

KEMPF

*ibex*

When the name says it all.

## AGILE - IN ROUGH COMPONENTS

We have taken these features as a model and developed the "KEMPF ibex". Wherever edges have to be deburred, the innovative compensation holder is used and shows its strengths. Due to the high flexibility and the possibility to deburr with tension and pressure compensation, the clamped milling cutter can adapt to any component geometry and thus also deburrs **UNDEFINED EDGES** cleanly, reliably and evenly. Subsequent manual deburring is no longer necessary.



# IBEX DEBURRING SYSTEM SOFT, MEDIUM & HARD

Spring-loaded compensating holder for deburring, especially for undefined contours



## FEATURES

### IBEX DEBURRING TOOL HOLDER

- Tension and pressure compensation with 10 mm each
- Uniform deburring result
- Shorter cycle times
- Low programming effort
- Very high wear resistance, sealing against pollution
- Slim design enables better access to the workpiece

### IBEX CARBIDE CHAMFER MILLING CUTTER

- Low chattering due to specially developed cutter geometry
- Extremely high tool life of the milling cutters due to special geometry
- High feed rates due to cross-cut design

The ibex compensation holder is available with three pressure levels:



for soft materials



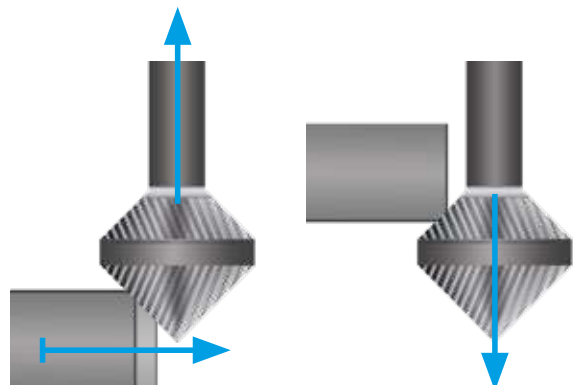
for harder materials



for hard and heavy machinable materials

## WORKING PRINCIPLE

As soon as the cutter hits the edge of the workpiece, it can perform the axial movement both forwards and backwards due to the linear mounted compensation of the ibex. In interaction with the tapered ibex deburring cutters, radial deviations of the component can thus also be compensated. Thus, the deburring cutter always has the same cutting performance on the workpiece and produces a uniform deburring quality.



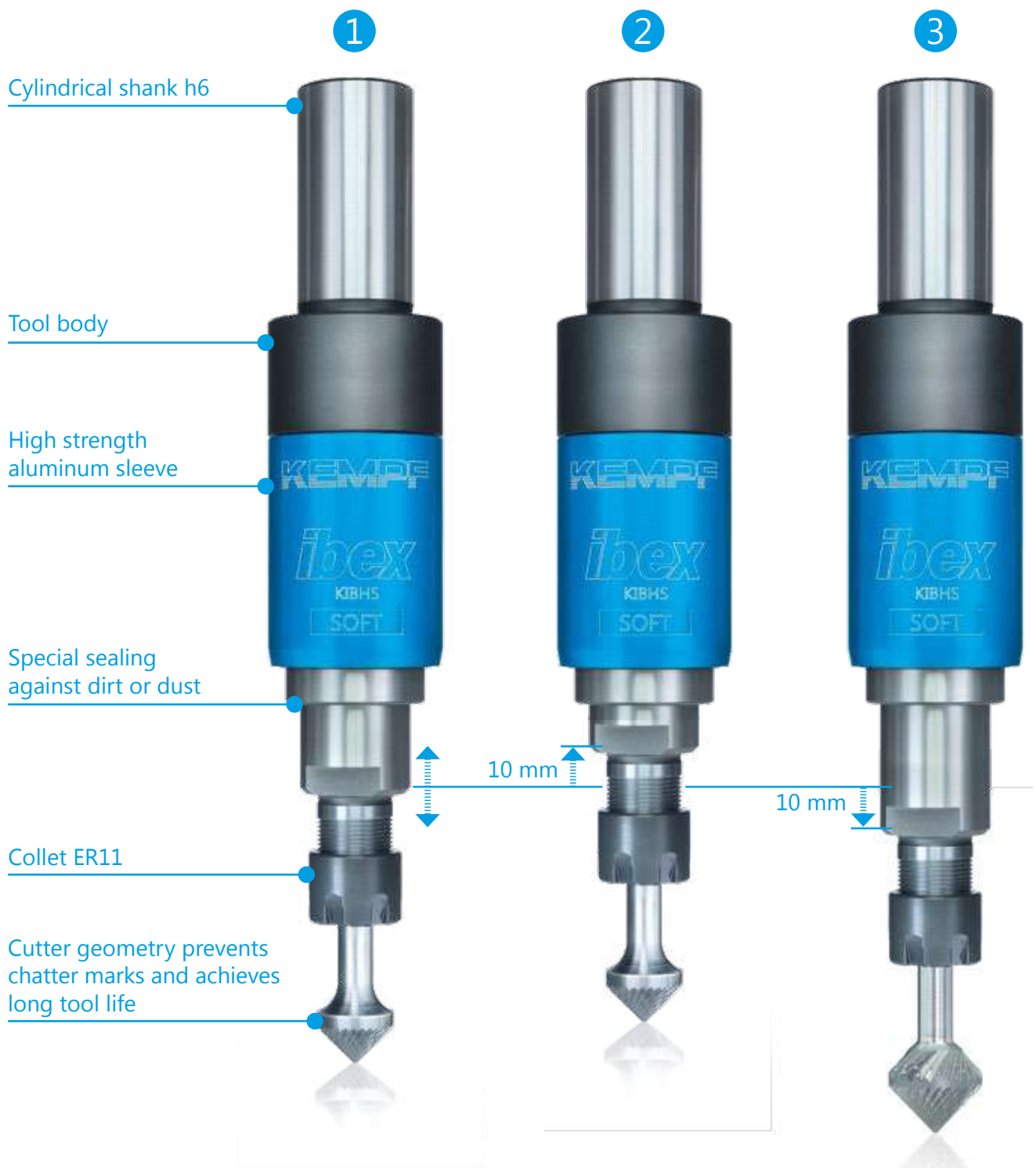
# IBEX DEBURRING TOOL HOLDER (SOFT, MEDIUM & HARD) FEATURES

- 1 INITIAL POSITION OF THE IBEX
- 2 CUTTER "RETRACTED"
- 3 CUTTER "EXTRACTED"

In this position, the ibex hits the component during the machining phase (see also graphic "Working Principle" on page 68, bottom right).

When deburring on the front side (e.g. at the top edge of the workpiece), the ibex compensates uneven contours up to 10 mm upwards with the spring inside.

When deburring on the back side, the ibex can also compensate up to 10 mm downwards.



# B IBEX DEBURRING SYSTEM

## 1.2 FLEX

Spring-loaded and compression-adjustable compensating holder for deburring, especially for undefined contours



### FEATURES

#### IBEX FLEX DEBURRING TOOL HOLDER

- 3 adjustable pressure levels (SOFT, MEDIUM, HARD)
- Pressure compensation with 10 mm
- Uniform deburring result
- Shorter cycle times
- Low programming effort
- Very high wear resistance, sealing against pollution
- Slim design enables better access to the workpiece

#### IBEX CARBIDE CHAMFER MILLING CUTTER

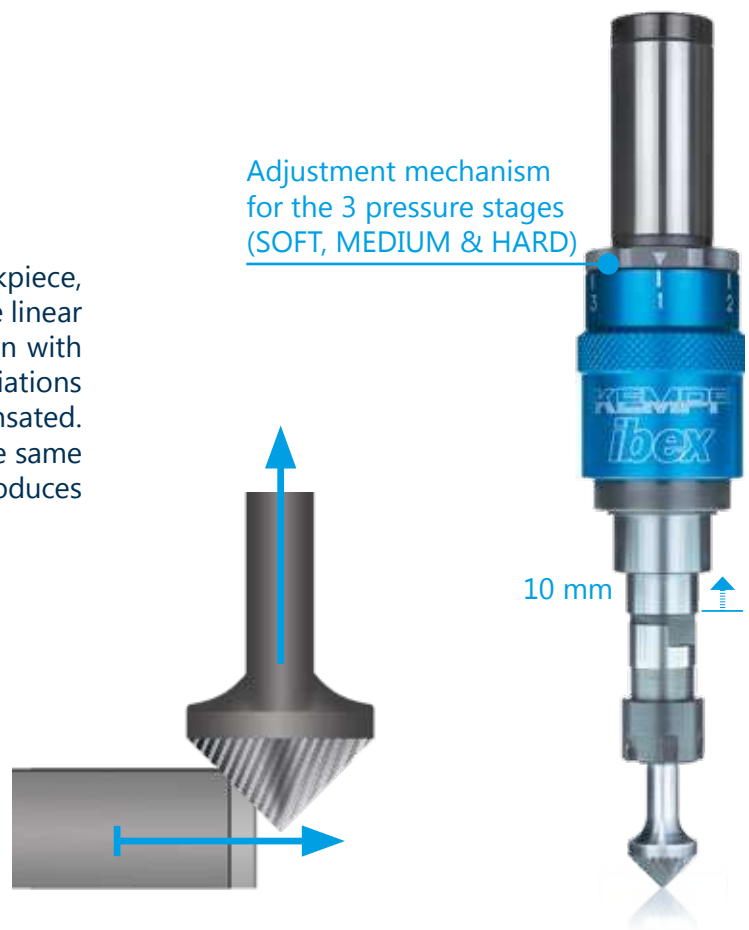
- Low chatter due to specially developed cutter geometry
- Extremely high tool life of the milling cutters due to special geometry
- High feed rates due to cross-cut design

### FUNCTION

As soon as the cutter hits the edge of the workpiece, it can perform the axial movement due to the linear compensation of the ibex FLEX. In interaction with the tapered ibex deburring cutters, radial deviations of the component can thus also be compensated. Therefore, the deburring cutter always has the same cutting performance on the workpiece and produces a uniform deburring quality.

#### IMPORTANT:

The initial contact of the milling cutter with the workpiece must take place in the area of the 45° cone so that the compensation function of the ibex holder is guaranteed during machining. Before use, follow the instructions enclosed in the packaging.





## CUTTING DATA

Speed $n$	Feed $v_f$
6,000 - 8,000 rpm	2,000 - 10,000 mm/min*
max. 10,000 rpm	

\*depending on the desired chamfer size

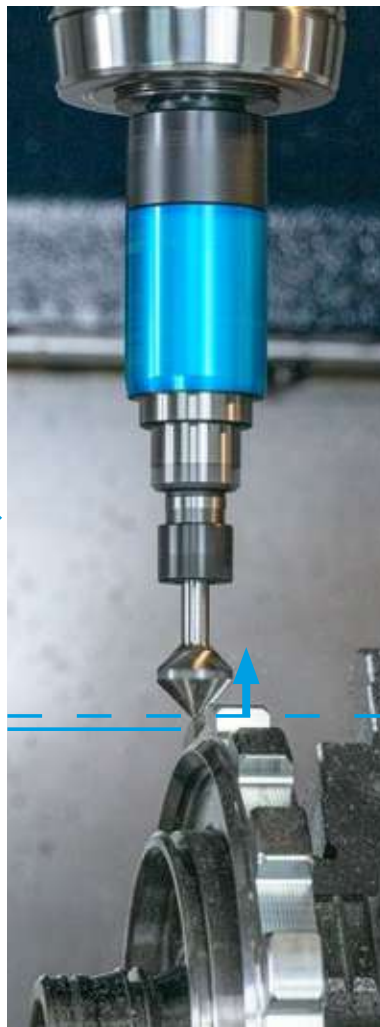
Radial engagement $a_e$	Cutting depth $a_p$
approx. 25 % from cutter diameter	approx. 30 % from cutter diameter

## TIPS & TRICKS

- Increase of feed rate → Chamfer becomes smaller
- Reduction of feed rate → Chamfer becomes larger
- We strongly advise dry machining to avoid thermal shock
- Simultaneous milling prevents the formation of chatter marks and leads to a uniform deburring quality
- Increase  $a_e$  in the case of secondary burrs
- Increase speed to improve the chamfer surface finish
- If space is limited, it is also possible to approach and depart from the workpiece by "ramping"

## IBEX - PREDESTINED FOR...

... workpieces with contours that are not on one plane - for example, in this [output shaft of an automatic transmission](#). The ibex compensates the contour variations along the entire path and thus ensures a perfect and reliable deburring quality.



- 1 BEFORE: The large burrs are clearly visible directly after the milling process.
- 2 AFTER: After deburring with the ibex compensation holder, the result is a uniform contour.

### TOOL VIDEO LINK

VIDEO  
Deburring the  
tooth flanks

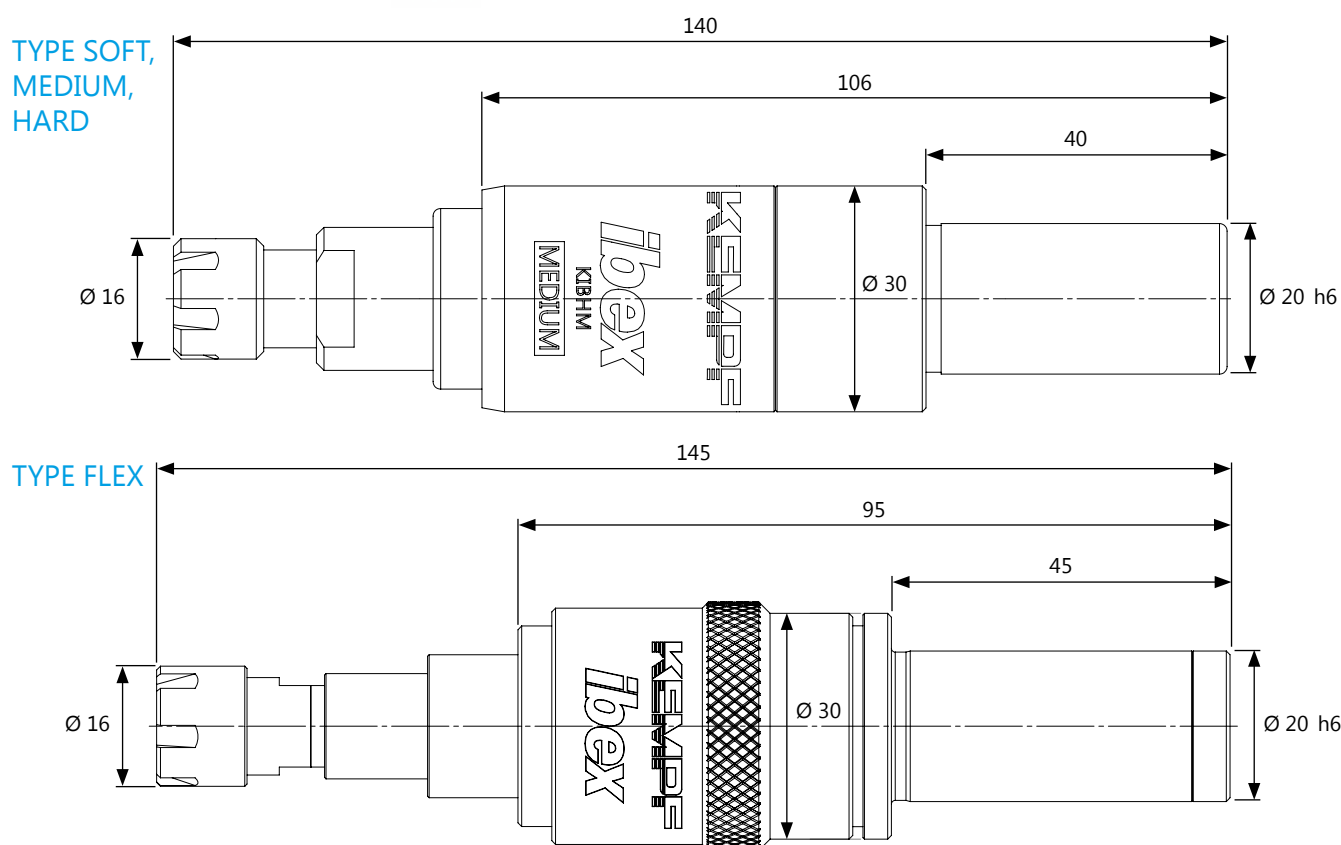


In the starting position, the milling cutter hits the contour, which in this machining example causes the milling cutter to be pressed upwards. The ibex compensates this movement and ensures that the milling cutter moves back to the starting position as quickly as possible after the deburring cycle.

# IBEX DEBURRING TOOL HOLDER, CARBIDE CHAMFER MILLING CUTTER & ACCESSORIES



## • IBEX DEBURRING TOOL HOLDER



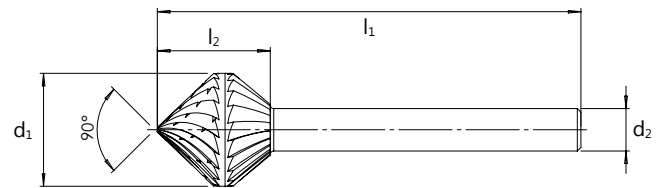
ibex type	ER collet	Deflection Tension	Deflection Compression	P	M	K	N	S	O	Item No.	EUR/Piece
SOFT				-	-	-	•	-	•	KIBHS	
MEDIUM	ER11	10 mm	10 mm	•	-	•	-	-	-	KIBHM	
HARD				-	•	-	-	•	-	KIBHH	
FLEX	ER11	-	10 mm	•	•	•	•	•	•	KIBHF	

PLEASE NOTE: Each ibex compensation holder is supplied with 1x clamping nut KIBHN. Please order clamping wrench KIBHW and collet KIBHC separately.

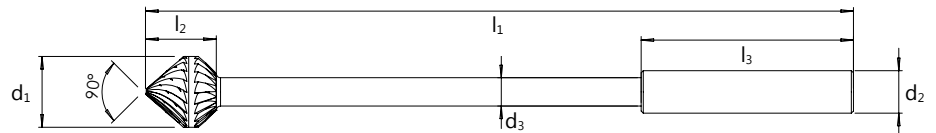
## • IBEX CARBIDE CHAMFER MILLING CUTTER

### FORWARD & BACKWARD CUTTER

KIBCD16060



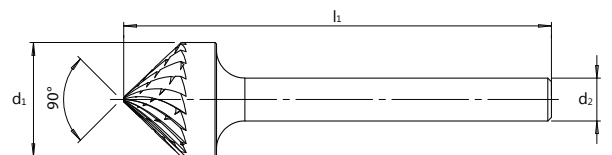
KIBCD10100



d <sub>1</sub> (mm)	d <sub>2</sub> (mm)	d <sub>3</sub> (mm)	l <sub>1</sub> (mm)	l <sub>2</sub> (mm)	l <sub>3</sub> (mm)	Z	Item No.	EUR/Piece
10	6	4	100	10	20	24	KIBCD10100	
16	6	-	60	13	-	28	KIBCD16060	
16	6	-	120	13	-	28	KIBCD16120	

### FORWARD CUTTER

d <sub>1</sub> (mm)	d <sub>2</sub> (mm)	l <sub>1</sub> (mm)	Z	Item No.	EUR/Piece
8	6	60	24	KIBCF08060	
13	6	60	28	KIBCF13060	
16	6	60	28	KIBCF16060	
16	6	120	28	KIBCF16120	
25	8	60	28	KIBCF25060	



NOTE: Special dimensions are available on request.

## • IBEX ACCESSORIES

Designation	Size	Item No.	EUR/Piece
ibex collet	ER11 Ø 6.0 - 5.5 mm	KIBHC	
ibex collet	ER11 Ø 8.0 - 7.5 mm	KIBHC8	
ibex clamping nut	for ER11	KIBHN	
ibex wrench	for ER11	KIBHW	



## • IBEX SET

Designation	Item No.	Set content*	EUR/Piece
ibex set SOFT	KIBSETSOFT	1x KIBHS, 1x KIBHC, 1x KIBHW	reduced set price on request
ibex set MEDIUM	KIBSETMEDIUM	1x KIBHM, 1x KIBHC, 1x KIBHW	reduced set price on request
ibex set HARD	KIBSETHARD	1x KIBHH, 1x KIBHC, 1x KIBHW	reduced set price on request
ibex set FLEX	KIBSETFLEX	1x KIBHF, 1x KIBHC, 1x KIBHW	reduced set price on request

\*The IBEX-SET can only be ordered in combination with at least 2 ibex cutters (at choice).



## PROCESSING EXAMPLES

### • DEBURRING OF CIRCULAR CONTOURS

When circular contours of such an aluminum component need to be deburred, this is achieved either by complex programming and precise contour tracing with a milling cutter or the ibex deburring system is used. At maximum speed, the compensating holder swallows the radial deviations caused by the circular contours. This feature ensures that the ibex carbide chamfer milling cutter maintains constant contact with the contour and a uniform deburring result.



By using the ibex deburring system, one side of the nearly 34 cm long aluminum component could be deburred in approx. 3.8 seconds - and without any time-consuming programming work.

Since the compensating holder is elaborately sealed, no chips can enter. This is not the only reason why this system is perfectly suited for use in series production, where high process reliability is a must.



The relatively large axial deflection that occurs during machining is clearly visible in this example (see video link). Without compensation, the cutter and component would be damaged after a few cycles.

#### TOOL VIDEO LINK

VIDEO  
Deburring without  
programmed correction



### • FORWARD AND BACKWARD DEBURRING IN ONE OPERATION

The ibex forward and backward milling cutters are particularly suitable when, as in this example, the outer and the inner edge of the hole must be deburred. Due to the uneven contour, either an NC data record must specify the "deburring path" or the tool compensates for the resulting strokes. The ibex deburring system needs less than 4 seconds for both contours of this application.



#### TOOL VIDEO LINK

VIDEO  
Front and back deburring

