DRILLING

31-2022

SEPTEMBER 2022

METRIC

NPA

New Product Announcement

CVD Coating

ISO P Materials

Longer Tool Life

Member IMC Group

ISCAR

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BTA Insert Upgrade with New CVD Grade IC8355

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Highlights

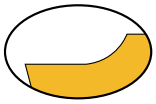
New CVD Grade Improves Wear and Fracture Resistance For ISO P

NEW CVD grade - IC8355 features high wear and fracture resistance and special surface technology for improved machining.

Features:

- IC8355 grade is dedicated for drilling ISO P materials.
- Unique surface treatment hardens the cutting edges, which promises longer tool life.
- Applies to all NPMX / TPMX insert sizes with a “G” chip-breaker.

Chip Breaker Selection

G		
		Versatile

General Data

Production category: Indexable insert drill for BTA machines
Application areas: Carbon steels, non-alloy steels and alloy steels (ISO P materials)
Diameter range: Ø38.00 mm - Ø293.99 mm
Target markets: Die & mold, heavy equipment, power generation, and other heavy industries

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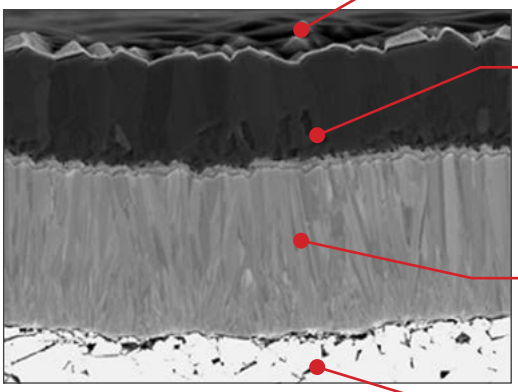
New IC8355 grade
To prolong tool life in ISO P materials



Hard Outer Layer
A newly developed hard coating layer with a high resistance to flank wear.

Thick Al_2O_3 Layer
Has excellent resistance to high heat and crater wear, expecially effective for high-speed machining.

Ti compound

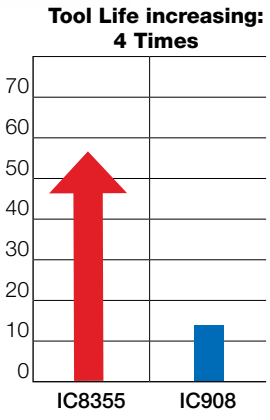
New Cemented Carbide Substrate
Exclusively designed for CVD grade drastically reduces defects in alloys, which greatly improves fracture resistance.

- IC8355 features unidirectional crystal orientation in the alumina layer, that monitors every crystal in the same direction.
- 1.7 times thicker compared to the conventional method.

TEST REPORT

Part name: Oil and Gas
Material: Steel4340
Application: Deep hole solid drilling
Machine: BTA
Coolant method: Internal

	New	Current
Body	ISD-EC 4.625	ISD-EC 4.625
Insert	TPMX 280716R-G	TPMX 280716R-G
Grade	**IC8355**	IC908
Cutting speed, Vc	76 (250 SFM)	76 (250 SFM)
Feed, f	0.3 (0.012 IPR)	0.3 (0.012 IPR)
Feed speed, Vf	63 (2.5 IPM)	63 (2.5 IPM)
Hole diameter, Dc	114.3 (4.5")	114.3 (4.5")
Tool life, m	**52,8 (2079")**	13.25 (520")
Coolant	Oil	Oil



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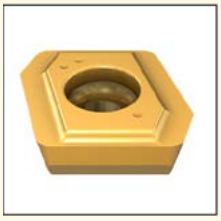
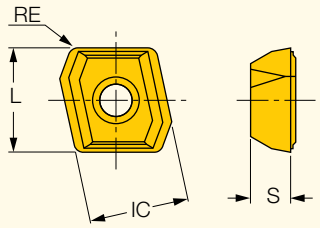
NPMX 0803 RB/RG

Inserts for Drilling Heads DSD-EC / DDD-EC / DSD-IC





Designation	Dimensions IC	S	RE	L	Tough ↔ Hard NEW IC8355	IC9025	IC908	IC948	IC520
NPMX 080304R-B	8.00	3.18	0.40	8.36		●		●	●
NPMX 080308R-G	8.00	3.18	0.80	8.36	●	●	●	●	●

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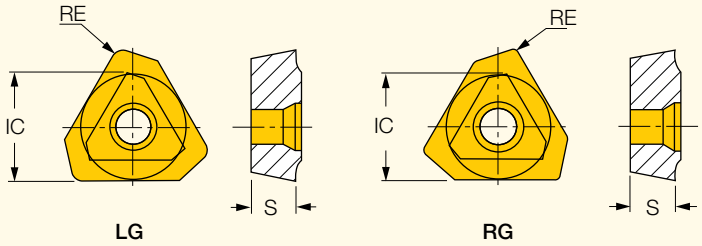
TPMX
Inserts for Drilling / Counterboring / Trepanning Tools



Designation	Dimensions IC	S	RE	Tough ↔ Hard NEW IC8355	IC5500	IC9025	IC508	IC908	IC948	IC920	IC520	IC806
TPMX 140304R-B	8.45	3.50	0.40			●		●		●	●	●
TPMX 140308R-DT	8.45	3.50	0.80			●		●	●			
TPMX 140308R-G	8.45	3.50	0.80	●	●	●	●	●	●		●	●
TPMX 140308R-B	8.45	3.50	0.80						●			●
TPMX 170404R-B	10.30	4.00	0.40			●		●		●	●	●
TPMX 170408R-B	10.30	4.00	0.80						●			●
TPMX 170408R-BG	10.30	4.00	0.80					●	●		●	●
TPMX 170408R-DT	10.30	4.00	0.80			●		●	●		●	
TPMX 170408R-G	10.30	4.00	0.80	●	●		●	●	●		●	●
TPMX 240504R-B	14.20	5.50	0.40					●		●	●	●
TPMX 240512R-BG	14.20	5.50	1.20			●		●	●		●	●
TPMX 240512R-DT	14.20	5.50	1.20			●		●	●		●	
TPMX 240512R-G	14.20	5.50	1.20	●	●		●	●	●		●	●
TPMX 240512R-B	14.20	5.50	1.20						●			●
TPMX 280708R-B	17.00	7.50	0.80			●		●		●		●
TPMX 280716R-BG	17.00	7.50	1.60					●	●		●	●
TPMX 280716R-DT	17.00	7.50	1.60					●	●		●	
TPMX 280716R-G	17.00	7.50	1.60	●	●		●	●	●		●	●
TPMX 280716R-B	17.00	7.50	1.60						●			●
TPMX 140308L-G	8.45	3.50	0.80			●		●				
TPMX 170404L-BG	10.30	4.00	0.40					●				
TPMX 170408L-DT	10.30	4.00	0.80					●				
TPMX 170408L-G	10.30	4.00	0.80			●		●	●		●	
TPMX 240504L-BG	14.20	5.50	0.40					●				
TPMX 240512L-DT	14.20	5.50	1.20					●				
TPMX 240512L-G	14.20	5.50	1.20			●		●	●		●	
TPMX 280708L-BG	17.00	7.50	0.80					●				
TPMX 280716L-G	17.00	7.50	1.60			●		●	●		●	

As part of ISCAR'S ongoing improvement of grades, NPMX/TPMX Inserts in the existing grades, will be replaced with IC8355 and IC948 grades

IC948 will replace Phased-Out grades IC520 and IC920
IC8355 will replace Phased-Out grades IC5500 and IC9025

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Machining Recommendations for ISCARDEEPDRILL Tools

Material Groups					Recommended Machining Conditions						
							Feed: f (mm/rev)				
ISO	Material		Condition	Hardness (HB)	Material Group No.	Cutting speed V_c (m/min)	38.00-39.99	4.00-51.99	52.00-63.99	64.00-84.99	85.00-293.00
P	Non-alloy steel and cast steel, free cutting steel	< 0.25% C	Annealed	125	1	60-120	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
		≥ 0.25% C	Annealed	190	2	60-120	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
		< 0.55% C	Quenched and tempered	250	3	60-120	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
		≥ 0.55% C	Annealed	220	4	60-120	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
			Quenched and tempered	300	5	60-120	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
	Low alloy steel and Cast steel (less than 5 % of alloying elements)		Annealed	200	6	60-100	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
			Quenched and tempered	275	7	60-100	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
				300	8	50-100	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
				350	9	50-100	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
	High alloyed steel, cast steel, and tool steel		Annealed	200	10	60-120	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
			Quenched and tempered	325	11	60-120	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
	Stainless steel and cast steel		Ferritic/martensitic	200	12	60-110	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3
			Martensitic	240	13	60-110	0.08-0.15	0.1-0.2	0.13-0.23	0.15-0.25	0.18-0.3