MILLING

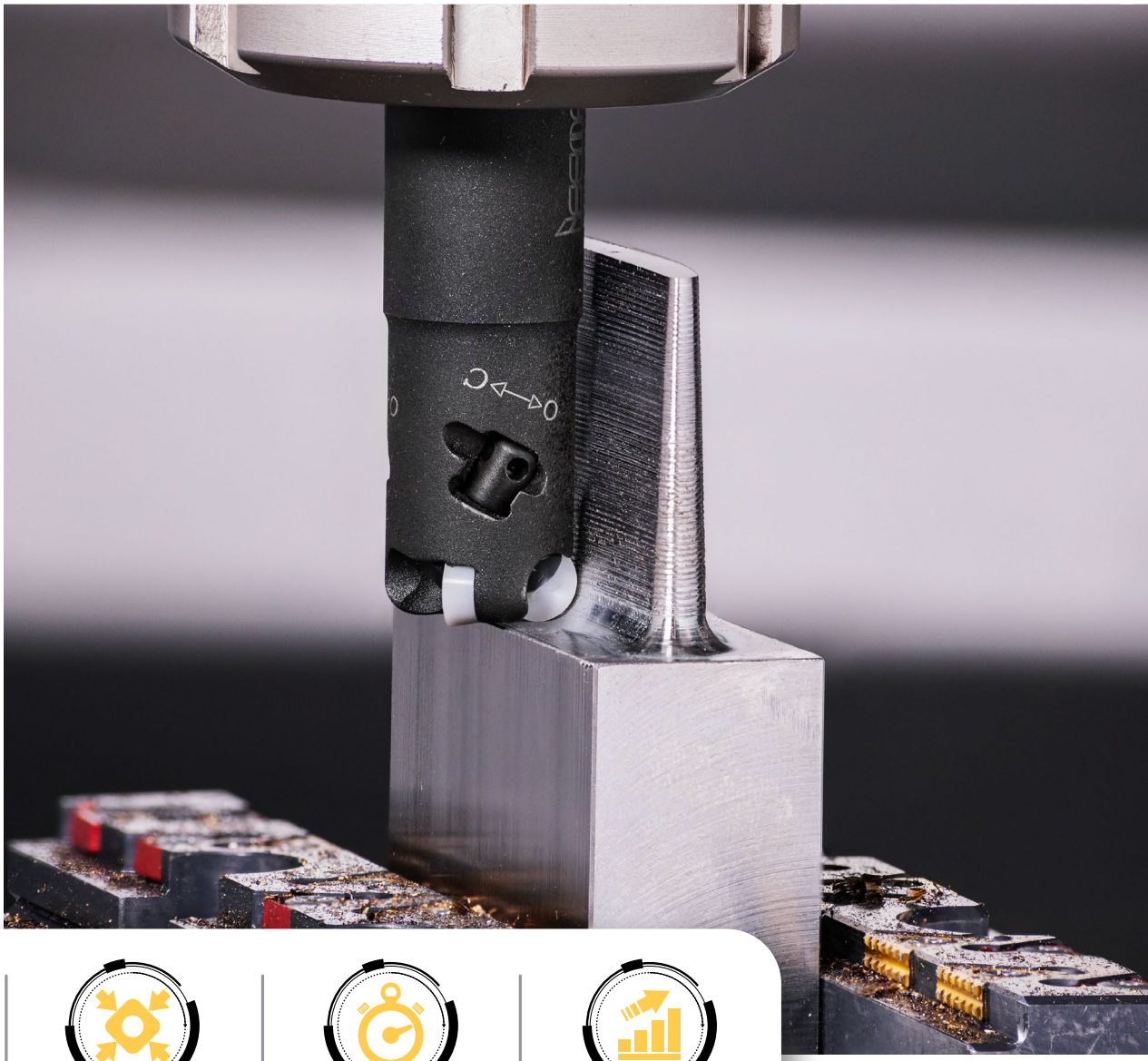
49-2024

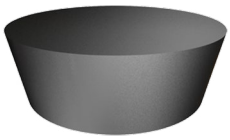
AUGUST 2024

METRIC

NPA

New Product Announcement





Rigid Clamping

No Setup Time

High Productivity

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CERMILL

A New Family of Endmills with Ceramic Round Inserts for Higher Productivity

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Highlights

CERMILL, a New Family of Endmills with Ceramic Round Inserts, Provides a User-Friendly Solution For High-Efficiency Machining

ISCAR is introducing an innovative solution to boost productivity in milling nickel-based high temperature superalloys **(HTSA)** and cast iron with the use of ultra-hard cutting materials: the **CERMILL**, a new family of relatively small-in-diameter indexable endmills with ceramic round inserts.
The key element of the family is an ingenious mechanism of high-rigid insert clamping, which provides two important advantages:

1. Increased number of teeth compared to existing designs of similar endmills in the same diameter.
2. Fast, simple, and user-friendly indexing and replacement of the insert, without the need to remove the endmill from the tool holder.

The combination of a higher number of teeth and the extreme rigidity of the clamping mechanism makes the **CERMILL** an effective tool for boosting productivity in milling operations, particularly, milling planes and 3D surfaces.

The indexable mill design concept in the relatively small tool diameter range offers significant cost-effectiveness compared to the prevailing solid designs within this diameter range.

CERMILL Endmills

In the initial stage, the **CERMILL** endmills are currently offered in three different diameters: **16 mm, 20 mm**, and **25 mm.** The endmill bodies feature a special coating that serves two purposes: enhancing chip flow and providing protection against corrosion and wear.

CERMILL Inserts

The endmills carry indexable single-sided positive round inserts in diameter 6.35 mm. The inserts are produced from the following ceramic grades:

- **IS14** and **IS15** that are intended for machining **HTSA**,
- **IS45**, which is designed for machining both **HTSA** and cast iron.

These inserts are available in various designs depending on the cutting-edge condition.

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Application Remarks
Major industrial sectors:
Aerospace, Power Generation, Marine Engineering, and Automotive.

Main applications: milling faces, cavities, pockets, complex-shaped surfaces, close-to-shoulder milling, and ramping down including helical and circular interpolation.

Coolant: **dry coolant only!** The use of wet coolant is prohibited due to its negative impact on performance and the tool life of the inserts.

Tightening torque: 0.7 Nm.
This is the average torque, developed by an operator when using the clamping key, which is included with a tool in the tool packaging box.

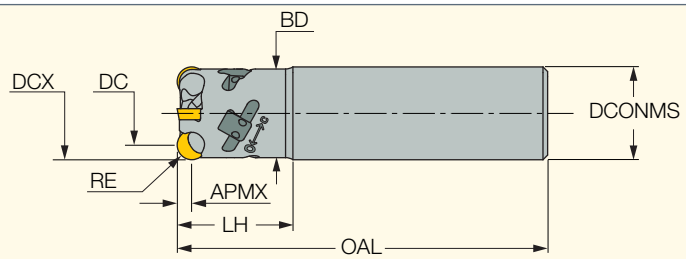
Optionally a fixed-torque assembly is available, ensuring the application of precise tightening torque .
This assembly includes a handle T.WRENCH TBN 2 0.4-2NM and a bit ERP BIT D4-30 mounted on the handle.
Both the handle and the bit should be ordered separately.

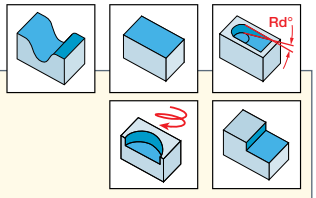
CERMILL

ERP

Endmills Carrying Single-Sided Ceramic Round Inserts

https://www.iscar.com/eCatalog/Family.aspx?fnum=5353&mapp=ML&GFSTYP=M&srch=1





Designation	DCX(1)	DC	RE	APMX	CICT(2)	LH	OAL	BD	DCONMS	RMPX°(3)	Shank	MIID(4)
ERP D010A016-03-C16-06	16.00	9.65	3.18	3.17	3	25.0	80.00	15.00	16.00	2.5	C	RPGN 06
ERP D014A020-04-C20-06	20.00	13.65	3.18	3.17	4	30.0	80.00	19.00	20.00	4.0	C	RPGN 06
ERP D019A025-05-C25-06	25.00	18.65	3.18	3.17	5	40.0	100.00	24.00	25.00	3.5	C	RPGN 06

(1) Cutting diameter maximum
(2) Number of inserts (or edges for solid tool)
(3) Maximum ramping angle
(4) Master insert identification

Spare Parts

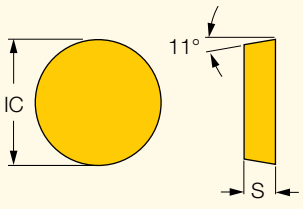


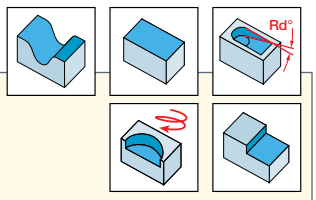
Designation	Clamp Screw	Nut	Clamping Key
ERP	CL-D4-L9-M3X0.5	NUT-D4.5-L6-M3X0.5	CW 1.7-L20

RPGN (CER)

Positive Round Ceramic Inserts for Machining Cast Iron and Heat-Resistant Alloys

https://www.iscar.com/eCatalog/Family.aspx?fnum=3519&mapp=ML&app=0&GFSTYP=M&fr=1





Designation	Dimensions IC	Dimensions S	Tough ↔ Hard IS14	IS15	IS45	Recommended Machining Data a_p (mm)	f_z (mm/t)
RPGN 060200 E004	6.35	2.38	•	•	•	0.50-3.00	0.08-0.15
RPGN 060200 T00520	6.35	2.38			•	0.50-3.00	0.08-0.15
RPGN 060200 T01020	6.35	2.38	•	•	•	0.50-3.00	0.08-0.15

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MATERIAL GROUPS

Based on ISO 513 and VDI 3323 Standards

ISO	Material		Condition	Material Group No.	Depth of Cut (mm)	Insert Grades						Coolant
						IS14		IS15		IS45		
						vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)	vc (m/min)	fz (mm/t)	
K	gray cast iron (GG)		ferritic / pearlitic	15	0.50-3.00					450-1200	0.07-0.20	Dry
			pearlitic / martensitic	16								
	nodular cast iron (GGG)		ferritic	17						450-1200	0.07-0.20	
			pearlitic	18								
	malleable cast iron		ferritic	19						450-1200	0.07-0.20	
			pearlitic	20								
S	high temperature alloys	Ni or Co based	annealed	33	0.50-3.00	600-1100	0.08-0.12	600-1200	0.07-0.12	450-1000	0.08-0.15	Dry
			hardened	34								
			cast	35								

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