

MILLING

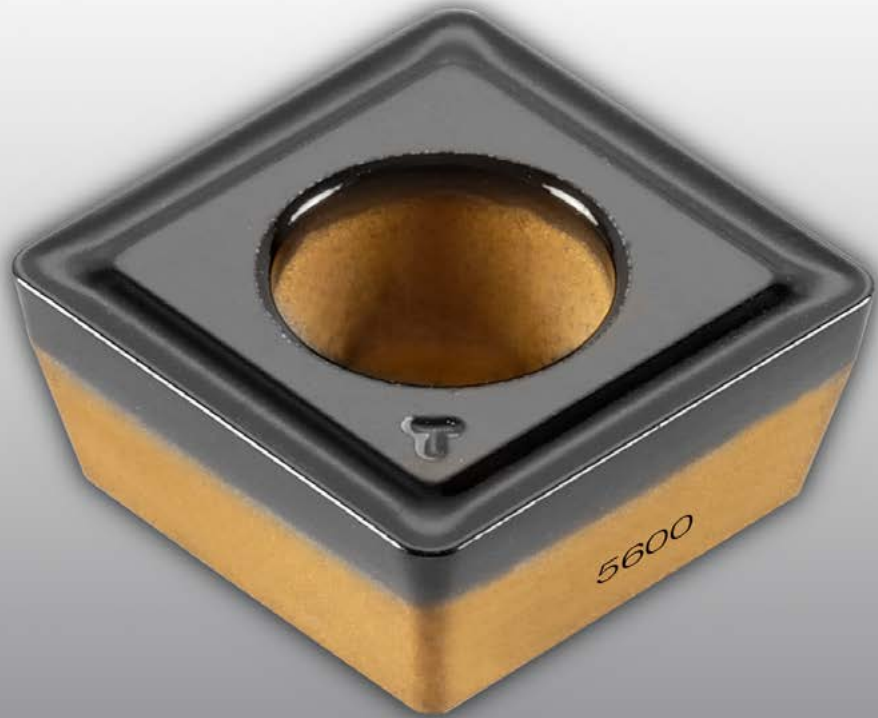
24-2022

AUGUST 2022

METRIC

# NPA

New Product Announcement



Steel



**NEOLOGIQ GRADES**  
MACHINING INTELLIGENTLY

## New ISCAR Carbide, Upgrades Milling Applications of Steel!



Steel

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## Highlights

### ISCAR Introduces IC5600 - a New Coated Carbide Grade Intended for Machining Steel

ISCAR introduces IC5600 - a new coated carbide grade intended for machining steel (ISO P main group of application, ISCAR Material Groups 1-13) with indexable milling cutters, at high cutting speeds.

The new grade features a submicron substrate, a multi-layer MT CVD coating and an applied post-coating treatment in accordance with ISCAR’s SUMOTECH technology. This combination substantially improves the grade’s resistance to abrasive wear and to thermal loading. This enables increasing cutting speeds and metal removal rates.

The group application of IC5600 conforms to the wear resistance-hardness scale, as appears in the ISO 513 standard designated (P10-P15).

The coating layers and the coating colors are shown in the figure below.

Grade	ISO	Grade Description	Coating Layers	Coating Color
IC5600	P10-P15	A CVD coated carbide grade with a submicron substrate. Intended for machining steel at high cutting speeds.	TiN	
			Al <sub>2</sub> O <sub>3</sub>	
			TiCN	
			Base	



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The range of recommended cutting speeds when machining steel with indexable milling cutters composed of IC5600 carbide grade, is specified by Table 1.

**Table 1 - Cutting speed range ( $v_c$ ) for indexable milling cutters carrying inserts, which are made from IC5600 carbide grade**

ISO Identification Letter	Materials to be machined	ISCAR Materials Groups <sup>(1)</sup>						
		Material Group Description	Structure, composition	Condition	Tensile Strength [N/mm <sup>2</sup> ]	Hardness HB	Material Group No.	$v_c$ m/min
P	Steel: all kinds of steel and cast steel except stainless steel with an austenitic structure.	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	420	125	1	240 - 340
			$\geq$ 0.25 %C	Annealed	650	190	2	220 - 320
			< 0.55 %C	Quenched and tempered	850	250	3	210 - 300
				Annealed	750	220	4	210 - 275
		$\geq$ 0.55 %C	Quenched and tempered	1000	300	5	190 - 275	
			Low alloy steel and cast steel	Annealed	600	200	6	180 - 265
				Quenched and tempered	930	275	7	170 - 255
			1000		300	8	160 - 255	
			1200	350	9	160 - 245		
		High alloyed steel, cast steel, and tool steel	Annealed	680	200	10	125 - 235	
			Quenched and tempered	1100	325	11	115 - 190	
		Stainless steel and cast steel	Ferritic/martensitic	Tempered	680	200	12	160 - 255
			Martensitic	Tempered	820	240	13	150 - 245

<sup>(1)</sup> Based on ISO 513 and VDI 3323 standards.

The new IC5600 carbide grade guarantees advanced machining capabilities for indexable milling when applied to carbon, alloy steel and stainless steel of ferritic and martensitic groups.

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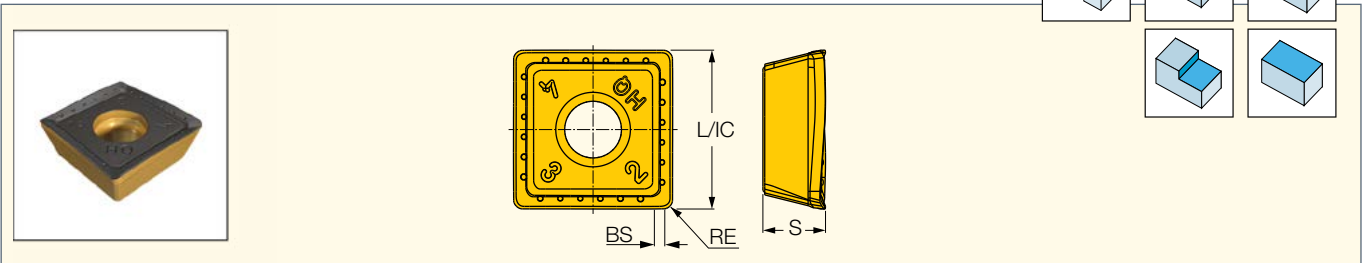
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## SDMT-PDR-HQ

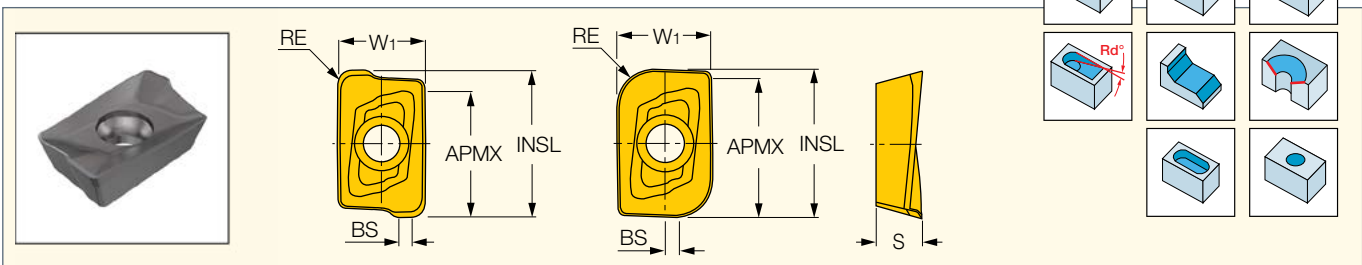
General Use Inserts with Four Helical Cutting Edges for 90° Shoulder Milling



Designation	Dimensions				Tough ↔ Hard											Recommended Machining Data					
	L	S	RE	BS	IC28	IC330	IC328	IC845	IC830	IC928	IC5500	IC4050	IC950	IC808	IC908	IC810	IC910	IC5400	IC5600 NEW	a <sub>p</sub> (mm)	f <sub>z</sub> (mm/t)
SDMT 1205PDR-HQ-HS	12.60	5.40	0.60	0.80					•				•							1.00-11.80	0.08-0.15
SDMT 1205PDR-HQ-M	12.70	5.00	0.80	1.60							•		•				•			1.20-11.80	0.08-0.15
SDMT 1205PDR-HQ-MM	12.70	5.00	0.80	0.80	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	1.20-11.80	0.07-0.20

## HM90 APKT 1003

Inserts for General Use with 2 Helical Cutting Edges for High 90° Shoulder Accuracy



Designation	Dimensions						Tough ↔ Hard											Recommended Machining Data						
	W1	INSL	APMX	S	RE	BS	IC882	IC28	IC330	IC328	IC716	IC830	IC928	IC950	IC380	IC808	IC908	IC810	IC910	IC5400	IC5600 NEW	a <sub>p</sub> (mm)	f <sub>z</sub> (mm/t)	
HM90 APKT 1003PDR	6.76	11.45	8.00	3.53	0.80	1.40	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	1.20-8.00	0.08-0.15
HM90 APKT 1003PDR-SC	6.80	11.60	8.00	4.00	0.40	1.80						•											0.80-8.00	0.08-0.15
HM90 APKT 1003PDR-MM	6.70	11.50	8.00	3.50	0.80	1.60						•											1.20-8.00	0.08-0.15
HM90 APKT 1003PDTR-8M	6.76	11.45	8.00	3.53	0.80	1.40							•							•			1.20-8.00	0.08-0.20
HM90 APKT 100304PDR	6.76	11.45	8.00	3.53	0.40	1.78		•		•		•					•				•		0.80-8.00	0.08-0.15
HM90 APKT 100308R	6.76	11.45	8.00	3.53	0.80	1.00						•											1.20-8.00	0.08-0.15
HM90 APKT 100310PDR	6.76	11.45	8.00	3.53	1.00	1.00										•							1.40-8.00	0.08-0.15
HM90 APKT 100312PDR	6.76	11.45	8.00	3.53	1.20	1.00				•		•					•				•		1.60-8.00	0.08-0.15
HM90 APKT 100316PDR	6.76	11.45	8.00	3.53	1.60	0.58				•		•					•				•		2.00-8.00	0.08-0.15
HM90 APKT 100325PDR	6.76	10.40	8.00	3.53	2.50	-				•		•					•				•		2.90-8.00	0.08-0.15
HM90 APKT 100330PDR	6.76	10.40	8.00	3.53	3.00	-				•		•					•				•		3.40-8.00	0.08-0.15

• For inserts with corner radii larger than 1.5 mm, the cutter body should be modified

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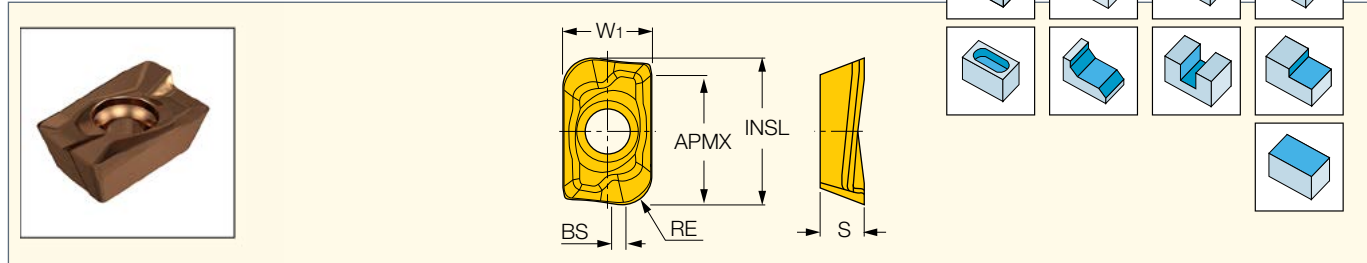
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### HM90 ADKT 1505

Inserts with 2 Helical Cutting Edges for General Use

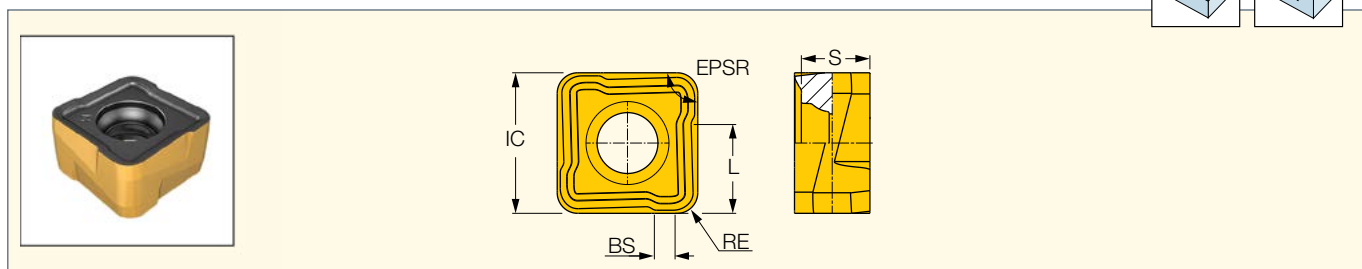
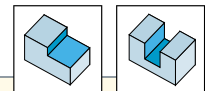


Designation	Dimensions						Tough ↔ Hard										Recommended Machining Data				
	W1	INSL	APMX	S	RE	BS	IC882	IC330	IC328	IC830	IC928	IC950	IC380	IC808	IC908	IC810	IC910	IC5400	IC5600 NEW	a <sub>p</sub> (mm)	f <sub>z</sub> (mm/t)
HM90 ADKT 1505PDR	9.65	16.18	12.00	5.85	0.80	2.16	•	•	•	•	•	•	•	•	•	•	•	•	•	1.20-12.00	0.08-0.15
HM90 ADKT 1505PDR-MM	9.60	16.00	12.00	5.80	0.80	2.70				•										1.20-12.00	0.08-0.15
HM90 ADKT 150516PDR	9.65	15.60	12.00	5.92	1.60	1.37														2.00-12.00	0.08-0.15
HM90 ADKT 150520PDR	9.65	15.60	12.00	5.90	2.00	0.79														2.40-12.00	0.08-0.15
HM90 ADKT 150524PDR	9.65	15.60	12.00	5.80	2.40	0.52														2.80-12.00	0.08-0.15
HM90 ADKT 150532PDR	9.65	15.20	12.00	5.85	3.20	-														3.60-12.00	0.08-0.15
HM90 ADKT 150540PDR	9.65	14.83	12.00	5.80	4.00	-														4.40-12.00	0.08-0.15
HM90 ADKT 150550PDR	9.65	14.85	12.00	5.75	5.00	-														5.40-12.00	0.08-0.15
HM90 ADKT 150564PDR	9.65	14.85	12.00	5.65	6.40	-														6.80-12.00	0.08-0.15

- For inserts with corner radii larger than 2.0 mm, the cutter body and seats should be modified
- Inserts with corner radii larger than 0.8 mm should be used on ADK & SM tools only on the face of the cutter.

### S890 SZMU-0804PN

Double-Sided Square Inserts with 8 Cutting Edges



Designation	Dimensions							Tough ↔ Hard						Recommended Machining Data	
	IC	S	L	APMX	BS	RE	EPSR	IC845	IC830	IC808	IC810	IC5400	IC5600 NEW	IC5100	f <sub>z</sub> (mm/t)
S890 SZMU 080408PNTR	8.20	4.00	5.20	5.00	1.60	0.80	88.4				•				0.12-0.25
S890 SZMU 080412PNTR	8.20	4.00	5.20	5.00	1.20	1.20	88.4				•			•	0.12-0.25
S890 SZMU 080408PNRMM	8.20	4.00	5.20	5.00	1.60	0.80	88.4			•					0.08-0.25
S890 SZMU 080412PNRMM	8.20	4.00	5.20	5.00	1.20	1.20	88.4	•	•	•		•	•		0.08-0.25

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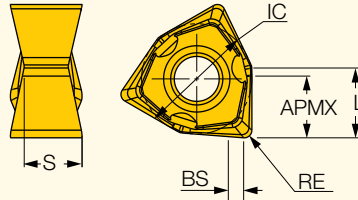
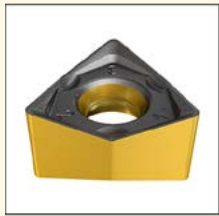
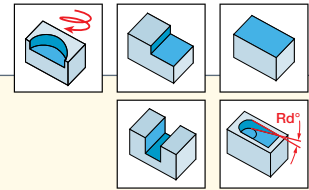
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## H690 WNHU/WNMMU 0705

Trigonal Inserts with 6 Helical Cutting Edges for 90° Shoulder Milling

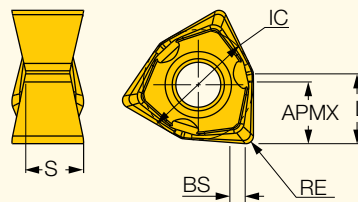
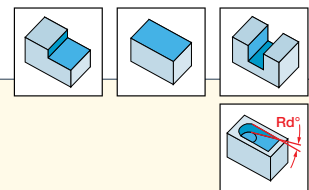


Designation	Dimensions						Tough ↔ Hard							Recommended Machining Data		
	L	APMX	IC	S	RE	BS	IC330	IC845	IC830	IC808	IC810	IC5400	IC5600 <b>NEW</b>	IC5100	a <sub>p</sub> (mm)	f <sub>z</sub> (mm/t)
H690 WNHU 0705PNTR <sup>(1)</sup>	7.30	7.00	11.50	5.80	0.80	1.20				•					1.20-7.00	0.10-0.20
H690 WNMU 0705-PNTR <sup>(2)</sup>	7.30	7.00	11.50	5.90	0.80	1.20				•				•	1.20-7.00	0.10-0.35
H690 WNMU 070512PNTR	7.30	7.00	11.50	5.80	1.20	1.00		•							1.60-7.00	0.10-0.35
H690 WNMU 070516PNTR	7.30	7.00	11.50	5.80	1.60	0.60		•							2.00-7.00	0.10-0.35
H690 WNMU 070520PNTR	7.30	7.00	11.50	5.70	2.00	-		•							2.40-7.00	0.10-0.35
H690 WNMU 0705PNN-MM <sup>(3)</sup>	7.30	7.00	11.50	5.90	0.80	-	•		•			•			1.20-7.00	0.10-0.25
H690 WNMU070512PNN-MM <sup>(3)</sup>	7.30	7.00	11.50	5.80	1.20	-			•						1.60-7.00	0.10-0.25
H690 WNMU070516PNN-MM <sup>(3)</sup>	7.30	7.00	11.50	5.70	1.60	-			•						2.00-7.00	0.10-0.25
H690 WNMU070520PNN-MM <sup>(3)</sup>	7.30	7.00	11.50	5.70	2.00	-			•						2.40-7.00	0.10-0.25
H690 WNMU 0705PNR-MM <sup>(4)</sup>	7.30	7.00	11.50	5.90	0.80	1.20			•	•	•		•		1.20-7.00	0.10-0.25
H690 WNMU 0705PNR-RM <sup>(5)</sup>	7.30	7.00	11.50	5.80	0.80	1.20			•	•	•				1.20-7.00	0.15-0.40

- (1) Peripherally ground
- (2) General use insert with 6 right-hand cutting edges for milling a variety of cast iron and steel grades.
- (3) 6 neutral cutting edges, for machining steel, can be used also for left-hand specially tailored milling tools.
- (4) 6 right-hand cutting edges, used mainly for milling steel
- (5) For heavy roughing applications

## H690 WNMU 0403

Trigonal Inserts with 6 Helical Cutting Edges for 90° Shoulder Milling



Designation	Dimensions						Tough ↔ Hard						Recommended Machining Data	
	L	APMX	IC	S	RE	BS	IC830	IC808	IC810	IC5400	IC5600 <b>NEW</b>	IC5100	a <sub>p</sub> (mm)	f <sub>z</sub> (mm/t)
H690 WNMU 0403-PNTR	4.20	4.00	6.70	3.50	0.40	0.80			•			•	0.80-4.00	0.08-0.16
H690 WNMU 0403PNR-MM	4.20	4.00	6.70	3.50	0.40	0.80	•	•			•		0.80-4.00	0.04-0.16
H690 WNMU040308PNR-MM	4.20	4.00	6.70	3.50	0.80	0.40	•	•		•	•		1.20-4.00	0.04-0.16