

To users:

1. Please check the machine and its accessories according to the packing list.
2. Do read through the manual before operating the machine.
3. Be sure to install and test the machine according to the instructions.
4. Read through the manual to learn about its performance, operation requirements and maintenance. If you have any questions about it, please contact the company.

Contents

1.To users:	Page 1
2.Parameters	Page 2
3.Structural Diagram	Page 3
4.Notice before Operation	Page 4-5
5.Operation instruction	Page 6-7
6.Daily Maintenance	Page 8

Attached:

Certificate of approval
Packing List

II Parameters

Model: BP170

Feature: spiral angle can be set quickly. The tool can grind end, side and groove with only one grip.

Scope of application: grind side milling cutters, end milling cutters, surface milling cutters and hobbing cutters and make end milling cutters and slotting cutters etc.

Diameter of tool: $\Phi 2$ - $\Phi 250$ mm

Spiral length of tool: 150mm

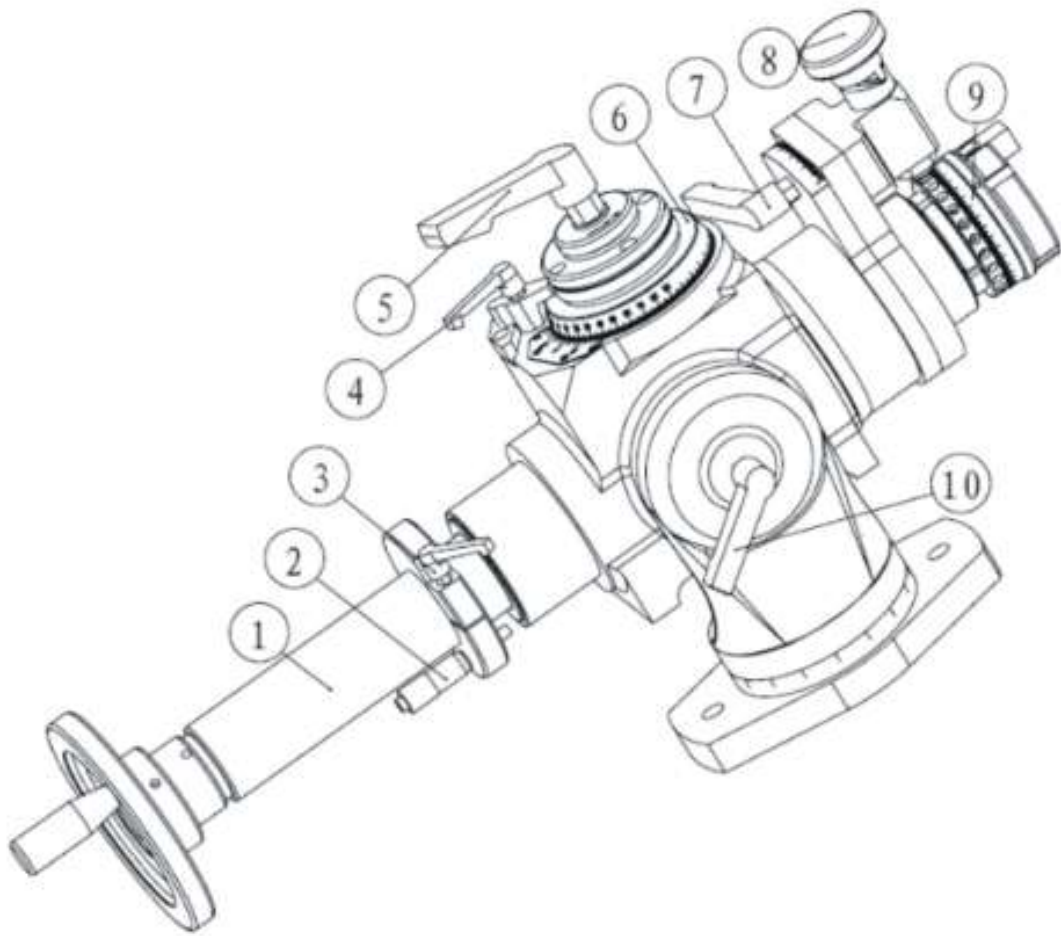
Inner cone of mandrel: BT40

Spiral angle: $0^\circ - \pm 90^\circ$

Upper and lower corner: $0^\circ - \pm 30^\circ$

Horizontal corner: 360°

III. Structural Diagram of Bp170



1. Main shaft

2. Micrometer

3. Set lever

4. Tight lever of graduated ring

5. Spiral tight lever

6. Scale hand wheel

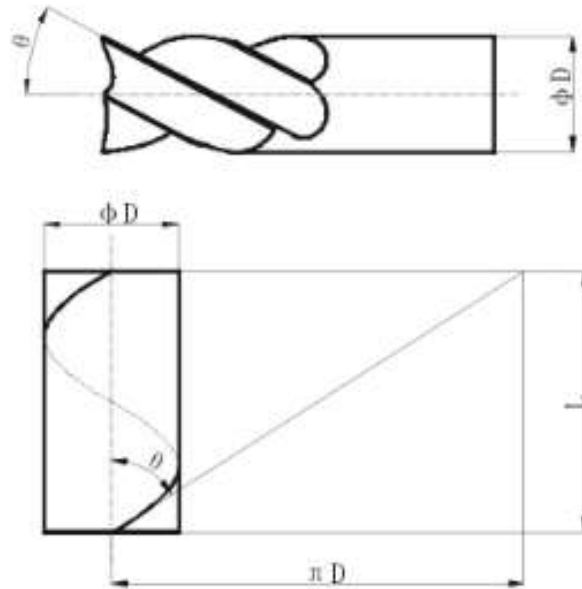
7. Index corner lever

8. Index lever

9. Index ring

10. Vertically rotating tight lever

IV. Notice before Operation



$$L = \pi * D * \tan(90^\circ - \theta)$$

L: Pitch θ : spiral angle D: tool diameter

$$\alpha = 90^\circ - \arctan(L / (\pi * d))$$

Main shaft of the machine, $d = 50$ mm,

α : rotating angle of the machine's graduated ring

i.e.: $\theta = 30^\circ$ $D = 25$ mm

$$L = \pi * 25 * \tan(90^\circ - 30^\circ) = 136.03$$

$$\alpha = 90^\circ - \arctan(L / (\pi * d))$$

$$= 90^\circ - \arctan(\pi * D * \tan(90^\circ - \theta) / (\pi * d))$$

$$= 90^\circ - \arctan(D * \tan(90^\circ - \theta) / d)$$

$$= 90^\circ - \arctan(25 * \tan(90^\circ - 30^\circ) / 50)$$

$$= 90^\circ - 40.89^\circ$$

$$= 49.11^\circ$$

The pitch formed by spiral angle of the main shaft is provided for reference. The angle required by the scale can be determined according to value of L:

V. Operation instruction

Grinding of groove

- 1、 Place tool, turn the grinding wheel horizontally to parallel with the spiral angle (the angle is 1° higher than the spiral angle of tool).
- 2、 Loose the tight lever of graduated ring [4] and rotate the spiral tight lever [5] anticlockwise, adjust the scale hand wheel [6] to the required angle. If angle of the tool is unknown, adjust spiral angle of the tool and rotate the main shaft [1] simultaneously till the spiral angle and grinding wheel can overlap fully. (If rotating the spiral tight lever [5] clockwise, the main shaft will be loose and there is no spiral angle; (If rotating the spiral tight lever [5] anticlockwise, the main shaft will be tight and there is spiral angle).
- 3、 Tighten the tight lever of graduated ring [4].
- 4、 Rotate index lever [8], insert the index pin into index ring [9]; if turning position of the required tool is incorrect, it can be adjusted by moving the work table (the cross slide table); loosen the index corner lever [7], rotate the index ring [9] (then insert the index pin into the index ring [9]), then the main shaft [1] rotates and the starting point of tool grinding changes; adjust it to the required position, and lock the index corner lever [7].
- 5、 Lift the index lever [8]; the index pin leaves the index ring [9].
- 6、 Adjust the moving distance of main shaft [1] according to the length of tool. The set lever [3] is used to restrict the length of tool. The micrometer [2] is used to adjust the final position of tool grinding accurately.
- 7、 After grinding a blade, rotate the spiral tight lever [5] clockwise once, rotate the main shaft, index with the index ring, rotate the spiral tight lever [5] anticlockwise, and then tighten the tight lever of graduated ring [4].
- 8、 Grind the tool, and run the grinding wheel twice when no blade will be fed.

Grinding of end edge:

- 1、 Rotate the index lever [8], and insert the index pin into the index ring [9].
- 2、 Place the tool.
- 3、 Adjust the angle and position between tool blade and grinding wheel.
- 4、 Loosen the vertically rotating tight lever [10] and the horizontally rotating lock nut, rotate the tool to the required back angle, and tighten the vertically rotating tight lever [10] and the horizontally rotating lock nut.
- 5、 After grinding a blade, rotate the spiral tight lever [5] clockwise once, rotate the main shaft, index with the index ring, rotate the spiral tight lever [5] anticlockwise.
- 6、 Grind the tool.

VI. Daily Maintenance

- 1、 Keep each part of the machine clean, and remove its grindings regularly.
- 2、 Add lubricating grease to the main chamber once every 6 months.
- 3、 Add 20# engine oil to each moving part once every month.

Machine Name Spiral Flute Grinder
Machine Model BP170
Collet Capacity 2~250mm
Factory number _____

The machine tool is inspected to up to the standard and is approved for delivery.

Checked by: _____

Chief Engineer: _____

Person in Charge: _____

Date: (M) (D) (Y)

Packing List

Machine Name Spiral Flute Grinder
Machine Model BP170
Collet Capacity 2~250mm
Factory number

Parts Attached to the Machine

Name	Specifications	Quantity	Remarks
Graver Grinder	BP170	1	
Spanner	17-19	1	