

TIGRAL®

Aluminium-chromium-titanium nitride – Abrasion resistance and high thermal endurance

This coating, based on AlCrTiN, is characterised by its high hot hardness and its resistance towards oxidation and abrasion. These properties are the

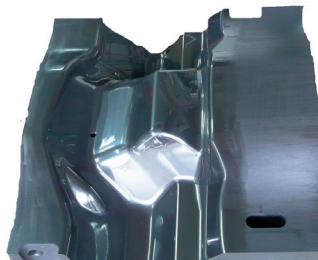
result of its nanostructure, which minimises crack propagation within the coating, especially when subjected to shear loads.

APPLICATIONS

Cutting	TIGRAL®'s special properties have also proven themselves in dry cutting. In interrupted cutting operations, this coating can at high contact temperatures bridge the gap between chip and wedge. However, the TIGRAL® coating can also be employed to great advantage for reaming, particularly of medium and high alloy steels.
Hot forming	In the case of hot forming of sheets or solid material, TIGRAL® distinguishes itself particularly. Here, the excellent hot hardness and resistance to oxidation come to the fore, but also the increased resistance with respect to the propagation of micro-cracks in the coating, which often represents a significant failure criterion.
Cold forming	The TIGRAL® coating also demonstrates its suitability in the cold forming of sheet metals: high resistance towards abrasion with a low tendency for cold welding with steel.
Aluminium-die casting	The good resistance towards oxidation, together with the very good chemical resistance, means TIGRAL® is very well suited for aluminium die casting applications. Especially in combination with the voestalpine eifeler Duplex option, TIGRAL® presents a good solution for wear protection in die casting moulds.

COATING PROPERTIES

Hardness	3,300 ± 300 HV
Max. application temperature	900 °C / 1,652 °F
Coefficient of friction against steel	0.6
Coating thicknesses	3 - 5 µm
Colour	dark grey



Forming die made of 1.2379, weight approx. 700 kg: polished and DUPLEX-TIGRAL® coated to 5 µm