

Goodbye “Birds Nest”

How to avoid birds nests during internal turning of long-chipping materials and increase the efficiency of mass production.

Challenges with long-chipping materials

Lead-free copper alloys, non-ferrous alloys such as aluminum and titanium, chrome steels, and other long-chipping materials present a variety of challenges such as stringy ribbon-like chips, problematic burr formation, poor workpiece surfaces, and increased tool wear. «Birds nests» affect the reliable mass production of turned parts and often require unplanned manual intervention. Unmanned production is not possible under such conditions and undesirable effects such as tool breakage and damage to the components can occur. Stringy chips can also have a negative impact on the workpiece surface, especially with copper and titanium alloys.

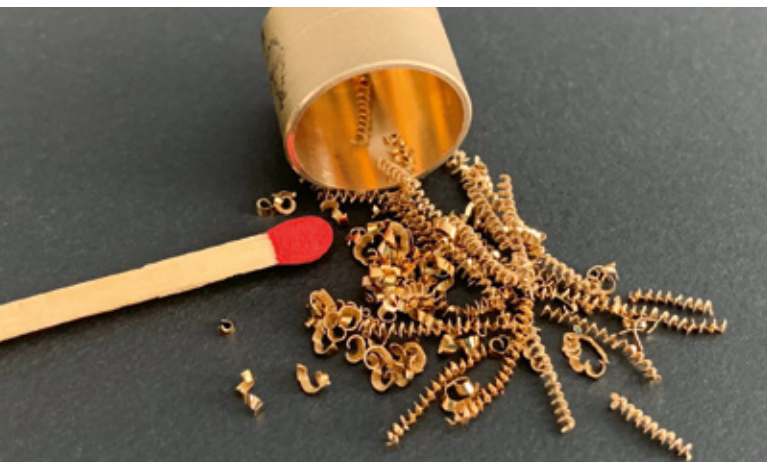


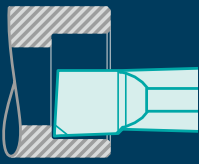
- Birds nest chips
- Congested borehole
- Broken cutting edge and tools
- Manual interventions
- Unstable production process
- Blocked chip conveyors
- Scratched workpiece surfaces
- High production costs
- Delay in delivery date
- Rejected workpieces

Solutions

The Swiss-MicroTurn tools of the MTEP (roughing) and MTEF (finishing) lines are specially designed for machining long-chipping materials. An integrated chip forming stage behind the cutting edge ensures the formation of short spiral and crumbling chips, which can be easily removed from the workpiece bore. This significantly improves the quality and safety of the machining process, while eliminating the need of time-consuming chip breaking with oscillating feed control. The tools are available in three neck lengths (2xD, 3xD and 5xD) and can be coated with TiALN or DLC for increased requirements. The production of the tools, which are made of premium solid carbide, takes place entirely in Switzerland under the highest quality standards. Special attention is paid to razor-sharp cutting edges, which is particularly relevant for the machining of non-ferrous metals.

- Chip control, controlled chip removal
- Reliable mass production of small bores
- Night shift / C shift unmanned production
- Workpieces of perfect quality
- Lower production costs
- Adherence to deadlines

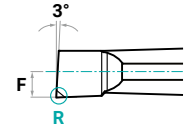
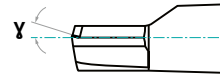
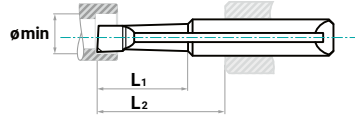
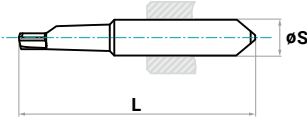




MTEF

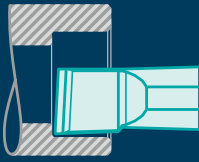
Boring tools

For long chipping materials



øS	L	L ₁	L ₂	F	γ	ø min	R			Type number	Rotation		Coating		
							△ sharp	△ flat	△ roundet		R right	L left	K10	TiAlN	DLC
4	26	1.2	10	0.50	12°	1.0	0			MTEF-410020	●		●	●	●
4	26	3	10	0.50	12°	1.0	0			MTEF-410030	●		●	●	●
4	26	5	10	0.50	12°	1.0	0			MTEF-410050	●		●	●	●
4	26	2	10	0.60	12°	1.2	0			MTEF-412020	●		●	●	●
4	31	4	15	0.60	12°	1.2	0			MTEF-412040	●		●	●	●
4	31	7	15	0.60	12°	1.2	0			MTEF-412070	●		●	●	●
4	26	3	10	0.75	12°	1.5	0			MTEF-415030	●		●	●	●
4	31	5	15	0.75	12°	1.5	0			MTEF-415050	●		●	●	●
4	31	8	15	0.75	12°	1.5	0			MTEF-415080	●		●	●	●
4	26	4	10	0.90	12°	1.8	0			MTEF-418040	●		●	●	●
4	31	5	15	0.90	12°	1.8	0			MTEF-418050	●		●	●	●
4	31	9	15	0.90	12°	1.8	0			MTEF-418090	●		●	●	●
4	31	6	15	1.10	12°	2.2	0			MTEF-422060	●		●	●	●
4	31	10	15	1.10	12°	2.2	0			MTEF-422100	●		●	●	●
4	31	14	15	1.10	12°	2.2	0			MTEF-422140	●		●	●	●
4	31	6	15	1.25	12°	2.5		0.02 × 45°		MTEF-425062	●		●	●	●
4	31	10	15	1.25	12°	2.5		0.02 × 45°		MTEF-425102	●		●	●	●
4	31	14	15	1.25	12°	2.5		0.02 × 45°		MTEF-425142	●		●	●	●
4	31	8	15	1.60	12°	3.2		0.02 × 45°		MTEF-432082	●		●	●	●
4	31	12	15	1.60	12°	3.2		0.02 × 45°		MTEF-432122	●		●	●	●
4	36	17	20	1.60	12°	3.2		0.02 × 45°		MTEF-432172	●		●	●	●
4	31	10	15	1.95	12°	4.0		0.02 × 45°		MTEF-440102	●		●	●	●
4	31	14	15	1.95	12°	4.0		0.02 × 45°		MTEF-440142	●		●	●	●
4	36	19	20	1.95	12°	4.0		0.02 × 45°		MTEF-440192	●		●	●	●
6	35	12	16	2.50	12°	5.0		0.02 × 45°		MTEF-650122	●		●	●	●
6	43	17	24	2.50	12°	5.0		0.02 × 45°		MTEF-650172	●		●	●	●
6	48	25	29	2.50	12°	5.0		0.02 × 45°		MTEF-650252	●		●	●	●
6	35	12	16	2.95	12°	6.0		0.02 × 45°		MTEF-660122	●		●	●	●
6	43	20	24	2.95	12°	6.0		0.02 × 45°		MTEF-660202	●		●	●	●
6	53	30	34	2.95	12°	6.0		0.02 × 45°		MTEF-660302	●		●	●	●

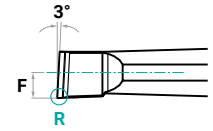
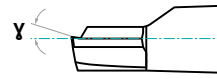
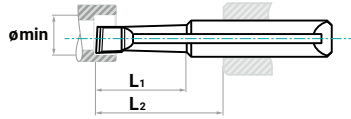
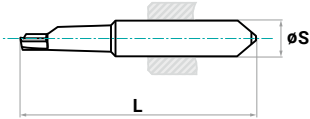
Dimensions mm



MTEP

Boring tools

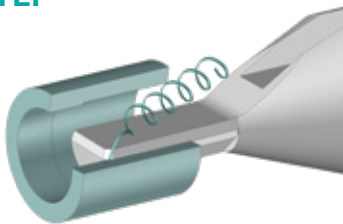
For long chipping materials



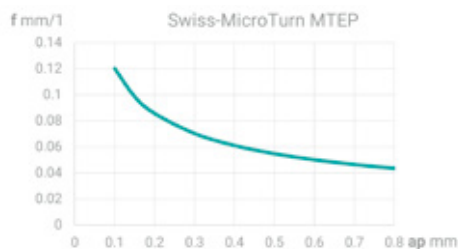
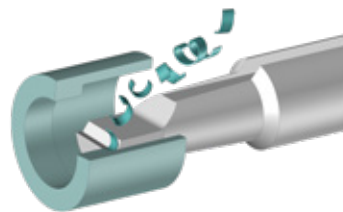
ϕS	L	L_1	L_2	F	γ	ϕmin	R			Type number	Rotation		Coating		
							\triangle sharp	\triangle flat	\triangle roundet		R right	L left	K10	TiAlN	DLC
4	31	6	15	1.25	12°	2.5			0.05	MTEP-425065	●		●	●	●
4	31	10	15	1.25	12°	2.5			0.05	MTEP-425105	●		●	●	●
4	31	14	15	1.25	12°	2.5			0.05	MTEP-425145	●		●	●	●
4	31	8	15	1.60	12°	3.2			0.05	MTEP-432085	●		●	●	●
4	31	12	15	1.60	12°	3.2			0.05	MTEP-432125	●		●	●	●
4	36	17	20	1.60	12°	3.2			0.05	MTEP-432175	●		●	●	●
4	31	10	15	1.95	12°	4.0			0.05	MTEP-440105	●		●	●	●
4	31	14	15	1.95	12°	4.0			0.05	MTEP-440145	●		●	●	●
4	36	19	20	1.95	12°	4.0			0.05	MTEP-440195	●		●	●	●
6	35	12	16	2.50	12°	5.0			0.05	MTEP-650125	●		●	●	●
6	43	17	24	2.50	12°	5.0			0.05	MTEP-650175	●		●	●	●
6	48	25	29	2.50	12°	5.0			0.05	MTEP-650255	●		●	●	●
6	35	12	16	2.95	12°	6.0			0.05	MTEP-660125	●		●	●	●
6	43	20	24	2.95	12°	6.0			0.05	MTEP-660205	●		●	●	●
6	53	30	34	2.95	12°	6.0			0.05	MTEP-660305	●		●	●	●

Dimensions mm

MTEF



MTEP



For optimum chip control, please adhere to the feed (f) and cutting depth (ap) ratios on the curve shown on the charts provided.

The maximum cutting depth (ap) for MTEF is 0.15 mm.

Order directly online

Order the right tool online using the QR code or weblink

The order number required for this is made up of the type number, direction of rotation and coating.

Example: MTEF-432172-R-K10



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