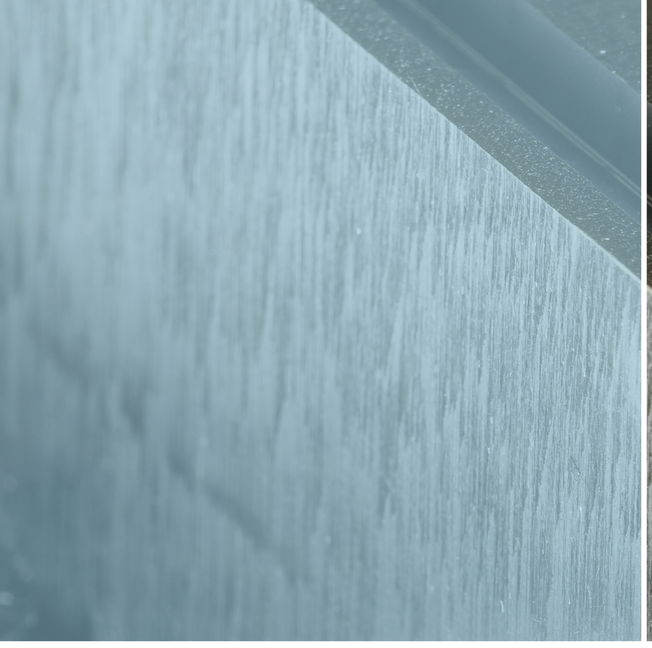
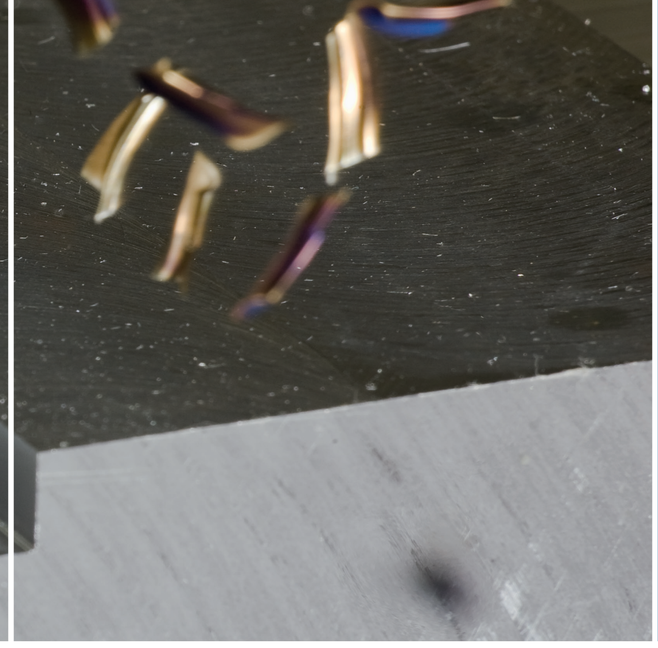


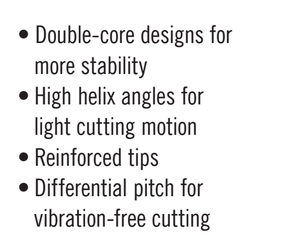
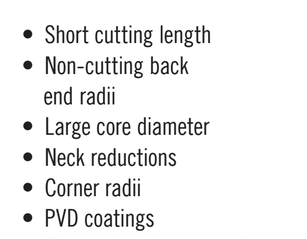
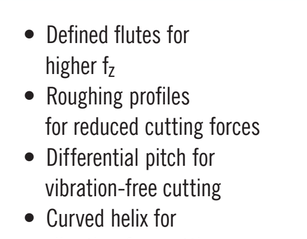
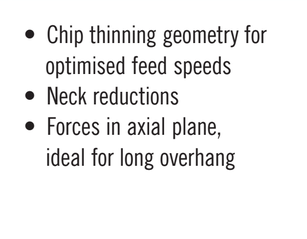
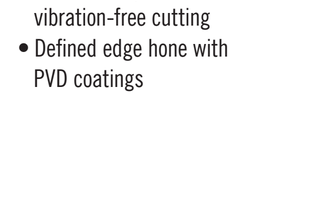
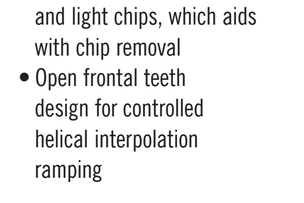
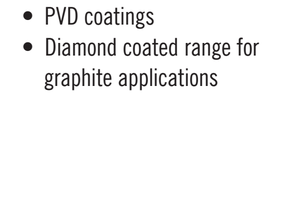
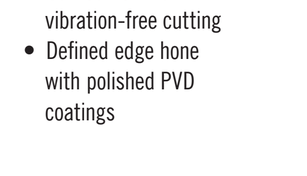
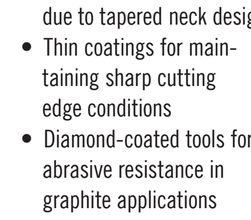
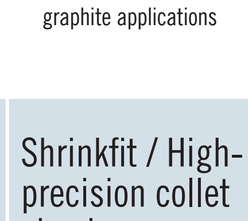


SOLID MILLING STRATEGIES & TOOL CHARACTER-ISTICS

TYPICAL TOOL DESIGN & FEATURES

Machining strategy: Range:	General Machining JABRO®-SOLID²	Advanced Roughing JABRO®-SOLID²	High-Speed Machining JABRO®-DIAMOND JABRO®-TORNADO	High-Performance Machining JABRO®-HPM	High-Feed Machining JABRO®-HFM	High-Speed Steel JABRO®-HSS-Co	Micro Machining JABRO®-MINI
V_f (feed rate)	■■□□□	■■■■□	■■■■□	■■■□□	■■■■■	■□□□□	■■□□□
N (RPM)	■■□□□	■■■■■	■■■■■	■■■□□	■■■□□	■□□□□	■■■■■
Q (volume)	■■□□□	■■■■□	■■■□□	■■■■■	■■■■□	■■■□□	■□□□□
F (cutting force)	■■■□□	■■□□□	■□□□□	■■■■□	■■□□□	■■■□□	■□□□□
P (kW)	■■□□□	■■■□□	■□□□□	■■■■□	■■□□□	■■□□□	■□□□□
Most used in SMG:	PMSKN (universal)	PMSKN (universal)	H & GR1	PMKNSH	PKMSH	S (Ti-alloys), M	H, N11, GR1
a_e * a_p	$a_e = D_C$ $a_p = 1* D_C$	$a_e \leq 0{,}15*D_C$ $a_p = 2\text{-}4*D_C$	$a_e < D_C$ $a_p = D_C$	$a_e = D_C$ $a_p = 1{,}5*D_C$	$a_e = 0{,}5*D_C$ $a_p < r\varepsilon 1$	$a_e = D_C$ $a_p = 1*D_C$	$a_e \leq D_C$ $a_p < D_C$
Tool design							
Features	• Double-core designs for more stability • High helix angles for light cutting motion • Reinforced tips • Differential pitch for vibration-free cutting • Defined edge hone with PVD coatings	• Double and conical core for additional stability and strength • Differential pitch for vibration-free cutting • Chip splitters for small and light chips, which aids with chip removal • Open frontal teeth design for controlled helical interpolation ramping	• Short cutting length • Non-cutting back end radii • Large core diameter • Neck reductions • Corner radii • PVD coatings • Diamond coated range for graphite applications	• Defined flutes for higher f_z • Roughing profiles for reduced cutting forces • Differential pitch for vibration-free cutting • Curved helix for vibration-free cutting • Defined edge hone with polished PVD coatings	• Chip thinning geometry for optimised feed speeds • Neck reductions • Forces in axial plane, ideal for long overhang	• Variable face profile for vibration-free cuts • Polished flutes for optimised chip removal • Large diameter and lengths for high metal removal	• Standard cutters from D_C 0.1 to 2 mm • Specific geometries for hard and soft materials, universal and graphite • Additional strength due to tapered neck designs • Thin coatings for main-taining sharp cutting edge conditions • Diamond-coated tools for abrasive resistance in graphite applications
Holder system	All	Weldon / High-precision collet chucks	Shrinkfit / High-precision collet chucks	Weldon/Safe-Lock™	Shrinkfit / High-precision collet chucks	Weldon	Shrinkfit / High-precision collet chucks

TROUBLESHOOTING

Typical chips							• Traditional feed rate recalculation in radii 1. $V_{fprog} = V_f * \frac{(Rcomponent - Rcutter)}{Rcomponent}$ 2. $V_{fprog} = V_f * \frac{(Rcomponent + Rcutter)}{Rcomponent}$
Practical hints for problem solving							 1.
		• Prevent critical overloads with double-core design tools and multi-flutes by controlling arc of contact. • Compressed air/emulsion on total cutting length advised.					 2.

This overview represents the majority of cases. For specific situations in unfavourable circumstances or for specific solid milling operations, please contact your business partner at Seco.