



Modular Multibladed Reamer Programme

**MULTICUT**

This is the art of bringing together perfect products and services for your success under one roof ...



# tool-traders-partner.com

August Beck GmbH & Co. KG in Winterlingen is a member of the "tool-traders-partner" association and takes the advantages of this strong community to the benefit of its customers and the quality of its products. For further information see the last pages of this catalogue or visit us on the internet at [www.tool-traders-partner.com](http://www.tool-traders-partner.com).

# Index

01	Adjustable cutting rings	5
02	Holder for cutting ring	9
03	Spare parts	26
04	Handling	30
05	Machining values	32
06	Troubleshooting	34



# Adjustable cutting rings

## Easy handling and many possible combinations

The MAPAL Multicut reamers with adjustable cutting rings allow bores to be precision machined up to a tolerance range of below IT7. Important advantages of the system include easy handling for setting and measuring the cutting rings and the facility to combine with different holders. Adjustable cutting rings are produced to half tolerance specification.

In the standard cutting speed range, carbide provides an economic solution for both successful and safe cutting results. The highly effective TiN coating provides better surface finish, longer tool life and higher cutting speeds.

For machining steel, Cermet demonstrates its own particular advantages. Because of its strength at high temperatures, it has a high resistance to wear and, as a result, tool life is significantly increased. The sharp edges of the cutting material produce an optimum surface finish in reaming operations.

For recommended cutting materials for your particular machining task, please see the tables on pages 32 and 33.

### ADVANTAGES

- Adjustable within the predetermined bore tolerance
- Suitable in different materials
- Highly economical through modular design and simple handling
- Compatible with all holders with the respective diameter

### AT A GLANCE

- Carbide, coated carbide (TiN and cermet as cutting material)
- $\varnothing$  from 21 – 200 mm available from stock
- Holder for cylindrical shank, Morse taper, HSK-A and SK
- Suitable for blind and through bores (With or without internal coolant supply depending upon holder design)

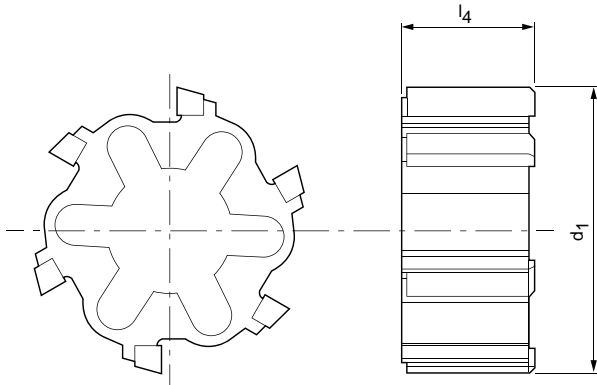
# Adjustable cutting ring MN73101

**Design:**

Reamer diameter:

21.60 - 200.59 mm

Cutting material:

Carbide,  
uncoated

Dimensions		z
d <sub>1</sub>	l <sub>4</sub>	
21.60 - 25.59	11.5	6
25.60 - 28.59	13.5	6
28.60 - 32.59	13.5	6
32.60 - 36.59	15.5	6
36.60 - 40.59	15.5	6
40.60 - 45.59	15.5	6
45.60 - 50.59	18.5	6
50.60 - 55.59	18.5	6
55.60 - 60.59	18.5	6
60.60 - 65.59	18.5	6
65.60 - 70.59	18.5	6
70.60 - 75.59	18.5	6
75.60 - 79.59	18.5	6
79.60 - 85.59	18.5	8
85.60 - 90.59	18.5	8
90.60 - 95.59	18.5	8
95.60 - 100.59	18.5	8
100.60 - 110.59	18.5	10
110.60 - 115.59	18.5	12
115.60 - 120.59	18.5	12
120.60 - 125.59	18.5	12
125.60 - 139.59	18.5	12
139.60 - 145.59	18.5	12
145.60 - 155.59	18.5	12
155.60 - 165.59	18.5	12
165.60 - 175.59	18.5	12
175.60 - 185.59	18.5	12
185.60 - 195.59	18.5	12
195.60 - 200.59	18.5	12

**Details required for ordering a cutting ring:**

Type	∅	Tolerance	Cutting mat.	Lead
z.B. MN73101	45.75	H7	HM	45°

# Adjustable cutting ring MN73102

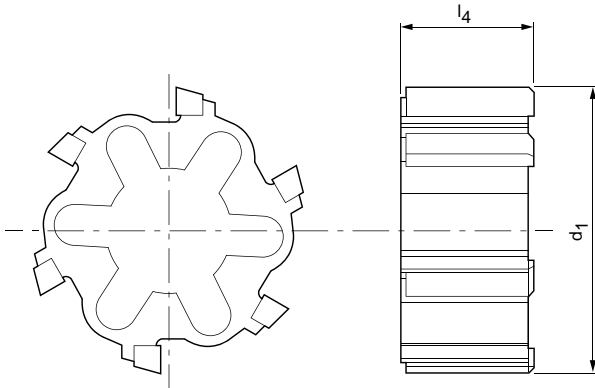
**Design:**

Reamer diameter:

21.60 - 200.59 mm

Cutting material:

Carbide,  
TiN coated



Dimensions		z
d <sub>1</sub>	l <sub>4</sub>	
21.60 - 25.59	11.5	6
25.60 - 28.59	13.5	6
28.60 - 32.59	13.5	6
32.60 - 36.59	15.5	6
36.60 - 40.59	15.5	6
40.60 - 45.59	15.5	6
45.60 - 50.59	18.5	6
50.60 - 55.59	18.5	6
55.60 - 60.59	18.5	6
60.60 - 65.59	18.5	6
65.60 - 70.59	18.5	6
70.60 - 75.59	18.5	6
75.60 - 79.59	18.5	6
79.60 - 85.59	18.5	8
85.60 - 90.59	18.5	8
90.60 - 95.59	18.5	8
95.60 - 100.59	18.5	8
100.60 - 110.59	18.5	10
110.60 - 115.59	18.5	12
115.60 - 120.59	18.5	12
120.60 - 125.59	18.5	12
125.60 - 139.59	18.5	12
139.60 - 145.59	18.5	12
145.60 - 155.59	18.5	12
155.60 - 165.59	18.5	12
165.60 - 175.59	18.5	12
175.60 - 185.59	18.5	12
185.60 - 195.59	18.5	12
195.60 - 200.59	18.5	12

**Details required for ordering a cutting ring:**

Type	∅	Tolerance	Cutting mat.	Lead
z.B. MN73102	45.75	H7	HM	45°

Dimensions in mm.

Please note: The holder and cutting ring must be ordered separately.  
The tools are supplied assembled and set to nominal dimension.

# Adjustable cutting ring MN73104

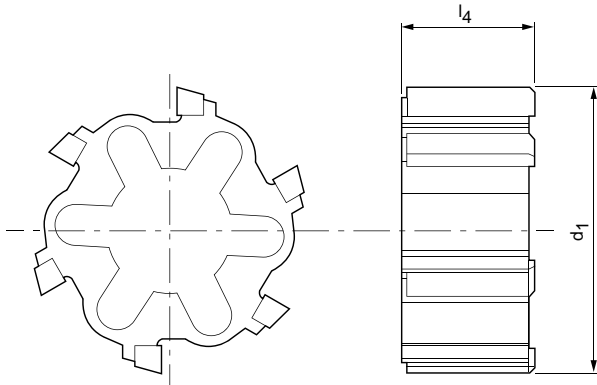
**Design:**

Reamer diameter:

21.60 - 200.59 mm

Cutting material:

Cermet, uncoated



Dimensions		z
d <sub>1</sub>	l <sub>4</sub>	
21.60 - 25.59	11.5	6
25.60 - 28.59	13.5	6
28.60 - 32.59	13.5	6
32.60 - 36.59	15.5	6
36.60 - 40.59	15.5	6
40.60 - 45.59	15.5	6
45.60 - 50.59	18.5	6
50.60 - 55.59	18.5	6
55.60 - 60.59	18.5	6
60.60 - 65.59	18.5	6
65.60 - 70.59	18.5	6
70.60 - 75.59	18.5	6
75.60 - 79.59	18.5	6
79.60 - 85.59	18.5	8
85.60 - 90.59	18.5	8
90.60 - 95.59	18.5	8
95.60 - 100.59	18.5	8
100.60 - 110.59	18.5	10
110.60 - 115.59	18.5	12
115.60 - 120.59	18.5	12
120.60 - 125.59	18.5	12
125.60 - 139.59	18.5	12
139.60 - 145.59	18.5	12
145.60 - 155.59	18.5	12
155.60 - 165.59	18.5	12
165.60 - 175.59	18.5	12
175.60 - 185.59	18.5	12
185.60 - 195.59	18.5	12
195.60 - 200.59	18.5	12

Details required for ordering a cutting ring:

Type	∅	Tolerance	Cutting mat.	Lead
z.B. MN73104	45.75	H7	HM	45°

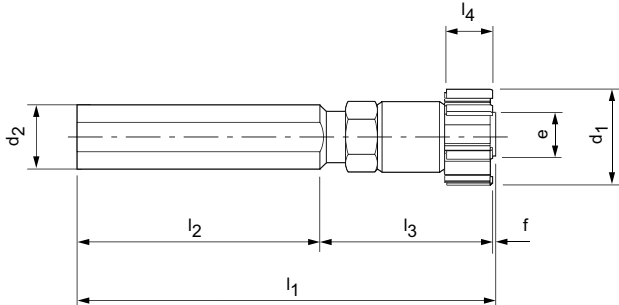
Dimensions in mm.

Please note: The holder and cutting ring must be ordered separately.  
The tools are supplied assembled and set to nominal dimension.



## Holder for cutting ring

Cylindrical shank with lateral clamping surface,  
without internal coolant supply



### MN73237 - For through bore, short design

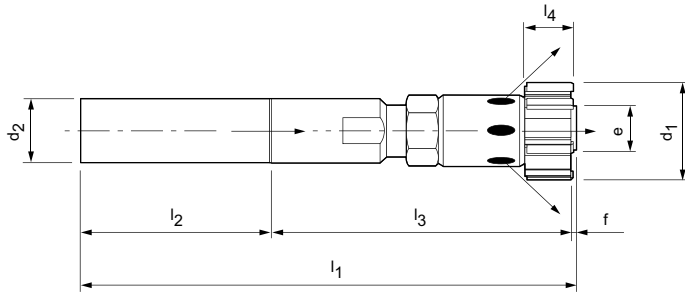
Dimensions								Size	Order No.
$d_1$	$d_2$	$l_1$	$l_2$	$l_3$	$l_4$	$e$	$f$		
21.60 - 25.59	16	94	40	51	11.5	12	3	021.6	30008875
25.60 - 32.59	20	94.5	40	51	13.5	15.8	3.5	025.6	30008876
32.60 - 40.59	20	95.5	40	51	15.5	21.4	4.5	032.6	30008877
40.60 - 45.59	25	125	65	55	15.5	25.5	5	040.6	30022400
45.60 - 60.59	20	134	65	62	18.5	29.6	7	045.6	30006305
60.60 - 79.59	25	148	65	73	18.5	39.8	10	060.6	30022401
79.60 - 100.59	40	162.5	65	85	18.5	57	12.5	079.6	30183686

### MN73238 - For through bore and blind bore, short design | Please note e and f

21.60 - 25.59	16	92.8	40	51.8	11.5	11.2	1	021.6	30008882
25.60 - 32.59	20	93	40	52	13.5	15.2	1	025.6	30008883
32.60 - 40.59	20	92.5	40	51.5	15.5	20.3	1	032.6	30008884
40.60 - 45.59	25	121	65	55	15.5	24.1	1	040.6	30028685
45.60 - 60.59	20	129.5	65	63	18.5	27.8	1.5	045.6	30183680
60.60 - 79.59	25	141.5	65	75	18.5	37	1.5	060.6	30183681
79.60 - 100.59	40	154.5	65	88	18.5	53.2	1.5	079.6	30183682

## Holder for cutting ring

Cylindrical shank, with internal coolant supply

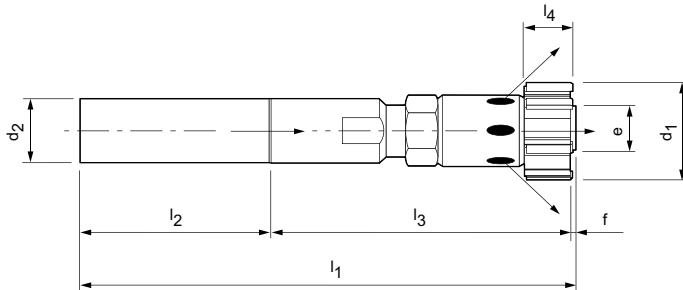


### MN75236 - For through bore, short design

Dimensions								Size	Order No.
d <sub>1</sub>	d <sub>2</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	e	f		
21.60 - 25.59	20	132	50	81	11.5	11.2	1	021.6	30008889
25.60 - 32.59	20	153	50	102	13.5	15.2	1	025.6	30008900
32.60 - 36.59	25	159.5	56	102	15.5	20.3	1.5	032.6	30008901
36.60 - 40.59	25	159.5	56	102	15.5	20.3	1.5	036.6	30023642
40.60 - 45.59	25	159.5	56	102	15.5	24.1	1.5	040.6	30016440
45.60 - 50.59	32	166.5	60	105	18.5	27.8	1.5	045.6	30183643
50.60 - 60.59	32	166.5	60	105	18.5	27.8	1.5	050.6	30023643
60.60 - 70.59	32	166.5	60	105	18.5	37	1.5	060.6	30023644
70.60 - 79.59	32	166.5	60	105	18.5	37	1.5	070.6	30023645
79.60 - 90.59	40	176.5	70	105	18.5	53.2	1.5	079.6	30023646
90.60 - 100.59	40	176.5	70	105	18.5	53.2	1.5	090.6	30023647

## Holder for cutting ring

Cylindrical shank, with internal coolant supply

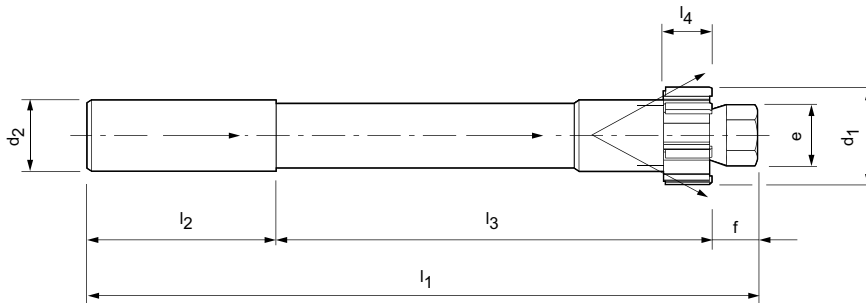


### MN76236 - For blind bore, short design

Dimensions								Size	Order No.
d <sub>1</sub>	d <sub>2</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	e	f		
21.60 - 25.59	20	132	50	81	11.5	11.2	1	021.6	30183632
25.60 - 32.59	20	153	50	102	13.5	15.2	1	025.6	30183633
32.60 - 36.59	25	159.5	56	102	15.5	20.3	1.5	032.6	30183634
36.60 - 40.59	25	159.5	56	102	15.5	20.3	1.5	036.6	30183635
40.60 - 45.59	25	159.5	56	102	15.5	24.1	1.5	040.6	30183636
45.60 - 50.59	32	166.5	60	105	18.5	27.8	1.5	045.6	30183637
50.60 - 60.59	32	166.5	60	105	18.5	27.8	1.5	050.6	30183638
60.60 - 70.59	32	166.5	60	105	18.5	37	1.5	060.6	30183639
70.60 - 79.59	32	166.5	60	105	18.5	37	1.5	070.6	30183640
79.60 - 90.59	40	176.5	70	105	18.5	53.2	1.5	079.6	30183641
90.60 - 100.59	40	176.5	70	105	18.5	53.2	1.5	090.6	30183642

## Holder for cutting ring

Cylindrical shank, with internal coolant supply

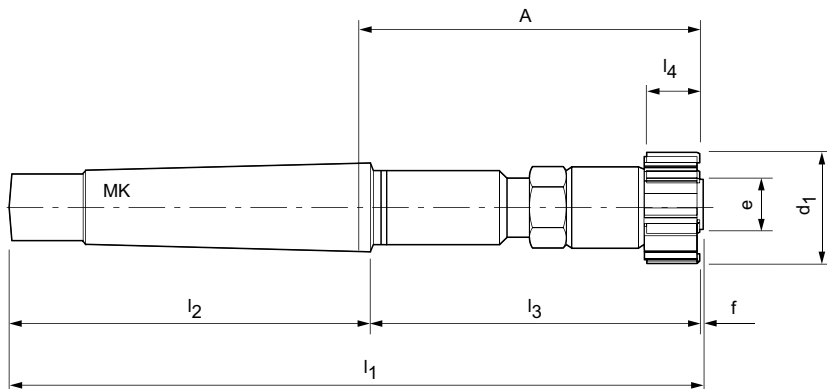


### MN75247 - For through bore, short design

Dimensions								Size	Order No.
d <sub>1</sub>	d <sub>2</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	e	f		
21.60 - 25.59	20	142	50	81	11.5	11.5	11	021.6	30008872
25.60 - 32.59	20	163	50	102	13.5	15	11	025.6	30008873
32.60 - 36.59	25	172	56	102	15.5	21.9	14	032.6	30008874
36.60 - 40.59	25	172	56	102	15.5	21.9	14	036.6	30183644
40.60 - 45.59	25	173	56	102	15.5	21.9	15	040.6	30011658
45.60 - 50.59	32	185.5	60	105	18.5	30.3	20.5	045.6	30101615
50.60 - 60.59	32	185.5	60	105	18.5	30.3	20.5	050.6	30014625
60.60 - 70.59	32	189.5	60	105	18.5	40	24.5	060.6	30183645
70.60 - 79.59	32	189.5	60	105	18.5	40	24.5	070.6	30183646
79.60 - 90.59	40	203.5	70	105	18.5	56.2	28.5	079.6	30159444
90.60 - 100.59	40	203.5	70	105	18.5	56.2	28.5	090.6	30183647

## Holder for cutting ring

Morse taper shank, without internal coolant supply



### MN73217 - For through bore, short design

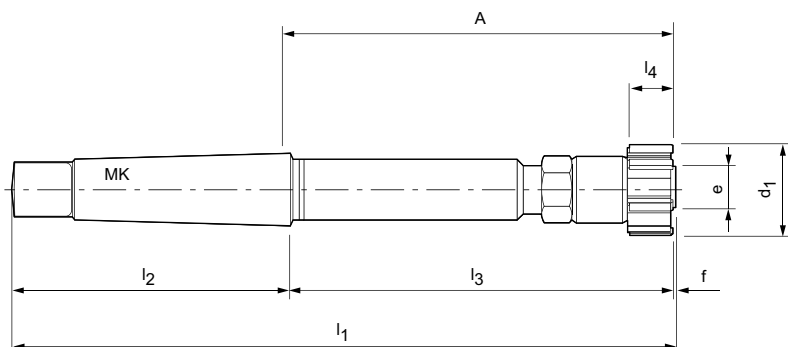
Dimensions									Size	Order No.
d <sub>1</sub>	MK	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	A	e	f		
21.60 - 25.59	2	164	80	81	11.5	86	12	3	021.6	30183663
25.60 - 32.59	3	204.5	99	102	13.5	107	15.8	3.5	025.6	30032438
32.60 - 40.59	3	205.5	99	102	15.5	107.1	21.4	4.5	032.6	30183664
40.60 - 45.59	3	206	99	102	15.5	107.1	25.5	5	040.6	30183666
45.60 - 60.59	3	208	97	104	18.5	109	29.6	7	045.6	30018476
60.60 - 79.59	4	237	124	103	18.5	109	39.8	10	060.6	30183668
79.60 - 100.59	5	273.5	156	105	18.5	111.5	57	12.5	079.6	30183670

### MN73218 - For through bore and blind bore, short design | Please note e and f

21.60 - 25.59	2	162.8	80	81.8	11.5	86	11.2	1	021.6	30183649
25.60 - 32.59	3	203	99	103	13.5	107	15.2	1	025.6	30183650
32.60 - 40.59	3	202.5	99	102.5	15.5	107.1	20.3	1	032.6	30183651
40.60 - 45.59	3	202	99	102	15.5	107.1	24.1	1	040.6	30183652
45.60 - 60.59	3	201.5	97	103	18.5	108	27.8	1.5	045.6	30183653
60.60 - 79.59	4	226.5	124	101	18.5	107.5	37	1.5	060.6	30183654
79.60 - 100.59	5	261.5	156	104	18.5	110.5	53.2	1.5	079.6	30183655

## Holder for cutting ring

Morse taper shank, without internal coolant supply



### MN73227 - For through bore, long design

Dimensions									Size	Order No.
d <sub>1</sub>	MK	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	A	e	f		
21.60 - 25.59	2	204	80	121	11.5	126	12	3	021.6	30183671
25.60 - 32.59	3	255.5	99	153	13.5	158	15.8	3.5	025.6	30183672
32.60 - 40.59	3	282.5	99	179	15.5	184	21.4	4.5	032.6	30011768
40.60 - 45.59	3	304	99	200	15.5	205	25.5	5	040.6	30183674
45.60 - 60.59	3	318	97	214	18.5	219	29.6	7	045.6	30183675
60.60 - 79.59	4	372	124	238	18.5	244.5	39.8	10	060.6	30183677
79.60 - 100.59	5	413.5	156	245	18.5	251.5	57	12.5	079.6	30183679

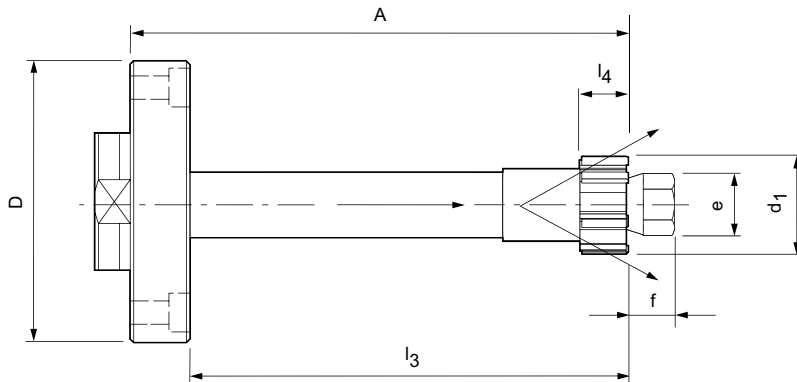
### MN73228 - For through bore and blind bore, long design | Please note e and f

21.60 - 25.59	2	202.8	80	121.8	11.5	126	11.2	1	021.6	30032509
25.60 - 32.59	3	254	99	154	13.5	158	15.2	1	025.6	30183657
32.60 - 40.59	3	279.5	99	179.5	15.5	184	20.3	1	032.6	30009573
40.60 - 45.59	3	300	99	200	15.5	205	24.1	1	040.6	30183659
45.60 - 60.59	3	310.5	97	212	18.5	217	27.8	1.5	045.6	30046300
60.60 - 79.59	4	361.5	124	236	18.5	242.5	37	1.5	060.6	30159446
79.60 - 100.59	5	401.5	156	244	18.5	250.5	53.2	1.5	079.6	30159445

## Holder for cutting ring

With radial and axial adjustment

module connection dimensions as per MN 5000-14, with internal coolant supply



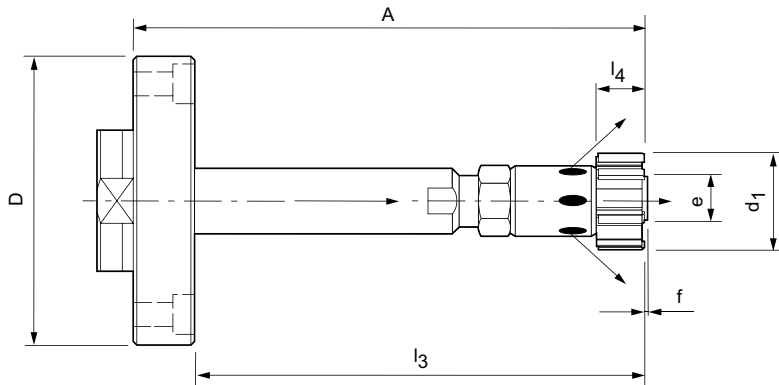
### MN75287 - For through bore, short design

Dimensions							Size	Order No.
d <sub>1</sub>	D	l <sub>3</sub>	l <sub>4</sub>	A	e	f		
21.60 - 25.59	60	81	11.5	94	11.5	11	021.6	30183584
25.60 - 32.59	60	102	13.5	115	15	11	025.6	30183586
32.60 - 36.59	60	102	15.5	115	21.9	14	032.6	30032760
36.60 - 40.59	60	102	15.5	115	21.9	14	036.6	30183588
40.60 - 45.59	60	102	15.5	115	25.4	15	040.6	30183600
45.60 - 50.59	60	105	18.5	118	30.3	20.5	045.6	30020589
50.60 - 60.59	60	105	18.5	118	30.3	20.5	050.6	30096638
60.60 - 70.59	100	105	18.5	126	40	24.5	060.6	30009234
70.60 - 79.59	100	105	18.5	126	40	24.5	070.6	30009236
79.60 - 90.59	100	105	18.5	126	56.2	28.5	079.6	30087508
90.60 - 100.59	100	105	18.5	126	56.2	28.5	090.6	30183602
100.60 - 110.59	100	106	18.5	127	73.4	35.5	100.6	30183605
110.60 - 115.59	100	136	18.5	157	90.4	35.5	110.6	30183607
115.60 - 120.59	100	136	18.5	157	90.4	35.5	115.6	30183608
120.60 - 125.59	100	136	18.5	157	90.4	35.5	120.6	30183609
125.60 - 132.59	100	136	18.5	157	90.4	35.5	125.6	30183610
132.60 - 139.59	100	136	18.5	157	90.4	35.5	132.6	30183611
139.60 - 145.59	100	136	18.5	157	d <sub>1</sub> - 12	35.5	139.6	30183612
145.60 - 155.59	100	136	18.5	157	d <sub>1</sub> - 12	35.5	145.6	30183613
155.60 - 165.59	100	136	18.5	157	d <sub>1</sub> - 12	48.5	155.6	30183614
165.60 - 175.59	100	136	18.5	157	d <sub>1</sub> - 12	48.5	165.6	30183615
175.60 - 185.59	100	136	18.5	157	d <sub>1</sub> - 12	48.5	175.6	30183616
185.60 - 195.59	100	136	18.5	157	d <sub>1</sub> - 12	48.5	185.6	30183617
195.60 - 200.59	100	136	18.5	157	d <sub>1</sub> - 12	48.5	195.6	30183618

## Holder for cutting ring

With radial and axial adjustment

module connection dimensions as per MN 5000-14, with internal coolant supply



### MN76286 - For blind bore, short design

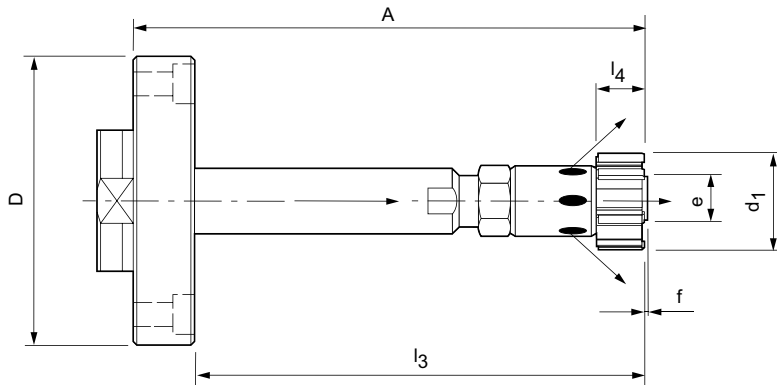
Dimensions							Size	Order No.
d <sub>1</sub>	D	l <sub>3</sub>	l <sub>4</sub>	A	e	f		
21.60 - 25.59	60	81	11.5	94	11.2	1	021.6	30183540
25.60 - 32.59	60	102	13.5	115	15.2	1	025.6	30183542
32.60 - 36.59	60	102	15.5	115	20.3	1.5	032.6	30183544
36.60 - 40.59	60	102	15.5	115	20.3	1.5	036.6	30183546
40.60 - 45.59	60	102	15.5	115	24.1	1.5	040.6	30183548
45.60 - 50.59	60	105	18.5	118	27.8	1.5	045.6	30183550
50.60 - 60.59	60	105	18.5	118	27.8	1.5	050.6	30183552
60.60 - 70.59	100	105	18.5	126	37	1.5	060.6	30183554
70.60 - 79.59	100	105	18.5	126	37	1.5	070.6	30183556
79.60 - 90.59	100	117	18.5	138	53.2	1.5	079.6	30183558
90.60 - 100.59	100	117	18.5	138	53.2	1.5	090.6	30183560



## Holder for cutting ring

With radial and axial adjustment

module connection dimensions as per MN 5000-14, with internal coolant supply

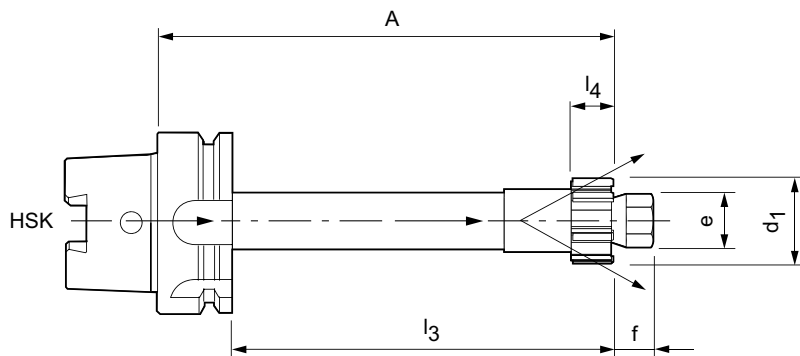


### MN75286 - For through bore and blind bore, short design

Dimensions							Size	Order No.
d <sub>1</sub>	D	l <sub>3</sub>	l <sub>4</sub>	A	e	f		
21.60 - 25.59	60	81	11.5	94	11.2	1	021.6	30183564
25.60 - 32.59	60	102	13.5	115	15.2	1	025.6	30183566
32.60 - 36.59	60	102	15.5	115	20.3	1.5	032.6	30183568
36.60 - 40.59	60	102	15.5	115	20.3	1.5	036.6	30183570
40.60 - 45.59	60	102	15.5	115	24.1	1.5	040.6	30183572
45.60 - 50.59	60	105	18.5	118	27.8	1.5	045.6	30183574
50.60 - 60.59	60	105	18.5	118	27.8	1.5	050.6	30018640
60.60 - 70.59	100	105	18.5	126	37	1.5	060.6	30018490
70.60 - 79.59	100	105	18.5	126	37	1.5	070.6	30183576
79.60 - 90.59	100	117	18.5	138	53.2	1.5	079.6	30183578
90.60 - 100.59	100	117	18.5	138	53.2	1.5	090.6	30183580

## Holder for cutting ring

Shank HSK-A as per DIN 69893-A, with internal coolant supply



### MN75257 - For through bore, short design

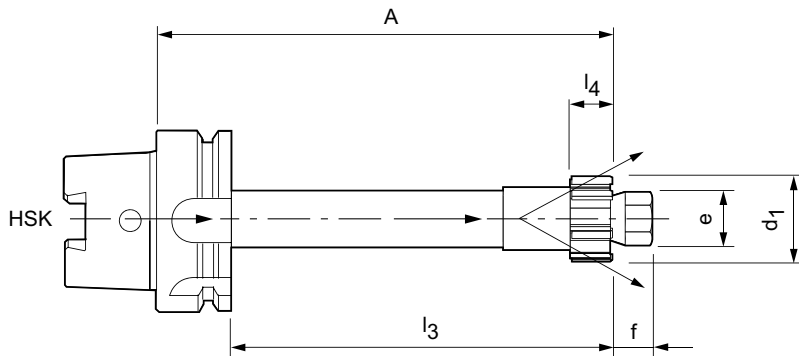
Dimensions							Size	Order No.
d <sub>1</sub>	HSK-A	l <sub>3</sub>	l <sub>4</sub>	A	e	f		
21.60 - 25.59	63	81	11.5	107	11.5	11	021.6	30183334
25.60 - 32.59	63	102	13.5	128	15	11	025.6	30183335
32.60 - 36.59	63	102	15.5	128	21.9	14	032.6	30183336
36.60 - 40.59	63	102	15.5	128	21.9	14	036.6	30183337
40.60 - 45.59	63	102	15.5	128	25.4	15	040.6	30183338
45.60 - 50.59	63	105	18.5	131	30.3	20.5	045.6	30183339
50.60 - 60.59	63	105	18.5	131	30.3	20.5	050.6	30183340
60.60 - 70.59	63	105	18.5	131	40	24.5	060.6	30183341
70.60 - 79.59	63	105	18.5	131	40	24.5	070.6	30183342
79.60 - 90.59	100	105	18.5	134	56.2	28.5	079.6	30183343
90.60 - 100.59	100	105	18.5	134	56.2	28.5	090.6	30183344
100.60 - 110.59	100	106	18.5	135	73.4	35.5	100.6	30183345
110.60 - 115.59	100	136	18.5	165	90.4	35.5	110.6	30183346
115.60 - 120.59	100	136	18.5	165	90.4	35.5	115.6	30183347
120.60 - 125.59	100	136	18.5	165	90.4	35.5	120.6	30183348
125.60 - 132.59	100	136	18.5	165	90.4	35.5	125.6	30183349
132.60 - 139.59	100	136	18.5	165	90.4	35.5	132.6	30183350
139.60 - 145.59	100	136	18.5	165	d <sub>1</sub> - 12	35.5	139.6	30183351
145.60 - 155.59	100	136	18.5	165	d <sub>1</sub> - 12	35.5	145.6	30183352
155.60 - 165.59	100	136	18.5	165	d <sub>1</sub> - 12	48.5	155.6	30183353
165.60 - 175.59	100	136	18.5	165	d <sub>1</sub> - 12	48.5	165.6	30183354
175.60 - 185.59	100	136	18.5	165	d <sub>1</sub> - 12	48.5	175.6	30183355
185.60 - 195.59	100	136	18.5	165	d <sub>1</sub> - 12	48.5	185.6	30183356
195.60 - 200.59	100	136	18.5	165	d <sub>1</sub> - 12	48.5	195.6	30183357
200.60 - 205.59	100	136	18.5	165	d <sub>1</sub> - 12	48.5	200.6	30183358
205.60 - 210.59	100	136	18.5	165	d <sub>1</sub> - 12	48.5	205.6	30183359
210.60 - 215.59	100	136	18.5	165	d <sub>1</sub> - 12	48.5	210.6	30183360
215.60 - 225.59	100	136	18.5	165	d <sub>1</sub> - 12	48.5	215.6	30183361
225.60 - 235.59	100	136	18.5	165	d <sub>1</sub> - 12	48.5	225.6	30183362
235.60 - 245.59	100	136	18.5	165	d <sub>1</sub> - 12	48.5	235.6	30183363
245.60 - 255.59	100	136	18.5	165	d <sub>1</sub> - 12	48.5	245.6	30183364
255.60 - 265.59	100	160	18.5	199	d <sub>1</sub> - 12	51.5	255.6	30183365
265.60 - 275.59	100	160	18.5	199	d <sub>1</sub> - 12	51.5	265.6	30183366
275.60 - 285.59	100	160	18.5	199	d <sub>1</sub> - 12	51.5	275.6	30183367
285.60 - 295.59	100	160	18.5	199	d <sub>1</sub> - 12	51.5	285.6	30183368
295.60 - 300.59	100	160	18.5	199	d <sub>1</sub> - 12	51.5	295.6	30183369

Dimensions in mm.

Please note: The holder and cutting ring must be ordered separately.  
The tools are supplied assembled and set to nominal dimension.

# Holder for cutting ring

Shank HSK-A as per DIN 69893-A, with internal coolant supply



## MN75267 - For through bore, long design

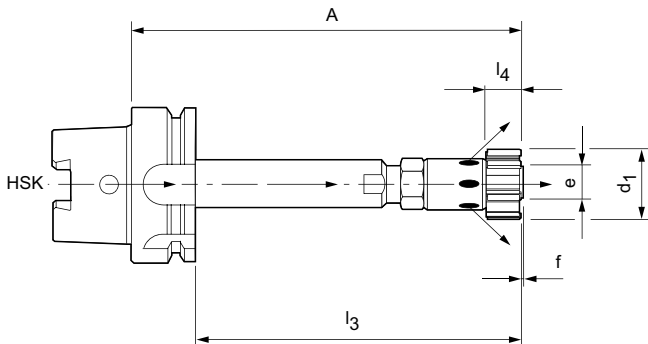
Dimensions							Size	Order No.
d <sub>1</sub>	HSK-A	l <sub>3</sub>	l <sub>4</sub>	A	e	f		
21.60 - 25.59	63	121	11.5	147	11.5	11	021.6	30183383
25.60 - 32.59	63	153	13.5	179	15	11	025.6	30183384
32.60 - 36.59	63	179	15.5	205	21.9	14	032.6	30183385
36.60 - 40.59	63	179	15.5	205	21.9	14	036.6	30183386
40.60 - 45.59	63	201	15.5	227	25.4	15	040.6	30183387
45.60 - 50.59	63	214	18.5	240	30.3	20.5	045.6	30183388
50.60 - 60.59	63	214	18.5	240	30.3	20.5	050.6	30183389
60.60 - 70.59	63	237	18.5	263	40	24.5	060.6	30183390
70.60 - 79.59	63	237	18.5	263	40	24.5	070.6	30183391
79.60 - 90.59	100	245	18.5	274	56.2	28.5	079.6	30183392
90.60 - 100.59	100	245	18.5	274	56.2	28.5	090.6	30183393
100.60 - 110.59	100	245	18.5	274	73.4	35.5	100.6	30183394
110.60 - 115.59	100	245	18.5	274	90.4	35.5	110.6	30183395
115.60 - 120.59	100	245	18.5	274	90.4	35.5	115.6	30183396
120.60 - 125.59	100	245	18.5	274	90.4	35.5	120.6	30183397
125.60 - 132.59	100	245	18.5	274	90.4	35.5	125.6	30183398
132.60 - 139.59	100	245	18.5	274	90.4	35.5	132.6	30183399
139.60 - 145.59	100	245	18.5	274	d <sub>1</sub> - 12	35.5	139.6	30183400
145.60 - 155.59	100	245	18.5	274	d <sub>1</sub> - 12	35.5	145.6	30183401
155.60 - 165.59	100	245	18.5	274	d <sub>1</sub> - 12	48.5	155.6	30183402
165.60 - 175.59	100	245	18.5	274	d <sub>1</sub> - 12	48.5	165.6	30183403
175.60 - 185.59	100	245	18.5	274	d <sub>1</sub> - 12	48.5	175.6	30183404
185.60 - 195.59	100	245	18.5	274	d <sub>1</sub> - 12	48.5	185.6	30183405
195.60 - 200.59	100	245	18.5	274	d <sub>1</sub> - 12	48.5	195.6	30183406
200.60 - 205.59	100	245	18.5	274	d <sub>1</sub> - 12	48.5	200.6	30183407
205.60 - 210.59	100	245	18.5	274	d <sub>1</sub> - 12	48.5	205.6	30183408
210.60 - 215.59	100	245	18.5	274	d <sub>1</sub> - 12	48.5	210.6	30183409
215.60 - 225.59	100	245	18.5	274	d <sub>1</sub> - 12	48.5	215.6	30183410
225.60 - 235.59	100	245	18.5	274	d <sub>1</sub> - 12	48.5	225.6	30183411
235.60 - 245.59	100	245	18.5	274	d <sub>1</sub> - 12	48.5	235.6	30183412
245.60 - 255.59	100	245	18.5	274	d <sub>1</sub> - 12	48.5	245.6	30183413
255.60 - 265.59	100	245	18.5	274	d <sub>1</sub> - 12	51.5	255.6	30183414
265.60 - 275.59	100	245	18.5	274	d <sub>1</sub> - 12	51.5	265.6	30183415
275.60 - 285.59	100	245	18.5	274	d <sub>1</sub> - 12	51.5	275.6	30183416
285.60 - 295.59	100	245	18.5	274	d <sub>1</sub> - 12	51.5	285.6	30183417
295.60 - 300.59	100	245	18.5	274	d <sub>1</sub> - 12	51.5	295.6	30183418

Dimensions in mm.

Please note: The holder and cutting ring must be ordered separately.  
The tools are supplied assembled and set to nominal dimension.

## Holder for cutting ring

Shank HSK-A as per DIN 69893-A, with internal coolant supply



### MN75256 - For through bore and blind bore, short design

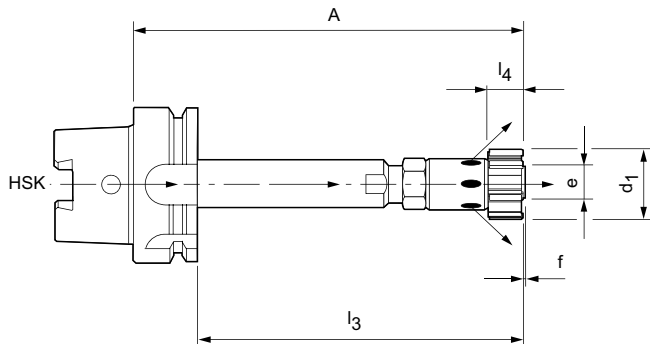
Dimensions							Size	Order No.
d <sub>1</sub>	HSK-A	l <sub>3</sub>	l <sub>4</sub>	A	e	f		
21.60 - 25.59	50	81	11.5	107	11.2	1	021.6	30183322
25.60 - 32.59	50	102	13.5	128	15.2	1	025.6	30183323
32.60 - 36.59	50	102	15.5	128	20.3	1.5	032.6	30183324
36.60 - 40.59	50	102	15.5	128	20.3	1.5	036.6	30183325
40.60 - 45.59	50	102	15.5	128	24.1	1.5	040.6	30183326
45.60 - 50.59	50	105	18.5	131	27.8	1.5	045.6	30183327
50.60 - 60.59	50	105	18.5	131	27.8	1.5	050.6	30183328
60.60 - 70.59	63	105	18.5	131	37	1.5	060.6	30183329
70.60 - 79.59	63	105	18.5	131	37	1.5	070.6	30183330
79.60 - 90.59	63	117	18.5	143	53.2	1.5	079.6	30183331
90.60 - 100.59	63	117	18.5	143	53.2	1.5	090.6	30183332

### MN75266 - For through bore and blind bore, long design

21.60 - 25.59	50	121	11.5	147	11.2	1	021.6	30183371
25.60 - 32.59	50	153	13.5	179	15.2	1	025.6	30183372
32.60 - 36.59	50	179	15.5	205	20.3	1.5	032.6	30183373
36.60 - 40.59	50	179	15.5	205	20.3	1.5	036.6	30183374
40.60 - 45.59	50	200	15.5	226	24.1	1.5	040.6	30183375
45.60 - 50.59	50	214	18.5	240	27.8	1.5	045.6	30183376
50.60 - 60.59	50	214	18.5	240	27.8	1.5	050.6	30183377
60.60 - 70.59	63	237	18.5	263	37	1.5	060.6	30183378
70.60 - 79.59	63	237	18.5	263	37	1.5	070.6	30183379
79.60 - 90.59	63	245	18.5	271	53.2	1.5	079.6	30183380
90.60 - 100.59	63	245	18.5	271	53.2	1.5	090.6	30183381

## Holder for cutting ring

Shank HSK-A as per DIN 69893-A, with internal coolant supply



### MN76256 - For blind bore, short design

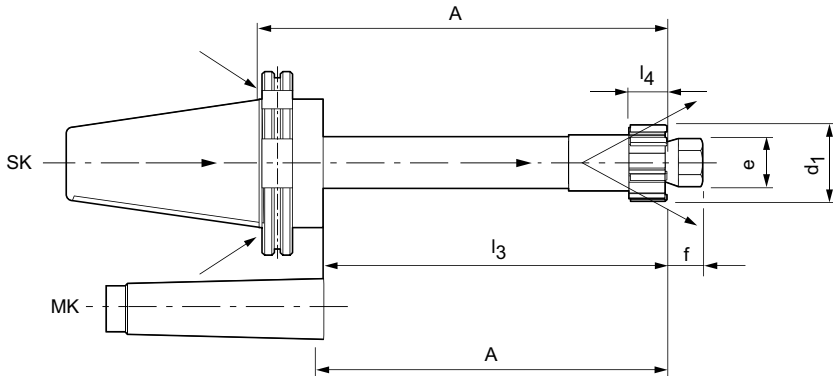
Dimensions							Size	Order No.
d <sub>1</sub>	HSK-A	l <sub>3</sub>	l <sub>4</sub>	A	e	f		
21.60 - 25.59	50	81	11.5	107	11.2	1	021.6	30183299
25.60 - 32.59	50	102	13.5	128	15.2	1	025.6	30183300
32.60 - 36.59	50	102	15.5	128	20.3	1.5	032.6	30183301
36.60 - 40.59	50	102	15.5	128	20.3	1.5	036.6	30183302
40.60 - 45.59	50	102	15.5	128	24.1	1.5	040.6	30183303
45.60 - 50.59	50	105	18.5	131	27.8	1.5	045.6	30183304
50.60 - 60.59	50	105	18.5	131	27.8	1.5	050.6	30183305
60.60 - 70.59	63	105	18.5	131	37	1.5	060.6	30183306
70.60 - 79.59	63	105	18.5	131	37	1.5	070.6	30244049
79.60 - 90.59	63	117	18.5	143	53.2	1.5	079.6	30183307
90.60 - 100.59	63	117	18.5	143	53.2	1.5	090.6	30183308

### MN76266 - For blind bore, long design

21.60 - 25.59	50	121	11.5	147	11.2	1	021.6	30183310
25.60 - 32.59	50	153	13.5	179	15.2	1	025.6	30183311
32.60 - 36.59	50	179	15.5	205	20.3	1.5	032.6	30183312
36.60 - 40.59	50	179	15.5	205	20.3	1.5	036.6	30183313
40.60 - 45.59	50	200	15.5	226	24.1	1.5	040.6	30183314
45.60 - 50.59	50	214	18.5	240	27.8	1.5	045.6	30183315
50.60 - 60.59	50	214	18.5	240	27.8	1.5	050.6	30183316
60.60 - 70.59	63	237	18.5	263	37	1.5	060.6	30183317
70.60 - 79.59	63	237	18.5	263	37	1.5	070.6	30183318
79.60 - 90.59	63	245	18.5	271	53.2	1.5	079.6	30183319
90.60 - 100.59	63	245	18.5	271	53.2	1.5	090.6	30183320

# Holder for cutting ring

Morse taper shank or shank SK as per ISO 7388-1, form AD/AF, with internal coolant supply



## MN75217 - For through bore, short design

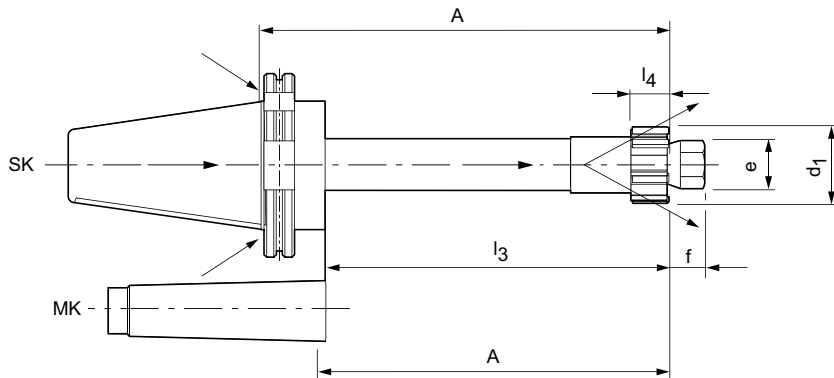
Dimensions								Size	Order No.
d <sub>1</sub>	MK	SK	l <sub>3</sub>	l <sub>4</sub>	A	e	f		
21.60 - 25.59	2	-	81	11.5	86	11.5	11	021.6	30183484
25.60 - 32.59	3	-	102	13.5	107	15	11	025.6	30183485
32.60 - 36.59	3	-	102	15.5	107	21.9	14	032.6	30183486
36.60 - 40.59	3	-	102	15.5	107	21.9	14	036.6	30082419
40.60 - 45.59	3	-	102	15.5	107	25.4	15	040.6	30183487
45.60 - 50.59	4	-	105	18.5	111.5	30.3	20.5	045.6	30183488
50.60 - 60.59	4	-	105	18.5	111.5	30.3	20.5	050.6	30082417
60.60 - 70.59	-	50	105	18.5	143.1	40.0	24.5	060.6	30057566
70.60 - 79.59	-	50	105	18.5	143.1	40.0	24.5	070.6	30183489
79.60 - 90.59	-	50	105	18.5	124.1	56.2	28.5	079.6	30183490
90.60 - 100.59	-	50	105	18.5	124.1	56.2	28.5	090.6	30077763
100.60 - 110.59	-	50	106	18.5	125.1	73.4	35.5	100.6	30183491
110.60 - 115.59	-	50	136	18.5	155.1	90.4	35.5	110.6	30058626
115.60 - 120.59	-	50	136	18.5	155.1	90.4	35.5	115.6	30076909
120.60 - 125.59	-	50	136	18.5	155.1	90.4	35.5	120.6	30183492
125.60 - 132.59	-	50	136	18.5	155.1	90.4	35.5	125.6	30183493
132.60 - 139.59	-	50	136	18.5	155.1	90.4	35.5	132.6	30183494
139.60 - 145.59	-	50	136	18.5	155.1	d <sub>1</sub> - 12	35.5	139.6	30183495
145.60 - 155.59	-	50	136	18.5	155.1	d <sub>1</sub> - 12	35.5	145.6	30058627
155.60 - 165.59	-	50	136	18.5	155.1	d <sub>1</sub> - 12	48.5	155.6	30077764
165.60 - 175.59	-	50	136	18.5	155.1	d <sub>1</sub> - 12	48.5	165.6	30183496
175.60 - 185.59	-	50	136	18.5	155.1	d <sub>1</sub> - 12	48.5	175.6	30183497
185.60 - 195.59	-	50	136	18.5	155.1	d <sub>1</sub> - 12	48.5	185.6	30243815
195.60 - 200.59	-	50	136	18.5	155.1	d <sub>1</sub> - 12	48.5	195.6	30183498
200.60 - 205.59	-	50	136	18.5	155.1	d <sub>1</sub> - 12	48.5	200.6	30077765
205.60 - 210.59	-	50	136	18.5	155.1	d <sub>1</sub> - 12	48.5	205.6	30183499
210.60 - 215.59	-	50	136	18.5	155.1	d <sub>1</sub> - 12	48.5	210.6	30183500
215.60 - 225.59	-	50	136	18.5	155.1	d <sub>1</sub> - 12	48.5	215.6	30183501
225.60 - 235.59	-	50	136	18.5	155.1	d <sub>1</sub> - 12	48.5	225.6	30183502
235.60 - 245.59	-	50	136	18.5	155.1	d <sub>1</sub> - 12	48.5	235.6	30183503
245.60 - 255.59	-	50	136	18.5	155.1	d <sub>1</sub> - 12	48.5	245.6	30183504
255.60 - 265.59	-	50	160	18.5	179.1	d <sub>1</sub> - 12	51.5	255.6	30183505
265.60 - 275.59	-	50	160	18.5	179.1	d <sub>1</sub> - 12	51.5	265.6	30183506
275.60 - 285.59	-	50	160	18.5	179.1	d <sub>1</sub> - 12	51.5	275.6	30183507
285.60 - 295.59	-	50	160	18.5	179.1	d <sub>1</sub> - 12	51.5	285.6	30183508
295.60 - 300.59	-	50	160	18.5	179.1	d <sub>1</sub> - 12	51.5	295.6	30183509

Dimensions in mm.

Please note: The holder and cutting ring must be ordered separately. The tools are supplied assembled and set to nominal dimension.

## Holder for cutting ring

Morse taper shank or shank SK as per ISO 7388-1, form AD/AF, with internal coolant supply



### MN75227 - For through bore, long design

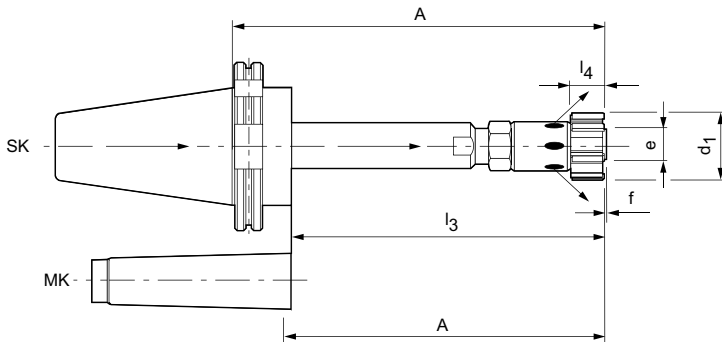
Dimensions								Size	Order No.
d <sub>1</sub>	MK	SK	l <sub>3</sub>	l <sub>4</sub>	A	e	f		
21.60 - 25.59	2	-	121	11.5	126	11.5	11	021.6	30183525
25.60 - 32.59	3	-	153	13.5	158	15	11	025.6	30183527
32.60 - 36.59	3	-	179	15.5	184	21.9	14	032.6	30183529
36.60 - 40.59	3	-	179	15.5	184	21.9	14	036.6	30183530
40.60 - 45.59	3	-	201	15.5	206	25.4	15	040.6	30183532
45.60 - 50.59	4	-	214	18.5	220.5	30.3	20.5	045.6	30183535
50.60 - 60.59	4	-	214	18.5	220.5	30.3	20.5	050.6	30183536
60.60 - 70.59	-	50	237	18.5	275.1	40	24.5	060.6	30183422
70.60 - 79.59	-	50	237	18.5	275.1	40	24.5	070.6	30183423
79.60 - 90.59	-	50	245	18.5	264.1	56.2	28.5	079.6	30183424
90.60 - 100.59	-	50	245	18.5	264.1	56.2	28.5	090.6	30183425
100.60 - 110.59	-	50	245	18.5	264.1	73.4	35.5	100.6	30183426
110.60 - 115.59	-	50	245	18.5	264.1	90.4	35.5	110.6	30183427
115.60 - 120.59	-	50	245	18.5	264.1	90.4	35.5	115.6	30033907
120.60 - 125.59	-	50	245	18.5	264.1	90.4	35.5	120.6	30183428
125.60 - 132.59	-	50	245	18.5	264.1	90.4	35.5	125.6	30183429
132.60 - 139.59	-	50	245	18.5	264.1	90.4	35.5	132.6	30183430
139.60 - 145.59	-	50	245	18.5	264.1	d <sub>1</sub> - 12	35.5	139.6	30183431
145.60 - 155.59	-	50	245	18.5	264.1	d <sub>1</sub> - 12	35.5	145.6	30183432
155.60 - 165.59	-	50	245	18.5	264.1	d <sub>1</sub> - 12	48.5	155.6	30183433
165.60 - 175.59	-	50	245	18.5	264.1	d <sub>1</sub> - 12	48.5	165.6	30183434
175.60 - 185.59	-	50	245	18.5	264.1	d <sub>1</sub> - 12	48.5	175.6	30183435
185.60 - 195.59	-	50	245	18.5	264.1	d <sub>1</sub> - 12	48.5	185.6	30183436
195.60 - 200.59	-	50	245	18.5	264.1	d <sub>1</sub> - 12	48.5	195.6	30183437
200.60 - 205.59	-	50	245	18.5	264.1	d <sub>1</sub> - 12	48.5	200.6	30183438
205.60 - 210.59	-	50	245	18.5	264.1	d <sub>1</sub> - 12	48.5	205.6	30183439
210.60 - 215.59	-	50	245	18.5	264.1	d <sub>1</sub> - 12	48.5	210.6	30183440
215.60 - 225.59	-	50	245	18.5	264.1	d <sub>1</sub> - 12	48.5	215.6	30183441
225.60 - 235.59	-	50	245	18.5	264.1	d <sub>1</sub> - 12	48.5	225.6	30183442
235.60 - 245.59	-	50	245	18.5	264.1	d <sub>1</sub> - 12	48.5	235.6	30183443
245.60 - 255.59	-	50	245	18.5	264.1	d <sub>1</sub> - 12	48.5	245.6	30183444
255.60 - 265.59	-	50	245	18.5	264.1	d <sub>1</sub> - 12	51.5	255.6	30183445
265.60 - 275.59	-	50	245	18.5	264.1	d <sub>1</sub> - 12	51.5	265.6	30183446
275.60 - 285.59	-	50	245	18.5	264.1	d <sub>1</sub> - 12	51.5	275.6	30183447
285.60 - 295.59	-	50	245	18.5	264.1	d <sub>1</sub> - 12	51.5	285.6	30183448
295.60 - 300.59	-	50	245	18.5	264.1	d <sub>1</sub> - 12	51.5	295.6	30183449

Dimensions in mm.

Please note: The holder and cutting ring must be ordered separately. The tools are supplied assembled and set to nominal dimension.

## Holder for cutting ring

Morse taper shank or shank SK as per ISO 7388-1, form AD/AF,  
with internal coolant supply



### MN76216 - For blind bore, short design

Dimensions								Size	Order No.
d <sub>1</sub>	MK	SK	l <sub>3</sub>	l <sub>4</sub>	A	e	f		
21.60 - 25.59	2	-	81	11.5	86	11.2	1	021.6	30183451
25.60 - 32.59	3	-	102	13.5	107	15.2	1	025.6	30183452
32.60 - 36.59	3	-	102	15.5	107	20.3	1.5	032.6	30183453
36.60 - 40.59	3	-	102	15.5	107	20.3	1.5	036.6	30183454
40.60 - 45.59	3	-	102	15.5	107	24.1	1.5	040.6	30183455
45.60 - 50.59	4	-	105	18.5	111.5	27.8	1.5	045.6	30183456
50.60 - 60.59	4	-	105	18.5	111.5	27.8	1.5	050.6	30183457
60.60 - 70.59	-	50	105	18.5	143.1	37	1.5	060.6	30183458
70.60 - 79.59	-	50	107	18.5	143.1	37	1.5	070.6	30183459
79.60 - 90.59	-	50	117	18.5	136.1	53.2	1.5	079.6	30183460
90.60 - 100.59	-	50	117	18.5	136.1	53.2	1.5	090.6	30183461

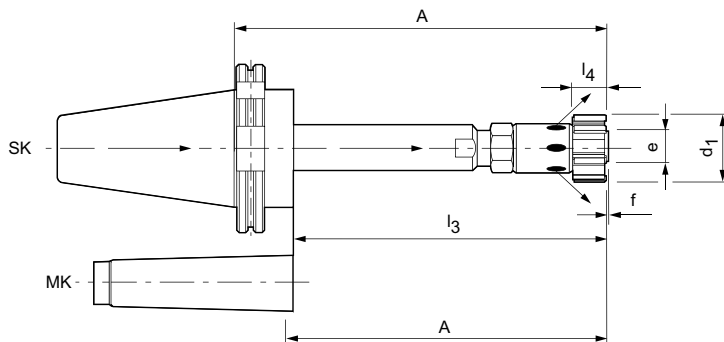
### MN76226 - For blind bore, long design

21.60 - 25.59	2	-	121	11.5	126	11.2	1	021.6	30183463
25.60 - 32.59	3	-	153	13.5	158	15.2	1	025.6	30183464
32.60 - 36.59	3	-	179	15.5	184	20.3	1.5	032.6	30183465
36.60 - 40.59	3	-	179	15.5	184	20.3	1.5	036.6	30183466
40.60 - 45.59	3	-	200	15.5	205	24.1	1.5	040.6	30183467
45.60 - 50.59	4	-	214	18.5	220.5	27.8	1.5	045.6	30183468
50.60 - 60.59	4	-	214	18.5	220.5	27.8	1.5	050.6	30206526
60.60 - 70.59	-	50	237	18.5	275.1	37	1.5	060.6	30183469
70.60 - 79.59	-	50	239	18.5	275.1	37	1.5	070.6	30243944
79.60 - 90.59	-	50	245	18.5	264.1	53.2	1.5	079.6	30183470
90.60 - 100.59	-	50	245	18.5	264.1	53.2	1.5	090.6	30183471



## Holder for cutting ring

Morse taper shank or shank SK as per ISO 7388-1, form AD/AF,  
with internal coolant supply



### MN75216 - For through bore and blind bore, short design

Dimensions								Size	Order No.
d <sub>1</sub>	MK	SK	l <sub>3</sub>	l <sub>4</sub>	A	e	f		
21.60 - 25.59	2	-	81	11.5	86	11.2	1	021.6	30183473
25.60 - 32.59	3	-	102	13.5	107	15.2	1	025.6	30183474
32.60 - 36.59	3	-	102	15.5	107	20.3	1.5	032.6	30183475
36.60 - 40.59	3	-	102	15.5	107	20.3	1.5	036.6	30183476
40.60 - 45.59	3	-	102	15.5	107	24.1	1.5	040.6	30183477
45.60 - 50.59	4	-	105	18.5	111.5	27.8	1.5	045.6	30183478
50.60 - 60.59	4	-	105	18.5	111.5	27.8	1.5	050.6	30183479
60.60 - 70.59	-	50	105	18.5	143.1	37	1.5	060.6	30036894
70.60 - 79.59	-	50	107	18.5	143.1	37	1.5	070.6	30183480
79.60 - 90.59	-	50	117	18.5	136.1	53.2	1.5	079.6	30183481
90.60 - 100.59	-	50	117	18.5	136.1	53.2	1.5	090.6	30183482

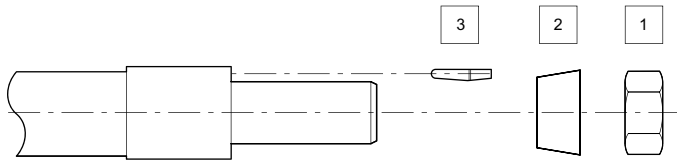
### MN75226 - For through bore and blind bore, long design

21.60 - 25.59	2	-	121	11.5	126	11.2	1	021.6	30183511
25.60 - 32.59	3	-	153	13.5	158	15.2	1	025.6	30183512
32.60 - 36.59	3	-	179	15.5	184	20.3	1.5	032.6	30183513
36.60 - 40.59	3	-	179	15.5	184	20.3	1.5	036.6	30183514
40.60 - 45.59	3	-	200	15.5	205	24.1	1.5	040.6	30183516
45.60 - 50.59	4	-	214	18.5	220.5	27.8	1.5	045.6	30183518
50.60 - 60.59	4	-	214	18.5	220.5	27.8	1.5	050.6	30183520
60.60 - 70.59	-	50	237	18.5	275.1	37	1.5	060.6	30092179
70.60 - 79.59	-	50	239	18.5	275.1	37	1.5	070.6	30183419
79.60 - 90.59	-	50	245	18.5	264.1	53.2	1.5	079.6	30183420
90.60 - 100.59	-	50	245	18.5	264.1	53.2	1.5	090.6	30183421

## Spare parts

For holders for cutting rings

**For type:**  
 MN75217, MN75227  
 MN75257, MN75267  
 MN75247  
 MN75287

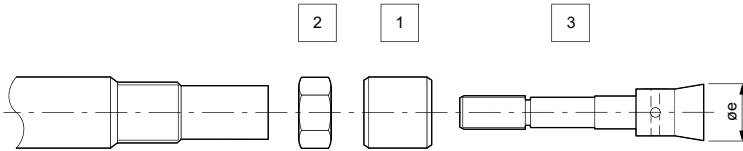


d <sub>1</sub>	1   Adjusting nut Order No.	2   Adjusting sleeve Order No.	3   Locking pin Order No.
21.60 - 25.59	10045282	10045293	10045321
25.60 - 32.59	10045285	10045294	10045322
32.60 - 36.59	10045286	10045295	10045323
36.60 - 40.59	10045286	10045295	10045323
40.60 - 45.59	10045287	10045296	10045324
45.60 - 50.59	10045288	10045297	10045325
50.60 - 60.59	10045288	10045297	10045325
60.60 - 70.59	10045289	10045298	10045326
70.60 - 79.59	10045289	10045298	10045326
79.60 - 90.59	10045290	10045299	10045327
90.60 - 100.59	10045290	10045299	10045327
100.60 - 110.59	10045291	10045300	10045327
110.60 - 115.59	10045291	10045301	10045327
115.60 - 120.59	10045291	10045302	10045327
120.60 - 125.59	10045291	10045302	10045327
125.60 - 132.59	10045291	10045303	10045328
132.60 - 139.59	10045291	10045303	10045328
139.60 - 145.59	10045291	10045304	10045328
145.60 - 155.59	10045291	10045305	10045329
155.60 - 165.59	10045292	10045306	10045329
165.60 - 175.59	10045292	10045307	10045329
175.60 - 185.59	10045292	10045308	10045329
185.60 - 195.59	10045292	10045309	10045329
195.60 - 200.59	10045292	10045310	10045329
200.60 - 205.59	10045292	10045310	10045329
205.60 - 210.59	10045292	10045311	10045329
210.60 - 215.59	10045292	10045311	10045329
215.60 - 225.59	10045292	10045312	10045329
225.60 - 235.59	10045292	10045313	10045329
235.60 - 245.59	10045292	10045314	10045329
245.60 - 255.59	10045292	10045315	10045329
255.60 - 265.59	50037875	10045316	10045329
265.60 - 275.59	50037875	10045317	10045329
275.60 - 285.59	50037875	10045318	10045329
285.60 - 295.59	50037875	10045319	10045329
295.60 - 300.59	50037875	10045320	10045329

## Spare parts

For holders for cutting rings

**For type:**  
MN73227, MN73228  
MN73237, MN73238  
MN73217, MN73218



### Sleeve and adjusting nut for $\varnothing 21.60 - \varnothing 45.59$

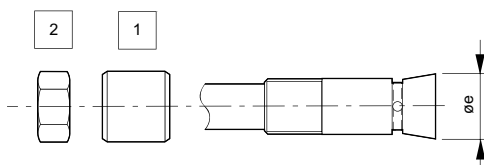
$d_1$	1   Sleeve Order No.	2   Adjusting nut Order No.
21.60 - 25.59	10045332	10045392
25.60 - 32.59	10045333	10045393
32.60 - 36.59	10045334	10045394
36.60 - 40.59	50034482	10045394
40.60 - 45.59	10045335	10045395

### 3 | Taper screw

$d_1$	For through bore Order No.	For blind bore Order No.
21.60 - 25.59	10045342	10045347
25.60 - 32.59	10045343	10045348
32.60 - 36.59	10045344	10045349
36.60 - 40.59	10045344	10045349
40.60 - 45.59	10045345	10045350

### 3 | Taper screw - for blind bore after repair

$d_1$	$e + 1.2$ Order No.	$e + 2.4$ Order No.
21.60 - 25.59	10045352	10045357
25.60 - 32.59	10045353	10045358
32.60 - 36.59	10045354	10045359
36.60 - 40.59	10045354	10045359
40.60 - 45.59	10045355	10045360



### Sleeve and adjusting nut for $\varnothing 45.60 - \varnothing 100.59$

$d_1$	1   Sleeve Order No.	2   Setting nut Order No.
45.60 - 60.59	10045361	10045364
60.60 - 79.59	10045362	10045365
79.60 - 100.59	10045363	10045366

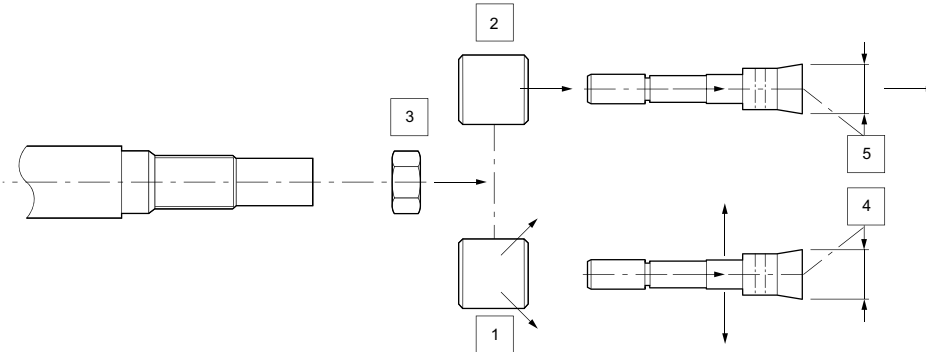
Dimensions in mm.

## Spare parts

For holders for cutting rings

### For type:

MN75216, MN75226  
MN76216, MN76226  
MN75256, MN75266  
MN76256, MN76266  
MN75236, MN76236  
MN76286, MN75286



### Sleeve and adjusting nut for $\varnothing 21.60 - \varnothing 100.59$

$d_1$	1   Sleeve with coolant outlet Order No.	2   Sleeve Order No.	3   Adjusting nut Order No.
21.60 - 25.59	10045368	50034483	10045392
25.60 - 32.59	10045369	50034484	10045393
32.60 - 36.59	10045370	50034485	10045394
36.60 - 40.59	10045371	-	-
40.60 - 45.59	10045372	50034486	10045395
45.60 - 50.59	10045373	50034487	10045364
50.60 - 60.59	10045374	50034488	10045364
60.60 - 70.59	10045375	50034489	50034493
70.60 - 79.59	10045376	50034490	50034493
79.60 - 90.59	10045377	50034491	50034494
90.60 - 100.59	10045378	50034492	50034494

### 4 | Taper screw with coolant outlet

$d_1$	Order No.	Repair e + 1.2 Order No.	Repair e + 2.4 Order No.
21.60 - 25.59	10045400	10045408	10045416
25.60 - 32.59	10045401	10045409	10045417
32.60 - 40.59	10045402	10045410	10045418
40.60 - 45.59	10045403	10045411	10045419
45.60 - 60.59	10045404	10045412	10045420
60.60 - 79.59	10045405	10045413	10045421
79.60 - 100.59	10045406	10045414	10045422

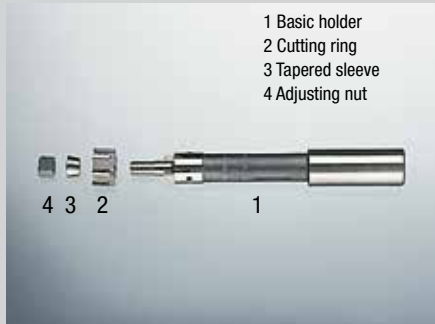
### 5 | Taper screw with central coolant supply

$d_1$	Order No.	Repair e + 1.2 Order No.	Repair e + 2.4 Order No.
21.60 - 25.59	50034536	10045432	10045440
25.60 - 32.59	50034537	10045433	10045441
32.60 - 40.59	50034538	10045434	10045442
40.60 - 45.59	50034539	10045435	10045443
45.60 - 60.59	50034540	10045436	10045444
60.60 - 79.59	50034541	10045437	10045445
79.60 - 100.59	50034542	10045438	10045446



# Handling

## Adjustable cutting rings with tapered sleeve



Thoroughly clean each of the parts and lightly grease the thread on the holder (we recommend copper grease).



Slide cutting ring onto holder (checking the direction of the cutting edges).

**Note:** With internal coolant supply, the markings on the cutting ring and the holder must align.



Slide the tapered sleeve onto the holder.



Tighten the adjusting nut by hand in the direction of the arrow (check symbol on nut).

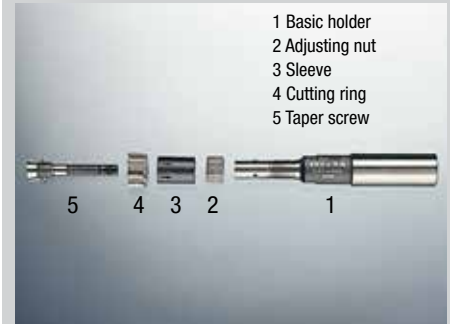
**Note:** The cut-out on the cutting ring must be in the direction of rotation of the tool at the drive pin.



Set the cutting ring by tightening the adjusting nut to the nominal dimension.

Measuring blades are marked behind the blade by a mark, a number or a boss.

## Adjustable cutting rings with taper screw



Clean all parts and lightly grease the thread on the holder and the taper screw (we recommend copper grease).



Screw adjusting nut right up to the thread.

**Note:** Against the direction of the arrow on the adjusting nut (check symbol on adjusting nut).



Slide sleeve onto holder. (allowing for coolant outlet bore).



Slide cutting ring onto taper screw (cutting edges at front).

Important note: The shoulders of the taper screw and the front of the holder must be free of grease.



Screw in taper screw with cutting ring as far as the stop on the holder.

Note: With internal coolant supply, the markings on the cutting ring and the sleeve must align.



Tighten taper screw with torque key as shown in the guideline table.



Tighten the adjusting nut by hand in the direction of the arrow.

Note: The cut-out on the cutting ring must be in the direction of rotation of the tool at the drive pin. For tools with internal coolant supply, the coolant bores (in the sleeve) must be aligned with the cutting edges.



Set the cutting ring by tightening the adjusting nut to the nominal dimension. Measuring blades are marked behind the blade by a mark, a number or a boss.

### Torque guideline table for adjustable cutting rings

∅ Range	Nm	ft/lbs
18 – 25	18 – 22	13 – 16
26 – 32	28 – 33	21 – 24
33 – 40	48 – 55	35 – 41
41 – 45	65 – 75	48 – 55
46 – 60	90 – 110	66 – 81
61 – 79	120 – 140	88 – 103
80 – 100	180 – 220	133 – 162

## Machining in the high speed cutting range (Guidelines)

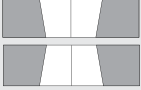
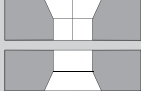


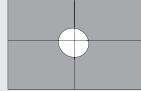


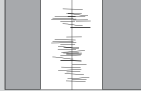

Material to be machined	Min. tensile strength N/mm <sup>2</sup>	Cutting ring			Cutting materials					
		Lead			Carbide		TiN		Cermets	
		20°	25°	45°	v <sub>c</sub>	f <sub>z</sub>	v <sub>c</sub>	f <sub>z</sub>	v <sub>c</sub>	f <sub>z</sub>
Non-alloy steel	< 500	■		■			120	0.08-0.17	120-200	0.05-0.18
Non-alloy/low alloy steel	500-900	■		■			120	0.08-0.17	100-150	0.05-0.18
Lead-alloy free-cutting steel		■		■			120	0.08-0.17	100-180	0.05-0.18
Non-alloy/low alloy steel	> 900	■		■			80	0.08-0.14	80-120	0.05-0.18
High-alloy steel				■			30	0.06-0.12		
HSS				■			20	0.06-0.12		
Special alloys				■			30	0.06-0.12		
Stainless steel	< 600			■			30	0.06-0.12		
Stainless steel	> 600			■			20	0.06-0.12		
Stainless, heat-resistant steel	> 750			■			20	0.06-0.12		
Cast iron				■			75	0.11-0.19		
Cast iron alloy				■			50	0.11-0.19		
Spheroidal graphite cast iron, ferritic, malleable	< 600			■			150	0.11-0.19	100-180	0.08-0.2
Spheroidal graphite cast iron, perlitic, malleable	> 600			■			100	0.11-0.19	120	0.11-0.19
Spheroidal graphite cast iron alloy				■			45	0.11-0.19		
Titanium, titanium alloy										
Copper alloys, brass, lead-alloy bronze, leaded bronze with good cutting properties				■	150	0.15-0.25	120	0.1-0.18	200	0.1-0.18
Copper alloys, brass, bronze with medium cutting properties				■			100	0.1-0.18	150	0.1-0.18
Copper, copper alloys, aluminium, manganese and phosphor bronze, difficult cutting properties				■			60	0.1-0.18		
Wrought aluminium alloy, magnesium alloy										
Cast aluminium alloy, Si-content < 10 %					350	0.15-0.25				
Cast aluminium alloy, Si-content > 10 %					350	0.15-0.25				0.12-0.20
Plastics										
Fibreglass reinforced plastics				■			40	0.12-0.20		



# Machining in the standard cutting range (Guidelines)

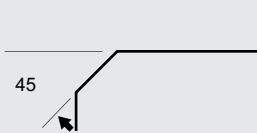
Material to be machined	Min. tensile strength N/mm <sup>2</sup>	Cutting ring				Cutting materials	
		Lead				HM	
		30°/2°	30°/4°	45(30)°	45°/8°	v <sub>c</sub>	f <sub>z</sub>
Non-alloy steel	< 500			■		8	0.08-0.13
Non-alloy/low alloy steel	500-900				■	8	0.08-0.15
Lead-alloy free-cutting steel				■		30	0.08-0.13
Non-alloy/low alloy steel	> 900			■		7	0.05-0.10
High-alloy steel				■		5	0.05-0.08
HSS				■		4	0.05-0.08
Special alloys				■		5	0.05-0.08
Stainless steel	< 600			■		6	0.05-0.08
Stainless steel	> 600			■		5	0.05-0.08
Stainless, heat-resistant steel	> 750			■		5	0.05-0.08
Cast iron				■		15	0.09-0.13
Cast iron alloy				■		8	0.09-0.13
Spheroidal graphite cast iron, ferritic, malleable	< 600				■	12	0.08-0.17
Spheroidal graphite cast iron, perlitic, malleable	> 600			■		10	0.09-0.13
Spheroidal graphite cast iron alloy				■		8	0.09-0.13
Titanium, titanium alloy		■		■		10	0.1-0.18
Copper alloys, brass, lead-alloy bronze, leaded bronze with good cutting properties				■		20	0.08-0.13
Copper alloys, brass, bronze with medium cutting properties				■		15	0.08-0.13
Copper, copper alloys, aluminium, manganese and phosphor bronze, difficult cutting properties						12	0.08-0.13
Wrought aluminium alloy, magnesium alloy					■	10	0.08-0.15
Cast aluminium alloy, Si-content < 10 %					■	10	0.08-0.15
Cast aluminium alloy, Si-content > 10 %				■		12	0.08-0.13
Plastics						20	0.1-0.18
Fibreglass reinforced plastics				■		8	0.09-0.15

# Troubleshooting

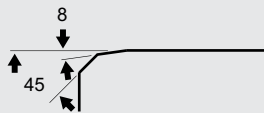
Question	Reason	Solution
Conical bore 	<ul style="list-style-type: none"> <li>- Axis not accurate for workpiece/operating spindle</li> </ul>	<ul style="list-style-type: none"> <li>- Reduce axial error max. 0.005 mm</li> <li>- If this is not possible, apply axis-parallel adjustment</li> </ul>
Conical run-in Conical run-out 	<ul style="list-style-type: none"> <li>- Alignment not correct</li> <li>- Difference between spindle and tool axis</li> <li>- Blade is cutting from the back</li> </ul>	<ul style="list-style-type: none"> <li>- Correct alignment or use centralising device</li> <li>- Correct tailstock or use centralising device</li> <li>- Improve axial alignment</li> <li>- Check back taper on blade</li> </ul>
Barrel-shaped bore 	<ul style="list-style-type: none"> <li>- Part may be distorted if walls are thick</li> </ul>	<ul style="list-style-type: none"> <li>- Reduce clamping force or change direction of clamping force</li> </ul>
Bore too large 	<ul style="list-style-type: none"> <li>- Inaccurate concentricity</li> <li>- Alignment incorrect, reamer cutting from behind</li> <li>- Wrong coolant</li> <li>- Reamer size too large</li> </ul>	<ul style="list-style-type: none"> <li>- Use centralising device</li> <li>- Adjust alignment or use centralising device or floating holder</li> <li>- Use different coolant</li> <li>- Smaller reamer, possible lap smaller in diameter</li> <li>- Check back taper on cutting edge</li> </ul>
Bore not concentric 	<ul style="list-style-type: none"> <li>- Part is distorted</li> <li>- Run-out too great and inaccurate alignment</li> <li>- Asymmetric cutting</li> </ul>	<ul style="list-style-type: none"> <li>- Reduce clamping pressure and possibly use different clamping method</li> <li>- Adjust alignment or use centralising device or floating holder</li> <li>- Countersink bore</li> </ul>
Chatter marks 	<ul style="list-style-type: none"> <li>- Eccentric workpiece/operating spindle</li> </ul>	<ul style="list-style-type: none"> <li>- Reduce axial error to max. 0.005 mm</li> <li>- If not possible, use axis parallel adjustment</li> </ul>
Blade 'digging in' 	<ul style="list-style-type: none"> <li>- Back taper on blade not sufficient</li> </ul>	<ul style="list-style-type: none"> <li>- Increase back taper, regrind</li> </ul>
Bad surface finish 	<ul style="list-style-type: none"> <li>- Feed rate too high</li> <li>- Wrong cutting speed</li> <li>- Bad lubrication</li> <li>- Inadequate lubrication</li> <li>- Chip accumulation</li> <li>- Build-up on cutting edges</li> <li>- Build-up on radial land</li> <li>- Rough machining with insufficient allowance</li> <li>- Too much wear on blade</li> </ul>	<ul style="list-style-type: none"> <li>- Reduce feed rate</li> <li>- Adjust cutting speed to value shown in table</li> <li>- Apply lubrication</li> <li>- With internal coolant supply, increase amount of coolant</li> <li>- Use blade with different radial rake</li> <li>- Increase allowance by at least the degree of surface uniformity for the roughing operation</li> <li>- Check whether coolant supply is suitable for this operation</li> <li>- Replace ring</li> </ul>
Bore not true 	<ul style="list-style-type: none"> <li>- Allowance too low for roughing</li> <li>- Roughing not properly executed</li> </ul>	<ul style="list-style-type: none"> <li>- Increase allowance</li> <li>- Check roughing operation</li> </ul>

Please provide the following information so that we can process your enquiry efficiently:

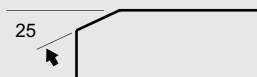
**The required cutting lead information:**



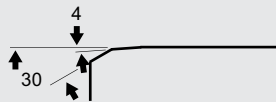
Single Lead 45°: generally used for short chipping materials and for TIN coated reamers.



Double Lead 45°/8°: generally used for long chipping materials.



Single Lead 25°: for left hand flute coated rapid set heads.



Double Lead 30°/4°: for left hand flute rapid set heads. Benefit: Substantial higher feed rates possible.



90° face cut: slight alignment adjustments possible

Please tick the form of cutting lead required:

**HSC range**

- 20° (Cutting lead-skiving)
- 25°
- 45°

**Standard cutting range**

- 20°/2° (Titan)
- 30°/4°
- 45° (30°)
- 45°/8°

For recommended cutting leads and machining values, see page 29 and 30. Other cutting leads can be supplied on request.

Company:

Department:

Tel. No.:

Fax No.:

E-Mail:

**Tool order**

Type:       Ø:       Tolerance:

**Details of part to be machined**

Material:

Tensile strength:

**Bores**

Diameters to be machined and permissible tolerances:

Machining allowance:

Lengths of bore:

**Through bore or blind bore?**

Is the bore interrupted?  yes  no

Surface quality required:

Other qualities required:

**Tool holder**

Location:

Spindle arrangement:  horizontal  vertical  
 Tool:  stationary  rotating  
 Internal coolant supply?  yes  no

Coolant use:

Ratio of mixture:

Description/Name:

Machine:



**BECK**  
MAPAL GROUP

Your Specialist for  
Multi-bladed Reamers and Counterboring Tools

High Performance Reamers  
with internal coolant supply in a monobloc design  
and modular system

Machine Reamers without internal coolant supply  
in accordance with DIN or similar to DIN

Hand Reamers and Taper Reamers

Core Drills

Countersinks / Counterbores / Deburring Tools

[www.beck-tools.de](http://www.beck-tools.de)