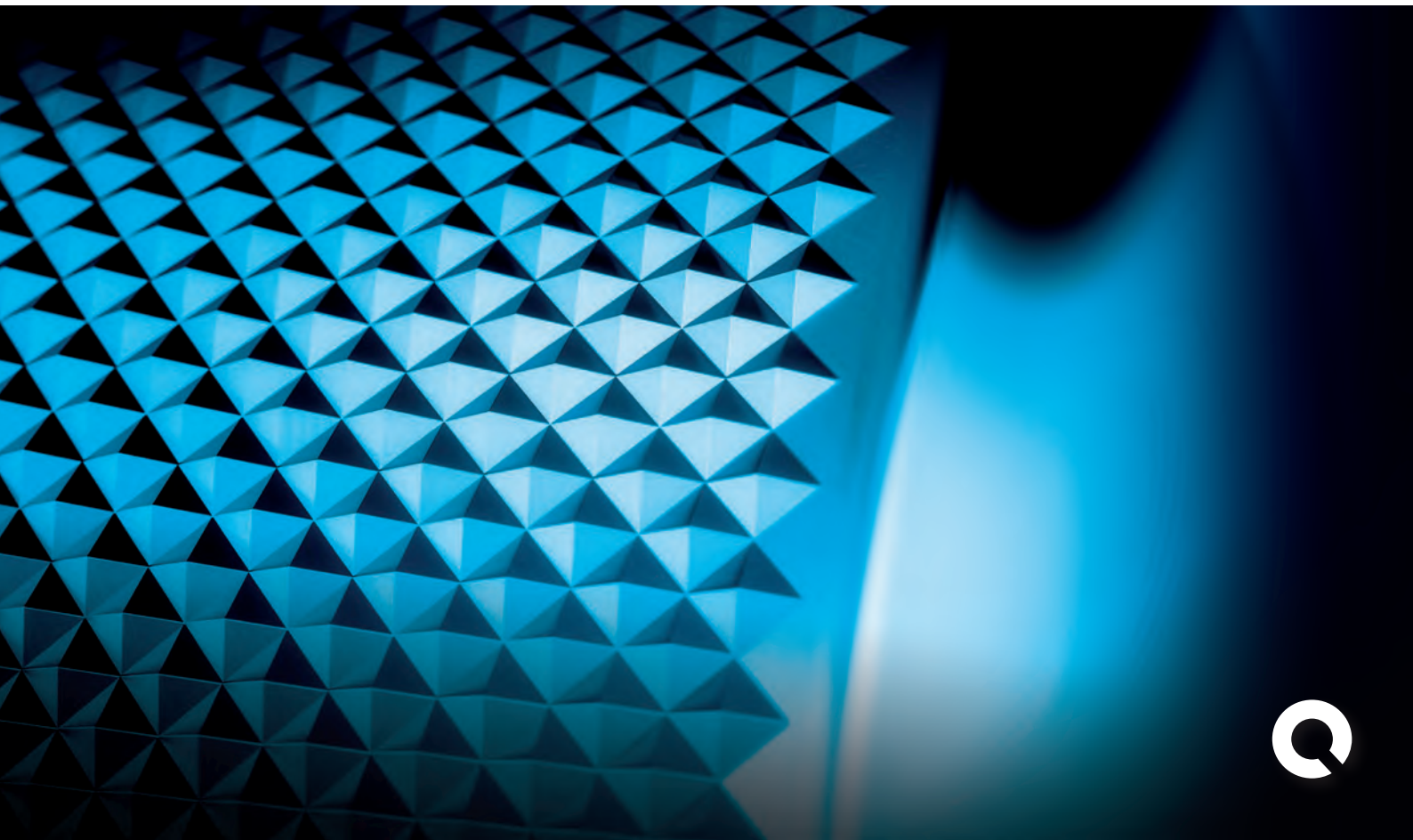




KNURLING  
T O O L S



ABSOLUTE PRECISION

BEST QUALITY

CONVINCING FEATURES

OPTIMISED SOLUTIONS



PROGRAM MANUAL STEP 1/7 REPT 0  
X1 10.60 abs 10.70 mm  
Z1 -554.50 abs -555.00 mm  
Correction 0.00 d Depth -4.00 mm  
ClampP. 0.00 mm Y-left 32.75 mm  
Y-right 32.93 mm  
Zone 0  
Thickness 1.50 mm Breadth 1440.00 mm  
T.d.c. 5.00 mm Fo-Sl 23.00 mm  
Speed 100 % Tilt-Y 0.30 mm  
Dwelltime 0.00 s Delay 0.00 s  
Top tool :  
Bottom tool : 12  
Auto Up : Yes  
<<<< A-D-F Retract Aux NewStp BeIStp >>>> Escape

# SHOW YOUR PROFILE: KNURLING TOOLS THE TOP CLASS

Tools used in knurling technology always have special requirements with respect to quality, precision, stability ... and especially technological know-how. QUICK Tooling GmbH develops, produces and markets premium quality form knurling tools. QUICK is your specialist for high profile solutions.

**FORMING AND CUTTING:** The QUICK product spectrum offers innovative solutions for diverse knurling technology applications – for numerous areas of utilisation. Whether you need a form knurling or cut knurling tool, QUICK fulfils the most stringent quality standards and masters even difficult tasks with ease.

**CONVINCING STRENGTHS:** There are many reasons for choosing QUICK. Because the advantages of our cut knurling tools are obvious: maximum process reliability, high flexibility and efficiency and user-friendly handling.

**TOOLS IN ACTION:** QUICK is used wherever absolute precision and first-rate surface quality are needed. In the automotive sector, for example, in mechanical engineering, in the manufacture of timepieces and in many other industries. Our selection of knurling profiles will impress you – and your customers, too.

**PROFILES FROM THE PRO:** With respect to knurling technology QUICK leaves no wish unfulfilled. We also offer custom product solutions, including design. Convince yourself of our performance ability and secure your lead. With top quality tools from QUICK.

# CUT KNURLING / FORM KNURLING

There are two different types of knurling process: cut knurling and form knurling. Each of these processes has its own particular areas of application with associated advantages and disadvantages.

## CUT KNURLING Cutting

### APPLICATION

- Maximum precision and surface quality
- Can be used for knurling thin materials without deformation
- Saves time on account of higher cutting speed and feed rate
- Compatible with virtually any material, including cast iron and plastic
- Knurling to workpiece flange possible to a limited extent only

### PROPERTIES

- Cutting process protects the expensive lathe
- No or minimal changes to the external workpiece diameter
- Minimal pressure on workpiece and lathe
- Negligible surface compression

## FORM KNURLING Non-cutting

### APPLICATION

- Cold forming of the material
- Can be used for knurling up to workpiece flange
- All standard knurl patterns (to DIN 82) offered
- Knurling is possible at any position on the workpiece

### PROPERTIES

- Recommended for visible knurls to a limited extent only
- Cold forming increases the external diameter of the workpiece.
- It compresses the surface of the workpiece.
- Form knurling is not recommended for thin materials.
- Form knurling on workpieces with a small diameter is possible to a limited extent only.
- Lathe is subjected to a greater load due to the higher pressure.
- Slower cutting speed and feed rate

# CUT KNURLING

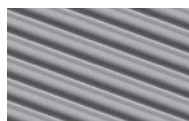
RAA-Knurl with straight pattern  
to DIN 82

(STRAIGHT KNURL)



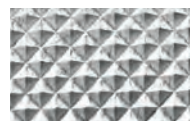
RBL-Left-hand spiral  
RBR-Right-hand spiral to DIN 82

(SPIRAL KNURL)



RGE-Cross knurling 45°  
to DIN 82

(CROSS KNURL)



RGE-Diamond knurling 30°  
to DIN 82

(DIAMOND KNURL)



RAA (STRAIGHT KNURL) RBL / RBR (SPIRAL KNURL)	Working range (mm)	Tool series	Shank	Knurling wheels (mm)		Page
	Ø 1,5-12 Ø 1,5-12 Ø 1,5-12	LA / FL	8 x 8 10 x 10 12 x 12	Ø 8,9 Ø 8,9 Ø 8,9		9
	Ø 3-50 Ø 3-50 Ø 3-50	A1 / FL	10 x 16 12 x 16 16 x 16	Ø 14,5 Ø 14,5 Ø 14,5		12
	Ø 5-250 Ø 5-250	A2 / FL	20 x 25 25 x 25	Ø 21,5 Ø 21,5		14
	Ø 20-3000	M / FL	35 x 27	Ø 42		17

RGE45° (CROSS KNURL) RGE30° (DIAMOND KNURL)	Working range (mm)	Tool series	Shank	Knurling wheels (mm)		Page
	Ø 1,5-12 Ø 1,5-12 Ø 1,5-12	LA / KF	8 x 8 10 x 10 12 x 12	Ø 8,9 Ø 8,9 Ø 8,9		10
	Ø 3-50 Ø 3-50 Ø 3-50	A1 / KF	10 x 16 12 x 16 16 x 16	Ø 14,5 Ø 14,5 Ø 14,5		13
	Ø 5-250 Ø 5-250	A2 / KF	20 x 25 25 x 25	Ø 21,5 Ø 21,5		15
	Ø 20-1000	MI / KF	45 x 40	Ø 32		18
	Ø 30-3000	MII / KF	85 x 57	Ø 42		19
	Ø 3-25 Ø 3-25 Ø 3-25 Ø 3-25 Ø 3-25 Ø 3-25 Ø 3-25	STR-A	Ø 15 Ø 20 Ø 25 Ø 3/4" Ø 5/8" Ø 1" MK2	Ø 14,5 Ø 14,5 Ø 14,5 Ø 14,5 Ø 14,5 Ø 14,5 Ø 14,5		20
	Ø 5-55 Ø 5-55 Ø 5-55 Ø 5-55 Ø 5-55 Ø 5-55 Ø 5-55	STR-B	Ø 20 Ø 25 Ø 30 Ø 1" Ø 1 1/4" Ø 1 1/2" MK3	Ø 21,5 Ø 21,5 Ø 21,5 Ø 21,5 Ø 21,5 Ø 21,5 Ø 21,5		21

# FORM KNURLING

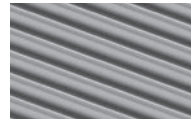
RAA-Knurl with straight pattern  
to DIN 82

(STRAIGHT KNURL)



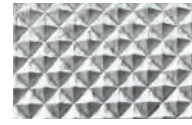
RBL-Left-hand spiral  
RBR-Right-hand spiral to DIN 82

(SPIRAL KNURL)



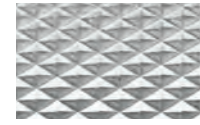
RGE-Cross knurling 45°  
to DIN 82

(CROSS KNURL)



RGE-Diamond knurling 30°  
to DIN 82

(DIAMOND KNURL)



RAA (STRAIGHT KNURL)	Working range (mm)	Tool series	Shank	Knurling wheels (mm)		Page
	Ø 3 - 20 Ø 3 - 200 Ø 3 - 200 Ø 3 - 200 Ø 15 - 200 Ø 15 - 200	F1-M_U (FOR LEFT AND RIGHT HAND USE)	8 x 8 10 x 10 12 x 12 14 x 14 16 x 16 20 x 20	Ø 10, 15 Ø 10, 15, 20, 25 Ø 10, 15, 20, 25 Ø 10, 15, 20, 25 Ø 20, 25 Ø 20, 25		23
	Ø 3 - 50 Ø 3 - 50 Ø 3 - 50 Ø 3 - 50	F1-L_L or R (LEFT AND RIGHT VERSION AVAILABLE)	8 x 8 10 x 10 12 x 12 16 x 16	Ø 10, 15 Ø 10, 15 Ø 10, 15 Ø 10, 15		24
	Ø 8 - 200 Ø 8 - 200	F1-S_U (FOR LEFT AND RIGHT HAND USE)	20 x 20 25 x 20	Ø 20, 25 Ø 20, 25		25
	Ø 3 - 12 Ø 3 - 12 Ø 3 - 12 Ø 5 - 40	F2-L_M (FOR LEFT AND RIGHT HAND USE BY TURNING THE KNURLING )	8 x 8 10 x 10 12 x 12 16 x 16	Ø 10 Ø 10 Ø 10 Ø 10, 15		26
	Ø 10 - 80 Ø 50 - 200	F2-S_M (FOR LEFT AND RIGHT HAND USE BY TURNING THE KNURLING)	20 x 20 25 x 20	Ø 20 Ø 25		27
	Ø 1 - 10 Ø 1 - 10 Ø 1 - 10 Ø 1 - 10	F2MP-L_L oder R (LEFT AND RIGHT VERSION AVAILABLE)	8 x 8 10 x 10 12 x 12 16 x 16	Ø 10 Ø 10 Ø 10 Ø 10		28
	Ø 0 - 15 Ø 0 - 15 Ø 0 - 15 Ø 0 - 15	F2MPS-L_L oder R (LEFT AND RIGHT VERSION AVAILABLE)	8 x 8 10 x 10 12 x 12 16 x 16	Ø 15 Ø 15 Ø 15 Ø 15		29
	Ø 0 - 65 Ø 0 - 65 Ø 0 - 65 Ø 0 - 65	F2MP-S_M (FOR LEFT AND RIGHT HAND USE BY TURNING THE KNURLING)	16 x 25 20 x 25 25 x 25	Ø 20, 25 Ø 20, 25 Ø 20, 25		30
	Ø 3,5 - 65 Ø 3,5 - 65 Ø 3,5 - 65 Ø 3,5 - 65	F2MPS-S_M (FOR LEFT AND RIGHT HAND USE BY TURNING THE KNURLING)	16 x 25 20 x 25 25 x 25	Ø 20 Ø 20 Ø 20		31
Ø 15 - 250 Ø 15 - 250	B2 (VERSION WITH ONE KNURLING WHEEL)	20 x 25 25 x 25	Ø 25 Ø 25		32	
Ø 1,2 - 12 Ø 1,2 - 12 Ø 1,2 - 12	B0 (VERSION WITH TWO KNURLING WHEELS)	8 x 8 10 x 10 12 x 12	Ø 9,8 Ø 9,8 Ø 9,8		35	

# FORM KNURLING

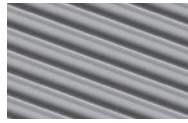
RAA-Knurl with straight pattern  
to DIN 82

(STRAIGHT KNURL)



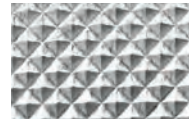
RBL-Left-hand spiral  
RBR-Right-hand spiral to DIN 82

(SPIRAL KNURL)



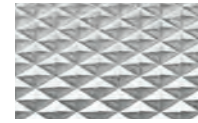
RGE-Cross knurling 45°  
to DIN 82





(CROSS KNURL)



RGE-Diamond knurling 30°  
to DIN 82

(DIAMOND KNURL)



RBL / RBR (SPIRAL KNURL)	Working range (mm)	Tool series	Shank	Knurling wheels (mm)		Page
	Ø 3 - 20 Ø 3 - 200 Ø 3 - 200 Ø 3 - 200 Ø 15 - 200 Ø 15 - 200	F1-M_U* (FOR LEFT AND RIGHT HAND USE)	8 x 8 10 x 10 12 x 12 14 x 14 16 x 16 20 x 20	Ø 10, 15 Ø 10, 15, 20, 25 Ø 10, 15, 20, 25 Ø 10, 15, 20, 25 Ø 20, 25 Ø 20, 25		23
	Ø 3 - 50 Ø 3 - 50 Ø 3 - 50 Ø 3 - 50	F1-L_L or R* (LEFT AND RIGHT VERSION AVAILABLE)	8 x 8 10 x 10 12 x 12 16 x 16	Ø 10, 15 Ø 10, 15 Ø 10, 15 Ø 10, 15		24
	Ø 8 - 200 Ø 8 - 200	F1-S_U* (FOR LEFT AND RIGHT HAND USE)	20 x 20 25 x 20	Ø 20, 25 Ø 20, 25		25
	Ø 15-250 Ø 15-250	B2 (VERSION WITH ONE KNURLING WHEEL)	20 x 25 25 x 25	Ø 25 Ø 25		32

\* For plunge knurling tool can be used to produce cross and diamond knurling profiles.

# FORM KNURLING

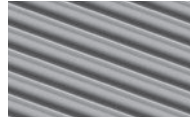
RAA-Knurl with straight pattern  
to DIN 82

(STRAIGHT KNURL)



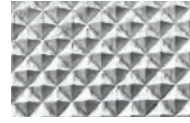
RBL-Left-hand spiral  
RBR-Right-hand spiral to DIN 82

(SPIRAL KNURL)



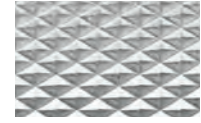
RGE-Cross knurling 45°  
to DIN 82

(CROSS KNURL)



RGE-Diamond knurling 30°  
to DIN 82

(DIAMOND KNURL)



RGE45° (CROSS KNURL) / RGE30° (DIAMOND KNURL)	Working range (mm)	Tool series	Shank size	Knurling wheels (mm)		Page
	Ø 3 - 12 Ø 3 - 12 Ø 3 - 12 Ø 5 - 40	F2-L_M (FOR LEFT AND RIGHT HAND USE BY TUR- NING THE KNURLING)	8 x 8 10 x 10 12 x 12 16 x 16	Ø 10 Ø 10 Ø 10 Ø 10, 15		26
	Ø 10 - 80 Ø 50 - 200	F2-S_M (FOR LEFT AND RIGHT HAND USE BY TUR- NING THE KNURLING HEAD)	20 x 20 25 x 20	Ø 20 Ø 25		27
	Ø 1 - 10 Ø 1 - 10 Ø 1 - 10 Ø 1 - 10	F2MP-L_L oder R (LEFT AND RIGHT VERSION AVAILABLE)	8 x 8 10 x 10 12 x 12 16 x 16	Ø 10 Ø 10 Ø 10 Ø 10		28
	Ø 0 - 15 Ø 0 - 15 Ø 0 - 15 Ø 0 - 15	F2MPS-L_L oder R (LEFT AND RIGHT VERSION AVAILABLE)	8 x 8 10 x 10 12 x 12 16 x 16	Ø 15 Ø 15 Ø 15 Ø 15		29
	Ø 0 - 65 Ø 0 - 65	F2MP-S_M (FOR LEFT AND RIGHT HAND USE BY TUR- NING THE KNURLING HEAD)	20 x 20 25 x 25	Ø 20, 25 Ø 20, 25		30
	Ø 3,5 - 65 Ø 3,5 - 65	F2MPS-S_M (FOR LEFT AND RIGHT HAND USE BY TUR- NING THE KNURLING HEAD)	20 x 20 25 x 25	Ø 20 Ø 20		31
	Ø 15 - 250 mm Ø 15 - 250 mm	B2 (VERSION WITH TWO KNURLING WHEELS)	20 x 25 25 x 25	Ø 25 Ø 25		33
	Ø 1,2 - 12 mm Ø 1,2 - 12 mm Ø 1,2 - 12 mm	B0 (VERSION WITH ONE KNURLING WHEEL FOR PROFILE RGE45° oder WITH TWO KNURLING WHEELS FOR RGE 30°)	8 x 8 10 x 10 12 x 12	Ø 9,8 Ø 9,8 Ø 9,8		35

OTHER	Special tools cutting/forming	22/36
	Knurling wheels / Consumable parts	39-42
	Speed and feed rate	43



# LA / FL

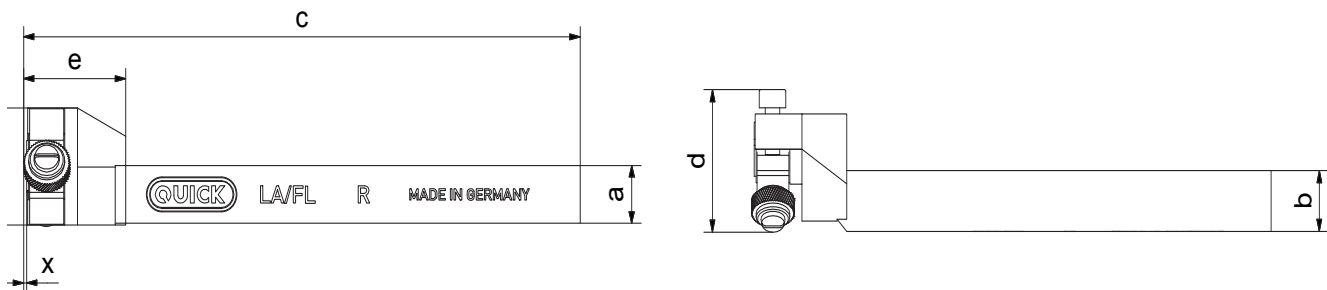
## QUICK CUT KNURLING TOOLS

The tools have been specially designed for long-turning automatic machines. However, because they can be used as left-hand and right-hand tools, they are also compatible with CNC lathes and small lathes.



MODEL	PROD.-NO.	WORKPIECE $\varnothing$	KNURLING WHEEL mm ( $\varnothing$ x width x bore)	a	b	c	d	e	f	x
LA/FL 8x8L	P215-0204	1,5 - 12 mm	8,9 x 2,5 x 4* (270)	8	8	108	23,5	20	20,3	0,6
LA/FL 8x8R	P215-0205	1,5 - 12 mm	8,9 x 2,5 x 4* (270)	8	8	108	23,5	20	20,3	0,6
LA/FL 10x10L	P215-0206	1,5 - 12 mm	8,9 x 2,5 x 4* (270)	10	10	108	23,5	20	20,3	0,6
LA/FL 10x10R	P215-0207	1,5 - 12 mm	8,9 x 2,5 x 4* (270)	10	10	108	23,5	20	20,3	0,6
LA/FL 12x12L	P215-0208	1,5 - 12 mm	8,9 x 2,5 x 4* (270)	12	12	108	23,5	20	20,3	0,6
LA/FL 12x12R	P215-0209	1,5 - 12 mm	8,9 x 2,5 x 4* (270)	12	12	108	23,5	20	20,3	0,6

\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 39.



RIGHT-HAND TOOL SHOWN  
CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:

### RAA (Straight):

- Right-hand tool     1 x 30°R knurling wheel (cutting)
- Left-hand tool     1 x 30°L knurling wheel (cutting)

### RBR (Spiral):

- Right-hand tool     15° spiral 1 x 15°R knurling wheel (cutting)  
30° spiral 1 x 90° knurling wheel (cutting) (AA)

### RBL (Spiral):

- Left-hand tool     15° spiral 1 x 15°L knurling wheel (cutting)  
30° spiral 1 x 90° knurling wheel (cutting) (AA)



# LA / KF

## QUICK CUT KNURLING TOOLS

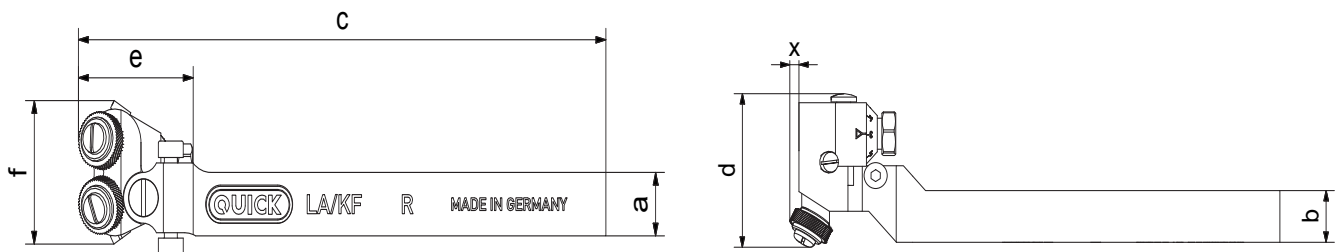
This tool is intended for use on long-turning automatic machines, small lathes and, because it can be used as left-hand and right-hand tool, it is also suitable for use with CNC lathes.



MODEL	PROD.-NO.	WORKPIECE $\varnothing$	KNURLING WHEEL mm ( $\varnothing$ x width x bore)
LA/KF 8x8L	P212-0204	1,5 - 12 mm	8,9 x 2,5 x 4* (270)
LA/KF 8x8R	P212-0205	1,5 - 12 mm	8,9 x 2,5 x 4* (270)
LA/KF 10x10L	P212-0206	1,5 - 12 mm	8,9 x 2,5 x 4* (270)
LA/KF 10x10R	P212-0207	1,5 - 12 mm	8,9 x 2,5 x 4* (270)
LA/KF 12x12L	P212-0208	1,5 - 12 mm	8,9 x 2,5 x 4* (270)
LA/KF 12x12R	P212-0209	1,5 - 12 mm	8,9 x 2,5 x 4* (270)

a	b	c	d	e	f	x
8	8	106	29,7	23	22,6	2
8	8	106	29,7	23	22,6	2
10	10	106	29,7	23	22,6	2
10	10	106	29,7	23	22,6	2
12	12	106	29,7	23	22,6	2
12	12	106	29,7	23	22,6	2

\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 39.



RIGHT-HAND TOOL SHOWN  
CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:

### RGE45° (Cross):



1 x 15°R knurling wheel (cutting)  
1 x 15°L knurling wheel (cutting)

### RGE30° (Diamond):



2 x 90° knurling wheels (cutting) (AA)



# TOOL SERIES A1 / A2

## QUICK CUT KNURLING

### TOOL SERIES A1



A1/FL



A1/KF

#### MAXIMUM FLEXIBILITY:

- The A1/FL and A1/KF can be used as a left-hand or right-hand tool on the main and sub spindle of CNC and conventional lathes.
- A1 shanks 10x16, 12x16 and 16x16 can be used for A1/FL and A1/KF tool bodies.
- Compatible adapters are available for Swiss type autolathes (see page 16 – Set).

#### MAXIMUM STABILITY:

- The tool bodies of the A1 series are mounted using backlash-free surface clamping.
- The vibrations caused by the machining process are reduced by backlash-free surface clamping and can be dampened effectively. This decisively prolongs the service life of the knurling wheels.

#### BENEFITS:

- Reduced stock thanks to extreme versatility
- Compact size
- Simple and precise fine adjustment of the tool body: The diameter is easy to adjust using the double-sided index disc, irrespective of whether the machining is performed in front of or behind the turning centre, upside down or on main and sub spindle.
- A backlash-free worm gear unit guarantees a simultaneous parallel contact of the wheel on the workpiece.

### TOOL SERIES A2



A2/FL



A2/KF

#### MAXIMUM FLEXIBILITY:

- The A2/FL and A2/KF can be used as a left-hand or right-hand tool on the main and sub spindle of CNC and conventional lathes.
- A2 shanks 20x25, 25x25 can be used for the A2/FL and A2/KF tool bodies.

#### MAXIMUM STABILITY:

- The tool bodies of the A2 series are mounted using backlash-free surface clamping.
- The vibrations caused by the machining process are reduced by backlash-free surface clamping and can be dampened effectively. This prolongs the service life of the knurling wheel.

#### BENEFITS:

- Reduced stock thanks to extreme versatility
- Compact size
- Simple and precise fine adjustment of the tool body: The diameter is easy to adjust using the double-sided index disc, irrespective of whether the machining is performed in front of or behind the turning centre, upside down or on main- and sub spindle.
- A backlash-free worm gear unit guarantees a simultaneous parallel contact of the wheel on the workpiece.

# A1 / FL

## QUICK CUT KNURLING TOOLS

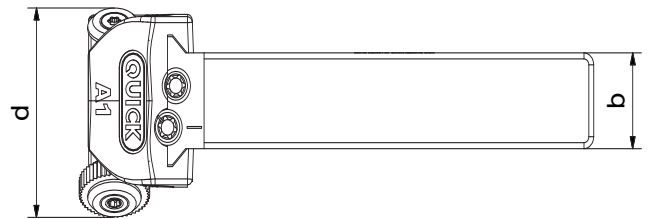
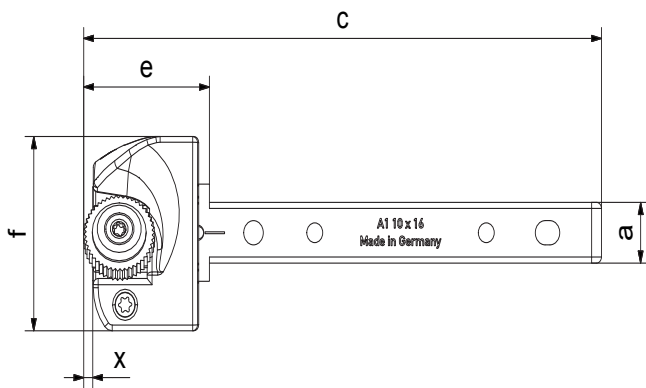
A1 tools are compatible with all current conventional and CNC-controlled lathes.



MODEL	PROD.-NO.	WORKPIECE Ø	KNURLING WHEEL mm (Ø x width x bore)
A1/FL 10x16	P669-0203	3 - 50 mm	14,5 x 3 x 5* (271)
A1/FL 12x16	P669-0204	3 - 50 mm	14,5 x 3 x 5* (271)
A1/FL 16x16	P669-0205	3 - 50 mm	14,5 x 3 x 5* (271)



a	b	c	d	e	f	x
10	16	106	35	25,6	32	1,8
12	16	106	35	25,6	32	1,8
16	16	106	35	25,6	32	1,8

\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 39.





RIGHT-HAND TOOL SHOWN  
CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:



### RAA (Straight):

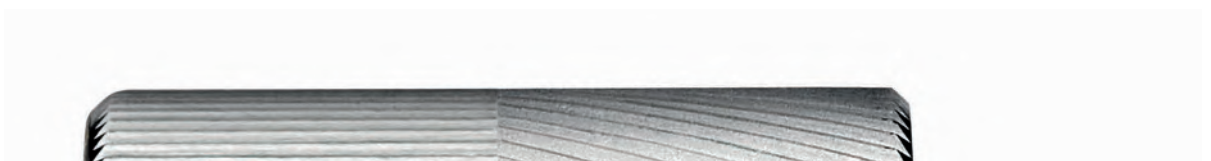
-  Right-hand tool 1 x 30°R knurling wheel (cutting)
-  Left-hand tool 1 x 30°L knurling wheel (cutting)

### RBR (Spiral):

-  Right-hand tool 15° spiral 1 x 15°R knurling wheel (cutting)
-  Left-hand tool 30° spiral 1 x 90° knurling wheel (cutting) (AA)

### RBL (Spiral):

-  Right-hand tool 15° spiral 1 x 15°L knurling wheel (cutting)
-  Left-hand tool 30° spiral 1 x 90° knurling wheel (cutting) (AA)



# A1 / KF

## QUICK CUT KNURLING TOOLS

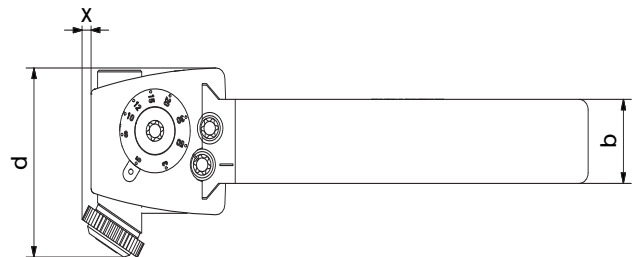
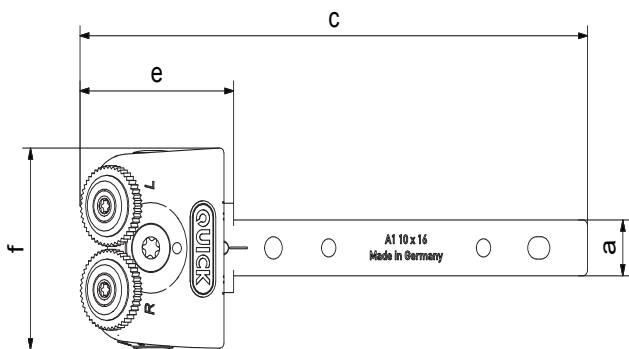
A1 tools are compatible with all current conventional and CNC-controlled lathes.



MODEL	PROD.-NO.	WORKPIECE $\varnothing$	KNURLING WHEEL mm ( $\varnothing$ x width x bore)
A1/KF 10x16	P669-0200	3 - 50 mm	14,5 x 3 x 5* (271)
A1/KF 12x16	P669-0201	3 - 50 mm	14,5 x 3 x 5* (271)
A1/KF 16x16	P669-0202	3 - 50 mm	14,5 x 3 x 5* (271)

a	b	c	d	e	f	x
10	16	115	36	35,7	36	2
12	16	115	36	35,7	36	2
16	16	115	36	35,7	36	2

\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 39.



RIGHT-HAND TOOL SHOWN  
CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:

### RGE45° (Cross):



- 1 x 15°R knurling wheel (cutting)
- 1 x 15°L knurling wheel (cutting)

### RGE30° (Diamond):



- 2 x 90° knurling wheels (cutting) (AA)



# A2 / FL

## QUICK CUT KNURLING TOOLS

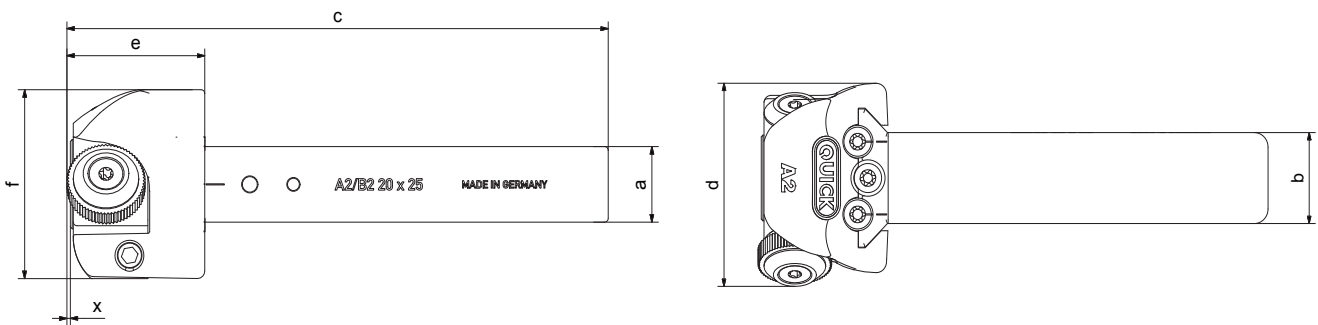
A2 tools are compatible with all current conventional and CNC-controlled lathes.



MODEL	PROD.-NO.	WORKPIECE $\varnothing$	KNURLING WHEEL mm ( $\varnothing$ x width x bore)
A2/FL 20x25	P669-0212	5 - 250 mm	21,5 x 5 x 8* (272)
A2/FL 25x25	P669-0213	5 - 250 mm	21,5 x 5 x 8* (272)

a	b	c	d	e	f	x
20	25	149	55,8	37,9	50	1
25	25	149	55,8	37,9	50	1

\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 39.



RIGHT-HAND TOOL SHOWN  
CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:

### RAA (Straight):

- Right-hand tool     1 x 30°R knurling wheel (cutting)
- Left-hand tool     1 x 30°L knurling wheel (cutting)

### RBR (Spiral):

- Right-hand tool     15° spiral 1 x 15°R knurling wheel (cutting)
- 30° spiral 1 x 90° knurling wheel (cutting) (AA)

### RBL (Spiral):

- Left-hand tool     15° spiral 1 x 15°L knurling wheel (cutting)
- 30° spiral 1 x 90° knurling wheel (cutting) (AA)



# A2 / KF

## QUICK CUT KNURLING TOOLS

A2 tools are compatible with all current conventional and CNC-controlled lathes.

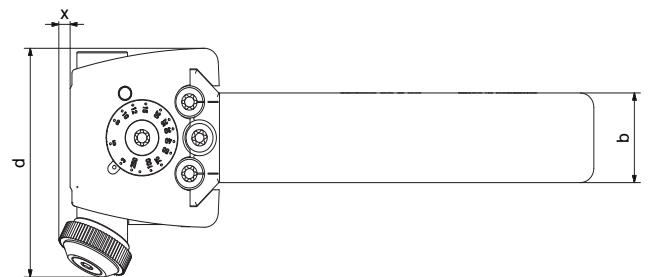
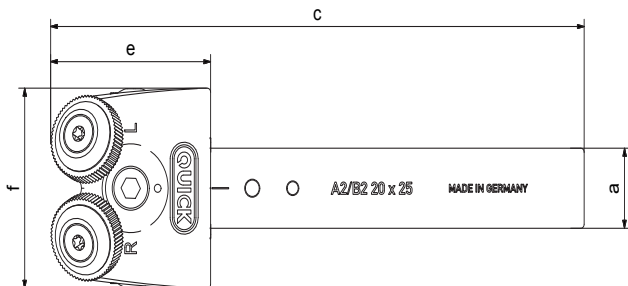


CUT KNURLING

MODEL	PROD.-NO.	WORKPIECE $\varnothing$	KNURLING WHEEL mm ( $\varnothing$ x width x bore)
A2/KF 20x25	P669-0210	5 - 250 mm	21,5 x 5 x 8* (272)
A2/KF 25x25	P669-0211	5 - 250 mm	21,5 x 5 x 8* (272)


a	b	c	d	e	f	x
20	25	158	63,8	47,5	50	3,3
25	25	158	63,8	47,5	50	3,3

\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 39.



RIGHT-HAND TOOL SHOWN  
CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:

### RGE45° (Cross):

-  1 x 15°R knurling wheel (cutting)
-  1 x 15°L knurling wheel (cutting)

### RGE30° (Diamond):

-  2 x 90° knurling wheels (cutting) (AA)

# SET A1

## QUICK CUT KNURLING TOOLS

Your Quick team recommends purchasing a set to ensure that you enjoy maximum tool flexibility.  
Be prepared for virtually any cut knurling requirement.



MODEL	PROD. NO.
<b>Set A1</b> <b>Includes:</b> A1/KF shank 16x16 A1/FL shank 12x16 Shank 10x16	P669-0206

AVAILABLE LONG-TURNING ADAPTERS FOR A1/KF	
669-0274	A1/KF LA - Adapter 16
669-0275	A1/KF LA - Adapter 12
669-0276	A1/KF LA - Adapter 10

AVAILABLE LONG-TURNING ADAPTERS FOR A1/FL	
669-0277	A1/FL LA - Adapter 16
669-0278	A1/FL LA - Adapter 12
669-0279	A1/FL LA - Adapter 10

# SET A2

## QUICK CUT KNURLING TOOLS



MODEL	PROD. NO.
<b>Set A2</b> <b>Includes:</b> A2/KF shank 25x25 A2/FL shank 20x25	P669-0214



# MAMMUT / FL

## QUICK CUT KNURLING TOOLS

This tool is intended for use on manual and CNC-controlled centre lathes, toolmaker lathes and roll turning lathes. It is used to produce larger diameter straight and spiral knurls.

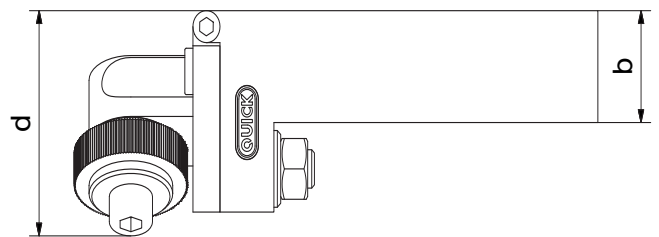
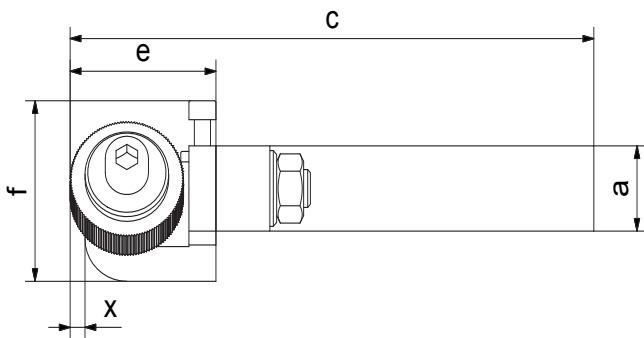


CUT KNURLING

MODEL	PROD.-NO.	WORKPIECE $\varnothing$	KNURLING WHEEL mm ( $\varnothing$ x width x bore)
M/FL	P226-0200	20 - 3000 mm	42x12x18* (274)

a	b	c	d	e	f	x
27	35	194	70,5	54	57,2	5,5

\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 39.



CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:

### RAA (Straight):



Right-hand tool 1 x 30°R knurling wheel (cutting)

### RBR (Spiral):



Right-hand tool 15° spiral 1 x 15°R knurling wheel (cutting)  
30° spiral 1 x 90° knurling wheel (cutting) (AA)



# MAMMUT I / KF

## QUICK CUT KNURLING TOOLS

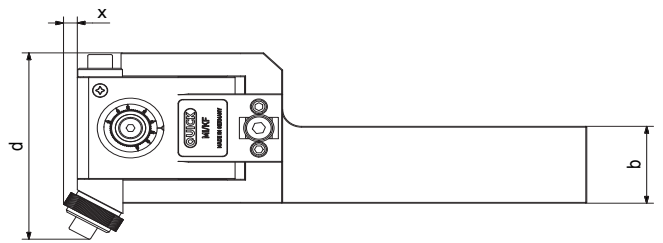
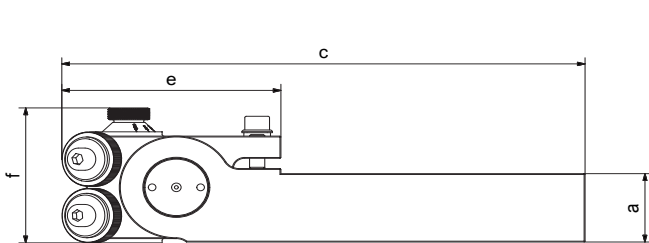
This tool is designed for use with manual and CNC-controlled toolmaker lathes, centre lathes and roll turning lathes. It can be used to make larger diameter cross and diamond knurls.



MODEL	PROD.-NO.	WORKPIECE $\varnothing$	KNURLING WHEEL mm ( $\varnothing$ x width x bore)
MI/KF	P218-0200	20 - 1000 mm	32x8x14* (273)

a	b	c	d	e	f	x
40	45	275,5	109	115,5	79	7

\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 39.



CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:

### RGE45° (Cross):



- 1 x 15°R knurling wheel (cutting)
- 1 x 15°L knurling wheel (cutting)

### RGE30° (Diamond):



- 2 x 90° knurling wheels (cutting) (AA)



# MAMMUT II / KF

## QUICK CUT KNURLING TOOLS

This tool is designed for use with manual and CNC-controlled toolmaker lathes, centre lathes and roll turning lathes. It can be used to make larger diameter cross and diamond knurls.

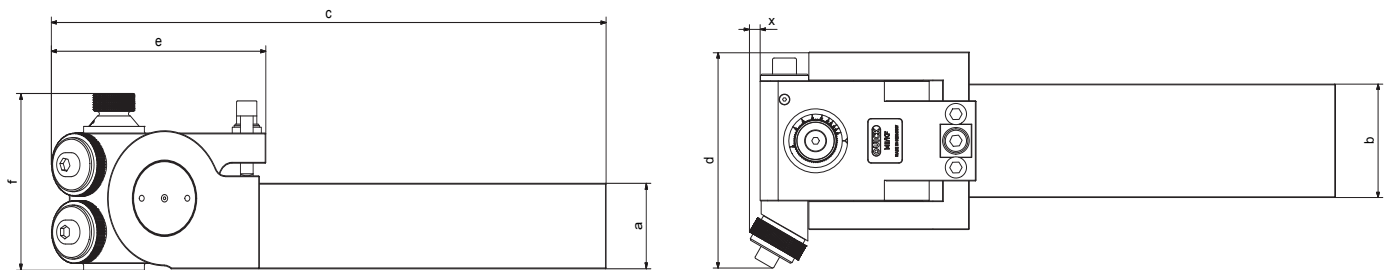


CUT KNURLING

MODEL	PROD.-NO.	WORKPIECE $\varnothing$	KNURLING WHEEL mm ( $\varnothing$ x width x bore)
MII/KF	P219-0200	30 - 3000 mm	42x12x18* (274)



a	b	c	d	e	f	x
57	85	438,5	161,5	169,5	118	8

\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 39.




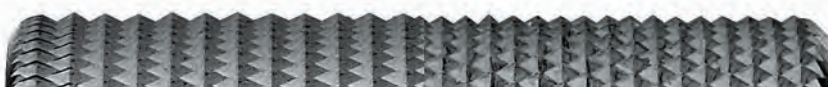
CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:

### RGE45° (Cross):

-  1 x 15°R knurling wheel (cutting)
-  1 x 15°L knurling wheel (cutting)

### RGE30° (Diamond):

-  2 x 90° knurling wheels (cutting) (AA)



# STR-A

## QUICK CUT KNURLING TOOL

The STR-A and STR-B are used with manual and CNC-controlled lathes. They are also intended for use with transfer machines and turning centres where the workpiece remains stationary and the tool is rotated around it. Their design (with three knurling wheels) means that they can also be easily used to machine long workpieces with small diameters.

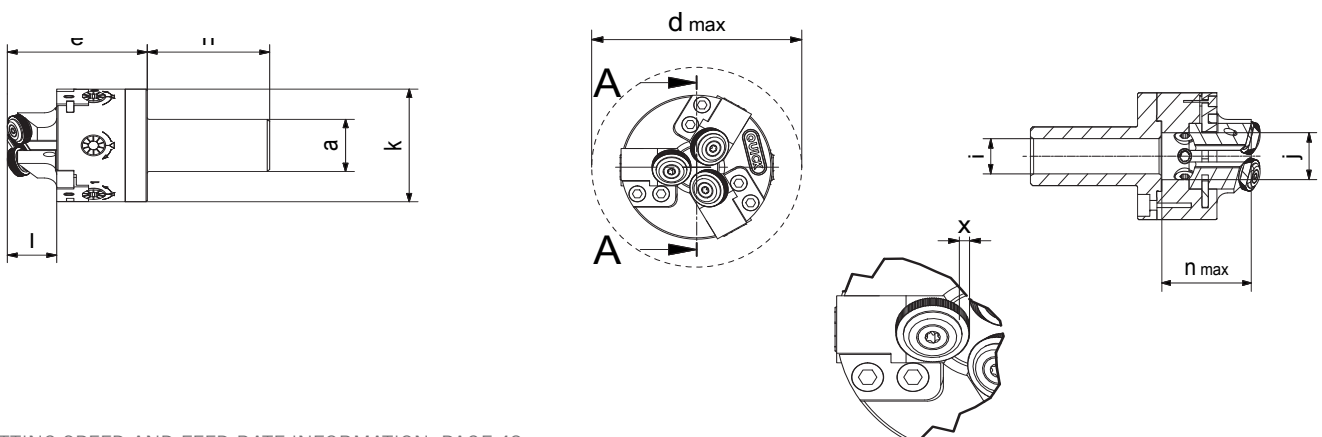


MODEL	PROD.-NO.	WORKPIECE Ø	KNURLING WHEEL mm (Ø x width x bore)
STR-A	P281-0200	3 - 25 mm	14,5x3x5* (271)

d max	e	h	j	k	l	n max	x
75	57	50	20	54	20	41,5	1,9

\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 39.

PROD. NO.	CLAMPING Ø (a)	CHUCKING LENGTH (h)	HOLE Ø (i)
281-415	15 mm	50 mm	9 mm
281-420	20 mm	50 mm	10 mm
281-425	25 mm	50 mm	15 mm
281-463	3/4"	50 mm	9 mm
281-461	5/8"	50 mm	9 mm
281-464	1"	50 mm	15 mm
281-482	MK2	-	8.5 mm



CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:

### RGE45° (Cross):

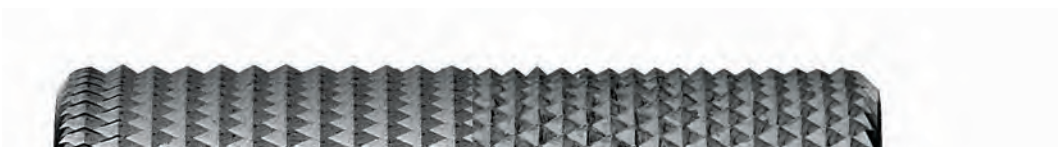


Wheel holder 0: 1 x 15°R knurling wheel (cutting)  
 Wheel holder 0: 1 x 15°R knurling wheel (cutting)  
 Wheel holder 1: 1 x 15°L knurling wheel (cutting)

### RGE30° (Diamond):



Wheel holder 0: 1 x 90° knurling wheel (cutting) (AA)  
 Wheel holder 0: 1 x 90° knurling wheel (cutting) (AA)  
 Wheel holder 1: 1 x 90° knurling wheel (cutting) (AA)



# STR-B

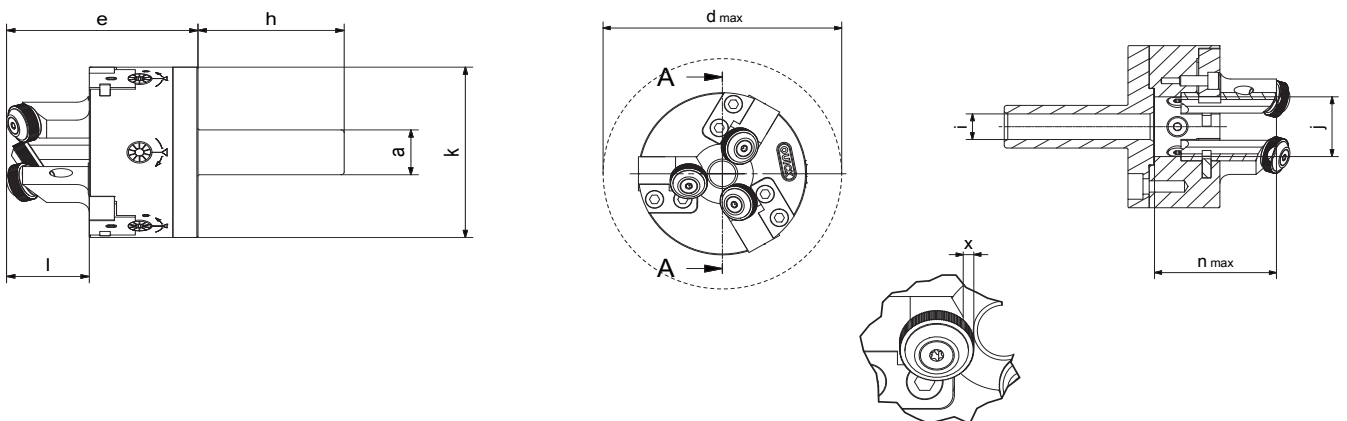
## QUICK CUT KNURLING TOOL



MODEL	PROD.-NO.	WORKPIECE $\varnothing$	KNURLING WHEEL mm ( $\varnothing$ x width x bore)	d max	e	h	j	k	l	n max	x
STR-B	P280-0200	5 - 55 mm	21,5x5x8* (272)	135	92	70	35	95	40	69	3

\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 39.

PROD. NO.	CLAMPING $\varnothing$ (a)	CHUCKING LENGTH (h)	HOLE $\varnothing$ (i)
280-420	20 mm	70 mm	10 mm
280-425	25 mm	70 mm	15 mm
280-430	30 mm	70 mm	18 mm
280-464	1"	70 mm	15 mm
280-465	1 1/4"	70 mm	18 mm
280-466	1 1/2"	70 mm	25 mm
280-483	MK3	-	10 mm



CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:

### RGE45° (Cross):



Wheel holder 0: 1 x 15°R knurling wheel (cutting)  
 Wheel holder 0: 1 x 15°R knurling wheel (cutting)  
 Wheel holder 1: 1 x 15°L knurling wheel (cutting)

### RGE30° (Diamond):



Wheel holder 0: 1 x 90° knurling wheel (cutting) (AA)  
 Wheel holder 0: 1 x 90° knurling wheel (cutting) (AA)  
 Wheel holder 1: 1 x 90° knurling wheel (cutting) (AA)

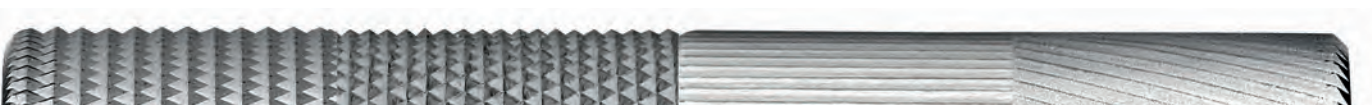


# SPECIAL TOOLS

## QUICK CUT KNURLING TOOLS

Individual applications call for customised tools.

On request and in consultation with our experts we offer special tools exactly tailored to the particular needs of our customers' applications.



# F1-M

## QUICK FORM KNURLING TOOLS

The F1-M is suitable for all conventional and CNC lathes. High efficiency and easy handling are the main features of this tool. The knurling profile may start at any position of the workpiece, all knurling profiles are possible.



**EXAMPLE:**

Model No. **F1-M 08 U 260 / 265**

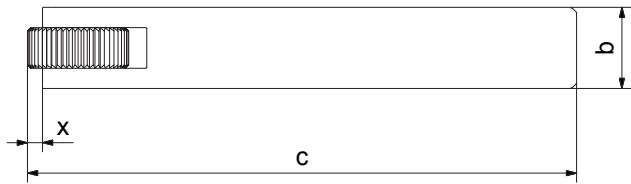
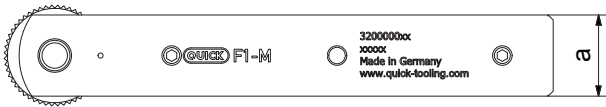
Product series **F1-M**      Article no. for knurling wheels 15 x 4 x 4 (Ø x width x bore)  
 Shank size 8 x 8 mm      Article no. for knurling wheels 10 x 4 x 4 (Ø x width x bore)  
 Right- and left- hand use **08 U**

MODEL	PROD.-NO.	WORKPIECE Ø	KNURLING WHEEL mm (Ø x width x bore)
F1-M08U260 / 265	P100-0200	3 - 20	10 / 15 x 4 x 4*
F1-M08U261 / 266	P100-0201	3 - 20	10 / 15 x 6 x 4*
F1-M10U260 / 265	P100-0202	3 - 20	10 / 15 x 4 x 4*
F1-M10U261 / 266	P100-0203	3 - 20	10 / 15 x 6 x 4*
F1-M10U290 / 296	P100-0204	15 - 200	20 / 25 x 8 x 6*
F1-M12U260 / 265	P100-0205	3 - 20	10 / 15 x 4 x 4*
F1-M12U291 / 295	P100-0206	15 - 200	20 / 25 x 6 x 6*
F1-M12U290 / 296	P100-0207	15 - 200	20 / 25 x 8 x 6*
F1-M14U261 / 266	P100-0208	3 - 20	10 / 15 x 6 x 4*
F1-M14U291 / 295	P100-0209	15 - 200	20 / 25 x 6 x 6*
F1-M16U290 / 296	P100-0210	15 - 200	20 / 25 x 8 x 6*
F1-M20U292 / 297	P100-0211	15 - 200	20 / 25 x 10 x 6*
F1-M20U293 / 298	P100-0212	15 - 200	20 / 25 x 15 x 6*

a	b	c	x
8	8	99*	4*
8	8	99*	4*
10	10	99*	4*
10	10	99*	4*
10	10	110,5*	5,5*
12	12	99*	4*
12	12	110,5*	5,5*
12	12	110,5*	5,5*
14	14	99*	4*
14	14	110,5*	5,5*
16	16	110,5*	5,5*
20	20	110,5*	5,5*
20	25	110,5*	5,5*


\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 40/41.

\*WITH KNURLING WHEEL Ø 15 mm  
 \*WITH KNURLING WHEEL Ø 25 mm




TOOL SHOWN «RIGHT-/LEFT-HAND USE»  
 CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:


**RAA (Straight):**

 1 knurling wheel (forming) 90° (AA)


**RGE45° (Cross):**

 1 knurling wheel (forming) 45° GV


**RGE30° (Diamond):**

 1 knurling wheel (forming) 30° GV

**RBR 30° / 45° (Spiral):**

 1 knurling wheel (forming) 30° / 45° L

**RBL 30° / 45° (Spiral):**

 1 knurling wheel (forming) 30° / 45° R

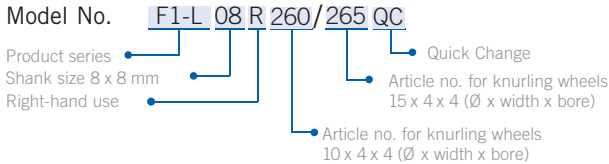
\* Plunge knurling: suitable for all knurling profiles  
 Feed knurling: suitable for RAA, RBL, RBR

# F1-L

## QUICK FORM KNURLING TOOLS

The modular design for conversion to alternative shank sizes offers a cost-efficient application of this tool on conventional and CNC lathes. The knurling profile may start at any position of the workpiece. All knurling profiles are producible \*. The F1-L can optionally be equipped with the new QUICK-CHANGE-SYSTEM which makes the change of the knurling wheels even faster and easier.

**EXAMPLE:**

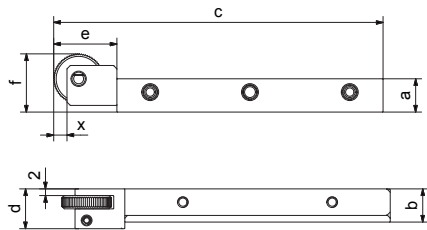
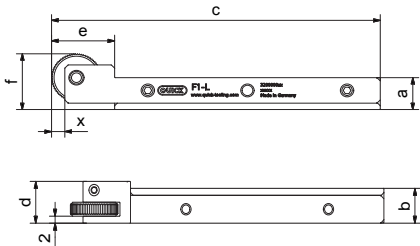


MODEL	PROD.-NO.	WORKPIECE Ø	KNURLING WHEEL mm (Ø x width x bore)
F1-L08L260 / 265	P112-0200	3 - 50	10 / 15 x 4 x 4*
F1-L08R260 / 265	P112-0201	3 - 50	10 / 15 x 4 x 4*
F1-L10L260 / 265	P112-0202	3 - 50	10 / 15 x 4 x 4*
F1-L10R260 / 265	P112-0203	3 - 50	10 / 15 x 4 x 4*
F1-L12L260 / 265	P112-0204	3 - 50	10 / 15 x 4 x 4*
F1-L12R260 / 265	P112-0205	3 - 50	10 / 15 x 4 x 4*
F1-L16L260 / 265	P112-0206	3 - 50	10 / 15 x 4 x 4*
F1-L16R260 / 265	P112-0207	3 - 50	10 / 15 x 4 x 4*
F1-L08L260 / 265QC	P112-0208	3 - 50	10 / 15 x 4 x 4*
F1-L08R260 / 265QC	P112-0209	3 - 50	10 / 15 x 4 x 4*
F1-L10L260 / 265QC	P112-0210	3 - 50	10 / 15 x 4 x 4*
F1-L10R260 / 265QC	P112-0211	3 - 50	10 / 15 x 4 x 4*
F1-L12L260 / 265QC	P112-0212	3 - 50	10 / 15 x 4 x 4*
F1-L12R260 / 265QC	P112-0213	3 - 50	10 / 15 x 4 x 4*
F1-L16L260 / 265QC	P112-0214	3 - 50	10 / 15 x 4 x 4*
F1-L16R260 / 265QC	P112-0215	3 - 50	10 / 15 x 4 x 4*

a	b	c*	d	e*	f*	x*
8	8	99	12	19	15,5	4
8	8	99	12	19	15,5	4
10	10	99	12	19	17,5	4
10	10	99	12	19	17,5	4
12	12	99	12	19	19,5	4
12	12	99	12	19	19,5	4
16	16	99	12	19	23,5	4
16	16	99	12	19	23,5	4
8	8	99	12	19	15,5	4
8	8	99	12	19	15,5	4
10	10	99	12	19	17,5	4
10	10	99	12	19	17,5	4
12	12	99	12	19	19,5	4
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16	16	99	12	19	23,5	4
16	16	99	12	19	23,5	4

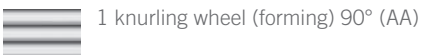
\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 40/41.

\*WITH KNURLING WHEEL DIAMETER 15 mm

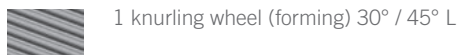


RIGHT-HAND TOOL SHOWN  
CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:

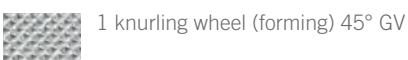
**RAA (Straight):**



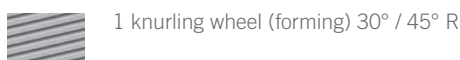
**RBR 30° / 45° (Spiral):**



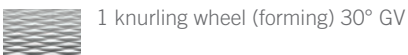
**RGE45° (Cross):**



**RBL 30° / 45° (Spiral):**

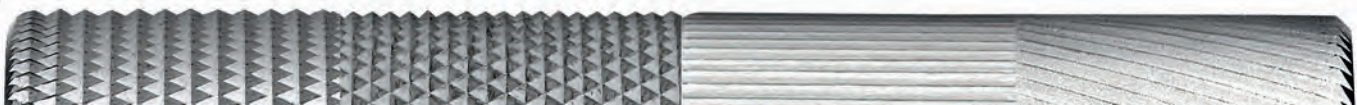


**RGE30° (Diamond):**



\* Plunge knurling:  
Feed knurling:

suitable for all knurling profiles  
suitable for RAA, RBL, RBR





# F1-S

## QUICK FORM KNURLING TOOLS

The F1-S is designed for application on conventional and CNC short turning and multispindle automatic lathes. High efficiency and easy handling are the main features of this tool. The knurling profile can start at any position of the workpiece, all knurling profiles are possible\*. The F1-S may, as well as the F1-L, optionally be equipped with the QUICK-CHANGE-SYSTEM.

### EXAMPLE:

Model No. **F1-S 20 U 290 / 296 QC**

Product series: F1-S  
 Shank size 20 x 20 mm: 20  
 Right- and left- hand use: U  
 Article no. for knurling wheels 25 x 8 x 6 (∅ x width x bore): 290 / 296  
 Quick Change: QC

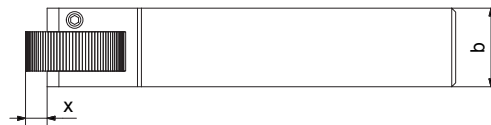
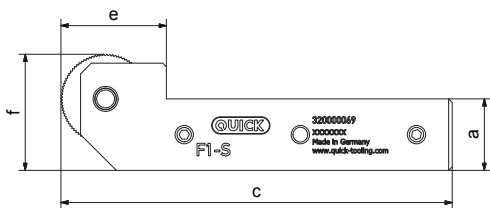


MODEL	PROD.-NO.	WORKPIECE ∅	KNURLING WHEEL mm (∅ x width x bore)
<b>F1-S20U290 / 296</b>	P124-0200	8 - 200 mm	20 / 25 x 8 x 6*
<b>F1-S25U290 / 296</b>	P124-0201	8 - 200 mm	20 / 25 x 8 x 6*
<b>F1-S20U290 / 296QC</b>	P124-0202	8 - 200 mm	20 / 25 x 8 x 6*
<b>F1-S25U290 / 296QC</b>	P124-0203	8 - 200 mm	20 / 25 x 8 x 6*

a	b	c*	d	e*	f*	x*
20	20	109,5	-	29,5	32,5	5,5
25	20	109,5	-	29,5	37,5	5,5
20	20	109,5	-	29,5	32,5	5,5
25	20	109,5	-	29,5	37,5	5,5

\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 40/41.

\*WITH KNURLING WHEEL DIAMETER 25 mm



TOOL SHOWN «RIGHT-/LEFT-HAND USE»  
 CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:

**NEW**


### QUICK-CHANGE-SYSTEM:




For fast and safe change of the knurling wheel:

- No more break off through overtightening
- No more loosening through impact, hits or vibration
- Quick change and positioning of the knurling wheel


#### RAA (Straight):

 1 knurling wheel (forming) 90° (AA)


#### RGE45° (Cross):

 1 knurling wheel (forming) 45° GV


#### RGE30° (Diamond):

 1 knurling wheel (forming) 30° GV

#### RBR 30° / 45° (Spiral):

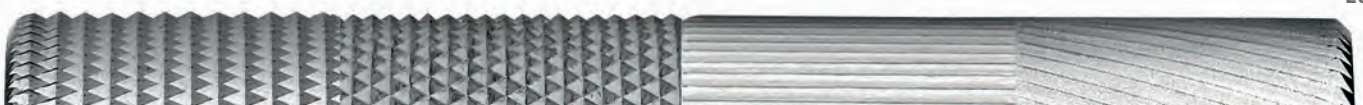
 1 knurling wheel (forming) 30° / 45° L

#### RBL 30° / 45° (Spiral):

 1 knurling wheel (forming) 30° / 45° R

\* Plunge knurling:  
 Feed knurling:

suitable for all knurling profiles  
 suitable for RAA, RBL, RBR



# F2-L

## QUICK FORM KNURLING TOOLS

This tool for Swiss Type autolathes is suitable for right- and left-hand application - fast and easy retooling through turning of the knurling head. Its modular design provides conversion to alternative shank sizes and the convincing features are cost efficiency and versatility. Working axially, the knurl width can be chosen according to any size required.

**EXAMPLE:**

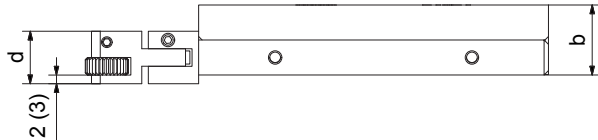
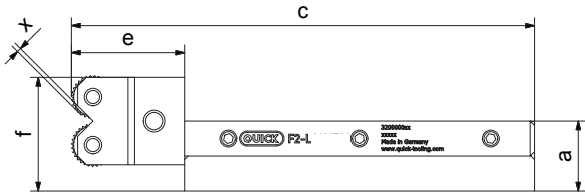
Model No. **F2-L 12 M 260**  
 Product series: F2-L  
 Shank size 12 x 12 mm: 12  
 Modular: M  
 Article no. for knurling wheels: 260 (10 x 4 x 4 (Ø x width x bore))



MODEL	PROD.-NO.	WORKPIECE Ø	KNURLING WHEEL mm (Ø x width x bore)
F2-L08M260	P136-0200	3 - 12	10 x 4 x 4*
F2-L10M260	P136-0201	3 - 12	10 x 4 x 4*
F2-L12M260	P136-0202	3 - 12	10 x 4 x 4*
F2-L16M260	P136-0203	3 - 12	10 x 4 x 4*
F2-L16M266	P136-0204	5 - 40	15 x 6 x 4*


a	b	c	d	e	f	x
8	8	105,5	12	26	21	1
10	10	105,5	12	26	21	1
12	12	105,5	12	26	23	1
16	16	105,5	12	26	27	1
16	16	129	16	39	33	1,5

\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 40/41.




RIGHT-HAND TOOL SHOWN (usable as left-hand tool by turning the knurling head)  
 CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:


**RAA (Straight):**

 2 knurling wheels (forming) 90° (AA)

**RGE45° (Cross):**

 1 knurling wheel (forming) 45°  
 1 knurling wheel (forming) 45°R

**RGE30° (Diamond):**

 1 knurling wheel (forming) 30°  
 1 knurling wheel (forming) 30°R



# F2-S

## QUICK FORM KNURLING TOOLS

The F2-S is designed for application on conventional and CNC short turning and multispindle automatic lathes. Fast and easy retooling through turning of the knurling head offers both right- and left-hand application. Working axially, the knurl width can be chosen according to any size required. The F2-S is optionally available with the new QUICK-CHANGE-SYSTEM which makes the change of the knurling wheels even faster and easier.



**EXAMPLE:**

Model No. **F2-S 20 M 290 QC**

Product series: F2-S  
 Shank size 20 x 20 mm: 20  
 Modular: M  
 Article no. for knurling wheels 20 x 8 x 6 (Ø x width x bore): 290  
 Quick Change: QC

MODEL	PROD.-NO.	WORKPIECE Ø	KNURLING WHEEL mm (Ø x width x bore)
<b>F2-S20M290</b>	P148-0200	10 - 80 mm	20 x 8 x 6*
<b>F2-S25M296</b>	P148-0201	50 - 200 mm	25 x 8 x 6*
<b>F2-S20M290QC</b>	P148-0202	10 - 80 mm	20 x 8 x 6*
<b>F2-S25M296QC</b>	P148-0203	50 - 200 mm	25 x 8 x 6*

a	b	c	d	e	f	x
20	20	130	20	50	42	2,5
25	20	156	20	56	55	2,5
20	20	130	20	50	42	2,5
25	20	156	20	56	55	2,5

\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 40/41.

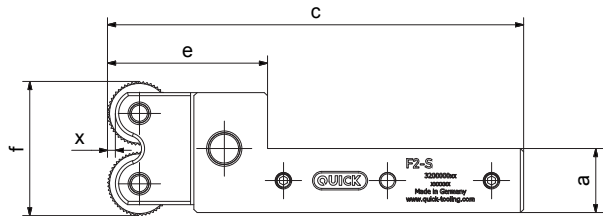
**NEW**

**QUICK-CHANGE-SYSTEM:**




For fast and safe change of the knurling wheel:

- No more break off through overtightening
- No more loosening through impact, hits or vibration
- Quick change and positioning of the knurling wheel




RIGHT-HAND TOOL SHOWN (usable as left-hand tool by turning the knurling head)  
 CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:


**RAA (Straight):**

 2 knurling wheels (forming) 90° (AA)

**RGE45° (Cross):**

 1 knurling wheel (forming) 45°L  
 1 knurling wheel (forming) 45°R

**RGE30° (Diamond):**

 1 knurling wheel (forming) 30°L  
 1 knurling wheel (forming) 30°R

# F2MP-L

## QUICK FORM KNURLING TOOLS

The special tool design with two knurl holders reduces the lateral pressure to a minimum and thus protects work piece and machine from strain. The F2MP-L is therefore especially suitable for machining small and delicate parts. Its modular design provides conversion to alternative shank sizes.



**EXAMPLE:**

Model No. **F2MP-L 10 R 260**

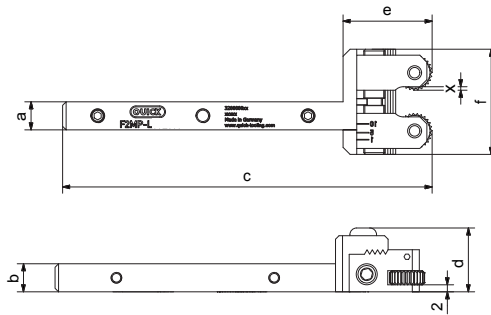
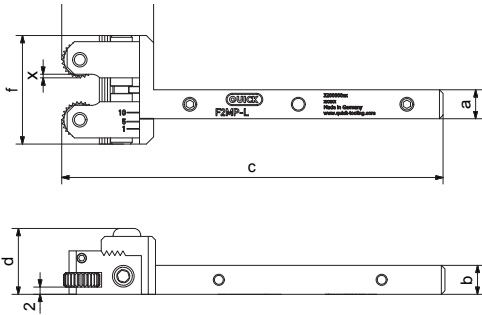
Product series  
Shank size 10 x 10 mm  
Right-hand use

Article no. for knurling wheels  
10 x 4 x 4 (Ø x width x bore)

MODEL	PROD.-NO.	WORKPIECE Ø	KNURLING WHEEL mm (Ø x width x bore)
F2MP-L08L260	P160-0200	1 - 10	10 x 4 x 4*
F2MP-L08R260	P160-0201	1 - 10	10 x 4 x 4*
F2MP-L10L260	P160-0202	1 - 10	10 x 4 x 4*
F2MP-L10R260	P160-0203	1 - 10	10 x 4 x 4*
F2MP-L12L260	P160-0204	1 - 10	10 x 4 x 4*
F2MP-L12R260	P160-0205	1 - 10	10 x 4 x 4*
F2MP-L16L260	P160-0206	1 - 10	10 x 4 x 4*
F2MP-L16R260	P160-0207	1 - 10	10 x 4 x 4*


a	b	c	d	e	f	x
8	8	105,5	18	25,5	30	1
8	8	105,5	18	25,5	30	1
10	10	105,5	18	25,5	30	1
10	10	105,5	18	25,5	30	1
12	12	105,5	18	25,5	30	1
12	12	105,5	18	25,5	30	1
16	16	105,5	18	25,5	30	1
16	16	105,5	18	25,5	30	1

\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 40/41.




RIGHT-HAND TOOL SHOWN  
CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:


**RAA (Straight):**

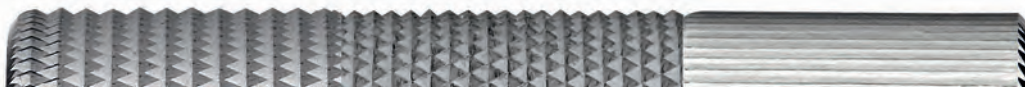
 2 knurling wheels (forming) 90° (AA)

**RGE45° (Cross):**

 1 knurling wheel (forming) 45°L  
1 knurling wheel (forming) 45°R

**RGE30° (Diamond):**

 1 knurling wheel (forming) 30°L  
1 knurling wheel (forming) 30°R





# F2MP-S

## QUICK FORM KNURLING TOOLS

This tool offers versatile application possibilities on conventional and CNC short turning and multispindle automatic lathes. By swapping the jaws and mounting them with crank outward, the working area can be extended up to 65 mm. The F2MP-S further convinces by conversion to various shank sizes and the material protecting machining process with two knurl holders which characterises the F2-series. This tool is optionally available as version for star turret.



**EXAMPLE:**

Model No. **F2MP-S 16 R 296 VS**

Product series: F2MP-S  
 Shank size 16 x 16 mm: 16  
 Right-hand use: R  
 Article no. for knurling wheels: 296  
 Version Star Turret: VS

MODEL	PROD.-NO.	WORKPIECE $\varnothing$	KNURLING WHEEL mm ( $\varnothing$ x width x bore)
F2MP-S16M296	P172-0200	0 - 65 mm	25 x 8 x 6*
F2MP-S16M290	P172-0200	3,5 - 65 mm	20 x 8 x 6*
F2MP-S20M296	P172-0201	0 - 65 mm	25 x 8 x 6*
F2MP-S20M290	P172-0201	3,5 - 65 mm	20 x 8 x 6*
F2MP-S25M296	P172-0202	0 - 65 mm	25 x 8 x 6*
F2MP-S25M290	P172-0202	3,5 - 65 mm	20 x 8 x 6*
F2MP-S16R/L296VS	P172-0203	0 - 65 mm	25 x 8 x 6*
F2MP-S16R/L290VS	P172-0203	3,5 - 65 mm	20 x 8 x 6*
F2MP-S20R/L296VS	P172-0204	0 - 65 mm	25 x 8 x 6*
F2MP-S20R/L290VS	P172-0204	3,5 - 65 mm	20 x 8 x 6*
F2MP-S25R/L296VS	P172-0205	0 - 65 mm	25 x 8 x 6*
F2MP-S25R/L290VS	P172-0205	3,5 - 65 mm	20 x 8 x 6*

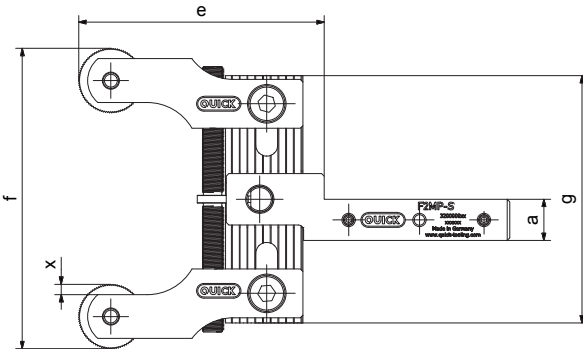
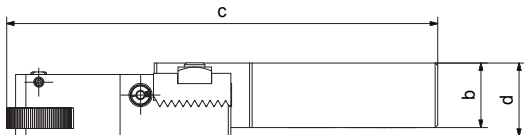
a	b	c	d	e	f	g	x
16	25	167,3	28,4	95,3	119	103	4
16	25	167,3	28,4	91	115	103	1,5
20	25	167,3	28,4	95,3	119	103	4
20	25	167,3	28,4	91	115	103	1,5
25	25	167,3	28,4	95,3	119	103	4
25	25	167,3	28,4	91	115	103	1,5
16	16	99,3	50,4	46	119	103	4
16	16	99,3	50,4	43,5	115	103	1,5
20	20	99,3	50,4	46	119	103	4
20	20	99,3	50,4	43,5	115	103	1,5
25	25	99,3	50,4	46	119	103	4
25	25	99,3	50,4	43,5	115	103	1,5

\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 40/41.

**NEW**


**START TURRET VERSION (VS):**

The start turret version (-VS) are to be ordered separately for right- or left-handed machines.




RIGHT-HAND TOOL SHOWN (usable as left-hand tool by turning the knurling head)  
 CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:


**RAA (Straight):**

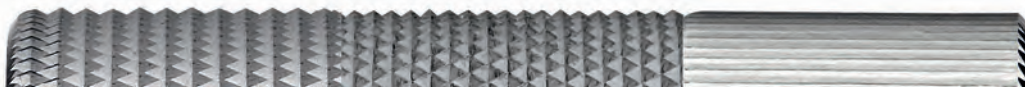
 2 knurling wheels (forming) 90° (AA)

**RGE45° (Cross):**

 1 knurling wheel (forming) 45°L  
 1 knurling wheel (forming) 45°R

**RGE30° (Diamond):**

 1 knurling wheel (forming) 30°L  
 1 knurling wheel (forming) 30°R



# F2MPS-S

## QUICK FORM KNURLING TOOLS

The F2MPS-S combines the estimated features of the F2MP-S with the possibility of knurling up to a shoulder. As well designed for conventional and CNC short turning and multispindle automatic lathes it is available as version for star turret on request. An extension of the working area up to 65 mm is possible by swapping the jaws and mounting them with crank outward. Further advantages: conversion on various shank sizes and the material protecting machining process with two knurl holders.



### EXAMPLE:

Model No. **F2MPS-S 16 R 289 VS**

Product series: F2MPS-S  
 Shank size 16 x 16 mm: 16  
 Right-hand use: R  
 Version Star Turret: VS  
 Article no. for knurling wheels: 289  
 20 x 8 x 6/13 (Ø x width x bore)

MODEL	PROD.-NO.	WORKPIECE Ø	KNURLING WHEEL mm (Ø x width x bore)
F2MPS-S16M289	P196-0200	3,5 - 65 mm	20 x 8 x 6/13*
F2MPS-S20M289	P196-0201	3,5 - 65 mm	20 x 8 x 6/13*
F2MPS-S25M289	P196-0202	3,5 - 65 mm	20 x 8 x 6/13*
F2MPS-S16R/L289VS	P196-0203	3,5 - 65 mm	20 x 8 x 6/13*
F2MPS-S20R/L289VS	P196-0204	3,5 - 65 mm	20 x 8 x 6/13*
F2MPS-S25R/L289VS	P196-0205	3,5 - 65 mm	20 x 8 x 6/13*

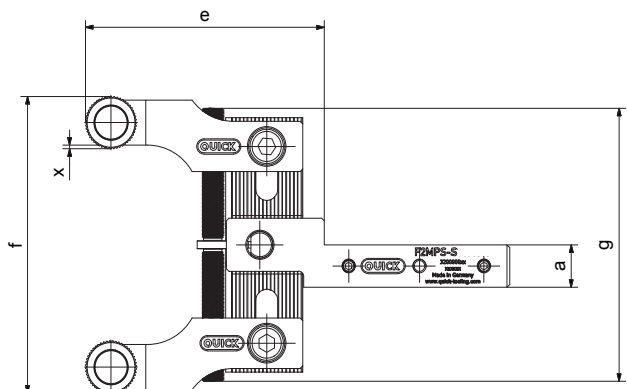
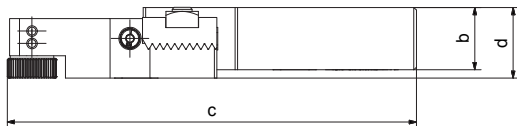
a	b	c	d	e	f	g	x
16	25	164,8	28,4	92,8	114	103	1,5
20	25	164,8	28,4	92,8	114	103	1,5
25	25	164,8	28,4	92,8	114	103	1,5
16	16	96,8	50,4	43,5	114	103	1,5
20	20	96,8	50,4	43,5	114	103	1,5
25	25	96,8	50,4	43,5	114	103	1,5

\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 40/41.

**NEW**


### START TURRET VERSION (VS):

The start turret version (-VS) are to be ordered separately for right- or left-handed machines.




RIGHT-HAND TOOL SHOWN (usable as left-hand tool by turning the knurling head)  
 CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:


#### RAA (Straight):

 2 knurling wheels (forming) 90° (AA)

#### RGE45° (Cross):

 1 knurling wheel (forming) 45°L  
 1 knurling wheel (forming) 45°R

#### RGE30° (Diamond):

 1 knurling wheel (forming) 30°L  
 1 knurling wheel (forming) 30°R



# B2 / FL

## QUICK FORM KNURLING TOOLS

The B2 offers versatile application possibilities: it is applicable as right- and left-hand version and can be used with one or two knurling wheels. Not only the versatility is convincing but above all the excellent stability. The special design with a dovetail guide between shank and tool body minimises vibrations and maximises the service life of the knurling wheels.

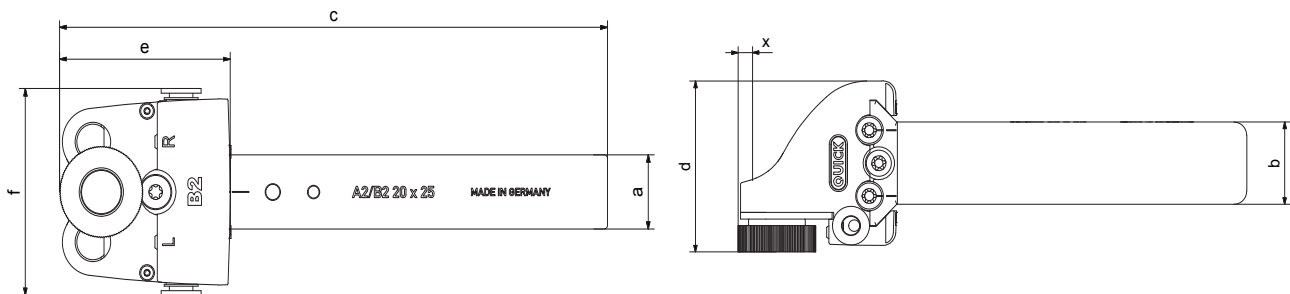
### THE B2 SETS A NEW BENCHMARK FOR FLEXIBILITY:

- The B2 form knurling tool can be used in a variety of different ways.
- Suitable as left and right-hand version on main and sub spindle of CNC controlled and conventional lathes
- The B2 can be used with one knurling wheel or with two knurling wheels depending on the required knurling pattern.



MODEL	PROD.-NO.	WORKPIECE Ø	KNURLING WHEEL mm (Ø x width x bore)	a	b	c	d	e	f	x
B2 20x25 (one wheel)	P712-0265	15 - 250 mm	25 x 8 x 10/12* (283)	20	25	161,3	52	50,3	55,5	4,7
B2 25x25 (one wheel)	P712-0266	15 - 250 mm	25 x 8 x 10/12* (283)	25	25	161,3	52	50,3	55,5	4,7

\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 40/41.



RIGHT-HAND TOOL SHOWN  
CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:

#### RAA (Straight):



1 x 90° knurling wheel (forming) (AA)

#### RBR30° (Spiral):

#### RBR45° (Spiral):



1 x 30°L knurling wheel (forming)

1 x 45°L knurling wheel (forming)

#### RBL30° (Spiral):

#### RBL45° (Spiral):



1 x 30°R knurling wheel (forming)

1 x 45°R knurling wheel (forming)





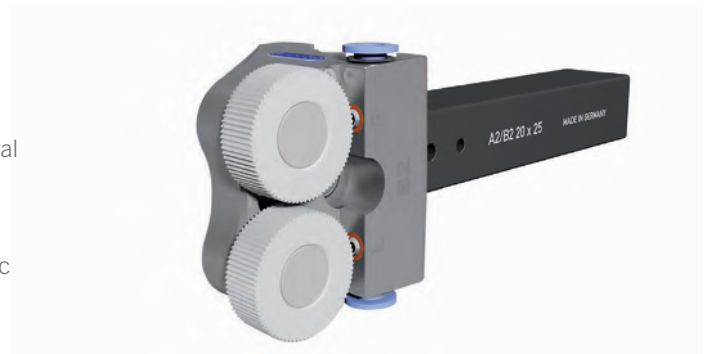
# B2 / KF

## QUICK FORM KNURLING TOOLS

The B2 is suitable for all conventional and CNC automatic lathes.

### BENEFITS:

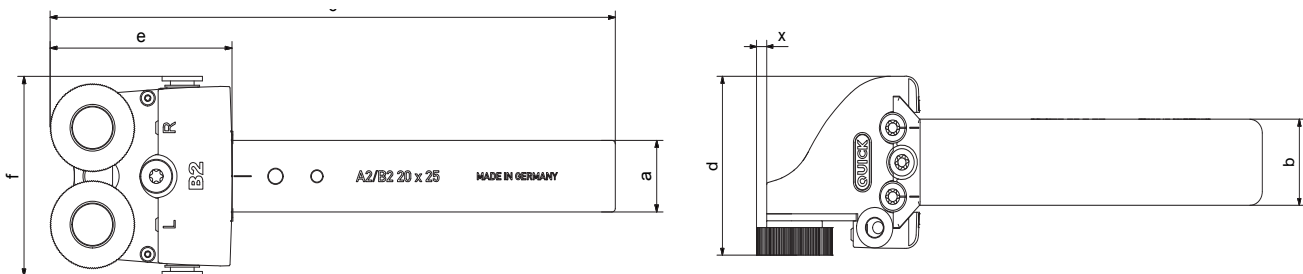
- Reduced stock thanks to extreme versatility
- Knurling wheels can be exchanged quickly and easily - simple removal and fixing of the terminal strip via an excentre.
- Simple and precise fine adjustment of the tool body at the shank via eccentric clamping.
- The integrated coolant unit cools the knurling wheels simply and effectively, helping to maximise service life.
- Compact size



MODEL	PROD.-NO.	WORKPIECE Ø	KNURLING WHEEL mm (Ø x width x bore)
<b>B2 20x25 (two wheels)</b>	P712-0265	15 - 250 mm	25 x 8 x 10/12* (283)
<b>B2 25x25 (two wheels)</b>	P712-0266	15 - 250 mm	25 x 8 x 10/12* (283)

a	b	c	d	e	f	x
20	25	164	52	53	55,5	3,3
25	25	164	52	53	55,5	3,3

\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 40/41.



RIGHT-HAND TOOL SHOWN  
CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:

#### RGE45° (Cross):



- 1 x 45°R knurling wheel (forming)
- 1 x 45°L knurling wheel (forming)

#### RGE30° (Diamond):



- 1 x 30°L knurling wheel (forming)
- 1 x 30°R knurling wheel (forming)



# BO / KF

## QUICK FORM KNURLING TOOLS

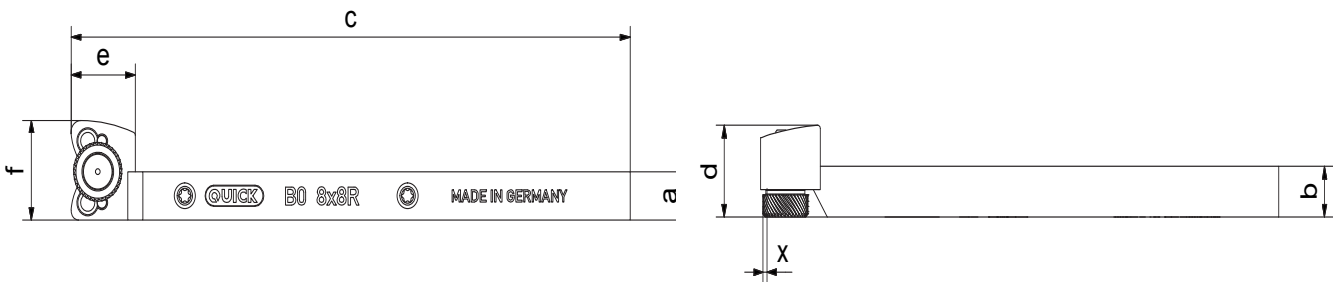
The BO form knurling tool is based on the same principle as type B2 and is characterized by high flexibility, stability and functional design. The special construction, which minimises vibrations and lateral pressure, is particularly suitable for machining small workpieces.



MODEL	PROD.-NO.	WORKPIECE $\varnothing$	KNURLING WHEEL mm ( $\varnothing$ x width x bore)
BO 8x8 L (one wheel)	P712-0241	1,2 - 12 mm	9,8 x 3,5x 5/6* (285)
BO 8x8 R (one wheel)	P712-0242	1,2 - 12 mm	9,8 x 3,5x 5/6* (285)
BO 10x10 L (one wheel)	P712-0243	1,2 - 12 mm	9,8 x 3,5x 5/6* (285)
BO 10x10 R (one wheel)	P712-0244	1,2 - 12 mm </td <td>9,8 x 3,5x 5/6* (285)</td>	9,8 x 3,5x 5/6* (285)
BO 12x12 L (one wheel)	P712-0245	1,2 - 12 mm	9,8 x 3,5x 5/6* (285)
BO 12x12 R (one wheel)	P712-0246	1,2 - 12 mm	9,8 x 3,5x 5/6* (285)

a	b	c	d	e	f	x
8	8	113	14,5	13	16,5	0,9
8	8	113	14,5	13	16,5	0,9
10	10	113	14,5	13	16,5	0,9
10	10	113	14,5	13	16,5	0,9
12	12	113	14,5	13	16,5	0,9
12	12	113	14,5	13	16,5	0,9

\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 40/41.



RIGHT-HAND TOOL VERSION WITH 1 KNURLING WHEEL  
CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:

### RGE45° (Cross):



1 x 45°L knurling wheel (forming) or  
1 x 45°R knurling wheel (forming)



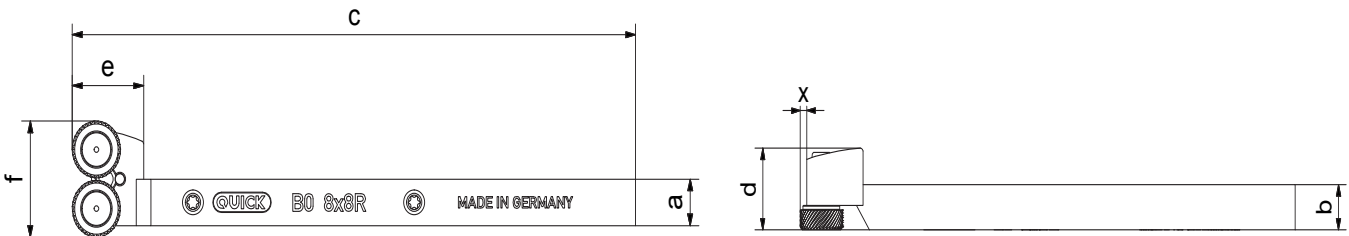
# BO FL/KF

## QUICK FORM KNURLING TOOLS



MODEL	PROD.-NO.	WORKPIECE $\varnothing$	KNURLING WHEEL mm ( $\varnothing$ x width x bore)	a	b	c	d	e	f	x
BO 8x8 L (two wheels)	P712-0241	1,2 - 12 mm	9,8 x 3,5x 5/6* (285)	8	8	114,5	14,5	14,5	20	1,5
BO 8x8 R (two wheels)	P712-0242	1,2 - 12 mm	9,8 x 3,5x 5/6* (285)	8	8	114,5	14,5	14,5	20	1,5
BO 10x10 L (two wheels)	P712-0243	1,2 - 12 mm	9,8 x 3,5x 5/6* (285)	10	10	114,5	14,5	14,5	20	1,5
BO 10x10 R (two wheels)	P712-0244	1,2 - 12 mm	9,8 x 3,5x 5/6* (285)	10	10	114,5	14,5	14,5	20	1,5
BO 12x12 L (two wheels)	P712-0245	1,2 - 12 mm	9,8 x 3,5x 5/6* (285)	12	12	114,5	14,5	14,5	20	1,5
BO 12x12 R (two wheels)	P712-0246	1,2 - 12 mm	9,8 x 3,5x 5/6* (285)	12	12	114,5	14,5	14,5	20	1,5

\*DETAILS ABOUT KNURLING WHEELS (WHEEL PITCHES, TOOTH ANGLE ETC.) ARE LISTED ON PAGE 40/41.



RIGHT-HAND TOOL VERSION WITH 2 KNURLING WHEELS  
CUTTING SPEED AND FEED RATE INFORMATION, PAGE 43:

### RAA (Straight):



2 x 90° knurling wheels (forming) (AA)

### RGE30° (Diamond):



1 x 30°L knurling wheel (forming)  
1 x 30°R knurling wheel (forming)

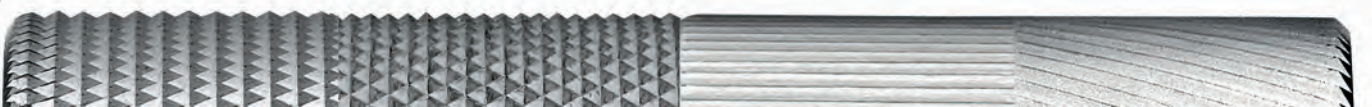


# SPECIAL TOOLS

## QUICK FORM KNURLING TOOLS

Individual applications call for customised tools.

On request and in consultation with our experts we offer special tools exactly tailored to the particular needs of our customers' applications.



# KNURLING WHEELS

QUICK knurling wheels are made on state-of-the-art toolmaker lathes to the highest degree of precision. They are heat treated in electronically controlled hardening plants and subject to a constant quality control process

## CUTTING KNURLING WHEELS

QUICK knurling wheels used for cutting are made from powdered metal to guarantee a maximum service life.

- longer service life
- lower setup costs
- lower tooling costs

Optimal service life thanks to Q-DUR®, TIN & TICN coatings and plasma nitration

The service life of knurling wheels essentially depends on the raw materials, knurl tooth geometry, intended application, cutting speed, cooling etc.

However, service life can be prolonged by subjecting the raw material to additional treatments.

The QUICK Q-DUR® coating is offered as standard on all knurling wheels. This PVD coating with a microhardness of 3300 HV helps to create knurled surfaces of a high decorative quality and guarantees a longer service life in the machining of high-tensile materials.

TIN & TICN coatings and plasma nitration can also help to prolong service life and are available on request.

Testing is recommended to find the most appropriate treatment for your particular intended application.

## NON-CUTTING (FORMING) KNURLING WHEELS

Our knurling wheels used for forming are made from PM and HSS.

## SPECIAL KNURLING WHEELS

Individual customer requirements call for expertise and flexibility. For this reason, special pitches and dimensions are available to our customers on request and in consultation with our specialists.



# STANDARD KNURLING WHEELS (CUTTING)

## ORDERING EXAMPLE: 270-808

PURCHASE ORDER NO. FOR DIMENSIONS 8,9 x 2,5 x 4	PURCHASE ORDER NO. FOR TOOTH ANGLE 90°	PURCHASE ORDER NO. FOR PITCH 1,0
<b>270</b>	<b>8</b>	<b>10</b>

PRODUCT SERIES	DIMENSIONS KNURLING WHEEL (Ø x WIDTH x BORE)	TOOTH ANGLE		PURCHASE ORDER NO. TOOTH ANGLE	PITCHES
		L = LEFT TOOL VERSION	R = RIGHT TOOL VERSION		
270	8,9 X 2,5 X 4	15°L		4	0,4/0,5/0,6/0,8/1,0
	8,9 X 2,5 X 4	15°R		5	0,4/0,5/0,6/0,8/1,0
	8,9 X 2,5 X 4	30°L		6	0,4/0,5/0,6/0,8/1,0
	8,9 X 2,5 X 4	30°R		7	0,4/0,5/0,6/0,8/1,0
	8,9 X 2,5 X 4	90°		<b>8</b>	0,4/0,5/0,6/0,8/ <b>1,0</b>
271	14,5 x 3 x 5	15°L		4	0,4/0,5/0,6/0,8/1,0/1,2
	14,5 x 3 x 5	15°R		5	0,4/0,5/0,6/0,8/1,0/1,2
	14,5 x 3 x 5	30°L		6	0,4/0,5/0,6/0,8/1,0/1,2
	14,5 x 3 x 5	30°R		7	0,4/0,5/0,6/0,8/1,0/1,2
	14,5 x 3 x 5	90°		8	0,4/0,5/0,6/0,8/1,0/1,2
272	21,5 x 5 x 8	15°L		4	0,4/0,5/0,6/0,8/1,0/1,2/1,5/1,6/2,0/2,5
	21,5 x 5 x 8	15°R		5	0,4/0,5/0,6/0,8/1,0/1,2/1,5/1,6/2,0/2,5
	21,5 x 5 x 8	30°L		6	0,4/0,5/0,6/0,8/1,0/1,2/1,5/1,6/2,0/2,5
	21,5 x 5 x 8	30°R		7	0,4/0,5/0,6/0,8/1,0/1,2/1,5/1,6/2,0/2,5
	21,5 x 5 x 8	90°		8	0,4/0,5/0,6/0,8/1,0/1,2/1,5/1,6/2,0/2,5
273	32 x 8 x 14	15°L		4	0,5/1,0/1,5/2,0/2,5/3,0
	32 x 8 x 14	15°R		5	0,5/1,0/1,5/2,0/2,5/3,0
	32 x 8 x 14	30°L		6	0,5/1,0/1,5/2,0/2,5/3,0
	32 x 8 x 14	30°R		7	0,5/1,0/1,5/2,0/2,5/3,0
	32 x 8 x 14	90°		8	0,5/1,0/1,5/2,0/2,5/3,0
274	42 x 12 x 18	15°L		4	1,0/1,5/2,0/2,5/3,0/4,0
	42 x 12 x 18	15°R		5	1,0/1,5/2,0/2,5/3,0/4,0
	42 x 12 x 18	30°L		6	1,0/1,5/2,0/2,5/3,0/4,0
	42 x 12 x 18	30°R		7	1,0/1,5/2,0/2,5/3,0/4,0
	42 x 12 x 18	90°		8	1,0/1,5/2,0/2,5/3,0/4,0
286	10 x 3 x 6	15°L		4	0,4/0,5/0,6/0,8/1,0
	10 x 3 x 6	15°R		5	0,4/0,5/0,6/0,8/1,0
	10 x 3 x 6	30°L		6	0,4/0,5/0,6/0,8/1,0
	10 x 3 x 6	30°R		7	0,4/0,5/0,6/0,8/1,0
	10 x 3 x 6	90°		8	0,4/0,5/0,6/0,8/1,0
287	15 x 4 x 8	15°L		4	0,4/0,5/0,6/0,8/1,0/1,2
	15 x 4 x 8	15°R		5	0,4/0,5/0,6/0,8/1,0/1,2
	15 x 4 x 8	30°L		6	0,4/0,5/0,6/0,8/1,0/1,2
	15 x 4 x 8	30°R		7	0,4/0,5/0,6/0,8/1,0/1,2
	15 x 4 x 8	90°		8	0,4/0,5/0,6/0,8/1,0/1,2
288	25 x 6 x 8	15°L		4	0,5/0,6/0,8/1,0/1,5
	25 x 6 x 8	15°R		5	0,5/0,6/0,8/1,0/1,5
	25 x 6 x 8	30°L		6	0,5/0,6/0,8/1,0/1,5
	25 x 6 x 8	30°R		7	0,5/0,6/0,8/1,0/1,5
	25 x 6 x 8	90°		8	0,5/0,6/0,8/1,0/1,5

Optional coatings on demand: **Q-DUR®**, **TIN**, **TICN** and **PLASMA NITRATION**.  
Further pitch sizes and special specifications are available on demand.

# STANDARD KNURLING WHEELS (FORMING)

## ORDERING EXAMPLE: 260-608

PURCHASE ORDER NO. FOR DIMENSIONS 10 x 4 x 4	PURCHASE ORDER NO. FOR TOOTH ANGLE 30°L	PURCHASE ORDER NO. FOR PITCH 0,8
<b>260</b>	<b>6</b>	<b>08</b>

PURCHASE ORDER NO.	DIMENSIONS KNURLING WHEEL (Ø x WIDTH x BORE)	TOOTH ANGLE L= LEFT TOOL VERSION R = RIGHT TOOL VERSION	PURCHASE ORDER NO. TOOTH ANGLE	PITCHES
260	10 x 4 x 4	30°L	<b>6</b>	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5
	10 x 4 x 4	30°R	7	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5
	10 x 4 x 4	45°L	2	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5
	10 x 4 x 4	45°R	1	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5
	10 x 4 x 4	90°	8	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5
261	10 x 6 x 4	30°L	6	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5
	10 x 6 x 4	30°R	7	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5
	10 x 6 x 4	45°L	2	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5
	10 x 6 x 4	45°R	1	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5
	10 x 6 x 4	90°	8	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5
265	15 x 4 x 4	30°L	6	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5
	15 x 4 x 4	30°R	7	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5
	15 x 4 x 4	45°L	2	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5
	15 x 4 x 4	45°R	1	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5
	15 x 4 x 4	90°	8	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5
266	15 x 6 x 4	30°L	6	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5
	15 x 6 x 4	30°R	7	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5
	15 x 6 x 4	45°L	2	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5
	15 x 6 x 4	45°R	1	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5
	15 x 6 x 4	90°	8	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5
267	15 x 6 x 6/11	30°L	6	0,6/0,8/1,0/1,2/1,5
	15 x 6 x 6/11	30°R	7	0,6/0,8/1,0/1,2/1,5
	15 x 6 x 6/11	45°L	2	0,6/0,8/1,0/1,2/1,5
	15 x 6 x 6/11	45°R	1	0,6/0,8/1,0/1,2/1,5
	15 x 6 x 6/11	90°	8	0,6/0,8/1,0/1,2/1,5
283	25 x 8 x 10/12	30°L	6	0,4/0,5/0,6/0,8/1,0/1,2/1,5
	25 x 8 x 10/12	30°R	7	0,4/0,5/0,6/0,8/1,0/1,2/1,5
	25 x 8 x 10/12	45°L	2	0,4/0,5/0,6/0,8/1,0/1,2/1,5
	25 x 8 x 10/12	45°R	1	0,4/0,5/0,6/0,8/1,0/1,2/1,5
	25 x 8 x 10/12	90°	8	0,4/0,5/0,6/0,8/1,0/1,2/1,5
285	9,8 x 3,5 x 5/6	30°L	6	0,3/0,4/0,5/0,6/0,8/1,0
	9,8 x 3,5 x 5/6	30°R	7	0,3/0,4/0,5/0,6/0,8/1,0
	9,8 x 3,5 x 5/6	45°L	2	0,3/0,4/0,5/0,6/0,8/1,0
	9,8 x 3,5 x 5/6	45°R	1	0,3/0,4/0,5/0,6/0,8/1,0
	9,8 x 3,5 x 5/6	90°	8	0,3/0,4/0,5/0,6/0,8/1,0
289	20 x 8 x 6/13	30°L	6	0,6/0,8/1,0/1,2/1,5
	20 x 8 x 6/13	30°R	7	0,6/0,8/1,0/1,2/1,5
	20 x 8 x 6/13	45°L	2	0,6/0,8/1,0/1,2/1,5
	20 x 8 x 6/13	45°R	1	0,6/0,8/1,0/1,2/1,5
	20 x 8 x 6/13	90°	8	0,6/0,8/1,0/1,2/1,5

KNURLING WHEELS (FORMING)

Optional coatings for knurling wheels (page 40 and 41) on demand: **Q-DUR®**, **TIN**, **TICN** and **PLASMA NITRATION**:  
Further pitch sizes and special specifications are available on demand.



# STANDARD KNURLING WHEELS (FORMING)

ORDERING EXAMPLE: 290-706

PURCHASE ORDER NO. FOR DIMENSIONS 20 x 10 x 6	PURCHASE ORDER NO. FOR TOOTH ANGLE 30°R	PURCHASE ORDER NO. FOR PITCH 0,6
<b>290</b>	<b>7</b>	<b>06</b>

PRODUCT SERIES	DIMENSIONS KNURLING WHEEL (Ø x WIDTH x BORE)	TOOTH ANGLE		PURCHASE ORDER NO. TOOTH ANGLE	PITCHES
		L= LEFT TOOL VERSION	R = RIGHT TOOL VERSION		
290	20 x 8 x 6	30°L		6	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5/1,6/1,8/2,0
	20 x 8 x 6	30°R		<b>7</b>	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5/1,6/1,8/2,0
	20 x 8 x 6	45°L		2	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5/1,6/1,8/2,0
	20 x 8 x 6	45°R		1	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5/1,6/1,8/2,0
	20 x 8 x 6	90°		8	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5/1,6/1,8/2,0
291	20 x 6 x 6	30°L		6	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5/1,6/1,8/2,0
	20 x 6 x 6	30°R		7	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5/1,6/1,8/2,0
	20 x 6 x 6	45°L		2	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5/1,6/1,8/2,0
	20 x 6 x 6	45°R		1	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5/1,6/1,8/2,0
	20 x 6 x 6	90°		8	0,3/0,4/0,5/0,6/0,7/0,8/0,9/1,0/1,2/1,5/1,6/1,8/2,0
292	20 x 10 x 6	30°L		6	0,6/0,8/1,0/1,2/1,5
	20 x 10 x 6	30°R		7	0,6/0,8/1,0/1,2/1,5
	20 x 10 x 6	45°L		2	0,6/0,8/1,0/1,2/1,5
	20 x 10 x 6	45°R		1	0,6/0,8/1,0/1,2/1,5
	20 x 10 x 6	90°		8	0,6/0,8/1,0/1,2/1,5
293	20 x 15 x 6	30°L		6	0,6/0,8/1,0/1,2/1,5
	20 x 15 x 6	30°R		7	0,6/0,8/1,0/1,2/1,5
	20 x 15 x 6	45°L		2	0,6/0,8/1,0/1,2/1,5
	20 x 15 x 6	45°R		1	0,6/0,8/1,0/1,2/1,5
	20 x 15 x 6	90°		8	0,6/0,8/1,0/1,2/1,5
295	25 x 6 x 6	30°L		6	0,6/0,8/1,0/1,2/1,5
	25 x 6 x 6	30°R		7	0,6/0,8/1,0/1,2/1,5
	25 x 6 x 6	45°L		2	0,6/0,8/1,0/1,2/1,5
	25 x 6 x 6	45°R		1	0,6/0,8/1,0/1,2/1,5
	25 x 6 x 6	90°		8	0,6/0,8/1,0/1,2/1,5
296	25 x 8 x 6	30°L		6	0,6/0,8/1,0/1,2/1,5
	25 x 8 x 6	30°R		7	0,6/0,8/1,0/1,2/1,5
	25 x 8 x 6	45°L		2	0,6/0,8/1,0/1,2/1,5
	25 x 8 x 6	45°R		1	0,6/0,8/1,0/1,2/1,5
	25 x 8 x 6	90°		8	0,6/0,8/1,0/1,2/1,5
	25 x 8 x 6	GV30°		3	0,6/0,8/1,0/1,2/1,5
	25 x 8 x 6	GV45°		9	0,6/0,8/1,0/1,2/1,5
297	25 x 10 x 6	30°L		6	0,6/0,8/1,0/1,2/1,5
	25 x 10 x 6	30°R		7	0,6/0,8/1,0/1,2/1,5
	25 x 10 x 6	45°L		2	0,6/0,8/1,0/1,2/1,5
	25 x 10 x 6	45°R		1	0,6/0,8/1,0/1,2/1,5
	25 x 10 x 6	90°		8	0,6/0,8/1,0/1,2/1,5
298	25 x 15 x 6	30°L		6	0,6/0,8/1,0/1,2/1,5
	25 x 15 x 6	30°R		7	0,6/0,8/1,0/1,2/1,5
	25 x 15 x 6	45°L		2	0,6/0,8/1,0/1,2/1,5
	25 x 15 x 6	45°R		1	0,6/0,8/1,0/1,2/1,5
	25 x 15 x 6	90°		8	0,6/0,8/1,0/1,2/1,5
299	30 x 10 x 8	30°L		6	0,6/0,8/1,0/1,2/1,5
	30 x 10 x 8	30°R		7	0,6/0,8/1,0/1,2/1,5
	30 x 10 x 8	45°L		2	0,6/0,8/1,0/1,2/1,5
	30 x 10 x 8	45°R		1	0,6/0,8/1,0/1,2/1,5
	30 x 10 x 8	90°		8	0,6/0,8/1,0/1,2/1,5

KNURLING WHEELS (FORMING)

KNURLING WHEELS

## CONSUMABLE PARTS

Bushes, cover disks and screws used to fit the knurling wheels to a variety of tools are consumable parts and have to be replaced on a regular basis.



### SPARE PARTS - Screw, cover disk and bush

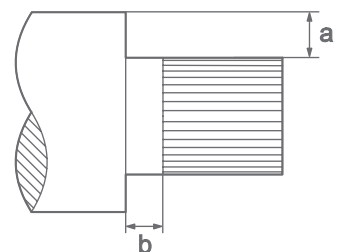
<b>SET 8.9</b>	Spare part set for knurling wheel (cutting) 8.9	LA
<b>SET 14.5</b>	Spare part set for knurling wheel (cutting) 14.5	A1
<b>SET 21.5</b>	Spare part set for knurling wheel (cutting) 21.5	A2
<b>SET 32</b>	Spare part set for knurling wheel (cutting) 32	MI / KF
<b>SET 42 KF</b>	Spare part set for knurling wheel (cutting) 42	MII / KF
<b>SET 42 FL</b>	Spare part set for knurling wheel (cutting) 42	M / FL
<b>SET B 9,8</b>	Spare part set for knurling wheel (forming) 9,8	B0
<b>SET B 25</b>	Spare part set for knurling wheel (forming) 25	B2

Spare parts for tool series F1 and F2 (see page 23 - 35) are available on request.

## KNURLING WITH QUICK CUT KNURLING TOOLS TO THE FLANGE

Please note that, due to their inclined angle, QUICK cut knurling tools cannot be used to knurl completely up to a shoulder.

<b>a</b>	<b>b 8.9</b>	<b>b 14.5</b>	<b>b 21.5</b>	<b>b 32</b>	<b>b 42</b>	<b>a</b>	<b>b 32</b>	<b>b 42</b>
1	1.0	1.3	2.0	1.5	1.8	11	10.4	9.8
2	2.5	1.8	2.6	2.5	3.0	12	10.6	10.1
3	3.0	2.2	3.0	3.1	4.3	13	10.8	12.2
4		2.6	3.8	3.8	5.7	14	11.1	13.1
5		2.8	4.5	4.5	6.7	15		13.6
6		3.1	4.7	5.1	7.5	16		14.1
7			5.0	6.2	8.1	17		14.4
8			5.3	7.6	8.6	18		14.6
9			5.3	9.4	9.1	19		14.8
10				9.8	9.5			



# CUTTING SPEED AND FEED RATE

The values shown in the table are reference values and can be changed if required.

<b>CUT KNURLING</b>	<b>KNURLING WHEEL Ø 8.9 / Ø 10</b>		<b>KNURLING WHEEL Ø 14.5 / Ø 15</b>		
	<b>MATERIAL</b>	<b>V m/min</b>	<b>s mm/U</b>	<b>V m/min</b>	<b>s mm/U</b>
	Steel up to 600 N / mm <sup>2</sup>	35	0.05-0.08	40-45	0.07-0.09
	Steel up to 900 N/mm	25	0.04-0.07	30-35	0.06-0.08
	Stainless steel	22	0.04-0.06	28-30	0.06-0.08
	Ms58	60	0.06-0.10	60-70	0.08-0.12
	Ms60	50	0.05-0.09	60	0.06-0.10
	Bronze	35	0.05-0.08	40-45	0.07-0.09
	Aluminium	70	0.06-0.13	70-80	0.08-0.18
	Cast iron	22	0.04-0.06	28-30	0.06-0.08
Cast steel	25	0.04-0.07	30-35	0.06-0.08	

<b>CUT KNURLING</b>	<b>KNURLING WHEEL Ø 21.5</b>		<b>KNURLING WHEEL Ø 25</b>		
	<b>MATERIAL</b>	<b>V m/min</b>	<b>s mm/U</b>	<b>V m/min</b>	<b>s mm/U</b>
	Steel up to 600 N / mm <sup>2</sup>	55-60	0.07-0.14	50-110	0.07-0.14
	Steel up to 900 N/mm	40-50	0.06-0.12	40-90	0.06-0.12
	Stainless steel	32-40	0.06-0.12	30-60	0.06-0.12
	Ms58	90-100	0.08-0.20	70-155	0.08-0.20
	Ms60	80-90	0.07-0.15	60-130	0.07-0.15
	Bronze	55-60	0.07-0.14	50-100	0.07-0.14
	Aluminium	100-120	0.10-0.25	80-160	0.10-0.25
	Cast iron	32-40	0.06-0.12	35-55	0.06-0.12
Cast steel	40-50	0.06-0.12	50-65	0.06-0.12	

<b>CUT KNURLING</b>	<b>KNURLING WHEEL Ø 32</b>		<b>KNURLING WHEEL Ø 42</b>		
	<b>MATERIAL</b>	<b>V m/min</b>	<b>s mm/U</b>	<b>V m/min</b>	<b>s mm/U</b>
	Steel up to 600 N / mm <sup>2</sup>	80-90	0.10-0.20	95-100	0.10-0.30
	Steel up to 900 N/mm	65-70	0.08-0.16	60-80	0.08-0.25
	Stainless steel	40-45	0.08-0.16	50-55	0.09-0.25
	Ms58	115-140	0.1-0.3	140-160	0.10-0.30
	Ms60	105-125	0.10-0.20	120-140	0.10-0.30
	Bronze	80-90	0.10-0.20	95-100	0.10-0.30
	Aluminium	125-150	0.10-0.35	150-160	0.10-0.50
	Cast iron	40-45	0.08-0.16	50-55	0.09-0.25
Cast steel	60-90	0.06-0.12	75-80	0.09-0.25	

<b>FORM KNURLING</b>	<b>KNURLING WHEEL Ø 20</b>		<b>KNURLING WHEEL Ø 25</b>		
	<b>MATERIAL</b>	<b>V m/min</b>	<b>s mm/U</b>	<b>V m/min</b>	<b>s mm/U</b>
	Steel up to 600 N / mm <sup>2</sup>	25-55	0.05-0.10	30-60	0.07-0.13
	Steel up to 900 N/mm	25-50	0.05-0.10	25-50	0.05-0.10
	Stainless steel	20-50	0.05-0.10	25-45	0.05-0.10
	Ms58	40-85	0.05-0.10	45-70	0.05-0.18
	Ms60	35-70	0.05-0.10	40-65	0.05-0.15
	Bronze	30-65	0.05-0.10	40-65	0.05-0.15
	Aluminium	30-65	0.05-0.10	35-70	0.06-0.2
	Cast steel	25-40	0.05-0.10	25-45	0.05-0.10

Cutting feed and speed rates for further knurling wheel diameters on request.



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