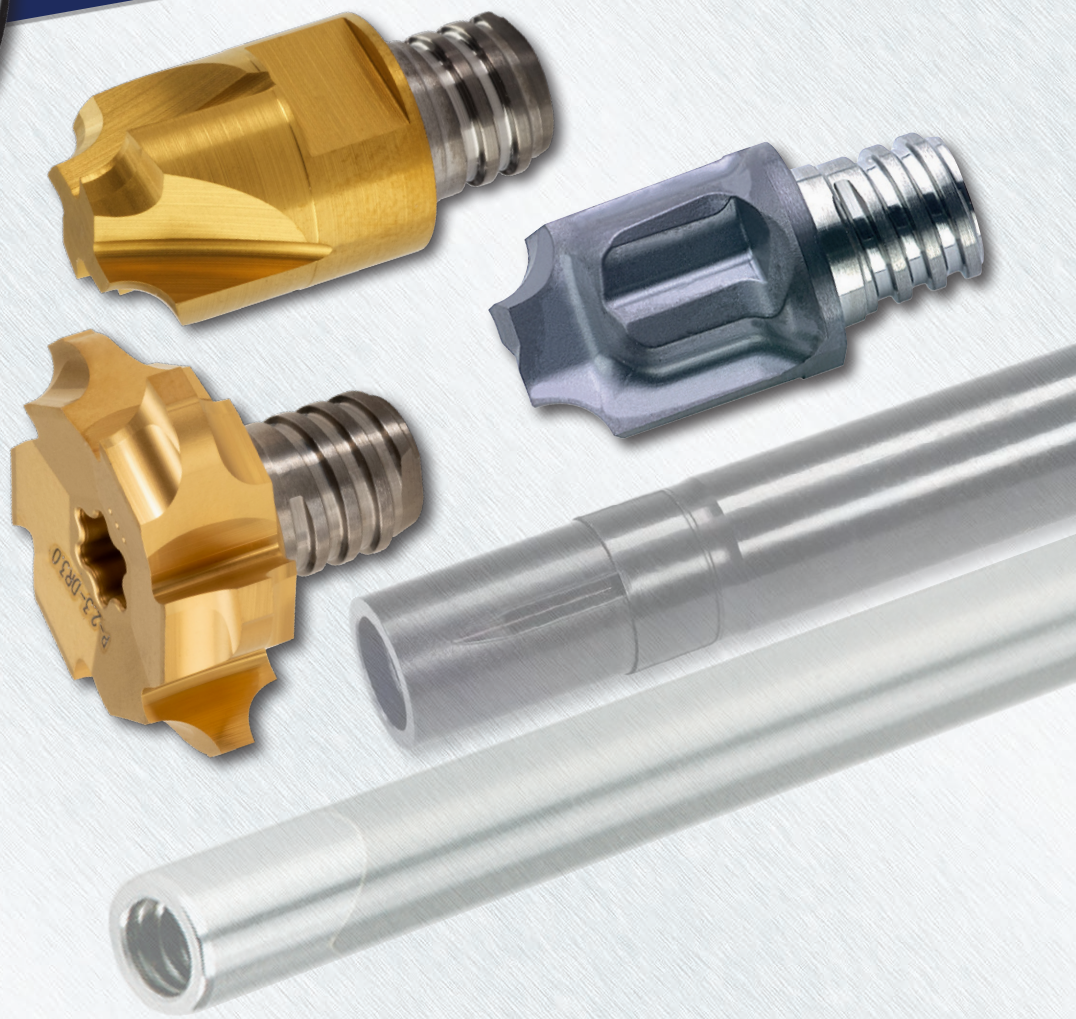
INDUSTRY 4.0
PRODUCT ANNOUNCEMENT
UPDATE
2021

CHIPSURFER™

MILLING PRODUCTS



Tip Style:
Corner Round
Front-Back Corner Round

Available Adaptions:
T05, T06, T08, T10, T12, T15

Inch Radius Options:
.031", .062", .093", .125", .187", .250", .312", .375"

Metric Radius Options:
1.0mm, 1.6mm, 2.0mm, 2.5mm, 3.0mm, 4.0mm, 5.0mm, 6.0mm

Materials:
Steel
Stainless Steel
Cast Iron
Titanium
Hi-Temp Alloys

Corner Rounding Tips: Brilliant Cornering Produces Beautiful Curves!

Features & Benefits:

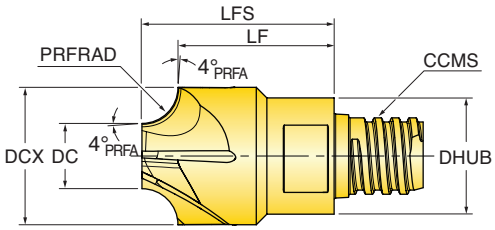
- Eliminate hand work...Ideal for finishing details of parts in Die/Mold, Aerospace and General Machining markets.
- Tips repeat within +/-.0005. No need to touch off when indexing the tip off the shank.
- 4 degree flares off the radius form promote smooth blends….no mismatch lines!
- New expanded range of inch & metric size!
- New Front-Back style tip; to elimnate extra set-up time!

Member IMC Group
Ingersoll Cutting Tools

CHIPSURFER™ SERIES 47R

SOLID CARBIDE CORNER ROUNDING TIP - 4 FLUTE

Corner Rounding



Cutter Number	DC Cutting Diameter	DCX Cutting Dia. Max.	PRFRAD Profile Radius	LF Functional Length	LFS Functional Length Secondary	ZEFF Effective Flutes	CCMS Connection Code	DHUB Hub Diameter
47R-3605T6RA03	0.298	0.362	0.031	0.468	0.500	4	Chip Surfer T06	0.364
47R-3505T6RA06	0.234	0.357	0.062	0.438	0.500	4	Chip Surfer T06	0.364
47R-4806T8RA09	0.295	0.480	0.093	0.547	0.640	4	Chip Surfer T08	0.480
47R-6008TRRA12	0.351	0.601	0.125	0.685	0.810	4	Chip Surfer T10	0.600
47R-7110TRRA18	0.343	0.715	0.187	0.813	1.000	4	Chip Surfer T10	0.600
NEW 47RE1014TURA25	0.471	1.000	0.250	1.185	1.450	4	Chip Surfer T15	0.940
NEW 47RE1014TURA31	0.358	1.000	0.312	1.139	1.450	4	Chip Surfer T15	0.940
NEW 47RE1031TURA37	0.122	1.000	0.375	1.072	1.450	4	Chip Surfer T15	0.940

When assembling, be sure tip is seated firmly on shank with no gap. No lubricant on adaption. Wrenches sold seperately.

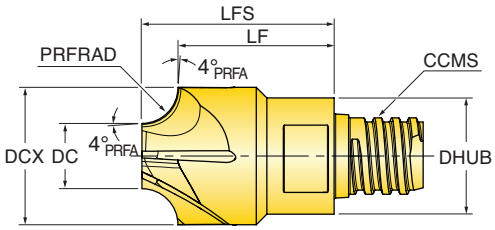
HARDWARE

	 **OPTIONAL** Wrench	 **OPTIONAL** Torque Driver	CCMS Connection Code	Torque Value	
47R-3605T6RA03	WS-0029	DT-90-08	T06	90in/lbs	
47R-3505T6RA06	WS-0029	DT-90-08	T06	90in/lbs	
47R-4806T8RA09	WS-0030	DT-130-10	T08	130in/lbs	
47R-6008TRRA12	WS-0044	DT-250-13	T10	250in/lbs	
47R-7110TRRA18	WS-0044	DT-250-13	T10	250in/lbs	
47RE1014TURA25	WS-0061	DT-350-20	T15	350in/lbs	
47RE1014TURA31	WS-0061	DT-350-20	T15	350in/lbs	
47RE1031TURA37	WS-0061	DT-350-20	T15	350in/lbs	

CHIPSURFER™ SERIES 47R - METRIC

SOLID CARBIDE CORNER ROUNDING TIP - 4 FLUTE

Corner Rounding



Cutter Number	DC Cutting Diameter	DCX Cutting Dia. Max.	PRFRAD Profile Radius	LF Functional Length	LFS Functional Length Secondary	ZEFF Effective Flutes	CCMS Connection Code	DHUB Hub Diameter
NEW 47R08001TQRA10	5.80 mm	8.00 mm	1.00 mm	8.90 mm	10.00 mm	4	Chip Surfer T05	8.00 mm
NEW 47R10001T6RA16	6.80 mm	10.00 mm	1.60 mm	11.39 mm	13.00 mm	4	Chip Surfer T06	10.00 mm
NEW 47R10002T6RA20	6.00 mm	10.00 mm	2.00 mm	10.92 mm	13.00 mm	4	Chip Surfer T06	10.00 mm
NEW 47R10002T6RA25	5.10 mm	10.00 mm	2.50 mm	10.56 mm	13.00 mm	4	Chip Surfer T06	10.00 mm
NEW 47R12703T8RA30	6.50 mm	12.70 mm	3.00 mm	13.44 mm	16.50 mm	4	Chip Surfer T08	12.70 mm

When assembling, be sure tip is seated firmly on shank with no gap. No lubricant on adaption. Wrenches sold seperately.

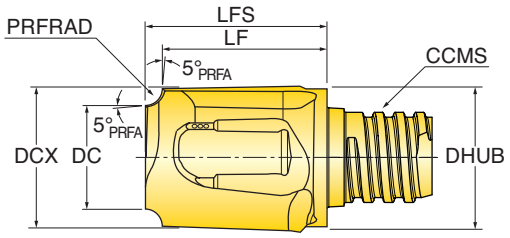
HARDWARE

	 **OPTIONAL** Wrench	 **OPTIONAL** Torque Driver	CCMS Connection Code	Torque Value	
47R08001TQRA10	WS-0043	DT-60-06	T05	60in/lbs	
47R10001T6RA16	WS-0029	DT-90-08	T06	90in/lbs	
47R10002T6RA20	WS-0029	DT-90-08	T06	90in/lbs	
47R10002T6RA25	WS-0029	DT-90-08	T06	90in/lbs	
47R12703T8RA30	WS-0030	DT-130-10	T08	130in/lbs	

CHIPSURFER™ SERIES 45R - METRIC

SOLID CARBIDE CORNER ROUNDING TIP - 2 FLUTE

Corner Rounding



Cutter Number	DC Cutting Diameter	DCX Cutting Dia. Max.	PRFRAD Profile Radius	LF Functional Length	LFS Functional Length Secondary	ZEFF Effective Flutes	CCMS Connection Code	DHUB Hub Diameter
45R08007TQRA10	6.00 mm	8.00 mm	1.00 mm	10.50 mm	9.40 mm	2	Chip Surfer T05	7.60 mm
45R10009T6RA16	6.80 mm	10.00 mm	1.60 mm	12.50 mm	10.90 mm	2	Chip Surfer T06	9.50 mm
45R10009T6RA20	6.00 mm	10.00 mm	2.00 mm	12.50 mm	10.50 mm	2	Chip Surfer T06	9.60 mm
45R10009T6RA25	5.00 mm	10.00 mm	2.50 mm	12.50 mm	10.00 mm	2	Chip Surfer T06	9.50 mm
45R12012T8RA30	6.50 mm	12.70 mm	3.00 mm	15.60 mm	12.50 mm	2	Chip Surfer T08	12.20 mm
45R12012T8RA40	4.70 mm	12.70 mm	4.00 mm	15.60 mm	11.60 mm	2	Chip Surfer T08	12.20 mm
45R16015TRRA50	6.00 mm	16.00 mm	5.00 mm	19.10 mm	14.10 mm	2	Chip Surfer T10	15.15 mm
45R20007TSRA60	8.00 mm	20.00 mm	6.00 mm	17.40 mm	11.40 mm	2	Chip Surfer T12	18.30 mm

NOTE: When assembling, be sure tip is seated firmly on shank with no gap. No lubricant on adaption. Wrenches sold seperately.

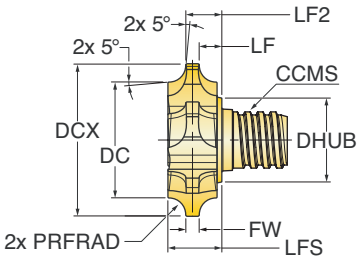
HARDWARE

	OPTIONAL Wrench	**OPTIONAL** Torque Driver	CCMS Connection Code	Torque Value	
45R08007TQRA10	WS-0043	DT-60-04	T05	60in/lbs	
45R10009T6RA16	WS-0029	DT-90-05	T06	90in/lbs	
45R10009T6RA20	WS-0029	DT-90-05	T06	90in/lbs	
45R10009T6RA25	WS-0029	DT-90-05	T06	90in/lbs	
45R12012T8RA30	WS-0030	DT-130-07	T08	130in/lbs	
45R12012T8RA40	WS-0030	DT-130-07	T08	130in/lbs	
45R16015TRRA50	WS-0044	DT-250-08	T10	250in/lbs	
45R20007TSRA60	WS-0059	DT-250-09	T12	250in/lbs	

CHIPSURFER™ SERIES 18S - METRIC

SOLID CARBIDE FRONT BACK CORNER ROUNDING TIP - 6 FLUTE

Corner Rounding

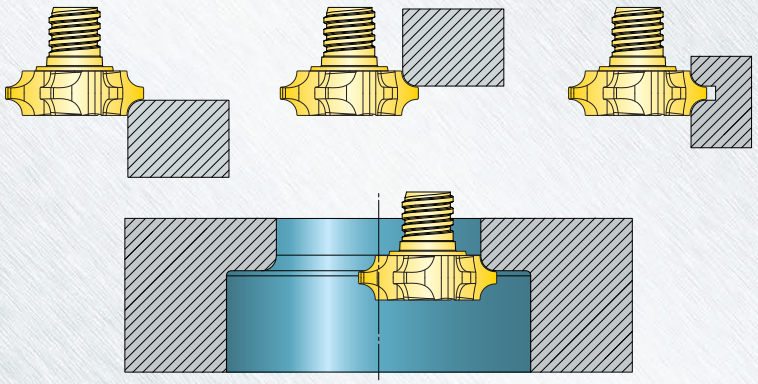


Cutter Number	DC Cutting Diameter	DCX Cutting Dia. Max.	PRFRAD Profile Radius	LF Functional Length	LF2 Functional Length 2	LFS Functional Length Secondary	FW Flat Width	ZEFF Effective Flutes	CCMS Connection Code	DHUB Hub Diameter
NEW 18S27799TRRP40	19.70 mm	27.70 mm	4.00 mm	5.01 mm	7.59 mm	11.70 mm	2.60 mm	6	Chip Surfer T10	15.30 mm
NEW 18S27789TRRP30	21.10 mm	27.70 mm	3.00 mm	4.15 mm	6.71 mm	9.70 mm	2.30 mm	6	Chip Surfer T10	15.30 mm
NEW 18S27773TRRP20	22.90 mm	27.70 mm	2.00 mm	2.81 mm	5.39 mm	7.70 mm	2.60 mm	6	Chip Surfer T10	15.30 mm
NEW 18S27756TRRP10	24.80 mm	27.70 mm	1.00 mm	1.89 mm	4.60 mm	6.00 mm	2.70 mm	6	Chip Surfer T10	15.30 mm

NOTE: When assembling, be sure tip is seated firmly on shank with no gap. No lubricant on adaption. Wrenches sold seperately.

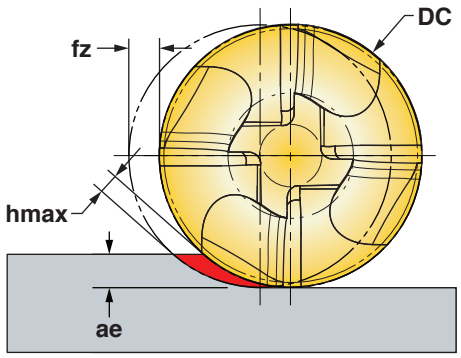
HARDWARE

	 Torx Driver	 **OPTIONAL** Torque Bit	CCMS Connection Code	Torque Value	
18S27799TRRP40	DS-T40T	DS-T40B	T10	250in/lbs	
18S27789TRRP30	DS-T40T	DS-T40B	T10	250in/lbs	
18S27773TRRP20	DS-T40T	DS-T40B	T10	250in/lbs	
18S27756TRRP10	DS-T40T	DS-T40B	T10	250in/lbs	



CHIPoSURFER™ OPERATING GUIDELINES: 45R/47R

Chip Thinning



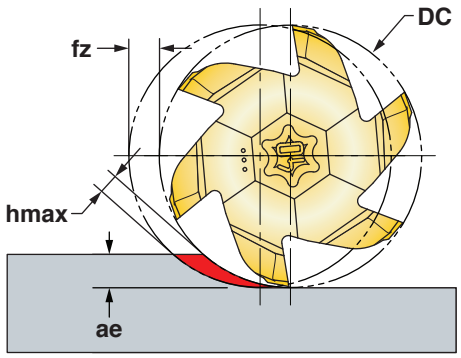
* Chip Thinning Calculator is recommended to ensure hmax is within fz range.

Materials				Vc Cutting Speed SFM	fz* Feed/Tooth (inch)	Coolant
ISO	Mat'l Group #VDI 3323	Type	Examples			
P	1 thru 5	Non-alloy Steel	1018, A36, 1045, A572, 1070	450-800	.002-.006	No
	6 thru 9	Low-alloy Steel	4140, 4340, P20, 8620, 300M	400-750	.002-.005	
	10, 11	High-alloy Steel	H13, A2, D2, M2, T1	400-700	.002-.005	
M	12 thru 14	Stainless Steel	410, 416, 440, 303, 304, 316, 15-5, 17-4	200-500	.002-.005	May not be required at high speeds
K	15 thru 18	Iron	CLS. 20, 30, 45, 60-40-18, 100-70-03	500-800	.002-.006	No
S	31 thru 37	High-Temp, Ti	Inconel, Hastelloy, 6Al-4V, 5Al-5Mo-5V-3Cr	65-250	.002-.005	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.

CHIPoSURFER™ OPERATING GUIDELINES: 18S

Chip Thinning



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ISO	Mat'l Group #VDI 3323	Type	Examples			
P	1 thru 5	Non-alloy Steel	1018, A36, 1045, A572, 1070	450-800	.002-.006	No
	6 thru 9	Low-alloy Steel	4140, 4340, P20, 8620, 300M	400-750	.002-.005	
	10, 11	High-alloy Steel	H13, A2, D2, M2, T1	400-700	.002-.005	
M	12 thru 14	Stainless Steel	410, 416, 440, 303, 304, 316, 15-5, 17-4	200-500	.002-.005	May not be required at high speeds
K	15 thru 18	Iron	CLS. 20, 30, 45, 60-40-18, 100-70-03	500-800	.002-.006	No
S	31 thru 37	High-Temp, Ti	Inconel, Hastelloy, 6Al-4V, 5Al-5Mo-5V-3Cr	65-250	.002-.005	Yes

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