



The new RF1-LD generation for swiss type autolathes meets high demands with regards to process stability, efficiency and profitability. The modular tool series is suitable for producing straight and right-/left-hand knurls in axial tool direction. The cut knurling tool series RF1-LD stands for highest precision, excellent surface quality and maximum flexibility – especially for difficult to machine materials.

APPLICATION ADVANTAGES:

PROCESS STABILITY:

- Minimal vibration, high quality visual profiles, close tolerances
- Reproducible processes through scaling and positioning aids
- All setting parameters can be preset and documented
- Controlled tool change: precise fitting of the knurl and exact location of the knurl holding unit
- High precision for connectors, bushings, fittings, housings, etc., as required in the electronic, automotive industry or fluid technology
- Superb visual knurling profiles for the watch-making or surgical industry

EFFICIENCY:

- Higher feed and speed rates, reduced production times
- Reduced wear on knurling wheels
- Modular shank system for cost-effective use on all CNC- / and cam- controlled swiss type autolathes
- Modular cut knurling tool head for right-/left-hand use and different work piece diameters

TOOL HANDLING:

- Reduced setting times, user-friendly fine adjustment of the clearance angle and the knurling tool head
- Easy change of knurling wheels and precise positioning of the knurl holding unit



- **Increased efficiency:** Exchangeable tool head for processing different work piece diameters



- **Modular product design:** Modular shank adaptors for an easy adjustment to required shank size



- **Modular use right and left:** Retooling through fast and easy turning of the cut knurling head

zeus® CUT KNURLING TOOL 231:

THE SPECIALIST FOR HIGH PRECISION RAA-PROFILES AND SMALL DIAMETERS!



Machine type: Conventional and CNC – suitable for:
• Swiss type autolathes

Application: Cut knurling (swarf removal)

Knurling profile on work piece DIN 82:

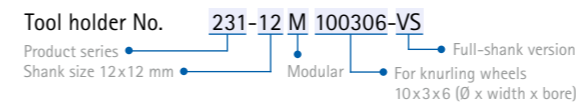
RAA	RBL30°	RBR30°

Knurling wheels:

1 x BR30° (right-turning)	1 x AA	1 x AA
1 x BL30° (left-turning)		

- Tool direction:**
- Feed knurling
- Product highlights:**
- Modular shank construction for conversion to alternative shank sizes
 - Exchangeable tool head for adaptation to different work piece diameters
 - Scale and positioning aids
 - Setting spindle for fine adjustment of the cut knurling head
 - Precise knurl holding unit
 - Fine adjustment of the clearance angle and the cut knurling head
 - Carbide bushings
 - Special surface hardening for increased wear resistance

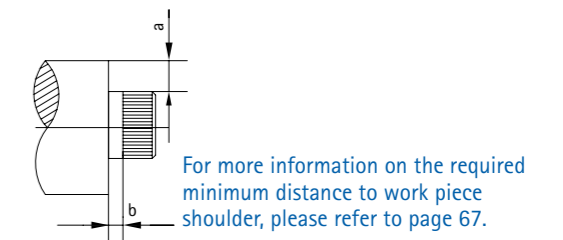
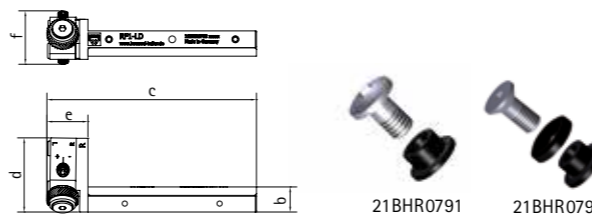
ORDER EXAMPLE:



TOOL TYPES:

Tool holder with adaptor	Tool holder with full-shank	Working area Ø mm	a mm	b mm	c mm	d mm	e mm	f mm	Knurling wheels mm (Ø x width x bore)	Spare part E-Kit
231-08M100306	231-08M100306	1,5-12	8	8	94	35	14	26	10 x 3 x 6	21BHR0791
231-10M100306	231-10R100306-VS	1,5-12	10	10	94	35	14	26	10 x 3 x 6	21BHR0791
231-12M100306	231-12R100306-VS	1,5-12	12	12	94	35	14	26	10 x 3 x 6	21BHR0791
231-16M100306	231-16R100306-VS	1,5-12	16	16	94	35	14	26	10 x 3 x 6	21BHR0791
231-08M150408	231-08M150408	3-50	8	8	99	35	19	26	15 x 4 x 8	21BHR0792
231-10M150408	231-10R150408-VS	3-50	10	10	99	35	19	26	15 x 4 x 8	21BHR0792
231-12M150408	231-12R150408-VS	3-50	12	12	99	35	19	26	15 x 4 x 8	21BHR0792
231-16M150408	231-16R150408-VS	3-50	16	16	99	35	19	26	15 x 4 x 8	21BHR0792

Fullshaft version also available in left-hand version on request.



APPLICATION EXAMPLE:



APPLICATION:

Material: 11SMn30
Knurling Profile/Pitch (DIN 82): RAA / P.0,8
Machine: Citizen C 3L

APPLICATION PARAMETERS zeus® RF1

Knurling tool: 231-16M150408
Knurling wheel: BR30°15x4x8, P. 0.8
Speed rate: 60 m/min
Feed rate: 0.13 mm/rev

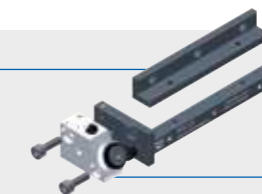


MODULAR PARTS:

SHANK ADAPTORS:

Shank size	Part-No.
10 x 10	21BHR0833
12 x 12	21BHR0834
16 x 16	21BHR0835

Modular shank construction for conversion to alternative shank sizes



CUT KNURLING HEADS:

Working area	Cut knurling head	Part-No.
1,5 - 12 mm	RFK 10x3x6	21BHR0793
3 - 50 mm	RFK 15x4x8	21BHR0794

Optional: For conversion to alternative working area

