

## Parameter recommendation for scoring of IMS, halogen-free material and laminates with fillers

GCT chamfering cutter: 138x

Cutting speed: depending on point angle and routing depth

Chamfering cutter	$\sigma$	H	S	n	Fxy	Fz
	Point angle	Routing depth	Groove width	Spindle speed	Feed rate	
	[°]	[mm]	[mm]	[rpm]	[m/min]	[m/min]
1382 2000 060 4	30	0.3	0.20	40-50000	0.8-1.2	0.3
		0.8	0.50	50-60000	0.4-0.8	0.2
1384 2000 060 4	45	0.4	0.35	40-50000	1.0-1.5	0.5
		1.0	0.85	50-60000	0.5-1.0	0.3
1386 2000 060 4	60	0.4	0.45	40-50000	1.2-1.8	0.5
		1.0	1.15	50-60000	0.8-1.3	0.3
1389 3175 080 4	90	0.4	0.80	40-50000	1.5-2.0	0.5
		1.0	2.00	50-60000	1.0-1.5	0.3

### General recommendations:

#### for halogen-free material and laminates with fillers:

- ⇒ The groove width is a recommended value only and relates to different conditions.
- ⇒ The parameters depend on the routing spindle and the application.
- ⇒ Max pressure at pressure foot.
- ⇒ Routing in 2 passes improves quality and dimension.

#### for IMS, aluminium, copper and brass:

- ⇒ Use always an entry material (e.g. phenolic paper approx. 0.50 mm thick).
- ⇒ With ceramic dielectric or copper reduce feed rate by approx 30%.
- ⇒ Use only with minimal quantity lubrication (ethanol / oil emulsion).
- ⇒ Ball bearing spindles are preferred.

- ⇒ Follow the GCT check list for machining of PCB's.

### Chamfering cutter specifications:

Edition: January 2013

Overall length: 38.2 -0.3mm

Point angle:  $\sigma \pm 1^\circ$

Nominal diameter: D1 = 2.0 ±0.02 mm (at 3.175mm: -0.04mm)

Shank diameter: D = 3.175 -0.001 / -0.007 mm

