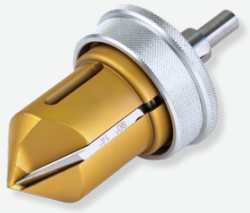
KOPAL internal tube chamfering tool

KOPAL is a single-blade countersinking tool for internal chamfering of tubes with an inside diameter of 4-117 mm. The spring-loaded, lockable pilot cone allows a fixed chamfer size to be set for repeat machining.

The tool is supplied with one fitted, replaceable HSS blade with a 14° rake angle. Recommended cutting speed: 10-20 m/min.



Technical data

Property	Specification
Working range	Internal tube diameter Ø 4-117 mm, in six size ranges
Included angle	60°, 90° or 120° included angle, depending on model
Chamfer angle	60° gives a 30° chamfer; 90° gives 45°; 120° gives 60°
Shank	Cylindrical shank or Morse taper 1, 2 or 3 (MT 1, MT 2, MT 3)
Cylindrical shank	Ø 10 mm, Ø 10/16 mm or Ø 12.7 mm, depending on model
Adjustment	Spring-loaded, lockable pilot cone for setting the chamfer size
Supplied blade	1 fitted, replaceable HSS blade with a 14° rake angle
Cutting speed	Recommended range: 10-20 m/min
Alternative blades	Carbide blades and TiN-coated blades available for selected models

Tool models and dimensions

Available with a cylindrical shank or Morse taper 1, 2 or 3. Select the shank, included angle and working range to suit the application and machine spindle.

Not all combinations are available. The 62-97 and 82-117 mm ranges have MT 3 shanks and a 90° included angle. A 120° included angle is listed for 4-17 mm with a cylindrical shank and 5-41 mm with MT 2.

Range (mm)	Shank A	Ref. 60°	Ref. 90°	Ref. 120°	B (mm)	C (mm)	D (mm)
4-17	Cyl. Ø 10	01-030	01-010	01-080	26	55	18
4-17	MT 1	01-035	01-015	-	26	55	18
5-41	Cyl. Ø 10/16	01-120	01-095	-	65	85	42
5-41	Cyl. Ø 12.7	01-125	01-100	-	65	85	42
5-41	MT 1	01-115	01-090	-	65	85	42
5-41	MT 2	01-116	01-091	01-191	65	85	42
5-41	MT 3	01-117	01-092	-	65	85	42
21-59	MT 2	01-215	01-210	-	70	94	60
42-77	MT 2	01-230	01-225	-	90	100	80
42-77	MT 3	01-231	01-226	-	90	100	80
62-97	MT 3	-	01-241	-	110	104	100
82-117	MT 3	-	01-256	-	130	104	120

Included angle and rake angle

The included angle determines the chamfer angle on the workpiece: 60° gives a 30° chamfer, 90° gives 45° and 120° gives 60°.

The rake angle describes the blade geometry and must not be confused with the included angle.

KOPAL replacement blades - internal

Replaceable titanium-coated HSS blades. Select the same size designation and included angle as your existing KOPAL tool. The size selection refers to the tool working range, not the blade dimensions.

The four blades below are specified for 60° and 90° included angles, not for tools with a 120° included angle.

Part number	Included angle	Chamfer angle	Blade dimensions length × height (mm)
KO-1T-305B	60°	30°	38.5 × 8.7
KO-1T-320B	90°	45°	30 × 8.7
KO-1T-340B	60°	30°	90 × 20
KO-1T-350B	90°	45°	73 × 20

Blade selection by tool size

For the 4-17 mm working range, use KO-1T-305B for a 60° included angle and KO-1T-320B for a 90° included angle.

For the larger tool sizes, use KO-1T-340B for a 60° included angle and KO-1T-350B for a 90° included angle. The table shows the matching blades for each tool model.

Tool working range (mm)	Blade for 60° included angle	Blade for 90° included angle
4-17	KO-1T-305B	KO-1T-320B
5-41	KO-1T-340B	KO-1T-350B
21-59	KO-1T-340B	KO-1T-350B
42-77	KO-1T-340B	KO-1T-350B
62-97	-	KO-1T-350B
82-117	-	KO-1T-350B

Rake angle and materials

The complete tool is supplied with a 14° rake angle. The table provides guidance on materials and rake angles. Contact Tubeck for available blade options and help with selection.

Rake angle	Material
0°	Bronze, ebonite, plastic laminates and castings
14°	Brass, acrylic (PMMA) and high-carbon steel
20°	Copper, plastics, aluminium alloys and stainless steel
25°	Aluminium, iron, thin steel sheet and tubes