

# Form knurling – non-cutting process



## Knurling wheels, milled, with 45° chamfer – PM

Standard variants	Profile		Dimension [mm]			Pitches [mm]	
			Ø	Width	Bore		
No. 11	AA		10	4	4	○	
No. 11			15	4	4	○	
No. 11			15	6	4	○	
No. 11			15	6	6A8	□	
No. 11			15	6	6A11	□	
No. 11			20	6	6	○	
No. 11			20	8	6	●	
No. 11			20	8	6A13	□	
No. 11			20	10	6	□	
No. 11			25	6	6	□	
No. 11			25	8	6	□	
No. 11			25	10	6	□	
No. 11			BL	30°	10	4	4
No. 11	15	4			4	□	
No. 11	20	6			6	□	
No. 11	20	8			6	■	
No. 11	BL	45°	10	4	4	□	
No. 11			15	4	4	□	
No. 11	BR	30°	10	4	4	○	
No. 11			15	4	4	□	
No. 11			20	6	6	□	
No. 11		20	8	6	□		
No. 11		BR	45°	10	4	4	□
No. 11				15	4	4	□
No. 11	20			8	6	□	

### Standard pitches/profile angle 90°

- 0.3/0.4/0.5/0.6/0.7/0.8/1.0/1.2/1.5/1.6/2.0
- 0.3/0.4/0.5/0.6/0.7/0.8/1.0/1.2/1.5
- 0.5/0.6/0.8/1.0/1.2/1.5/1.6/2.0
- 0.5/0.6/0.8/1.0/1.2/1.5
- ◆ 0.5/0.6/0.8/1.0
- ☑ On request

Other variants available on request

## Variants

### Knurling wheel variants (PM)

No.	Version
13	milled, without chamfer
30	ground with 45° chamfer
32	ground, without chamfer
95	milled, with 60° chamfer

### Knurling wheel variants (HSS)

No.	Version
10	milled, with 45° chamfer
12	milled, without chamfer
94	milled, with 60° chamfer

### Knurling wheel variants (HM)

No.	Version
50	ground with 45° chamfer
52	ground, without chamfer

## Form knurling with 60° chamfer

When forming knurling profiles with a larger pitch in the axial machining direction it can be advantageous to apply a 60° chamfer to the knurling wheel. The flatter chamfer achieves a better material flow.

Wheel geometries – see "Technology", page 44

# Form knurling – non-cutting process



## Knurling wheels, milled, with 45° chamfer – PM

Standard variants	Profile		Dimension [mm]			Pitches [mm]
			Ø	Width	Bore	
No. 11	GE	30°	15	4	4	◆
No. 11			15	6	4	◆
No. 11			20	6	6	◆
No. 11			20	8	6	□
No. 11	GE	45°	20	8	6	□
No. 11	KE		☑	☑	☑	☑

### Variants

#### Knurling wheel variants (PM)

No.	Version
13	milled, without chamfer
30	ground with 45° chamfer
32	ground, without chamfer

#### Knurling wheel variants (HSS)

No.	Version
10	milled, with 45° chamfer
12	milled, without chamfer

#### Knurling wheel variants (HM)

No.	Version
50	ground with 45° chamfer
52	ground, without chamfer

### Standard pitches/profile angle 90°

- 0.3/0.4/0.5/0.6/0.7/0.8/1.0/1.2/1.5/1.6/2.0
- 0.3/0.4/0.5/0.6/0.7/0.8/1.0/1.2/1.5
- 0.5/0.6/0.8/1.0/1.2/1.5/1.6/2.0
- 0.5/0.6/0.8/1.0/1.2/1.5
- ◆ 0.5/0.6/0.8/1.0
- ☑ On request

Other variants available on request



## Knurling wheels, formed, with 45° chamfer – PM

Standard variants	Profile		Dimension [mm]			Pitches [mm]
			Ø	Width	Bore	
No. 21	GV	30°	15	4	4	◆
No. 21			15	6	4	◆
No. 21			20	6	6	◆
No. 21			20	8	6	□
No. 21	GV	45°	20	8	6	◆
No. 21	KV		☑	☑	☑	☑

### Variants

#### Knurling wheel variants (PM)

No.	Version
23	formed, without chamfer

#### Knurling wheel variants (HSS)

No.	Version
20	formed, with 45° chamfer
22	formed, without chamfer