

RUnATEC: The RUKO nano Technology coating

March 28, 2018

The RUnATEC coating has a special nanocomposite structure. This enhances the properties of the coating and thus improves the quality of the coated tool. Learn the positive effects of the coating in this article.

General information about RUnATEC coating

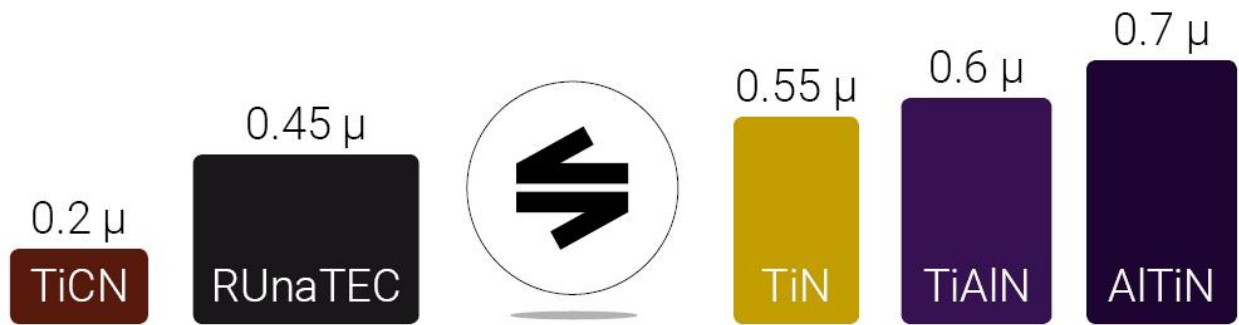
The **RUKO nano Technology coating, RUnATEC**, is a special nanocomposite and a chemical compound of the three **elements aluminum, titanium, and nitrogen**. The difference to conventional coatings (e.g. the **AlTiN coating**, which combines the same components) is the nano- and microstructure of the coating.

A special process is used to achieve a nanocomposite structure that reinforces the properties, for example an **extremely high nano hardness (45 Gigapascal (GPa))**. In addition **to low and, above all, very high cutting speeds** can be achieved, which significantly accelerate work processes.

Further positive properties are the **extremely high wear resistance** and the **strong reduction of material welding**.

The coating thickness is between **1-4 micrometers (µm)**.

It has a **coefficient of friction of 0.45 µ**. Compared to uncoated tools, the service life can be **increased up to 16 times**, depending on the application.



Coefficients of friction in comparison



For which applications is RUnATEC coating suitable?

The RUnATEC coating is very well suited for precision tools, that cut **very hard materials**, e.g. **steel** (N/mm^2) < 1,300 and **stainless steel**, but also materials like **aluminium**, **brass**, and **plastics**.

We use the RUnATEC coating on the **ULTIMATECUT countersink**. In addition to a high cutting speed, the result is an optimal and smooth surface.

The maximum application temperature is **1,200 °C** (approx. 2,200° Fahrenheit).

RUnATEC is ideally suited for dry cutting. **Cooling is therefore not mandatory**. In general, however, cooling additionally increases the service life of the tool.

Comparison of TiAlN and RUnATEC

	TiAlN	RUnATEC
Increase of service life (compared to uncoated tools)	depending on application, up to ten times longer	depending on application, up to ten times longer
Cutting speed	high	very high
Application	hard materials (steel 1,100 N/mm ² , stainless steel)	very hard materials (steel 1,300 N/mm ² , stainless steel)
Cooling	not mandatory	not mandatory
Nano hardness	35 Gigapascal (GPa)	45 Gigapascal (GPa)
Coat thickness	1-4 μm	1-4 μm
Coefficient of friction	0.5 μ	0.45 μ
Max. temperature	800 °C	1,200 °C

Compared to the **TiAlN coating** the RUnATEC has at least the same or better properties in all areas. This is particularly noticeable in the **area of application, the service life and the cutting speed**. This results in a very high cutting quality.

Summary

- Has a **special nanocomposite structure**
- Depending on application, up to **16 times longer service life**
- **Extremely high wear resistance** and **resistance to heat**
- Chemical compound of **aluminum, titanium, and nitrogen**
- Nano hardness: up to **45 GPa**
- Coat thickness: **1-4 μm**
- Coefficient of friction: **0,45 μ**
- Temperature: **1,200 °C**
- Application: **Stahl (N/mm²) < 1,300, stainless steel**
(applicable for normal and high-performance cutting)
- **Cooling not mandatory**
(ideal for dry cutting)

