

TapCon[®]Gold

THE COATING FOR THE PERFECT THREAD



GEMECON
The Tool Coating

HiPIMS Enables the Best Performance during Manufacture of Screw Threads

The production of internal threads – whether through hole or blind hole – is one of the most challenging cutting tasks. It is particularly important as it is one of the last machining steps, if not the last. Process reliability is the top priority in order not to waste the almost completed component. Here, the HiPIMS coating technology opens up enormous potential. The new coating material TapCon®Gold was specifically developed for HSS taps and thread formers and adapted to the requirements of the machining task.

Internal threads can be found in almost every component. These

range from engine blocks and many other vehicle components to cellphones and multimedia products – wherever parts have to be screwed together. Internal threads have become commonplace to the degree that we hardly notice them. Extensive know-how is invested into their production. Before they are placed into the components, the parts are milled, turned, drilled, etc. The thread comes last. „That makes thread production such a critical process. If there is an error during this machining step, the component must at best be reworked in a costly and time-consuming way. In the worst-case scenario, the almost finished

workpiece becomes scrap, and the previous work was in vain. Process reliability is therefore essential,“ summarizes CemeCon’s Round Tools Product Manager Manfred Weigand.

THE PATH TO THE FUTURE

The threading tools used must therefore not only have a long service life but must also maintain a constant thread quality and tolerance over their entire service life. This places specific demands on the coating: „The traditional TiN and TiCN coatings have been the points of reference for threading tools for many years. With the development of our HiPIMS coating

material TapCon®Gold specifically for HSS taps and thread formers, there has been for the first time a performance leap to precisely these coatings. The gold-colored coating material opens the path to the future,“ explains Weigand.

PERFECT PROPERTIES FOR THREAD PRODUCTION

The torque is the critical factor during thread production. The lower the torque, the greater the safety margin until the tool fails. In addition, the quality of the cut or formed thread is generally better. Furthermore, material adhesions to the threading tools must be prevented, as these are often

the cause for poor performance. Thanks to its extreme smoothness and high density, TapCon®Gold ensures stable low torques and reliable chip removal without adhesions.

TapCon®Gold’s running-in behavior is excellent thanks to its low-friction surface. In addition, the high degree of toughness of the coating material protects the cutting edges optimally during threading. Together with the exceptional coating adhesion, an integrated complete package results that prepares the HSS taps and thread formers perfectly for the demands of thread production.

COATING CAN BE SO DIVERSE

Why does TapCon®Gold have these outstanding properties? The coating material owes its characteristics to the unique HiPIMS technology.

Weigand explains: „HiPIMS coating materials are extremely smooth and adhesive, which in particular ensures low torques during thread drilling and forming. TapCon®Gold also scores with tribological properties, which minimize the adhesion of the machined material on the tool surface. And finally, the specific composition of TapCon®Gold ensures outstanding machining performance and service life.“

TAPCON®

Material:
Heat-treated steel

Tool:
HSS Tap M8 x 1.25

V_C:
42 m/min

2.73

TapCon®

3.37

Competitor
TiN

Torque
[Nm]

2.5

2.75

3

3.25

3.5

TECHNICAL DATA

Coating technology:

HiPIMS

Coating material:

AlTiN-TiN-based

Color:

Gold

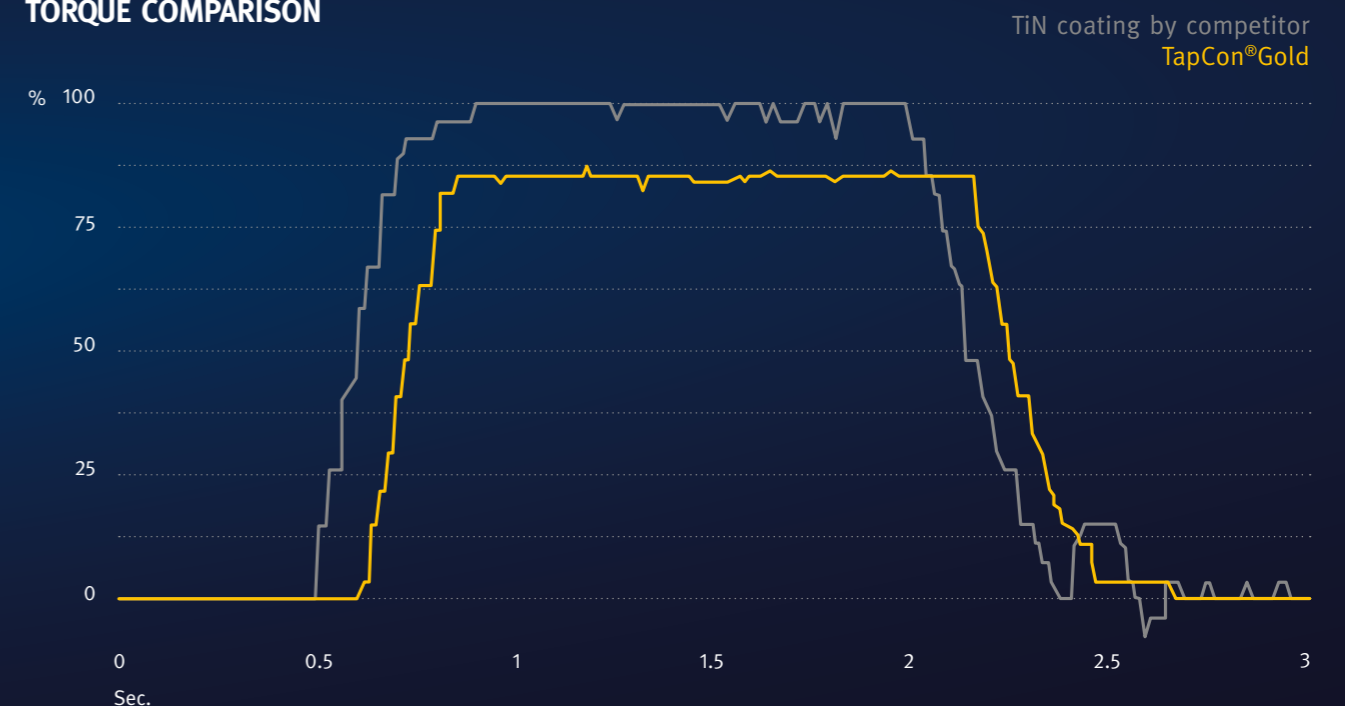
Max. operating temperature:

900 °C

Coating thickness:

3 µm

TORQUE COMPARISON



A stable low torque is enormously important for precise and efficient thread production. The newly developed HiPIMS coating material TapCon®Gold was tailored specifically to these requirements and is the ideal coating base for HSS taps and thread formers.

Talk to an expert!

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