

# Performance leap in thread production

## TapCon®Gold – Successful in series production

Every year, more than one billion taps and thread formers are produced worldwide – for many years, most of them have been coated with traditional TiN and TiCN coatings, unchanged in most cases. Up to now they have been the reference in demanding internal thread production. The HiPIMS coating material TapCon®Gold now brings new momentum to thread production and ensures significantly improved cutting results.

Taps in particular must have long tool life and achieve consistent thread quality and tolerance over their entire tool life. This is because threading, as one of the final machining steps, is central to the quality of the workpiece. "During this critical process step, manufacturers take a very close look before embarking on something new. TapCon®Gold is convincing all along the line and is now being produced in series. Various tool manufacturers have successfully tested the HiPIMS coating specially designed for HSS taps and formers and series production started. The results exceed all expectations," says Manfred Weigand, Product Manager Round Tools at CemeCon, enthusiastic about the very good machining results. One example: When machining C45, taps with conventional coatings cut an average of 432 threads (+/-10 percent) with TapCon®Gold, the average number of threads was 690 (+/-10 percent), which is an increase of about 60 percent! The quality of the cut thread is excellent right down to the last hole.

The secret of this success lies in the HiPIMS technology from CemeCon. It achieves maximum adhesion even on very complex tool geometries. Thereby TapCon®Gold, like all HiPIMS coatings, is extremely dense and smooth. This ensures stable low torques, excellent running-in behaviour and reliable chip removal with minimal adhesion. The high toughness of the coating also provides optimum protection for the cutting edges during threading. "With HiPIMS we can adjust the coating thickness exactly to the diameter of the threading tool. We also offer manufacturers the option of deburring the finished ground tools to prepare the surfaces perfectly for coating," adds Manfred Weigand.

Material:  
**Heat-treated steel**

Tool:  
**HSS Tap M8 x 1.25**

$V_C$ :  
**42 m/min**



**2.73**

**TapCon®Gold**

**3.37**

Competitor  
TiN

Torque  
[Nm]

2.5

⋮

2.75

⋮

3

⋮

3.25

⋮

3.5



TapCon®Gold

Threading tools

Process reliability

Long tool life

Round tools

Bonding

Smooth layer

HiPIMS

Dense morphology