

## RECOMMENDATION FOR CUTTING VALUES AND COOLANT !

The table below should give you an indication of the setting of the optimal cutting values and the use of the appropriate cooling lubricant for the ABRAMS®-Taps.

Due to the complexity of parameters (machine tool, work piece, lubrication, diameter and depth) that have to be observed whilst tapping, it is necessary that the user adapts speed and lubricant in accordance to the specific case and circumstances as and where needed. A warranty for the recommended cutting values requires in each individual case an evaluation as well as an expressly written agreement from us.

To be processed material grade	Tensile strength of the material grade (approx.)	Suitability	Cutting speed (Vc)	Coolant
1.2990 mod.	850 N/mm <sup>2</sup>	★★★★★	15-25 m/min	Emulsion
1.2842/1.2510	770 N/mm <sup>2</sup>	★★★★★	15-25 m/min	Emulsion
1.2826	750 N/mm <sup>2</sup>	★★★★★	10-25 m/min	Emulsion
1.2767	880 N/mm <sup>2</sup>	★★★★★	10-25 m/min	Cutting oil
1.2767 ESU	880 N/mm <sup>2</sup>	★★★★★	10-25 m/min	Cutting oil
1.2738	1.100 N/mm <sup>2</sup>	★★★★★	10-20 m/min	Emulsion
1.2714	850 N/mm <sup>2</sup>	★★★★★	10-25 m/min	Cutting oil
1.2714+QT*	1.350 N/mm <sup>2</sup>	★★★★★	2-10 m/min*	Cutting oil*
1.2709 ESU**	1.100 N/mm <sup>2</sup>	not suitable**	not suitable**	not suitable**
1.2550	770 N/mm <sup>2</sup>	★★★★★	10-20 m/min	Emulsion
1.2436	860 N/mm <sup>2</sup>	★★★★★	10-20 m/min	Emulsion
1.2379	860 N/mm <sup>2</sup>	★★★★★	15-30 m/min	Emulsion
1.2367	770 N/mm <sup>2</sup>	★★★★★	5-25 m/min	Schneidöl
1.2365	770 N/mm <sup>2</sup>	★★★★★	5-25 m/min	Schneidöl
1.2363	815 N/mm <sup>2</sup>	★★★★★	15-25 m/min	Emulsion
1.2361	900 N/mm <sup>2</sup>	★★★★★	5-15 m/min	Emulsion
1.2360/mod.	850 N/mm <sup>2</sup>	★★★★★	20-35 m/min	Emulsion
1.2358	1.100 N/mm <sup>2</sup>	★★★★★	10-25 m/min	Emulsion/Cutting oil
1.2344	770 N/mm <sup>2</sup>	★★★★★	10-25 m/min	Cutting oil
1.2344 ESU	770 N/mm <sup>2</sup>	★★★★★	5-20 m/min	Cutting oil
1.2343	770 N/mm <sup>2</sup>	★★★★★	10-25 m/min	Cutting oil
1.2343 ESU	770 N/mm <sup>2</sup>	★★★★★	5-20 m/min	Cutting oil
1.2316	1.100 N/mm <sup>2</sup>	★★★★★	10-20 m/min	Emulsion
1.2312	1.100 N/mm <sup>2</sup>	★★★★★	5-15 m/min	Emulsion
1.2311	1.100 N/mm <sup>2</sup>	★★★★★	5-15 m/min	Emulsion
1.2294	1.125 N/mm <sup>2</sup>	★★★★★	20-35 m/min	Emulsion
1.2210	750 N/mm <sup>2</sup>	★★★★★	10-25 m/min	Emulsion
1.2162	720 N/mm <sup>2</sup>	★★★★★	15-25 m/min	Emulsion
1.2099	1.125 N/mm <sup>2</sup>	★★★★★	20-35 m/min	Emulsion
1.2085	1.125 N/mm <sup>2</sup>	★★★★★	10-15 m/min	Emulsion
1.2083	815 N/mm <sup>2</sup>	★★★★★	5-15 m/min	Cutting oil
1.2083 ESU	815 N/mm <sup>2</sup>	★★★★★	5-15 m/min	Cutting oil
1.2080 mod.	850 N/mm <sup>2</sup>	★★★★★	20-35 m/min	Emulsion
1.2067/1.3505	750 N/mm <sup>2</sup>	★★★★★	10-20 m/min	Emulsion
1.1730	650 N/mm <sup>2</sup>	★★★★★	15-30 m/min	Emulsion
1.0570	625 N/mm <sup>2</sup>	★★★★★	10-30 m/min	Emulsion

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To be processed material grade	Tensile strength of the material grade (approx.)	Suitability	Cutting speed (Vc)	Coolant
Toolox 33	1.125 N/mm <sup>2</sup>	★★★★★	5-15 m/min	Cutting oil
Toolox 44*	1.350 N/mm <sup>2</sup>	★★★★★	2-10 m/min*	Cutting oil*
1.3343	920 N/mm <sup>2</sup>	★★★★★	10-20 m/min	Emulsion/Cutting oil
PM 30	995 N/mm <sup>2</sup>	★★★★★	15-30 m/min	Emulsion/Cutting oil
PM 23	920 N/mm <sup>2</sup>	★★★★★	15-25 m/min	Emulsion/Cutting oil
PM 4	920 N/mm <sup>2</sup>	★★★★★	15-25 m/min	Emulsion/Cutting oil
1.4841**	755 N/mm <sup>2</sup>	not suitable**	not suitable**	not suitable**
1.4571**	690 N/mm <sup>2</sup>	not suitable**	not suitable**	not suitable**
1.4418*	1.095 N/mm <sup>2</sup>	★★★★★	2-10 m/min	Cutting oil
1.4404/1.4401	690 N/mm <sup>2</sup>	★★★★★	10-25 m/min	Cutting oil
1.4305	800 N/mm <sup>2</sup>	★★★★★	2-15 m/min	Cutting oil
1.4301	690 N/mm <sup>2</sup>	★★★★★	2-15 m/min	Cutting oil
1.4125	965 N/mm <sup>2</sup>	★★★★★	10-30 m/min	Cutting oil
1.4122	1.100 N/mm <sup>2</sup>	★★★★★	10-20 m/min	Emulsion
1.4112	925 N/mm <sup>2</sup>	★★★★★	5-15 m/min	Emulsion
1.4104	860 N/mm <sup>2</sup>	★★★★★	10-20 m/min	Cutting oil
1.4057	1.050 N/mm <sup>2</sup>	★★★★★	5-10 m/min	Cutting oil
1.4034	815 N/mm <sup>2</sup>	★★★★★	5-15 m/min	Cutting oil
1.4031	815 N/mm <sup>2</sup>	★★★★★	5-15 m/min	Cutting oil
1.4021	850 N/mm <sup>2</sup>	★★★★★	5-15 m/min	Cutting oil
1.4006	850 N/mm <sup>2</sup>	★★★★★	10-20 m/min	Cutting oil
1.8550	1.095 N/mm <sup>2</sup>	★★★★★	10-30 m/min	Emulsion/Cutting oil
1.8519	1.100 N/mm <sup>2</sup>	★★★★★	15-30 m/min	Emulsion/Cutting oil
1.7227	720 N/mm <sup>2</sup>	★★★★★	10-25 m/min	Emulsion
1.7225	720 N/mm <sup>2</sup>	★★★★★	10-25 m/min	Emulsion
1.7225+QT*	1.300 N/mm <sup>2</sup>	★★★★★	2-10 m/min*	Cutting oil
1.7147	720 N/mm <sup>2</sup>	★★★★★	15-25 m/min	Emulsion
1.7131	720 N/mm <sup>2</sup>	★★★★★	15-25 m/min	Emulsion
1.7225	720 N/mm <sup>2</sup>	★★★★★	10-25 m/min	Emulsion
1.7225+QT*	1.300 N/mm <sup>2</sup>	★★★★★	2-10 m/min*	Cutting oil
1.7147	720 N/mm <sup>2</sup>	★★★★★	15-25 m/min	Emulsion
1.7131	720 N/mm <sup>2</sup>	★★★★★	15-25 m/min	Emulsion
1.6587	770 N/mm <sup>2</sup>	★★★★★	20-45 m/min	Emulsion/Cutting oil
1.6582	1.200 N/mm <sup>2</sup>	★★★★★	20-35 m/min	Emulsion/Cutting oil
1.6580	1.200 N/mm <sup>2</sup>	★★★★★	20-35 m/min	Emulsion/Cutting oil

\* Our product is, due to the cutting properties of this steel grade, unsuitable for the diameters 3 and 4. In accordance to the recommendation of the manufacturer of this steel, we recommend thread milling for these diameters.

\*\* Due to the machining properties of this steel grade the application of our product is not suitable.