

NEW

INNOTOOL

LOOK FORWARD



INCERAMIC

SOLID CERAMIC SPEED END MILL

- Solid ceramic grade •*
 - High-feed geometry •*
 - High material removal rate •*
 - Short machining times •*
- Machining of nickel-based alloys (Inconel, cast iron, graphite) with high cutting speed •*

INCERAMIC SOLID CERAMIC SPEED END MILL

Product overview

The demand of the market to shorten machining and cycle times of nickel-based alloys such as Inconel, was our driving force to develop the new solid ceramic end mill tools, called **INCERAMIC**.

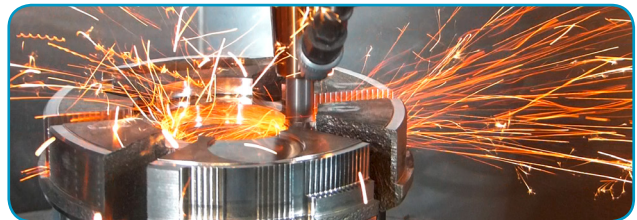
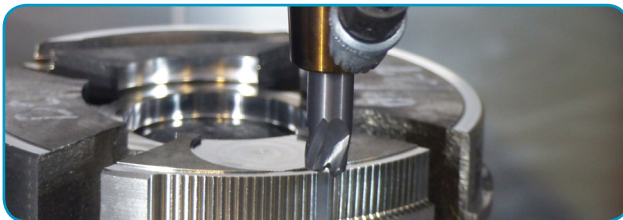
This developed geometry combined with the ceramic cutting grade **IN75N** is currently unique in the market and supports potential users with the common diameters $\varnothing 6 / \varnothing 8 / \varnothing 10 / \varnothing 12 / \varnothing 16$ and $\varnothing 20$.

Field of application

For rough milling application of **nickel-based alloys**, particularly of **Inconel**, as well as machining cast iron and graphite materials.

The **INCERAMIC** tools are capable to fulfill the requirements of shorter machining time compared to conventional solid carbide tools by realizing high cutting speeds combined with high feed rates in order to achieve an appropriate level of material removal rates.

This design of end mill allows to machine multiple passes at 90° shoulders without damaging the shoulder surface due to reduced shaft diameter behind the effective cutting edge.



Technical features

The specific characteristics of our high feed geometry allows feeds per tooth of up to 0.22 mm at doc between 0.35 - 1.0 mm.

The **helix angle** along the cutting edge is designed especially for application in exotic materials.

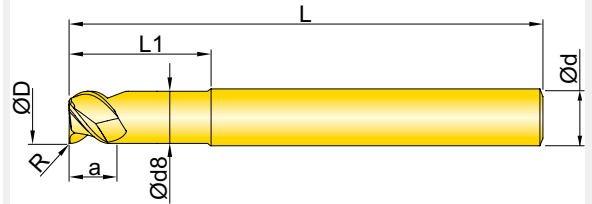
The theoretical corner radius must be considered for **CAD/CAM programming** according to all high feed geometries.

Cutting speed can be raised up to 1000 m/min.

Advantages

- High material removal rates
- High feed geometry
- High cutting speeds
- Short machining times
- Machining 3 different material groups

ADAPTION ACC. TO DIN 6535 HA



Grade	P	M	K	N _(K)	S _(M)	H _(PK)		0/-0,02						
IN75N			+		+			h6						

+ Preferred choice ○ Second choice

Designation	D	d	d8	L	L1	a	R	Z	kg
INCER060.042.015Z3	6	6	5,5	50	15	6	0,42	3	0,027
INCER080.056.020Z3	8	8	7,5	57	20	8	0,56	3	0,036
INCER100.070.025Z3	10	10	9,5	65	25	8	0,70	3	0,064
INCER120.110.030Z3	12	12	11,5	72	30	10	1,10	3	0,101
INCER160.190.035Z3	16	16	15,5	83	35	12	1,90	3	0,200
INCER200.250.040Z3	20	20	19,5	93	40	15	2,50	3	0,365

Recommended Cutting Data

Cutting parameters for **roughing** in HSC mode.

ISO	Material	Material composition	Condition	Hardness [HB]	Material No.	ap	vc (m/min)	fz (mm)					
								Ø6	Ø8	Ø10	Ø12	Ø16	Ø20
K	Grey cast iron	Pearlitic/ferritic		180	15	0,25-1,0	250-1000	R 0,42	R 0,56	R 0,70	R 1,10	R 1,90	R 2,50
		Pearlitic (martensitic)		260	16	0,25-1,0	250-1000	0,1	0,15	0,17	0,19	0,23	0,25
	Cast iron nodular	Ferritic		160	17	0,25-1,0	250-1000	0,1	0,15	0,17	0,19	0,23	0,25
		Ferritic		250	18	0,25-1,0	250-1000	0,1	0,15	0,17	0,19	0,23	0,25
	Malleable cast iron	Ferritic		130	19	0,25-1,0	250-1000	0,1	0,15	0,17	0,19	0,23	0,25
		Pearlitic		230	20	0,25-1,0	250-1000	0,1	0,15	0,17	0,19	0,23	0,25
N	Non ferrous material	Graphite			29	0,25-1,0	500-1500	0,1	0,15	0,17	0,19	0,23	0,25
S	Nickel-based alloy	Alpha+Beta-alloy	hardened	Rm1050 ¹⁾	37	0,25-1,0	250-1000	0,1	0,13	0,15	0,18	0,2	0,22

¹⁾Rm: Tensile strenght in MPa ²⁾R: Programming radius

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