NEW

Member IMC Group
Ingersoll
Cutting Tools

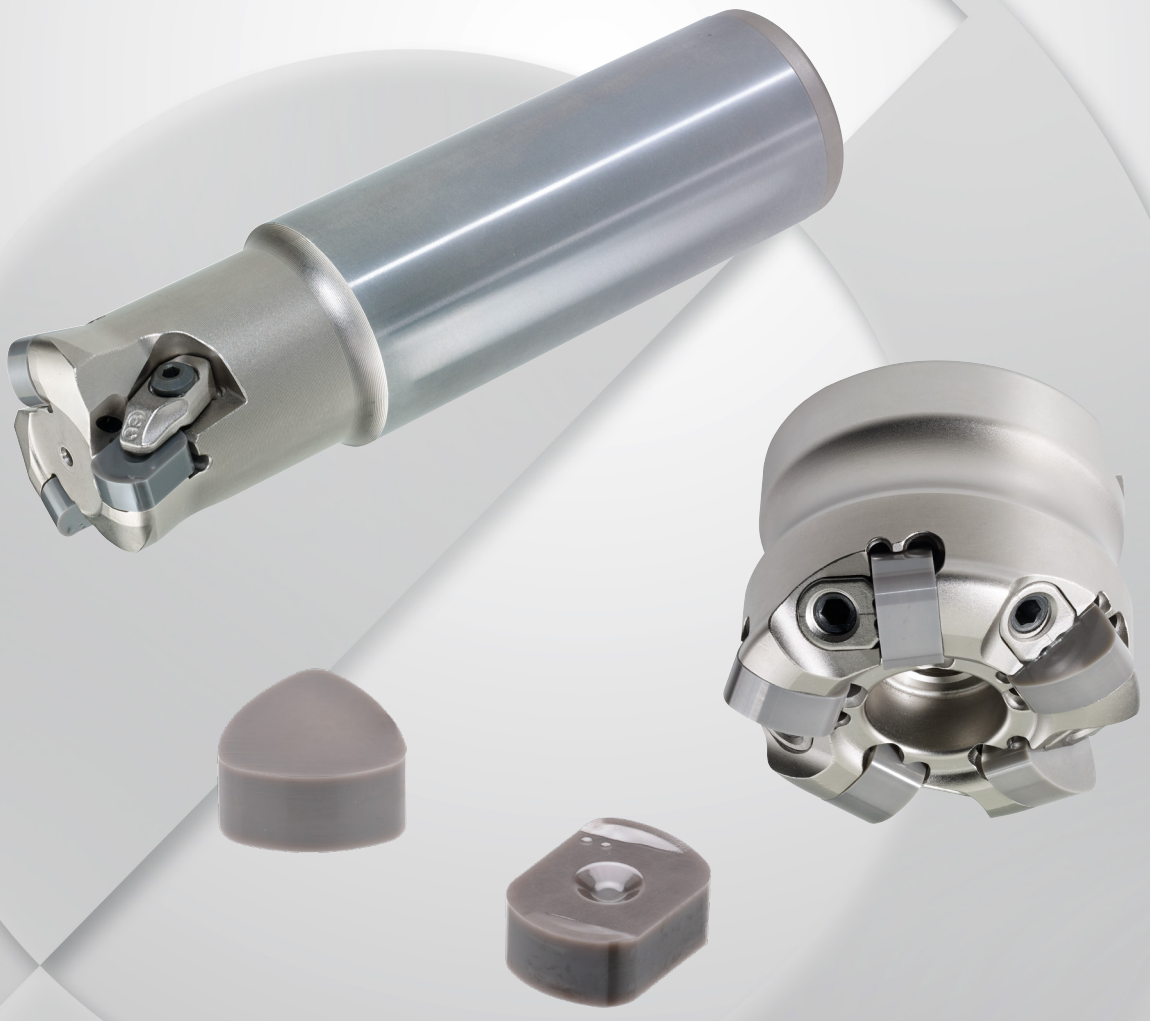
SFEEDUP
HIGH SPEED & FEED

CERASFEED

CERAMIC INSERTS FOR
HIGH-SPEED & HIGH FEED MACHINING

NEW CERAMIC INSERT LINES FOR HIGH-SPEED & HIGH FEED MACHINING

- *For difficult-to-cut materials*
- *Large corner radius insert for high feed machining*
- *Increased tool life*
- *Strong clamping and good chip evacuation*



No. 183 E / 9-2020

Product Overview

New ceramic milling line designed for high productivity through high-feed, high-speed machining of difficult-to-cut materials (HRSA), especially nickel-based alloys such as Inconel.

With the growing demand of both the aerospace and power generation industries, the nature of the related industries' components from difficult-to-cut materials – where materials maintain strength even in high temperatures – also grows. These materials have very low heat conductivity and are extremely difficult to machine, making it difficult to improve productivity. To meet these market demands, Ingersoll has launched a new ceramic milling line of inserts and cutters – **CeraSFeed**.

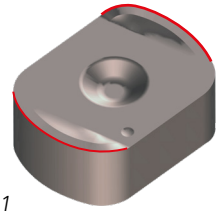
Application Range

Based on a unique combination of a ceramic grade suitable for high-speed machining and a unique and large radius shape for high feed machining, the **CeraSFeed** line is a high productivity solution for the machining of difficult-to-cut materials, especially Inconel

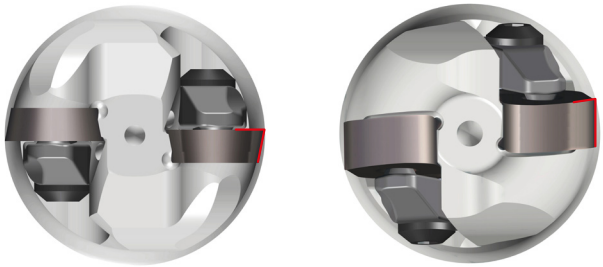
The ceramic inserts come in two sizes: 09 mm and 12 mm. Cutters come in both end mill and face mill types. They are dedicated to a variety of applications including facing, shouldering, slotting, straight ramping and helical ramping. The ceramic grade IN76N is also suitable to machine regular cast-iron materials, such as GG and GGG.

Technical Features & Advantages of LNXF09

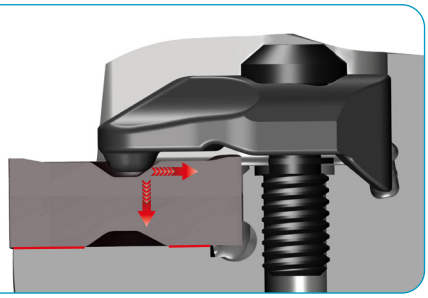
- **Double-sided four corner dimple type insert** *(Pic.1)*
- **Unique insert geometry for high feed applications with positive cutting edges**
- **Large corner radius for increased tool life**
- **More rigid design with stable machining compared to the existing RPGN inserts** *(Pic.2)*
- **Positive rake angle and good chip evacuation**
- **Strong clamping by dimple type insert and clamp** *(Pic.3)*



Pic. 1



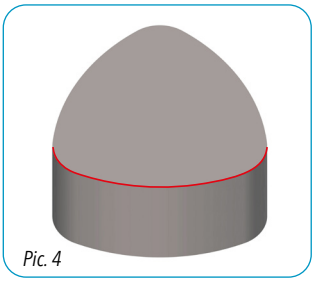
Pic. 2 **RPGN** **LNXF**



Pic. 3

Technical Features & Advantages of TNXN12

- Strong double-sided six corner insert *(Pic.4)*

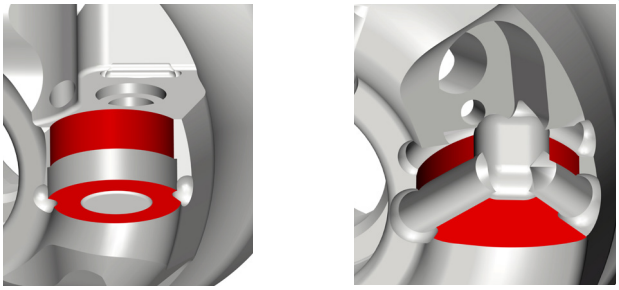


Pic. 4

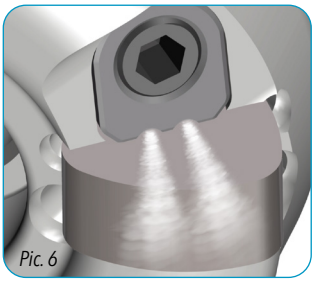
- Large corner radius insert for high feed machining
  - Replaces ISO RNGN 12 insert
  - Increased tool life

- Three-sided contact for stable clamping *(Pic.5)*

- Direct air cooling through the wedge clamp *(Pic.6)*

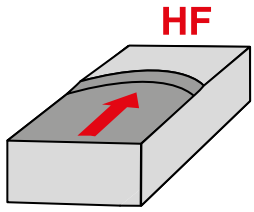


ISO RNGN Pic. 5 TNXN 12

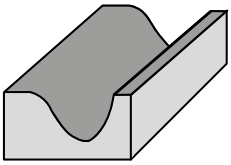


Pic. 6

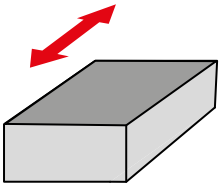
A Wide Variety of Applications



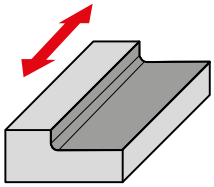
High feed milling



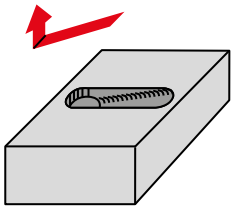
Profiling



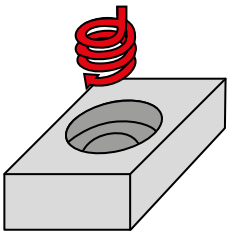
Facing



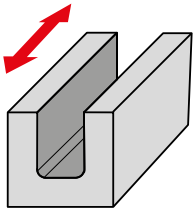
Shouldering



Straight ramping



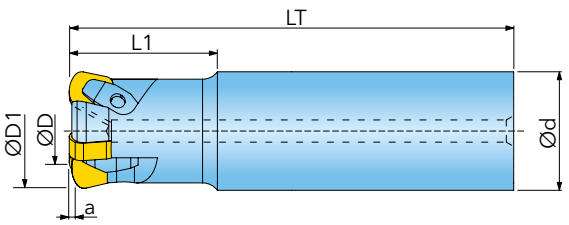
Helical ramping



Slotting

Applied Parts

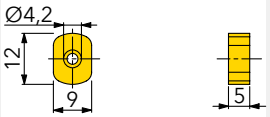
ADAPTION ACC. TO DIN 1835 A



Designation	D	D1	d	LT	L1	a	Rp	Z		IK	kg
1ZG3F025040T4R00	14,8	25	25	100	40	1,5	3,4	3	1	✓	0,32
1ZG3F032040U7R00	21,5	32	32	120	40	1,5	3,4	3	0,6	✓	0,63
1ZG3F040040U7R00	29,4	40	32	120	40	1,5	3,4	4	0,5	✓	0,69

Rp = programming radius

LNXF0905R01



Designation	fz(min/max)	Design	Grade	IN76N
LNXF0905R01	0,15/0,35	neutral geometry SiN		

P = P M = M K = K N = N S = S H = H

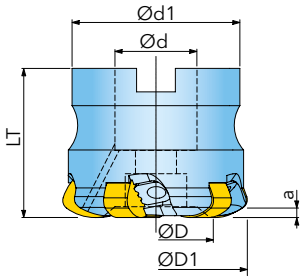
SPARE PARTS

	CCL-3S ASSY	L-W 2

① = Clamp set ② = Wrench

CERASFEED HIGH FEED MILL DG1H

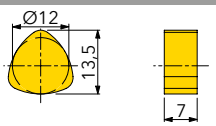
ADAPTION ACC. TO DIN 8030



Designation	D	D1	d	d1	LT	a	Rp	Z		IK	kg
DG1H050R00	32,8	50	22	45	40	2,5	4,5	5	0,5	✓	0,30
DG1H063R00	45,7	63	22	47	40	2,5	4,5	7	0,4	✓	0,40
DG1H080R00	62,6	80	27	70	50	2,5	4,5	8	0,3	✓	1,20

Rp = programming radius

TNXN1207N0104



Designation	fz(min/max)	Design	Grade	IN76N
TNXN1207N0104	0,15/0,35	neutral geometry SiN		

● = P ● = M ● = K ● = N ● = S ○ = H

SPARE PARTS

WFZ 6-C	WS 6	T-W 3

① = Wedge ② = Clamp screw ③ = Screw driver

LNFX0905R01

Insert:	LNXF0905R01
Recomm. cutting depth:	ap = 1,0 mm
max. cutting depth:	ap = 1,5 mm

Recommended cutting data

ISO	material	cutting speed Vc [m/min]				feed per tooth fz [mm]
		1st choice dry machining resp. wear resistant carbide		1st choice wet machining resp. rough carbide		
P	unalloyed steel	–	–	–	–	–
P	alloyed steel 800 N/mm²	–	–	–	–	–
P	alloyed steel 1100 N/mm²	–	–	–	–	–
M	stainless steel	–	–	–	–	–
K	gray cast iron	IN76N	400 – 800	–	–	0,15 – 0,30
K	nodular cast iron	IN76N	400 – 800	–	–	0,15 – 0,30
N	aluminum	–	–	–	–	–
S	high temperature alloys	IN76N	400 – 800	–	–	0,10 – 0,20
S	titanium alloys	–	–	–	–	–
H	hard machining < 54 HRC	–	–	–	–	–
H	hard machining < 63 HRC	–	–	–	–	–

Tips:

- The worse the material machinability, the smaller the tool engagement should be choosen.
- The smaller the cutting tool diameter, the higher the cutting speed can be.
- Approach feed should be reduced by 30%.

- 4-edged insert
- Programming radius R3,4

Ramping data and circular interpolation:

tool diameter [mm]	max. ramp. angle [°]	min. bore dia.[mm]	max. ap/rev. [mm]	max. bore dia. [mm]
25	1	39	1	50
32	0,6	53	0,7	64
40	0,5	69	0,7	80

TNXN1207N0104

Insert:	TNXN1207N0104
Recomm. cutting depth:	ap = 1,5 mm
max. cutting depth:	ap = 2,5 mm

Recommended cutting data

ISO	material	cutting speed Vc [m/min]				feed per tooth fz [mm]
		1st choice dry machining resp. wear resistant carbide		1st choice wet machining resp. rough carbide		
P	unalloyed steel	–	–	–	–	–
P	alloyed steel 800 N/mm²	–	–	–	–	–
P	alloyed steel 1100 N/mm²	–	–	–	–	–
M	stainless steel	–	–	–	–	–
K	gray cast iron	IN76N	400 – 800	–	–	0,20 – 0,40
K	nodular cast iron	IN76N	400 – 800	–	–	0,20 – 0,40
N	aluminum	–	–	–	–	–
S	high temperature alloys	IN76N	400 – 800	–	–	0,15 – 0,30
S	titanium alloys	–	–	–	–	–
H	hard machining < 54 HRC	–	–	–	–	–
H	hard machining < 63 HRC	–	–	–	–	–

Tips:

- The worse the material machinability, the smaller the tool engagement should be choosen.
- The smaller the cutting tool diameter, the higher the cutting speed can be.
- Approach feed should be reduced by 30%.

- 6-edged insert
- Programming radius R3,4

Ramping data and circular interpolation:

tool diameter [mm]	max. ramp. angle [°]	min. bore dia.[mm]	max. ap/rev. [mm]	max. bore dia. [mm]
50	0,5	84	1,1	100
63	0,4	110	1,1	126
80	0,3	144	1,1	160

Ingersoll Werkzeuge GmbH

Main Office:
Kalteiche-Ring 21–25 • D-35708 Haiger, Germany
Tel.: +49 (0)2773-742-0 • info@ingersoll-imc.de

Office South:
Florianstraße 13–17 • D-71665 Vaihingen-Horrheim
Tel.: +49 (0)7042-8316-0 • horrheim@ingersoll-imc.de

Office Wulften:
Steinstraße 11 • D-37199 Wulften
Tel.: +49 (0)556-99 55 98-0 • wulften@ingersoll-imc.de