



WE HAVE THE KEY TO YOUR SUCCESS

Segment overviews:

Forming - cold, semi hot and hot work

Machining

Plastic moulding

A blue-tinted photograph of a hand holding a key to a keyhole. The key is held in the hand on the left, and the keyhole is on the right. The background is a blurred, textured surface.

voestalpine

ONE STEP AHEAD.

FORMING - COLD WORK

	Steel	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	(Duplex) VARIANTIC [®] , TiCN, TiN, DUMATIC, CROSAL [®] -plus, Duplex- TIGRAL [®] *	DUMATIC, FORMATIC, TiCN, VARIANTIC [®] , CrCN*	DUMATIC, FORMATIC, TiCN, CrCN*, TiC, TiN/TiC	(Duplex) VARIANTIC [®] , TiCN, DUMATIC, TiN, CrCN, CROSAL [®] -plus, Duplex- TIGRAL [®] *	Duplex-VARIANTIC [®] , DUMATIC, FORMATIC, TiC*	DUMATIC, Duplex-VARIANTIC [®] 1400, FORMATIC, TiC
Pressing	(Duplex) VARIANTIC [®] , DUMATIC, TiC/TiN, TiCN, TiN*	DUMATIC, (Duplex) VARIANTIC [®] , TiCN, FORMATIC, TiN*	TiC, TiN/TiC, DUMATIC, FORMATIC, TiCN	(Duplex) VARIANTIC [®] , TiCN, DUMATIC, TiC/TiN, TiN*	Duplex-VARIANTIC [®] (1000), DUMATIC, FORMATIC, TiC, TiC/TiN*	Duplex-VARIANTIC [®] 1400, TiC, TiC/TiN, DUMATIC
Bending	(Duplex) VARIANTIC [®] , DUMATIC, TiCN, TiC/TiN*	DUMATIC, (Duplex) VARIANTIC [®] , TiCN, FORMATIC*	TiC, TiN/TiC, DUMATIC, FORMATIC, VARIANTIC [®] , CrCN, TiCN	(Duplex) VARIANTIC [®] , TiCN, DUMATIC, TiC/TiN*	Duplex-VARIANTIC [®] (1000), DUMATIC, FORMATIC, TiC, TiC/TiN, TiCN*	Duplex-VARIANTIC [®] 1400, TiC, DUMATIC
Deep drawing	(Duplex) VARIANTIC [®] , DUMATIC, TiCN*, DLC	DUMATIC, TiCN, FORMATIC, Duplex-VARIANTIC [®] *	TiC, TiN/TiC, DUMATIC, FORMATIC, TiCN	(Duplex) VARIANTIC [®] , DUMATIC, TiCN*	Duplex-VARIANTIC [®] (1000), DUMATIC, FORMATIC, TiC, TiC/TiN*	TiC
Stamping	(Duplex) VARIANTIC [®] , DUMATIC (TR), TiCN, TiC/TiN*, CARBON-X [®]	DUMATIC, FORMATIC, TiCN, Duplex- VARIANTIC [®] *	TiC, TiN/TiC, DUMATIC, FORMATIC	(Duplex) VARIANTIC [®] , DUMATIC, TiCN, TiC/TiN*	Duplex-VARIANTIC [®] (1000), DUMATIC, FORMATIC, TiC, TiC/TiN*	TiC
Hydroforming	DUMATIC, Duplex-VARIANTIC [®]	DUMATIC, FORMATIC, TiCN, Duplex-VARIANTIC [®] *	DUMATIC, FORMATIC, TiCN			
Rolling	VARIANTIC [®]	TiCN	TiCN	VARIANTIC [®]	VARIANTIC [®]	Duplex-VARIANTIC [®] 1400
Fine blanking	FORMATIC, Duplex-TIGRAL [®] , (Duplex) CROSAL [®] -plus, DUMATIC, VARIANTIC [®] , TiCN*	FORMATIC, DUMATIC, CROSAL [®] -plus, Duplex- TIGRAL [®] , TiCN*	FORMATIC, VARIANTIC [®] , DUMATIC, TiCN, CROSAL [®] -plus	FORMATIC, Duplex-TIGRAL [®] , (Duplex) CROSAL [®] -plus, VARIANTIC [®] , DUMATIC, TiCN*	(Duplex) VARIANTIC [®] , DUMATIC, TiCN	Duplex-VARIANTIC [®] 1400, DUMATIC
Forge	TiC	TiC/TiN		TiC, TiC/TiN*	TiC/TiN, TiC*	TiC, TiC/TiN*
Extrusion	Duplex-VARIANTIC [®] (1000), DUMATIC, Duplex-TIGRAL [®] , TiN*					

FORMING COLD WORK

	Aluminium	Aluminium sheets (Si <7 %)	Aluminium sheets (Si >7 %)	Galvanized sheets (≤2.0 mm)	Galvanized sheets (>2.0 mm)	Non-ferrous metals	Plastics
Punching	CARBON-X® (AL), Duplex-CrCN, CrN, ZrN	CrCN**, CARBON-X® (AL), CrN**, ZrN	CrN, CrCN **, CARBON-X®, TiC, ZrN	Duplex-VARIANTIC®*, TiCN, CARBON-X® (AL), DUMATIC *, TiN, CrN, CrCN	Duplex-VARIANTIC®*, CrN, Duplex DUMATIC *, TiCN, CARBON-X®, TiC *, CrCN	CrCN **, CrN **, CARBON-X® (AL), ZrN	CrN, CrCN, CARBON-X®
Pressing	CARBON-X® (AL), Duplex-CrCN, CrN	(Duplex) CrCN **, CARBON-X® (AL), CrN **	CrN, (Duplex) CrCN **, CARBON-X®, TiC	Duplex-VARIANTIC® (1000)*, Duplex-CrCN, TiCN, DUMATIC *, CrN, CARBON-X® (AL)	Duplex-VARIANTIC® (1000)*, Duplex DUMATIC *, TiC *, TiC/TiN *, CrCN, TiCN, CrN	(Duplex) CrCN **, CrN **, CARBON-X® (AL)	CrN
Bending	CARBON-X® (AL), Duplex-CrCN, CrN, ZrN	(Duplex) CrCN **/**, CARBON-X® (AL), CrN **, ZrN	CrN, (Duplex) CrCN **, CARBON-X®, TiC, ZrN	Duplex-VARIANTIC® (1000)*, Duplex-CrCN, TiCN, DUMATIC *, ZrN, CrN CARBON-X® (AL)	Duplex-VARIANTIC® (1000)*, Duplex DUMATIC *, TiC *, TiC/TiN *, CrCN, CrN, CARBON-X®	(Duplex) CrCN **, CrN **, ZrN, CARBON-X® (AL)	CrN, CrCN, CARBON-X®
Deep drawing	Duplex-CrCN, CARBON-X® (AL), CrN	CrN**, (Duplex) CrCN**, CARBON-X® (AL)	CrN, (Duplex) CrCN **, CARBON-X®, TiC, EXXTRAL®-Silver	Duplex-VARIANTIC® (1000)*, Duplex-CrCN, TiCN, CrN, CARBON-X® (AL)	Duplex-VARIANTIC® (1000)*, Duplex DUMATIC *, TiC *, TiC/TiN *, TiCN, CrN, CrCN	(Duplex) CrCN **, CrN **, CARBON-X® (AL)	CrN
Stamping	Duplex-CrCN, CARBON-X® (AL)	CrN **, (Duplex) CrCN **, CARBON-X®	CrN, (Duplex) CrCN **, CARBON-X®, TiC	Duplex-VARIANTIC® (1000)*, Duplex-CrCN, CrN CARBON-X® (AL)	Duplex-VARIANTIC® (1000)*, Duplex DUMATIC *, TiC/TiN *, TiC, CrN, CrCN	(Duplex) CrCN **, CrN **, CARBON-X® (AL)	
Hydroforming	DUMATIC, Duplex-CrCN	DUMATIC, Duplex-CrCN	DUMATIC, Duplex-CrCN	DUMATIC, CrN, Duplex-CrCN	DUMATIC, CrN Duplex-CrCN	DUMATIC, Duplex-CrCN	
Rolling	CrCN	CARBON-X®	EXXTRAL®-Silver	TiCN, CrN, CrCN	DUMATIC, CrN, CrCN	CrN	
Fine blanking	CrCN, ZrN *, CARBON-X®	CrCN *, ZrN *, CARBON-X®	CrCN **/**, CARBON-X®, ZrN	VARIANTIC®, DUMATIC, CrN, CrCN	TiCN, CrN *, CrCN, VARIANTIC®	CrCN *, CARBON-X®, CrN, ZrN	CrCN, CARBON-X®
Forge		CARBON-X®				CARBON-X®	
Extrusion	CARBON-X® (AL), Duplex-CrCN						
Presshardening				MOLDADUR®, Duplex-TIGRAL®	MOLDADUR®, Duplex-TIGRAL®		

** additionally SUCASLIDE® possible

FORMING - SEMI HOT / HOT WORK

	Steel	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	EXXTRAL®-plus	CROSAL®-plus	CROSAL®-plus, SISTRAL®	Duplex-TIGRAL®,CROSAL®- plus, VARIANTIC®	VARIANTIC®	Duplex-VARIANTIC® 1400
	HW	VARIANTIC®	SISTRAL®, CROSAL®-plus	CROSAL®-plus, SISTRAL®	CROSAL®-plus	CROSAL®-plus	CROSAL®-plus
Pressing	SHW	VARIANTIC®	TiCN	TiCN	VARIANTIC®	VARIANTIC®	Duplex-VARIANTIC® 1400
	HW						
Bending	SHW	VARIANTIC®	TiCN	TiCN	VARIANTIC®	VARIANTIC® 1000	Duplex-VARIANTIC® 1400
	HW	CROSAL®-plus					
Deep drawing	SHW	VARIANTIC®	TiCN	TiCN	VARIANTIC®	VARIANTIC®	
	HW						
Rolling	SHW	VARIANTIC®	TiCN	TiCN	VARIANTIC®	VARIANTIC®	Duplex-VARIANTIC® 1000 Duplex-VARIANTIC® 1400
	HW						
Forge	SHW	Duplex-TIGRAL®, Duplex-CROSAL®-plus	Duplex-TIGRAL®, Duplex-CROSAL®-plus	Duplex-TIGRAL®, Duplex-CROSAL®-plus	Duplex-TIGRAL®, Duplex-CROSAL®-plus		
	HW	Duplex-TIGRAL®, Duplex-CROSAL®-plus	Duplex-TIGRAL®, Duplex-CROSAL®-plus	Duplex-TIGRAL®, Duplex-CROSAL®-plus	Duplex-TIGRAL®, Duplex-CROSAL®-plus		
Extrusion	SHW	VARIANTIC®					
	HW	Duplex-TIGRAL®, CROSAL®-plus					
Die forms	SHW		Duplex-TIGRAL®, Duplex-CROSAL®-plus	Duplex-TIGRAL®, Duplex-CROSAL®-plus	Duplex-TIGRAL®, Duplex-CROSAL®-plus		
	HW		Duplex-TIGRAL®, Duplex-CROSAL®-plus	Duplex-TIGRAL®, Duplex-CROSAL®-plus	Duplex-TIGRAL®, Duplex-CROSAL®-plus		
Presshardening	SHW	MOLDADUR®, Duplex-TIGRAL®					
	HW						

FORMING - SEMI HOT / HOT WORK

		Aluminium	Aluminium sheets (Si <7 %)	Aluminium sheets (Si >7 %)	Galvanized sheets (≤2.0 mm)	Galvanized sheets (>2.0 mm)	Non-ferrous metals	Plastics
Punching	SHW	ZrN	ZrN	CrN	TiCN	CVD TiC/TiN	CrN	CrN, CrCN, CARBON-X®
	HW	CROSAL®-plus	CROSAL®-plus	CROSAL®-plus	CROSAL®-plus	CROSAL®-plus		
Pressing	SHW	CrN	CrN	CrN	TiCN	Duplex-VARIANTIC®	CrN	CrN
	HW	CROSAL®-plus						
Bending	SHW	CrN	CrN	CrN	VARIANTIC®	Duplex-VARIANTIC®	CrN	CrN, CrCN, CARBON-X®
	HW	CROSAL®-plus						
Deep drawing	SHW	CrN	CrN	EXXTRAL®-Silver	TiCN	Duplex-VARIANTIC®	CrN	
	HW							
Rolling	SHW	CrCN	CrCN	EXXTRAL®-Silver	TiCN	DUMATIC		
	HW							
Forge	SHW							
	HW	Duplex-TIGRAL®, Duplex-CrCN, CrN						
Extrusion	SHW							
	HW	Duplex-CrCN, CrN, ZrN						
Die forms	SHW							
	HW	Duplex-TIGRAL®, Duplex-CrCN, CrN						

	Drilling	Turning	Milling	Sawblades	Thread cutting	Reaming	Gear cutting
Steel <55 HRC	EXXTRAL® (Plus) SISTRAL® Gold SUBLIME®	EXXTRAL® (Plus) SISTRAL® (Gold) SUBLIME®	EXXTRAL® (Plus) SISTRAL® (Gold) SUBLIME®	TiN / TiCN (HSS) EXXTRAL® (Plus) SISTRAL® SUBLIME®	TiN TiCN EXXTRAL® *	TiN TiCN EXXTRAL® *	TiN / TiCN VARIANTIC® EXXTRAL® (HM/HP) * SUBLIME®
Steel >55 HRC	SISTRAL® (Plus)	SISTRAL® (Plus)	SISTRAL® (Plus)	EXXTRAL® (Plus) SISTRAL®	TiN TiCN SISTRAL® (Plus) *	TiN TiCN SISTRAL® (Plus) *	TiN / TiCN VARIANTIC® EXXTRAL® (HM/HP) * SUBLIME®
Stainless steel	SISTRAL®-Gold SUBLIME®	SISTRAL®-Gold SUBLIME®	SISTRAL®-Gold SUBLIME®	TiN / TiCN EXXTRAL® (Plus) SISTRAL® SUBLIME®	TiN TiCN SISTRAL®-Gold SUBLIME®	TiN TiCN SISTRAL®-Gold SUBLIME®	TiN / TiCN VARIANTIC® EXXTRAL® (HM/HP) * SUBLIME®
Cast iron	EXXTRAL® (Plus) SISTRAL®-Gold	EXXTRAL® (Plus) SISTRAL®-Gold	EXXTRAL® (Plus) SISTRAL®-Gold	TiN / TiCN (HSS) EXXTRAL® (Plus) SISTRAL®	TiN TiCN EXXTRAL® (Plus) * SISTRAL® (Gold) *	TiN TiCN EXXTRAL® (Plus) * SISTRAL® (Gold) *	TiN / TiCN VARIANTIC® EXXTRAL® (HM/HP) * SUBLIME®
Aluminium Si <9 %	ZrN / ZrCN CARBON-X®	ZrN / ZrCN CARBON-X®	ZrN / ZrCN CARBON-X®	CARBON-X®	ZrN / ZrCN CARBON-X®	ZrN / ZrCN CARBON-X®	EXXTRAL®-Silver
Aluminium Si >9 %	ZrCN EXXTRAL®-Silver	ZrCN EXXTRAL®-Silver	ZrCN EXXTRAL®-Silver	EXXTRAL®-Silver	ZrCN EXXTRAL®-Silver	ZrCN EXXTRAL®-Silver	EXXTRAL®-Silver
Ti based alloys	SISTRAL®-Gold SUBLIME®	SISTRAL®-Gold SUBLIME®	SISTRAL®-Gold SUBLIME®	SUBLIME®	SISTRAL®-Gold SUBLIME®	SISTRAL®-Gold SUBLIME®	SUBLIME®
Ni based alloys	SISTRAL®-Gold SUBLIME®	SISTRAL®-Gold SUBLIME®	SISTRAL®-Gold SUBLIME®	SUBLIME®	SISTRAL®-Gold SUBLIME®	SISTRAL®-Gold SUBLIME®	SUBLIME®
Brass / Copper	EXXTRAL®-Silver CARBON-X®	EXXTRAL®-Silver CARBON-X®	EXXTRAL®-Silver CARBON-X®	EXXTRAL®-Silver CARBON-X®	EXXTRAL®-Silver CARBON-X®	EXXTRAL®-Silver CARBON-X®	EXXTRAL®-Silver
Wood	EXXTRAL®-Silver	EXXTRAL®-Silver	EXXTRAL®-Silver	EXXTRAL®-Silver	EXXTRAL®-Silver	EXXTRAL®-Silver	CrN EXXTRAL®-Silver

* ultrafine on request

		TiN*	TiCN*	CrN / CrN-Multilage	EXXTRAL®-Plus*	DLC
Thermoplastics	Polyolefine – PE, PP, PB	+		++		+++
	Styrene polymerisates – PS, SB, SAB, ABS, ASA	+++		++		
	Chlorine-containing polymerisates – PVC			++		
	Fluorine-containing polymerisates – PTFE, PVDF			++		
	Acetal resins – POM	++		++		
	Polyamide – PA	+++		+++	++	++
	Linear polyester – PC, PBT(B), PET(P)	+++		+++		++
	Polyarylenethene – "PEEK, PPS, PSU, PES, PPE, PPO"	+	++	+++	+++	
	Polyimide – PI	+++				
	Cellulose ester – CA, CP, CAP	+++				
	Polyacrylates – PMMA	+++				
	Polyurethane – TPU			+++		
Thermosets	Polyurethanes – PUR			+		
	Aminoplastics – MF, UF, MP	++		+++		
Elastomers	Polyurethanes – PUR			+		
	Synthetic rubber – NBR, EPDM, SI			++		
	Fluorinated elastomers – Multipolymer-TPF, FPM			++		
Wear types	Abrasion	++	+++	++	+++	+
	Adhesion	+	+	++	+	+++
	Corrosion		+	+++	++	++

+ = suitable

++ = well suitable

+++ = very well suitable

* ultrafine on request

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