4M-14L01	14.000	14.660	2.375	16	2.500	1.000	4.00",4.75",7.00"

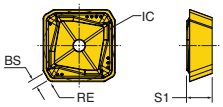
COUGARMILL HSHR™ INSERTS

SEXN2007DFTR-HDP

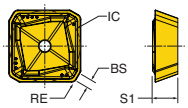


SEXN2007DFTR-MR

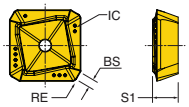




SEXN2007DFTL-HDP



SEXN2007DFTL-MR



Part Number	Application	RE Corner Radius	BS Wiper Length	IC Inscribed Circle Dia.	S1 Thickness	NOI Number of Indexes	IH Insert Hand	(Harder -------> Tougher)				
								Grade	IN4040	IN4030	IN2530	IN2535
SEXN2007DFTR-HDP	Heavy-Duty	0.060	0.080	20 mm	0.276	4	Right		•	•	•	
SEXN2007DFTR-MR	Heavy-Duty	0.060	0.093	20 mm	0.276	4	Right				•	•
SEXN2007DFTL-HDP	Heavy-Duty	0.060	0.080	20 mm	0.276	4	Left		•	•	•	
SEXN2007DFTL-MR	Heavy-Duty	0.060	0.093	20 mm	0.276	4	Left				•	•

Notes: SEXN is not compatible, neither forward nor reverse, with SPEN/SPKN (5C2M).

COUGARMILL HSHR™ HARDWARE

RIGHT HAND

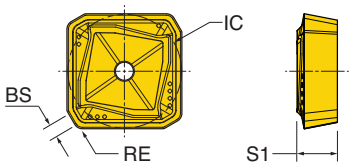
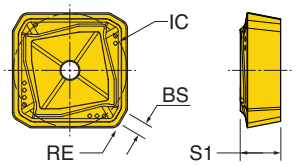
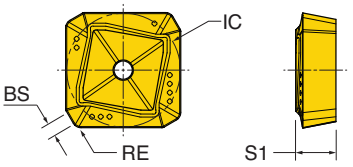
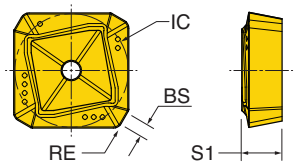
Part Number	 Wedge Screw Driver	 Driver Handle	 Insert Driver Blade	 Retention Bolt	 Seat Screw	 Seat	 Wedge	 Wedge Screw
5C4M-04R01	DS-H04T	DS-A00T	DS-T206B	SD-12-82	SM50-130-R0	PAR0750	WSC8R-21	TS80200W
5C4M-06R01	DS-H04T	DS-A00T	DS-T206B	-	SM50-130-R0	PAR0750	WSC8R-21	TS80200W
5C4M-08R01	DS-H04T	DS-A00T	DS-T206B	-	SM50-130-R0	PAR0750	WSC8R-21	TS80200W
5C4M-10R01	DS-H04T	DS-A00T	DS-T206B	-	SM50-130-R0	PAR0750	WSC8R-21	TS80200W
5C4M-12R01	DS-H04T	DS-A00T	DS-T206B	-	SM50-130-R0	PAR0750	WSC8R-21	TS80200W
5C4M-14R01	DS-H04T	DS-A00T	DS-T206B	-	SM50-130-R0	PAR0750	WSC8R-21	TS80200W
KIT HARDWARE 5C4M-R (Kit includes one of each item)					SM50-130-R0	PAR0750	WSC8R-21	TS80200W

LEFT HAND

Part Number	 Wedge Screw Driver	 Driver Handle	 Insert Driver Blade	 Retention Bolt	 Seat Screw	 Seat	 Wedge	 Wedge Screw
5C4M-10L01	DS-H04T	DS-A00T	DS-T206B	-	SM50-130-R0	PAL0750	WSC8L-21	TS80200W
5C4M-12L01	DS-H04T	DS-A00T	DS-T206B	-	SM50-130-R0	PAL0750	WSC8L-21	TS80200W
5C4M-14L01	DS-H04T	DS-A00T	DS-T206B	-	SM50-130-R0	PAL0750	WSC8L-21	TS80200W
KIT HARDWARE 5C4M-L (Kit includes one of each item)					SM50-130-R0	PAL0750	WSC8L-21	TS80200W

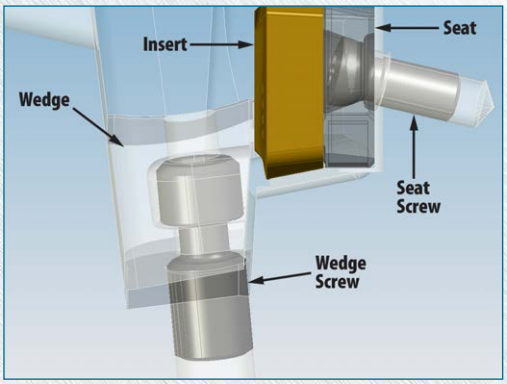
Notes: Insert seat screw tightening torque: 40-45 in*lb. Insert wedge screw tightening torque: 55-60 in*lb.

COUGARMILL HSHR™ INSERT SELECTION GUIDE

Insert	No. of Indexes	Material Focus	Description
SEXN2007DFTR-MR (RH)  	4	**Steels:** Low – High Carbon Low – High Alloy HSLA Tooling Impact Resistant Abrasion Resistant **Stainless Steels:** PH Series Martensitic **Irons:** Ductile	Medium- High chip loads in steels, stainless steels. Rake geometry is presented Pos./Pos. with the edge strengthened with both land and hone. IN2530 recommended for steels. IN2535 recommended for stainless steels. If additional toughness is needed, switch to IN2530. IN2530 recommended for irons.
SEXN2007DFTL-MR (LH)  			
SEXN2007DFTR-HDP (RH)  	4	**Steels:** Low – High Carbon Low – High Alloy HSLA Tooling Impact Resistant Abrasion Resistant	High- very high chip loads in steels. Rake geometry is presented Neg./Pos. with the edge strengthened with both land and hone. IN4040 recommended for all steels. If additional toughness is needed, switch to IN4030. Power-Shear is the combination of a strong insert cross-section that is inclined for smooth chip formation. Primary benefit is improved edge life in difficult material conditions (sand and hard spots cast and forged scale, slag and mechanical shock).
SEXN2007DFTL-HDP (LH)  			

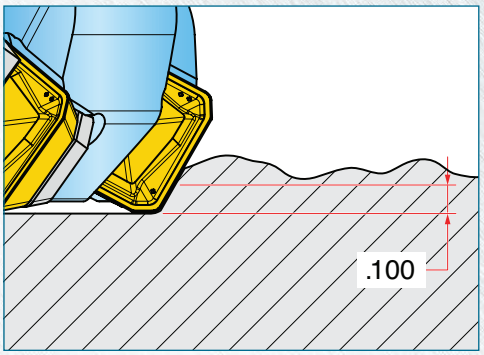
Notes: SEXN is not compatible, neither forward nor reverse, with SPEN/SPKN (5C2M).

COUGARMILL HSHR™ ASSEMBLY



HARDWARE KIT (ABOVE) INCLUDES:
SEAT, SEAT SCREW, WEDGE & WEDGE SCREW

COUGARMILL HSHR™ MILLING FORGINGS



When milling forgings, Depth of Cut needs to be a minimum of .100" below the scale to avoid "skimming" of the wiper flat.

COUGARMILL HSHR™ OPERATING GUIDELINES

SEXN...-MR Series Inserts

Materials				V_c Cutting Speed SFM	f_z Feed/Tooth (inch)	Harder <----------> Tougher		Coolant
ISO	Mat'l Group #VDI 3323	Type	Examples			IN2530	IN2535	
P	1 thru 5	Non-alloy Steel	1018, A36, 1045, A572, 1070	400-800	.006-.018	1		NO
	6 thru 9	Low-alloy Steel	4140, 4340, P20, 8620, 300M	250-500	.006-.015	1		NO
	10, 11	High-alloy Steel	H13, A2, D2, M2, T1	250-500	.006-.015	1		NO
	10, 11	High-alloy Steel	SR & AR Armor, Rail, Hardox	200-350	.006-.012	1		NO
M	12 thru 13	"Stainless Steel (Ferritic & Martensitic)"	410, 416, 440	250-450	.006-.014	2	1	YES
	14	Stainless Steel (Austenitic)	303, 304, 316, 15-5, 17-4	200-350	.006-.012	2	1	NO
K	15 thru 16	Gray Cast Iron	CLS. 20, 30, 45	500-900	.006-.018	1		NO
	17 thru 18	Nodular Cast Iron	60-40-18, 100-70-03	400-800	.006-.018	1		NO
S	36 thru 37	Titanium Alloys	6AL-4V, 5Al-5Mo-5V-3Cr	90-130	.004-.008	2	1	YES

SEXN...-HD Series Inserts

Materials				V_c Cutting Speed SFM	f_z Feed/Tooth (inch)	Harder <----------> Tougher			Coolant
ISO	Mat'l Group #VDI 3323	Type	Examples			IN4040	IN4030	IN2530	
P	1 thru 5	Non-alloy Steel	1018, A36, 1045, A572, 1070	400-700	.010-.024	1	2	3	NO
	6 thru 9	Low-alloy Steel	4140, 4340, P20, 8620, 300M	250-500	.010-.018	1	3	2	NO
	10, 11	High-alloy Steel	H13, A2, D2, M2, T1	250-500	.010-.018	1	3	2	NO
	10, 11	High-alloy Steel	SR & AR Armor, Rail, Hardox	200-350	.010-.014	1	3	2	NO
K	15 thru 16	Gray Cast Iron	CLS. 20, 30, 45	500-800	.010-.024	1	3	2	NO
	17 thru 18	Nodular Cast Iron	60-40-18, 100-70-03	400-700	.010-.024	1	3	2	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.