

DUPLEX-VARIANTIC®-1400

Increase the number of strokes of your tools

Thanks to the growing importance of lightweight design, high-strength and ultra-high-strength sheet steel is being used more and more frequently.

The processing of high-strength steel grades presents users and toolmakers with new challenges, as the high sheet strength places an extreme load on the tools. The risk of wear increases and with it the risk of shorter tool life and costly production downtime.

A solution to this challenge is provided by particularly robust materials with a more extensive property profile and PVD coatings, which increase tool productivity.

New Duplex-VARIANTIC®-1400 has been developed specifically for forming sheets with tensile strengths ranging between 1,000 and 1,400 MPa. It guarantees improved and reliable tool performance when it comes to these steel sheet grades.

APPLICATIONS

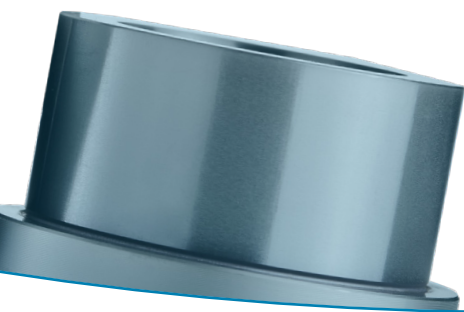
- » Forming tools
Cold forming, specifically for sheet steel qualities of between 1,000 and 1,400 MPa
- » Punching / fine blanking
Specifically for sheet steel qualities $\geq 1,000$ MPa

COATING PROPERTIES

Hardness	3,000 \pm 200 HV
Coating thickness	5 – 7 μ m
Maximum operating temperature	800 °C / 1,470 °F
Coefficient of friction against steel	0.2 – 0.6
Color	Blue-gray
Coating composition	AlCrTiN-based

ADVANTAGES

- » Up to 460 % better durability compared to other coating solutions
- » Al(Cr,Ti)N-based PVD coating with specifically adapted adhesion and top layer
- » Plasma pretreatment of the tool within the coating process to increase the supporting effect based on the unique voestalpine eifeler Duplex process
- » Excellent resistance against abrasive and adhesive wear in the cold forming of galvanised sheet steel with tensile strengths of up to 1,400 MPa and above
- » Excellent adhesion
- » Optimal assurance of the smooth cut proportion during fine blanking



COLD FORMING

	Stainless steel sheets (≤1.5 mm)	Stainless steel sheets (> 1.5 mm)	Sheets (< 700 N/mm ²)	Sheets (> 700 N/mm ² and < 1000 N/mm ²)	Sheets (> 1000 N/mm ²)
Punching	TiCN, VARIANTIC®, CrCN*	TiCN, CrCN*, TiC, TiN/TiC	(Duplex) VARIANTIC®, CROSAL®-plus, TiCN, TiN, Duplex-TIGRAL®*, CrCN	Duplex-VARIANTIC®, TiC*	Duplex-VARIANTIC®-1400, TiC
Pressing	(Duplex) VARIANTIC®, TiCN, TiN*	TiC, TiN/TiC, DUMATIC, TiCN	(Duplex) VARIANTIC®, TiCN, TiC/TiN, TiN*	Duplex-VARIANTIC®**, TiC, TiC/TiN*	Duplex-VARIANTIC®-1400, TiC, TiC/TiN
Bending	(Duplex) VARIANTIC®, TiCN	TiC, TiN/TiC, TiCN, VARIANTIC®, CrCN	(Duplex) VARIANTIC®, TiCN, TiC/TiN*	Duplex-VARIANTIC®**, TiC, TiC/TiN TiCN*	Duplex-VARIANTIC®-1400, TiC
Deep drawing	TiCN, Duplex-VARIANTIC®*	TiC, TiN/TiC, TiCN	(Duplex) VARIANTIC®, TiCN*	Duplex-VARIANTIC®**, TiC, TiC/TiN*	Duplex-VARIANTIC®-1400, TiC
Stamping	Duplex-VARIANTIC®*, TiCN	TiC, TiN/TiC	(Duplex) VARIANTIC®, TiCN, TiC/TiN*	Duplex-VARIANTIC®**, TiC, TiC/TiN*	Duplex-VARIANTIC®-1400, TiC
Rolling	TiCN	TiCN	VARIANTIC®	VARIANTIC®	Duplex-VARIANTIC®-1400
Fine blanking	CROSAL®-plus, Duplex-TIGRAL®, TiCN*	VARIANTIC®, TiCN, CROSAL®-plus	TiCN*, Duplex-TIGRAL®, (Duplex) CROSAL®-plus, VARIANTIC®	(Duplex) VARIANTIC®, TiCN	Duplex-VARIANTIC®-1400,

SEMI HOT / HOT FORMING

	Stainless steel sheets (≤1.5 mm)	Stainless steel sheets (> 1.5 mm)	Sheets (< 700 N/mm ²)	Sheets (> 700 N/mm ² and < 1000 N/mm ²)	Sheets (> 1000 N/mm ²)
Punching	SHW CROSAL®-plus	CROSAL®-plus, SISTRAL®	Duplex-TIGRAL®, CROSAL®- plus, VARIANTIC®	VARIANTIC®	Duplex-VARIANTIC®-1400
	HW	CROSAL®-plus	CROSAL®-plus	CROSAL®-plus	CROSAL®-plus
Pressing	SHW HW	TiCN	VARIANTIC®	VARIANTIC®	Duplex-VARIANTIC®-1400
Bending	SHW HW	TiCN	VARIANTIC®	VARIANTIC® 1000	Duplex-VARIANTIC®-1400
Rolling	SHW HW	TiCN	VARIANTIC®	VARIANTIC®	Duplex-VARIANTIC®-1000 Duplex-VARIANTIC®-1400

* additionally MOX2® possible ** and Duplex-VARIANTIC®-1000

voestalpine eifeler Coating GmbH

Duderstädter Straße 14
40595 Düsseldorf
T. +49 / 211 / 970 76-0
F. +49 / 211 / 970 76-955
www.eifeler.com