09/05/17

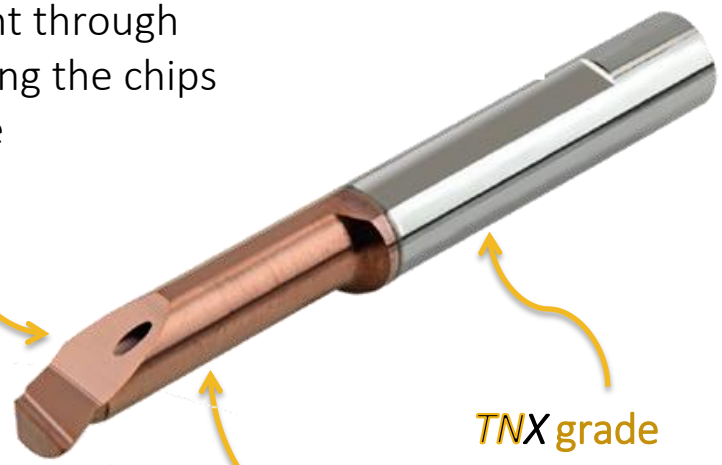
CBR CASE STUDY

Carmex Precision Tools Ltd.

TINY TOOLS – CBR

Coolant
Internal coolant through the tool, pushing the chips out of the hole

Chip Breaker
Excellent chip evacuation

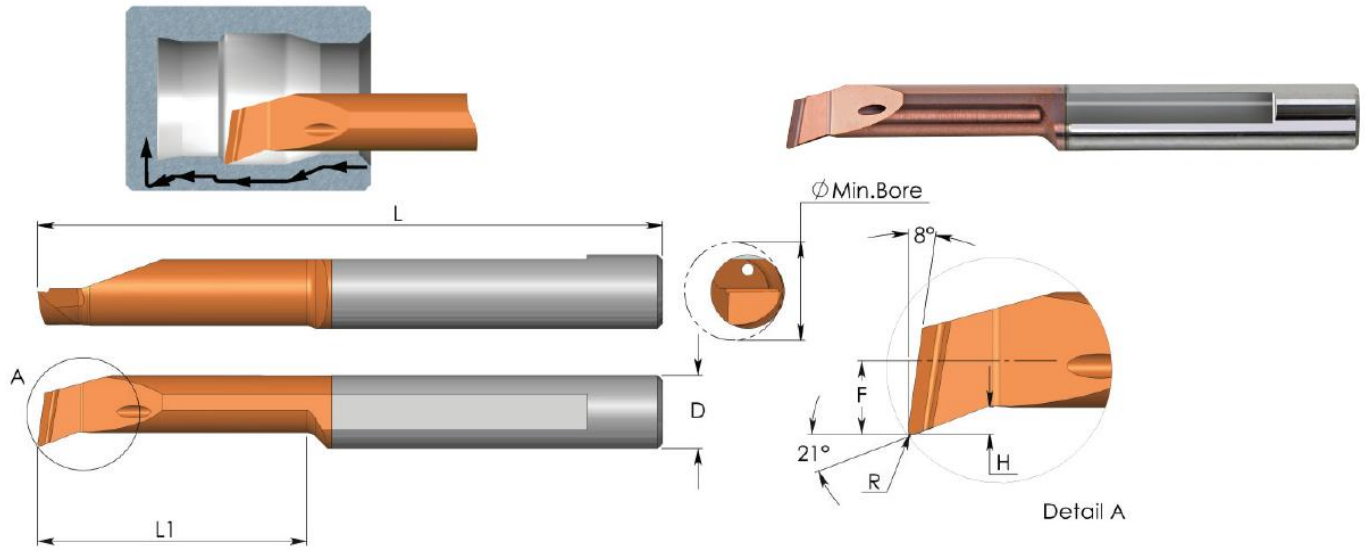


Tool geometry
MTR and MPR combined into a single tool

***TNX* grade**
New advanced carbide grade, for higher feeds and high performance

***TNX* coating**
New triple layer, reddish coating. Provides high wear resistance and edge stability.

CBR DIMENSIONS



D	Ordering Code	L	L1	R	H	F	Ø Min. Bore Dia.	Holder
4.0	CBR 4 R0.2 L10	51	10	0.2	0.4	1.8	4.1	SIM...H4
	CBR 4 R0.2 L15	51	15	0.2	0.4	1.8	4.1	
5.0	CBR 5 R0.2 L15	51	15	0.2	0.8	2.3	5.1	SIM...H5
	CBR 5 R0.2 L22	51	22	0.2	0.8	2.3	5.1	
6.0	CBR 6 R0.2 L15	51	15	0.2	1.0	2.8	6.1	SIM...H6
	CBR 6 R0.2 L22	51	22	0.2	1.0	2.8	6.1	

For L.H. bars specify CBL instead of CBR

CBR CASE STUDY - CONDITIONS

Application
Internal boring and profiling
Boring length: 8 mm

Workpiece material
Stainless steel 316L (1.4401)
Min Bore: Ø6.1 mm

Tools
Tiny Bars (with internal coolant hole):
1. MPR 6 R0.2 L15 BXC
2. CBR 6 R0.2 L15 *TNX*

Bar Holder: SIM 0020 H6

Machine
Milling/Turning machine by INDEX
Coolant through tool (oil-based emulsion)

CBR CASE STUDY - RESULTS

Parameter	MPR 6 R0.2 L15 BXC	CBR 6 R0.2 L15 *TNX*
Cutting speed (m/min)	67	67
Feed rate (mm/rev)	0.04	0.04
Cutting depth (Radial infeed) in mm	0.1	0.1
* Total tool life	**9,700 Pcs**	**14,260 Pcs**

Result: The total tool life of the CBR bar was about **47% higher** than MPR.

* Definition: “Tool life” is calculated until the tool wears out, and the surface quality is no longer acceptable.

CBR SUMMARY

P	*TNX*	●
M		●
K		●
N		●
S		●
H		

The CBR product line is an excellent solution for machining stainless steels, super alloys, and other “difficult” materials that create “curly” chips around the tool and the application.

It can also be used as a general purpose tool for a wide range of materials.