

06/11/17

# CR ROUGHERS CASE STUDY

# CR SOLID CARBIDE ROUGHERS

New, and innovative, **High Performance** roughing end-mills - specially designed for high volume machining applications.

Multi-flute, semi-finish profile and center cutting.

## Highlights

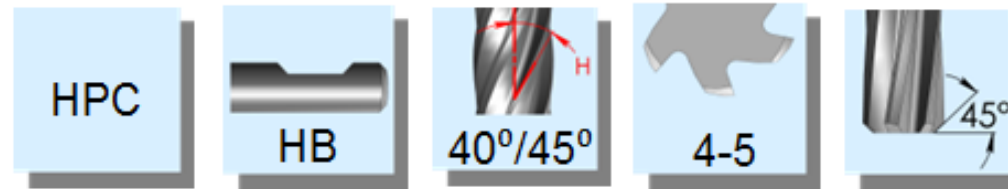
- High Performance Cutting (**HPC**)
- Innovative roughing geometry produces smaller chips
- Low cutting forces
- Extremely high material removal rate in Slotting, Shouldering and Helical Plunging operations
- Reinforced corner chamfer provides additional strength
- Designed to machine difficult and abrasive materials



# CR ROUGHERS – CARBIDE GRADE

## CR3 Carbide Grade:

Ultra-Fine carbide grade with high hardness and toughness provides high cutting edge stability and wear resistance. A **New Generation** of PVD coatings for High-Performance Cutting applications.



P	M	K	N	S	H
●	●	●	○	●	≤56 HRc

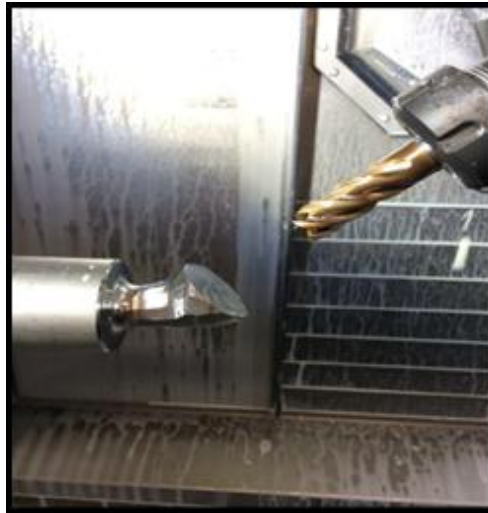
# CR ROUGHERS CASE STUDY – CONDITIONS 1

## Application

Medical part, all-around machining

## Workpiece material

Titanium TA6V



# CR ROUGHERS CASE STUDY – CONDITIONS 2

## Tool

RM 1616 E27 CR3

d: 16 mm

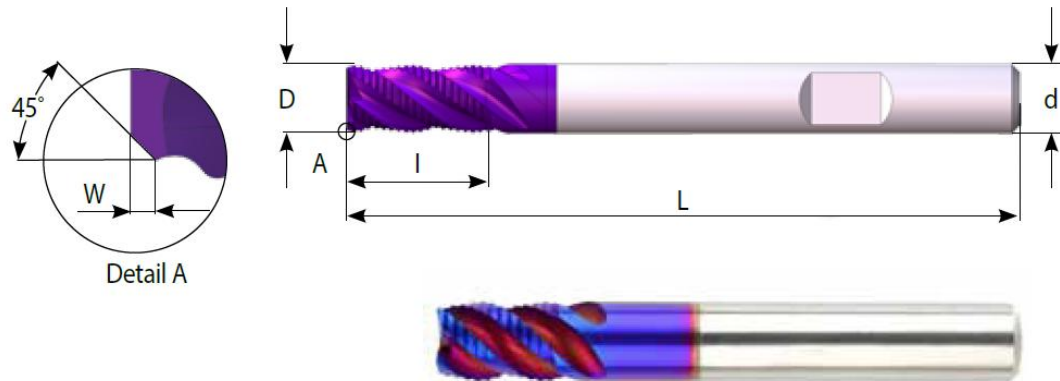
D: 16 mm

l: 27 mm

L: 105 mm

W: 0.5

5 flutes



## Machine

Milling machine: Mazak Integrex i-Series (2008)

Coolant: Emulsion 7%





# CR ROUGHERS CASE STUDY – RESULTS

## Competition

Several end mills from leading European brands



## Cutting Data

Cutting speed:  $V_c = 50$  m/min

Feed:  $F_z = 0.06$  mm

$A_p$ : 21 mm

$A_e$ : 70% of the tool diameter = 11.2 mm

## Results

Test completed without any tool vibrations, or noise.

Machine load: 5%-7%

Total amount of pieces made: **38**  
(the tool was still in good condition upon completion of the run).

The CR Rougher tool has outperformed the competition by **about 30%**.