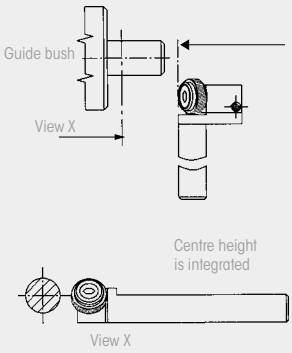
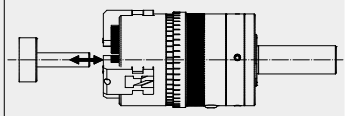
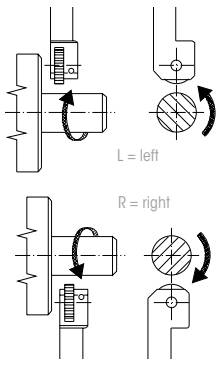
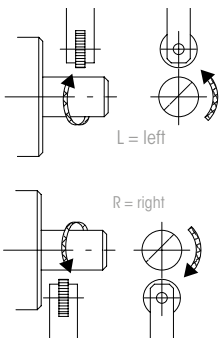
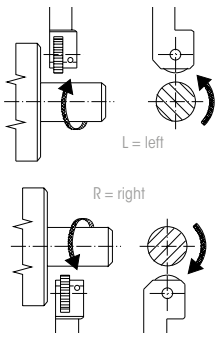
# Tool characteristics

## Different characteristics based on machine types and machine properties

| Knurling tools for CNC lathes/ automatic lathes | Knurling tools for conventional lathes/ automatic lathes | Knurling tools for Swiss-type lathes/ automatic lathes | Knurling tools for axial machining |
|---|---|---|---|
| The knurling tools for CNC lathes/automatic lathes features an integrated centre height (centre height = top edge of shank). This makes it possible to use them in CNC lathes/automatic lathes without the capability of adjustment (fixed tool holder) of the centre height. In general, these knurling tool series are also suitable for conventional lathes/automatic lathes as long as the centre height can be adjusted on the machine. | Knurling tools from zeus for conventional machine types are designed so that the centre height must be adjusted by the tool holder in the machine. This results in a simplified design of these knurling tools. | In the case of knurling tools that are suitable for Swiss-type lathes/ automatic lathes, the knurling wheel must not protrude beyond the front edge of the shank, in order to prevent collision with the guide bush. Most knurling tools with a shank height of 10–16 mm are suitable for Swiss-type lathes/automatic lathes. In general, they can also be used in CNC lathes and conventional lathes/automatic lathes. | Knurling tools for axial machining of the workpiece can be clamped axially to the workpiece on all conventional and CNC lathes/automatic lathes with a tailstock. Machining takes place by means of a rotating workpiece in a stationary tool that is mounted in the tailpiece.<br><br>On rotary indexing machines, indexing tables and automatic transfer machines, a stationary workpiece is machined by means of an axially rotating tool. |
| The tool holder is not height adjustable. The centre height is integrated in the tool. | The tool holder is adjustable. The centre height of the tool must be adjusted. |  |  |
| The zeus product range includes special versions for (R) right- and (L) left-oriented lathes/automatic lathes.<br>If the construction allows, zeus knurling tools are available in a modular (M) or universal (U) design. The (M) versions can be converted from counterclockwise to clockwise rotation by simply turning the knurling head. The (U) versions can be used for both clockwise and counterclockwise rotation without conversion. | Knurling tools from zeus for conventional machine types are designed for universal use and can therefore be used with both clockwise and counterclockwise rotation. | In the case of Swiss-type lathes/automatic lathes the knurling wheel should be positioned as close to the workpiece clamping as possible to allow machining of workpieces with small diameters. The knurling wheels of the zeus RD1 and RD2 series with shank dimensions of 10 x 10 to 16 x 16 are therefore offset instead of centred. | Machining possibilities:<br><br>• Tool is stationary<br>• Workpiece rotates<br>• Direction of rotation is universal<br><br>• Tool rotates<br>• Workpiece is stationary<br>• Direction of rotation is universal |
|  |  |  | |