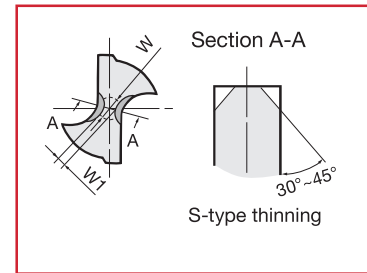


CAUTIONARY NOTES

- To prevent edge chipping, hone cutting edges as follows:
Honing width: 0.02 ~ 0.05 mm Honing angle: -20° to -30°. Chipping is likely to occur on edges whilst drilling hard materials, a larger honing width is recommended.
- When drilling into an inclined surface, special care should be taken to prevent drill breakage. Use of drill bushing is recommended for such case.

REGRINDING

- Carry out regrinding when corner wear reaches the margin width.
- Avoid using silicon carbide grinding wheels or hand grinding whenever possible. Use diamond grinding wheels of 200 to 400 mesh.
- Apply web thinning for the drill above $\phi 6$ mm. S-type thinning shown in figure at right is recommended. Preferable thinning width (W1) is about 1/2 to 1/3 of web thickness (W).



STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Cutting speed: Vc (m/min)		Feed: f (mm/rev)				
		$\phi 0.4 \sim \phi 2$	$\phi 2 \sim \phi 13$	$\phi 0.4 \sim \phi 1$	$\phi 1 \sim \phi 2$	$\phi 2 \sim \phi 3$	$\phi 3 \sim \phi 5$	$\phi 5 \sim \phi 13$
K	Grey cast irons (200HB)	20 - 40	30 - 50	0.005 - 0.03	0.01 - 0.06	0.03 - 0.12	0.05 - 0.15	0.1 - 0.4
	Ductile cast irons (300HB)	20 - 40	30 - 50	0.005 - 0.02	0.01 - 0.05	0.03 - 0.1	0.03 - 0.1	0.07 - 0.25
N	Aluminium alloys	20 - 50	30 - 50	0.01 - 0.05	0.04 - 0.15	0.06 - 0.2	0.1 - 0.25	0.15 - 0.5
	Copper alloys	20 - 50	30 - 50	0.01 - 0.05	0.04 - 0.15	0.06 - 0.2	0.1 - 0.25	0.15 - 0.5
	Reinforced plastics	20 - 40	30 - 50	0.01 - 0.05	0.04 - 0.15	0.06 - 0.2	0.1 - 0.25	0.15 - 0.5

- No. of revolutions (min^{-1}) = Cutting speed \times 1000 \div 3.14 \div Tool diameter
- Table feed (mm/min) = No. of revolutions \times Feed per revolution



2-effective Drill