

MAPAL Multicut Reamers

The modular multiblade system



Perfect for you.

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.

The advantages at a glance:

- the tool can be adjusted to the diameter of the bore within the specified bore tolerance
- cutting rings are available as standard items up to a diameter of 300 mm
- can be combined with all different holders for the respective diameters
- Multicut cutting rings are suitable for use at high speeds



Rapid set heads – efficient and precise

One particularly economical type of application for MAPAL Multicut reamers is using rapid set heads. The ability to change heads with repeatable accuracy, minimized the time needed for tool changes.

Just as with the fixed monobloc reamers, a variety of high performance cutting materials

can be used. A simple but effective tool design for economic production.

Can be used from \geq IT7.

Multicut rapid set heads are produced to 2/3 tolerance specification.

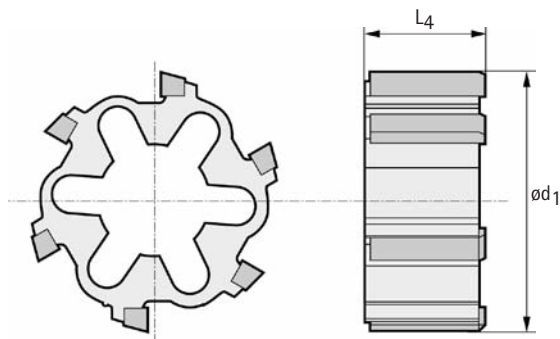
The advantages at a glance:

- only 8 different holders required for all the diameters in the series
- short tool change times for economical use




Adjustable cutting rings

Cutting material	Type
Carbide	MN73101
TiN	MN73102
Cermet	MN73104



MN73101, Carbide

ød ₁ mm	L ₄ mm		Avail- ability	Price/Piece € Round ø in H7 tolerance	Other diameters or tolerances Price in € acc. to order quantity		
					1	2-4	5-9
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	8	●				
75,60 - 79,59	18,5	8	●				
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	○				

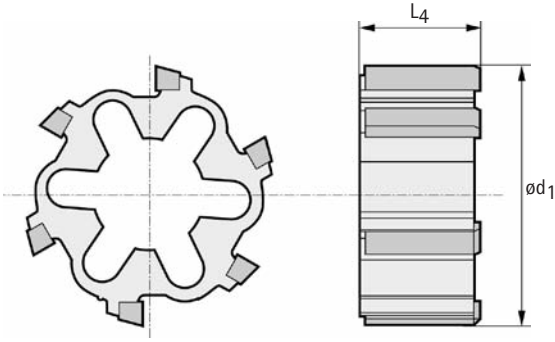
Please note: The holder and cutting ring must be ordered separately.
The tools are fitted complete and are supplied set to nominal dimension.

Details required for ordering a cutting ring:

Cutting ring


type	ø	tolerance	cutting material	lead
e. g. MN73101	45,75	H7	Carbide	45°

Adjustable cutting rings



Cutting material	Type
Carbide	MN73101
TiN	MN73102
Cermet	MN73104

MN73102, TiN-coated

ød ₁ mm	L ₄ mm		Avail- ability	Price/Piece € Round ø in H7 tolerance	Other diameters or tolerances Price in € acc. to order quantity		
					1	2-4	5-9
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	8	●				
75,60 - 79,59	18,5	8	●				
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	○				

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

Details required for ordering a cutting ring:

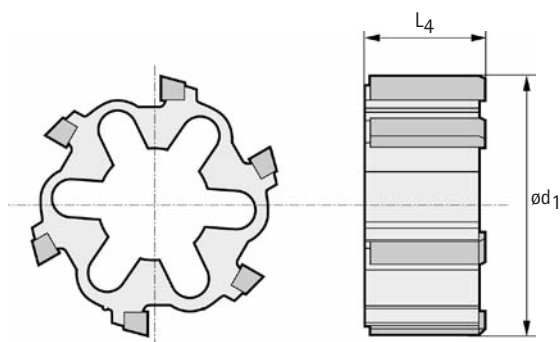
Cutting ring


type	ø	tolerance	cutting material	lead
e. g. MN73102	45,75	H7	TiN	45°

● available ex stock Germany within 3 weeks
○ available ex stock Germany within 7 weeks

Adjustable cutting rings

Cutting material	Type
Carbide	MN73101
TiN	MN73102
Cermet	MN73104

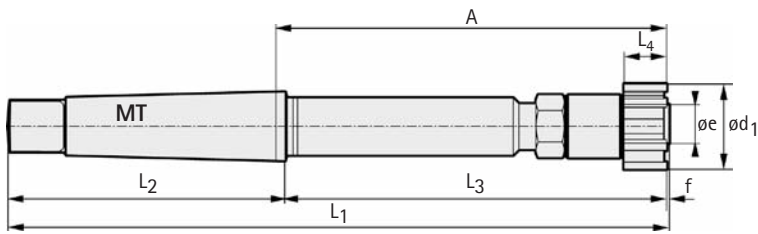


ød ₁ mm	L ₄ mm		Avail- ability	Round ø in H7 tolerance Price/Piece €	Other diameters or tolerances Price in € acc. to order quantity		
					1	2-4	5-9
21,60 - 25,59	11,5	6	●				
25,60 - 28,59	13,5	6	●				
28,60 - 32,59	13,5	6	●				
32,60 - 36,59	15,5	6	●				
36,60 - 40,59	15,5	6	●				
40,60 - 45,59	15,5	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	8	●				
75,60 - 79,59	18,5	8	●				
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	○				

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

Details required to order a cutting ring:

type	ø	tolerance	cutting material	lead
e.g. MN73104	45,75	H7	Cermet	45°



Holder for cutting ring without internal coolant

tool location	coolant supply	bore type	bore length	tool type
MT	without	through hole	long	MN73227
MT	without	through & blind hole	long	MN73228

Through hole

ød ₁ mm	L ₁ mm	L ₄ mm	L ₃ mm	A mm	L ₂ mm	øe mm	f mm		MT	MN73227 size	Avail- ability	Price/Piece €
21,60 - 25,59	204,0	11,5	121	126,0	80	12,0	3,0	2	6	021.6	●	
25,60 - 32,59	255,5	13,5	153	158,0	99	15,8	3,5	3	6	025.6	●	
32,60 - 40,59	282,5	15,5	179	184,0	99	21,4	4,5	3	6	032.6	●	
40,60 - 45,59	304,0	15,5	200	205,0	99	25,5	5,0	3	6	040.6	●	
45,60 - 60,59	318,0	18,5	214	219,0	97	29,6	7,0	3	6	045.6	●	
60,60 - 79,59	372,0	18,5	238	244,5	124	39,8	10,0	4	6	060.6	●	
79,60 - 100,59	413,5	18,5	245	251,5	156	57,0	12,5	5	8	079.6	○	

Through hole and blind hole

Please note øe and f

ød ₁ mm	L ₁ mm	L ₄ mm	L ₃ mm	A mm	L ₂ mm	øe mm	f mm		MT	MN73228 size	Avail- ability	Price/Piece €
21,60 - 25,59	202,8	11,5	121,8	126,0	80	11,2	1,0	2	6	021.6	●	
25,60 - 32,59	254,0	13,5	154,0	158,0	99	15,2	1,0	3	6	025.6	●	
32,60 - 40,59	279,5	15,5	179,5	184,0	99	20,3	1,0	3	6	032.6	●	
40,60 - 45,59	300,0	15,5	200,0	205,0	99	24,1	1,0	3	6	040.6	●	
45,60 - 60,59	310,5	18,5	212,0	217,0	97	27,8	1,5	3	6	045.6	●	
60,60 - 79,59	361,5	18,5	236,0	242,5	124	37,0	1,5	4	6	060.6	●	
79,60 - 100,59	401,5	18,5	244,0	250,5	156	53,2	1,5	5	8	079.6	○	

Please note: The holder and cutting ring must be ordered separately.
The tools are fitted complete and are supplied set to nominal dimension.
Blade material details see pages 32 and 33.
Lead details see page 35.

Details required for ordering:

Holder

type	tool size
e. g. MN73227	045.6



Cutting ring

type	ø	tolerance	cutting material	lead
e. g. MN73101	45,75	H7	Carbide	45°

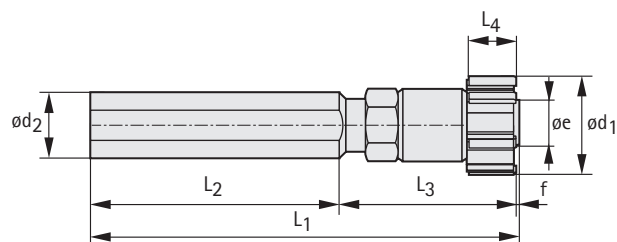
Spares

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● available ex stock Germany
○ available ex stock Germany within 7 weeks

Holder for cutting ring without internal coolant

tool location	coolant supply	bore type	bore length	tool type
cylindrical	without	through hole	short	MN73237
cylindrical	without	through & blind hole	short	MN73238




Through hole

ød ₁ mm	L ₁ mm	L ₄ mm	L ₃ mm	L ₂ mm	øe mm	f mm	ød ₂ mm		MN73237 Size	Avail- ability	Price/Piece €
21,60 - 25,59	94,0	11,5	51	40	12,0	3,0	16	6	021.6	●	
25,60 - 32,59	94,5	13,5	51	40	15,8	3,5	20	6	025.6	●	
32,60 - 40,59	95,5	15,5	51	40	21,4	4,5	20	6	032.6	●	
40,60 - 45,59	125,0	15,5	55	65	25,5	5,0	25	6	040.6	●	
45,60 - 60,59	134,0	18,5	62	65	29,6	7,0	20	6	045.6	●	
60,60 - 79,59	148,0	18,5	73	65	39,8	10,0	25	6	060.6	●	
79,60 - 100,59	162,5	18,5	85	65	57,0	12,5	40	8	079.6	○	

Through hole and blind hole

Please note øe and f

ød ₁ mm	L ₁ mm	L ₄ mm	L ₃ mm	L ₂ mm	øe mm	f mm	ød ₂ mm		MN73238 Size	Avail- ability	Price/Piece €
21,60 - 25,59	92,8	11,5	51,8	40	11,2	1,0	16	6	021.6	●	
25,60 - 32,59	93,0	13,5	52,0	40	15,2	1,0	20	6	025.6	●	
32,60 - 40,59	92,5	15,5	51,5	40	20,3	1,0	20	6	032.6	●	
40,60 - 45,59	121,0	15,5	55,0	65	24,1	1,0	25	6	040.6	●	
45,60 - 60,59	129,5	18,5	63,0	65	27,8	1,5	20	6	045.6	●	
60,60 - 79,59	141,5	18,5	75,0	65	37,0	1,5	25	6	060.6	●	
79,60 - 100,59	154,5	18,5	88,0	65	53,2	1,5	40	8	079.6	○	

Please note: The holder and cutting ring must be ordered separately.
The tools are fitted complete and are supplied set to nominal dimension.
Blade material details see pages 32 and 33.
Lead details see page 35.

Details required for ordering:

Holder

type	size
e. g. MN73237	045.6

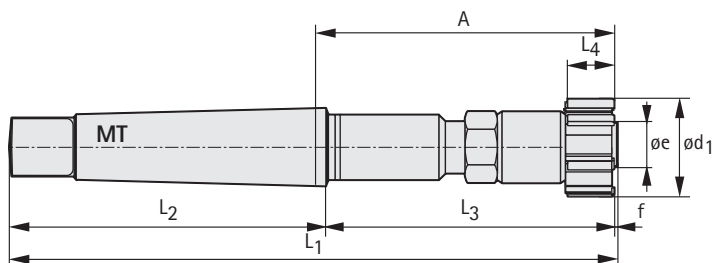


Cutting ring

type	ø	tolerance	cutting material	lead
e. g. MN73101	45,75	H7	Carbide	45°

Spares


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Holder for cutting ring without internal coolant


tool location	coolant supply	bore type	bore length	tool type
MT	without	through hole	short	MN73217
MT	without	through & blind hole	short	MN73218

Through hole

ød1 mm	L1 mm	L4 mm	L3 mm	A mm	L2 mm	øe mm	f mm	MT		MN73217 Size	Avail-ability	Price/Piece €
21,60 - 25,59	164,0	11,5	81	86,0	80	12,0	3,0	2	6	021.6	●	
25,60 - 32,59	204,5	13,5	102	107,0	99	15,8	3,5	3	6	025.6	●	
32,60 - 40,59	205,5	15,5	102	107,1	99	21,4	4,5	3	6	032.6	●	
40,60 - 45,59	206,0	15,5	102	107,1	99	25,5	5,0	3	6	040.6	●	
45,60 - 60,59	208,0	18,5	104	109,0	97	29,6	7,0	3	6	045.6	●	
60,60 - 79,59	237,0	18,5	103	109,0	124	39,8	10,0	4	6	060.6	●	
79,60 - 100,59	273,5	18,5	105	111,5	156	57,0	12,5	5	8	079.6	○	

Through hole and blind hole

Please note øe and f

ød1 mm	L1 mm	L4 mm	L3 mm	A mm	L2 mm	øe mm	f mm	MT		MN73218 Size	Avail-ability	Price/Piece €
21,60 - 25,59	162,8	11,5	81,8	86,0	80	11,2	1,0	2	6	021.6	●	
25,60 - 32,59	203,0	13,5	103,0	107,0	99	15,2	1,0	3	6	025.6	●	
32,60 - 40,59	202,5	15,5	102,5	107,1	99	20,3	1,0	3	6	032.6	●	
40,60 - 45,59	202,0	15,5	102,0	107,1	99	24,1	1,0	3	6	040.6	●	
45,60 - 60,59	201,5	18,5	103,0	108,0	97	27,8	1,5	3	6	045.6	●	
60,60 - 79,59	226,5	18,5	101,0	107,5	124	37,0	1,5	4	6	060.6	●	
79,60 - 100,59	261,5	18,5	104,0	110,5	156	53,2	1,5	5	8	079.6	○	

Please note: The holder and cutting ring must be ordered separately.
The tools are fitted complete and are supplied set to nominal dimension.
Blade material details see pages 32 and 33.
Lead details see page 35.

Details required for ordering:

Holder

type	tool size
e. g. MN73217	045.6



Cutting ring (for choice see page 10)

type	ø	tolerance	cutting material	lead
e. g. MN73101	45,75	H7	Carbide	45°

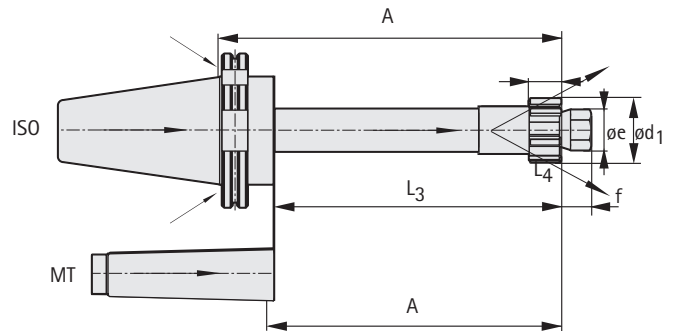
Spares

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● available ex stock Germany
○ available ex stock Germany within 7 weeks

Holder for cutting ring with internal coolant

tool location	coolant supply	bore type	bore length	tool type
MT/ISO	to the blades	through hole	long	MN75227
MT/ISO	to the blades	through hole	short	MN75217



For ø21,60 till ø145,59 mm

MN75227 - MT/ISO - long

ød ₁ mm	L ₃ mm	A mm	L ₄	øe	f	MT	ISO		Size	Avail- ability	Price/Piece €
21,60- 25,59	121	126,0	11,5	11,5	11,0	2	-	6	021.6	●	
25,60 - 32,59	153	158,0	13,5	15,0	11,0	3	-	6	025.6	●	
32,60 - 36,59	179	184,0	15,5	21,9	14,0	3	-	6	032.6	●	
36,60 - 40,59	179	184,0	15,5	21,9	14,0	3	-	6	036.6	●	
40,60 - 45,59	201	206,0	15,5	25,4	15,0	3	-	6	040.6	●	
45,60 - 50,59	214	220,5	18,5	30,3	20,5	4	-	6	045.6	●	
50,60 - 60,59	214	220,5	18,5	30,3	20,5	4	-	6	050.6	●	
60,60 - 70,59	237	275,1	18,5	40,0	24,5	-	50	6	060.6	●	
70,60 - 79,59	237	275,1	18,5	40,0	24,5	-	50	6	070.6	●	
79,60 - 90,59	245	264,1	18,5	56,2	28,5	-	50	8	079.6	○	
90,60 - 100,59	245	264,1	18,5	56,2	28,5	-	50	8	090.6	○	
100,60 - 110,59	245	264,1	18,5	73,4	35,5	-	50	10	100.6	○	
110,60 - 115,59	245	264,1	18,5	90,4	35,5	-	50	12	110.6	○	
115,60 - 120,59	245	264,1	18,5	90,4	35,5	-	50	12	115.6	○	
120,60 - 125,59	245	264,1	18,5	90,4	35,5	-	50	12	120.6	○	
125,60 - 132,59	245	264,1	18,5	90,4	35,5	-	50	12	125.6	○	
132,60 - 139,59	245	264,1	18,5	90,4	35,5	-	50	12	132.6	○	
139,60 - 145,59	245	264,1	18,5	d ₁ -12	35,5	-	50	12	139.6	○	
145,60 - 155,59	245	264,1	18,5	d ₁ -12	35,5	-	50	12	145.6	○	
155,60 - 165,59	245	264,1	18,5	d ₁ -12	48,5	-	50	12	155.6	○	
165,60 - 175,59	245	264,1	18,5	d ₁ -12	48,5	-	50	12	165.6	○	
175,60 - 185,59	245	264,1	18,5	d ₁ -12	48,5	-	50	12	175.6	○	
185,60 - 195,59	245	264,1	18,5	d ₁ -12	48,5	-	50	12	185.6	○	
195,60 - 200,59	245	264,1	18,5	d ₁ -12	48,5	-	50	12	195.6	○	

Please note: The holder and cutting ring must be ordered separately.
The tools are fitted complete and are supplied set to nominal dimension.
Blade material details see pages 32 and 33.
Lead details see page 35.

Details required for ordering:

Holder

type	size
e. g. MN75227	045.6

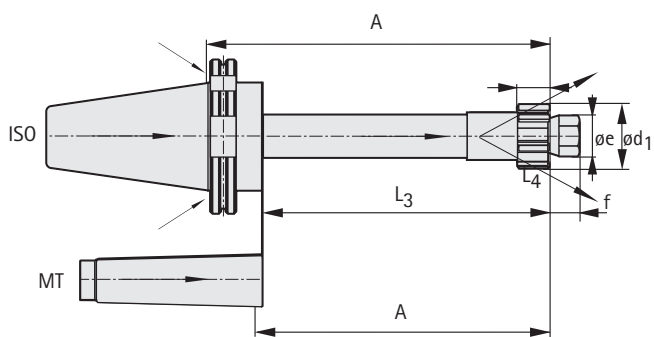


Cutting ring

type	ø	tolerance	cutting material	lead
e. g. MN73101	45,75	H7	Carbide	45°

Spares

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Holder for cutting ring with internal coolant

tool location	coolant supply	bore type	bore length	tool type
MT/ISO	to the blades	through hole	long	MN75227
MT/ISO	to the blades	through hole	short	MN75217

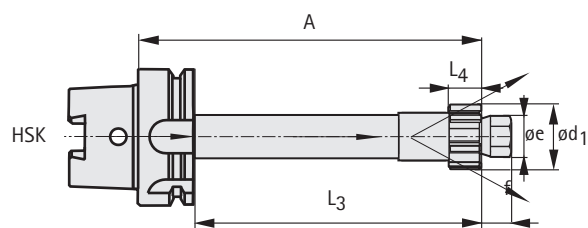
For $\varnothing 21,60$ till $\varnothing 200,59$ mm

MN75217 - MT/ISO - short

$\varnothing d_1$ mm	L_3 mm	A mm	L_4	$\varnothing e$	f	MT	ISO		Size	Avail- ability	Price/Piece €
21,60 - 25,59	81	86,0	11,5	11,5	11,0	2	-	6	021.6	●	
25,60 - 32,59	102	107,0	13,5	15,0	11,0	3	-	6	025.6	●	
32,60 - 36,59	102	107,0	15,5	21,9	14,0	3	-	6	032.6	●	
36,60 - 40,59	102	107,0	15,5	21,9	14,0	3	-	6	036.6	●	
40,60 - 45,59	102	107,0	15,5	25,4	15,0	3	-	6	040.6	●	
45,60 - 50,59	105	111,5	18,5	30,3	20,5	4	-	6	045.6	●	
50,60 - 60,59	105	111,5	18,5	30,3	20,5	4	-	6	050.6	●	
60,60 - 70,59	105	143,1	18,5	40,0	24,5	-	50	6	060.6	●	
70,60 - 79,59	105	143,1	18,5	40,0	24,5	-	50	6	070.6	●	
79,60 - 90,59	105	124,1	18,5	56,2	28,5	-	50	8	079.6	○	
90,60 - 100,59	105	124,1	18,5	56,2	28,5	-	50	8	090.6	○	
100,60 - 110,59	106	125,1	18,5	73,4	35,5	-	50	10	100.6	○	
110,60 - 115,59	136	155,1	18,5	90,4	35,5	-	50	12	110.6	○	
115,60 - 120,59	136	155,1	18,5	90,4	35,5	-	50	12	115.6	○	
120,60 - 125,59	136	155,1	18,5	90,4	35,5	-	50	12	120.6	○	
125,60 - 132,59	136	155,1	18,5	90,4	35,5	-	50	12	125.6	○	
132,60 - 139,59	136	155,1	18,5	90,4	35,5	-	50	12	132.6	○	
139,60 - 145,59	136	155,1	18,5	$d_1 - 12$	35,5	-	50	12	139.6	○	
145,60 - 155,59	136	155,1	18,5	$d_1 - 12$	35,5	-	50	12	145.6	○	
155,60 - 165,59	136	155,1	18,5	$d_1 - 12$	48,5	-	50	12	155.6	○	
165,60 - 175,59	136	155,1	18,5	$d_1 - 12$	48,5	-	50	12	165.6	○	
175,60 - 185,59	136	155,1	18,5	$d_1 - 12$	48,5	-	50	12	175.6	○	
185,60 - 195,59	136	155,1	18,5	$d_1 - 12$	48,5	-	50	12	185.6	○	
195,60 - 200,59	136	155,1	18,5	$d_1 - 12$	48,5	-	50	12	195.6	○	


Holder for cutting ring with internal coolant

tool location	coolant supply	bore type	bore length	tool type
HSK	to the blades	through hole	long	MN75267
HSK	to the blades	through hole	short	MN75257



For $\varnothing 21,60$ till $\varnothing 145,59$ mm

MN75267 - HSK - long

$\varnothing d_1$ mm	L_3 mm	A mm	L_4	$\varnothing e$	f	HSK		Size	Avail- ability	Price/Piece €
21,60 - 25,59	121	147	11,5	11,5	11,0	63	6	021.6	○	
25,60 - 32,59	153	179	13,5	15,0	11,0	63	6	025.6	○	
32,60 - 36,59	179	205	15,5	21,9	14,0	63	6	032.6	○	
36,60 - 40,59	179	205	15,5	21,9	14,0	63	6	036.6	○	
40,60 - 45,59	201	227	15,5	25,4	15,0	63	6	040.6	○	
45,60 - 50,59	214	240	18,5	30,3	20,5	63	6	045.6	○	
50,60 - 60,59	214	240	18,5	30,3	20,5	63	6	050.6	○	
60,60 - 70,59	237	263	18,5	40,0	24,5	63	6	060.6	○	
70,60 - 79,59	237	263	18,5	40,0	24,5	63	6	070.6	○	
79,60 - 90,59	245	274	18,5	56,2	28,5	100	8	079.6	○	
90,60 - 100,59	245	274	18,5	56,2	28,5	100	8	090.6	○	
100,60 - 110,59	245	274	18,5	73,4	35,5	100	10	100.6	○	
110,60 - 115,59	245	274	18,5	90,4	35,5	100	12	110.6	○	
115,60 - 120,59	245	274	18,5	90,4	35,5	100	12	115.6	○	
120,60 - 125,59	245	274	18,5	90,4	35,5	100	12	120.6	○	
125,60 - 132,59	245	274	18,5	90,4	35,5	100	12	125.6	○	
132,60 - 139,59	245	274	18,5	90,4	35,5	100	12	132.6	○	
139,60 - 145,59	245	274	18,5	$d_1 - 12$	35,5	100	12	139.6	○	
145,60 - 155,59	245	274	18,5	$d_1 - 12$	35,5	100	12	145.6	○	
155,60 - 165,59	245	274	18,5	$d_1 - 12$	48,5	100	12	155.6	○	
165,60 - 175,59	245	274	18,5	$d_1 - 12$	48,5	100	12	165.6	○	
175,60 - 185,59	245	274	18,5	$d_1 - 12$	48,5	100	12	175.6	○	
185,60 - 195,59	245	274	18,5	$d_1 - 12$	48,5	100	12	185.6	○	
195,60 - 200,59	245	274	18,5	$d_1 - 12$	48,5	100	12	195.6	○	

Please note: The holder and cutting ring must be ordered separately.
The tools are fitted complete and are supplied set to nominal dimension.
Blade material details see pages 32 and 33.
Lead details see page 35.

Details required for ordering:

Holder

type	size
e. g. MN75227	045.6

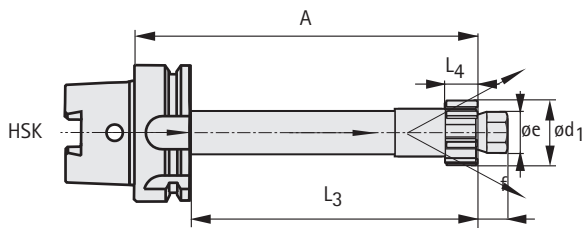


Cutting ring

type	\varnothing	tolerance	cutting material	lead
e. g. MN73101	45,75	H7	Carbide	45°

Spares

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Holder for cutting ring with internal coolant

tool location	coolant supply	bore type	bore length	tool type
HSK	to the blades	through hole	long	MN75267
HSK	to the blades	through hole	short	MN75257

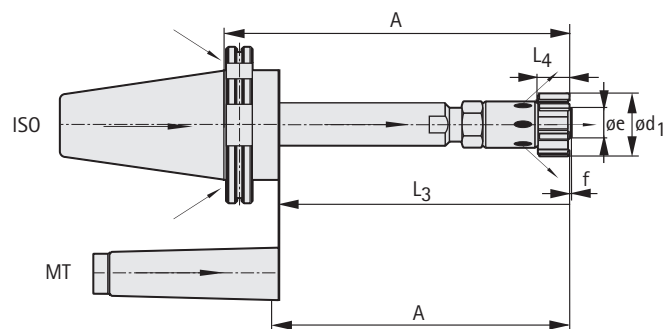
For $\varnothing 21,60$ till $\varnothing 145,59$ mm

MN75257 - HSK - short

$\varnothing d_1$ mm	L_3 mm	A mm	L_4	$\varnothing e$	f	HSK		Size	Avail- ability	Price/Piece €
21,60 - 25,59	81	107	11,5	11,5	11,0	63	6	021.6	○	
25,60 - 32,59	102	128	13,5	15,0	11,0	63	6	025.6	○	
32,60 - 36,59	102	128	15,5	21,9	14,0	63	6	032.6	○	
36,60 - 40,59	102	128	15,5	21,9	14,0	63	6	036.6	○	
40,60 - 45,59	102	128	15,5	25,4	15,0	63	6	040.6	○	
45,60 - 50,59	105	131	18,5	30,3	20,5	63	6	045.6	○	
50,60 - 60,59	105	131	18,5	30,3	20,5	63	6	050.6	○	
60,60 - 70,59	105	131	18,5	40,0	24,5	63	6	060.6	○	
70,60 - 79,59	105	131	18,5	40,0	24,5	63	6	070.6	○	
79,60 - 90,59	105	134	18,5	56,2	28,5	100	8	079.6	○	
90,60 - 100,59	105	134	18,5	56,2	28,5	100	8	090.6	○	
100,60 - 110,59	106	135	18,5	73,4	35,5	100	10	100.6	○	
110,60 - 115,59	136	165	18,5	90,4	35,5	100	12	110.6	○	
115,60 - 120,59	136	165	18,5	90,4	35,5	100	12	115.6	○	
120,60 - 125,59	136	165	18,5	90,4	35,5	100	12	120.6	○	
125,60 - 132,59	136	165	18,5	90,4	35,5	100	12	125.6	○	
132,60 - 139,59	136	165	18,5	90,4	35,5	100	12	132.6	○	
139,60 - 145,59	136	165	18,5	$d_1 - 12$	35,5	100	12	139.6	○	
145,60 - 155,59	136	165	18,5	$d_1 - 12$	35,5	100	12	145.6	○	
155,60 - 165,59	136	165	18,5	$d_1 - 12$	48,5	100	12	155.6	○	
165,60 - 175,59	136	165	18,5	$d_1 - 12$	48,5	100	12	165.6	○	
175,60 - 185,59	136	165	18,5	$d_1 - 12$	48,5	100	12	175.6	○	
185,60 - 195,59	136	165	18,5	$d_1 - 12$	48,5	100	12	185.6	○	
195,60 - 200,59	136	165	18,5	$d_1 - 12$	48,5	100	12	195.6	○	

Holder for cutting ring with internal coolant

tool location	coolant supply	bore type	bore length	tool type
MT/ISO	to the blades	through & blind hole	long	MN75226
MT/ISO	to the blades	through & blind hole	short	MN75216
MT/ISO	central	blind hole	long	MN76226
MT/ISO	central	blind hole	short	MN76216



MN75226 & MN76226 -MT/ISO long

ød1 mm	L3 mm	A mm	L4 mm	øe mm	f mm	ISO	MT		Size	Avail- ability	Price/Piece €
21,60 - 25,59	121	126,0	11,5	11,2	1,0	-	2	6	021.6	●	
25,60 - 32,59	153	158,0	13,5	15,2	1,0	-	3	6	025.6	●	
32,60 - 36,59	179	184,0	15,5	20,3	1,5	-	3	6	032.6	●	
36,60 - 40,59	179	184,0	15,5	20,3	1,5	-	3	6	036.6	●	
40,60 - 45,59	200	205,0	15,5	24,1	1,5	-	3	6	040.6	●	
45,60 - 50,59	214	220,5	18,5	27,8	1,5	-	4	6	045.6	●	
50,60 - 60,59	214	220,5	18,5	27,8	1,5	-	4	6	050.6	●	
60,60 - 70,59	237	275,1	18,5	37,0	1,5	50	-	6	060.6	●	
70,60 - 79,59	239	275,1	18,5	37,0	1,5	50	-	6	070.6	●	
79,60 - 90,59	245	264,1	18,5	53,2	1,5	50	-	8	079.6	○	
90,60 - 100,59	245	264,1	18,5	53,2	1,5	50	-	8	090.6	○	

MN75216 & MN76216 - MT/ISO short

ød1 mm	L3 mm	A mm	L4 mm	øe mm	f mm	ISO	MT		Size	Avail- ability	Price/Piece €
21,60 - 25,59	81	86,0	11,5	11,2	1,0	-	2	6	021.6	●	
25,60 - 32,59	102	107,0	13,5	15,2	1,0	-	3	6	025.6	●	
32,60 - 36,59	102	107,0	15,5	20,3	1,5	-	3	6	032.6	●	
36,60 - 40,59	102	107,0	15,5	20,3	1,5	-	3	6	036.6	●	
40,60 - 45,59	102	107,0	15,5	24,1	1,5	-	3	6	040.6	●	
45,60 - 50,59	105	111,5	18,5	27,8	1,5	-	4	6	045.6	●	
50,60 - 60,59	105	111,5	18,5	27,8	1,5	-	4	6	050.6	●	
60,60 - 70,59	105	143,1	18,5	37,0	1,5	50	-	6	060.6	●	
70,60 - 79,59	107	143,1	18,5	37,0	1,5	50	-	6	070.6	●	
79,60 - 90,59	117	136,1	18,5	53,2	1,5	50	-	8	079.6	○	
90,60 - 100,59	117	136,1	18,5	53,2	1,5	50	-	8	090.6	○	

Please note: The holder and cutting ring must be ordered separately.
The tools are fitted complete and are supplied set to nominal dimension.
Blade material details see pages 32 and 33.
Lead details see page 35.

Details required for ordering:

Holder

type	size
e. g. MN75226	045.6



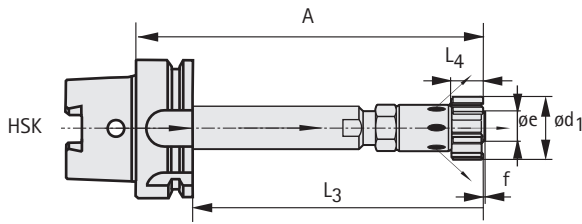
Cutting ring

type	ø	tolerance	cutting material	lead
e. g. MN73101	45,75	H7	Carbide	45°

Spares


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Holder for cutting ring with internal coolant




tool location	coolant supply	bore type	bore length	tool type
HSK	to the blades	through & blind hole	long	MN75266
HSK	to the blades	through & blind hole	short	MN75256
HSK	central	blind hole	long	MN76266
HSK	central	blind hole	short	MN76256

MN75266 & MN76266 - HSK, long

ød1 mm	L3 mm	A mm	L4 mm	øe mm	f mm	HSK		Size	Avail-ability	Price/Piece €
21,60 - 25,59	121	147	11,5	11,2	1,0	50	6	021.6	○	
25,60 - 32,59	153	179	13,5	15,2	1,0	50	6	025.6	○	
32,60 - 36,59	179	205	15,5	20,3	1,5	50	6	032.6	○	
36,60 - 40,59	179	205	15,5	20,3	1,5	50	6	036.6	○	
40,60 - 45,59	200	226	15,5	24,1	1,5	50	6	040.6	○	
45,60 - 50,59	214	240	18,5	27,8	1,5	50	6	045.6	○	
50,60 - 60,59	214	240	18,5	27,8	1,5	50	6	050.6	○	
60,60 - 70,59	237	263	18,5	37,0	1,5	63	6	060.6	○	
70,60 - 79,59	237	263	18,5	37,0	1,5	63	6	070.6	○	
79,60 - 90,59	245	271	18,5	53,2	1,5	63	8	079.6	○	
90,60 - 100,59	245	271	18,5	53,2	1,5	63	8	090.6	○	

MN75256 & MN7625 - HSK, short

ød1 mm	L3 mm	A mm	L4 mm	øe mm	f mm	HSK		Size	Avail-ability	Price/Piece €
21,60 - 25,59	81	107	11,5	11,2	1,0	50	6	021.6	○	
25,60 - 32,59	102	128	13,5	15,2	1,0	50	6	025.6	○	
32,60 - 36,59	102	128	15,5	20,3	1,5	50	6	032.6	○	
36,60 - 40,59	102	128	15,5	20,3	1,5	50	6	036.6	○	
40,60 - 45,59	102	128	15,5	24,1	1,5	50	6	040.6	○	
45,60 - 50,59	105	131	18,5	27,8	1,5	50	6	045.6	○	
50,60 - 60,59	105	131	18,5	27,8	1,5	50	6	050.6	○	
60,60 - 70,59	105	131	18,5	37,0	1,5	63	6	060.6	○	
70,60 - 79,59	105	131	18,5	37,0	1,5	63	6	070.6	○	
79,60 - 90,59	117	143	18,5	53,2	1,5	63	8	079.6	○	
90,60 - 100,59	117	143	18,5	53,2	1,5	63	8	090.6	○	

Please note: The holder and cutting ring must be ordered separately.
The tools are fitted complete and are supplied set to nominal dimension.
Blade material details see pages 32 and 33.
Lead details see page 35.

Details required for ordering:

Holder

type	tool size
e. g. MN75226	045.6

Cutting ring

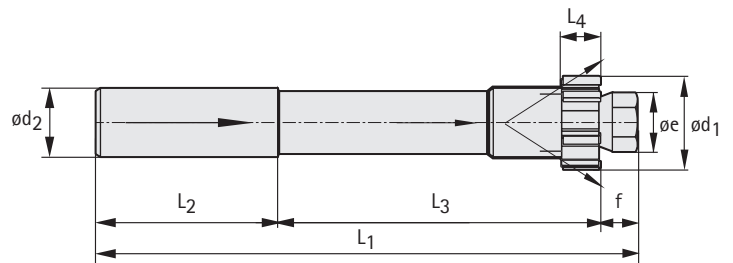
type	ø	tolerance	cutting material	lead
e. g. MN73101	45,75	H7	Carbide	45°

Spares


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Holder for cutting ring with internal coolant

tool location	coolant supply	bore type	bore length	tool type
cylindrical	to the blades	through hole	short	MN75247



MN75247

ød ₁ mm	L ₁ mm	L ₄ mm	L ₃ mm	L ₂ mm	øe mm	f mm	ød ₂ mm		Size	Avail- ability	Price/Piece €
21,60 - 25,59	142	11,5	81	50	11,5	11,0	20	6	021.6	●	
25,60 - 32,59	163	13,5	102	50	15,0	11,0	20	6	025.6	●	
32,60 - 36,59	172	15,5	102	56	21,9	14,0	25	6	032.6	●	
36,60 - 40,59	172	15,5	102	56	21,9	14,0	25	6	036.6	●	
40,60 - 45,59	173	15,5	102	56	21,9	15,0	25	6	040.6	●	
45,60 - 50,59	185,5	18,5	105	60	30,3	20,5	32	6	045.6	●	
50,60 - 60,59	185,5	18,5	105	60	30,3	20,5	32	6	050.6	●	
60,60 - 70,59	189,5	18,5	105	60	40,0	24,5	32	6	060.6	●	
70,60 - 79,59	189,5	18,5	105	60	40,0	24,5	32	6	070.6	●	
79,60 - 90,59	203,5	18,5	105	70	56,2	28,5	40	8	079.6	○	
90,60 - 100,59	203,5	18,5	105	70	56,2	28,5	40	8	090.6	○	

Please note: The holder and cutting ring must be ordered separately.
The tools are fitted complete and are supplied set to nominal dimension.
Blade material details see pages 32 and 33.
Lead details see page 35.

Details required for ordering:

Holder

type	tool size
e. g. MN75247	045.6

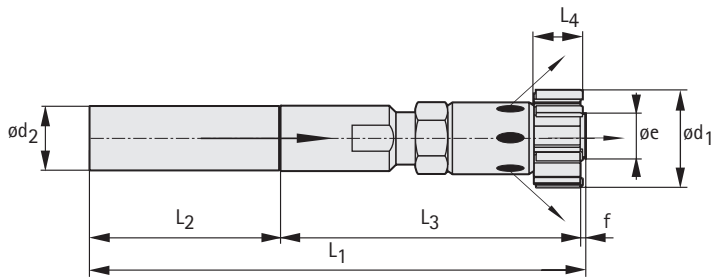


Cutting ring

type	ø	tolerance	cutting material	lead
e. g. MN73101	45,75	H7	Carbide	45°

Spares


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Holder for cutting ring with internal coolant

tool location	coolant supply	bore type	bore length	tool type
cylindrical	to the blades	through hole	short	MN75236
cylindrical	central	blind hole	short	MN76236

MN75236 & MN76236

$\varnothing d_1$ mm	L_1 mm	L_4 mm	L_3 mm	L_2 mm	$\varnothing e$ mm	f mm	$\varnothing d_2$ mm		Size	Avail- ability	Price/Piece €
21,60 - 25,59	132,0	11,5	81	50	11,2	1,0	20	6	021.6	●	
25,60 - 32,59	153,0	13,5	102	50	15,2	1,0	20	6	025.6	●	
32,60 - 36,59	159,5	15,5	102	56	20,3	1,5	25	6	032.6	●	
36,60 - 40,59	159,5	15,5	102	56	20,3	1,5	25	6	036.6	●	
40,60 - 45,59	159,5	15,5	102	56	24,1	1,5	25	6	040.6	●	
45,60 - 50,59	166,5	18,5	105	60	27,8	1,5	32	6	045.6	●	
50,60 - 60,59	166,5	18,5	105	60	27,8	1,5	32	6	050.6	●	
60,60 - 70,59	166,5	18,5	105	60	37,0	1,5	32	6	060.6	●	
70,60 - 79,59	166,5	18,5	105	60	37,0	1,5	32	6	070.6	●	
79,60 - 90,59	176,5	18,5	105	70	53,2	1,5	40	8	079.6	○	
90,60 - 100,59	176,5	18,5	105	70	53,2	1,5	40	8	090.6	○	

Please note: The holder and cutting ring must be ordered separately.
The tools are fitted complete and are supplied set to nominal dimension.
Blade material details see pages 32 and 33.
Lead details see page 35.

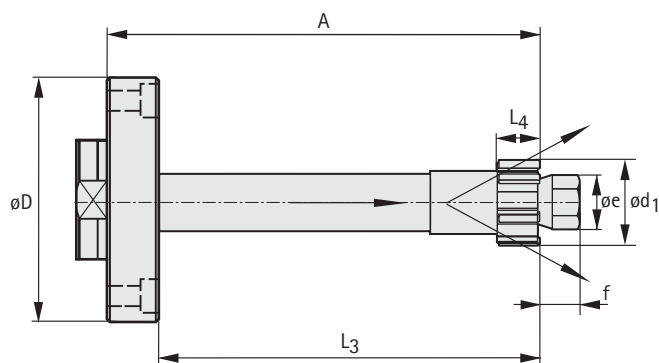
Details required for ordering:

Holder		+	Cutting ring					Spares	
type	tool size		type	\varnothing	tolerance	cutting material	lead	page	
e. g. MN75236	045.6		e. g. MN73101	45,75	H7	Carbide	45°	22	

● available ex stock Germany
○ available ex stock Germany within 7 weeks

Holder for cutting ring with internal coolant

tool location	coolant supply	bore type	bore length	tool type
Module	to the blades	through hole	short	MN75287



MN75287

ød ₁ mm	L ₃ mm	A mm	L ₄ mm	øe mm	f mm	øD Module		Size	Avail- ability	Price/Piece €
21,60 - 25,59	81	94	11,5	11,5	11,0	60	6	021.6	●	
25,60 - 32,59	102	115	13,5	15,0	11,0	60	6	025.6	●	
32,60 - 36,59	102	115	15,5	21,9	14,0	60	6	032.6	●	
36,60 - 40,59	102	115	15,5	21,9	14,0	60	6	036.6	●	
40,60 - 45,59	102	115	15,5	25,4	15,0	60	6	040.6	●	
45,60 - 50,59	105	118	18,5	30,3	20,5	60	6	045.6	●	
50,60 - 60,59	105	118	18,5	30,3	20,5	60	6	050.6	●	
60,60 - 70,59	105	126	18,5	40,0	24,5	100	6	060.6	●	
70,60 - 79,59	105	126	18,5	40,0	24,5	100	6	070.6	●	
79,60 - 90,59	105	126	18,5	56,2	28,5	100	8	079.6	○	
90,60 - 100,59	105	126	18,5	56,2	28,5	100	8	090.6	○	
100,60 - 110,59	106	127	18,5	73,4	35,5	100	10	100.6	○	
110,60 - 115,59	136	157	18,5	90,4	35,5	100	12	110.6	○	
115,60 - 120,59	136	157	18,5	90,4	35,5	100	12	115.6	○	
120,60 - 125,59	136	157	18,5	90,4	35,5	100	12	120.6	○	
125,60 - 132,59	136	157	18,5	90,4	35,5	100	12	125.6	○	
132,60 - 139,59	136	157	18,5	90,4	35,5	100	12	132.6	○	
139,60 - 145,59	136	157	18,5	d ₁ - 12	35,5	100	12	139.6	○	
145,60 - 155,59	136	157	18,5	d ₁ - 12	35,5	100	12	145.6	○	
155,60 - 165,59	136	157	18,5	d ₁ - 12	48,5	100	12	155.6	○	
165,60 - 175,59	136	157	18,5	d ₁ - 12	48,5	100	12	165.6	○	
175,60 - 185,59	136	157	18,5	d ₁ - 12	48,5	100	12	175.6	○	
185,60 - 195,59	136	157	18,5	d ₁ - 12	48,5	100	12	185.6	○	
195,60 - 200,59	136	157	18,5	d ₁ - 12	48,5	100	12	195.6	○	

Please note: The holder and cutting ring must be ordered separately.
The tools are fitted complete and are supplied set to nominal dimension.
Blade material details see pages 32 and 33.
Lead details see page 35.

Details required for ordering:

Holder

type	tool size
e. g. MN75287	045.6



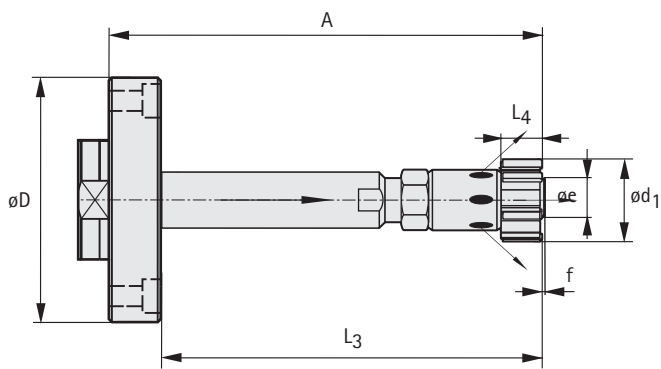
Cutting ring

type	ø	tolerance	cutting material	lead
e. g. MN73101	45,75	H7	Carbide	45°

Spares

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20

Holder for cutting ring with internal coolant



tool location	coolant supply	bore type	bore length	tool type
Module	to the blades	through & blind hole	short	MN75286
Module	central	blind bore	short	MN76286

MN75286 & MN76286

ød1 mm	L3 mm	A mm	L4 mm	øe mm	f mm	øD Module		Size	Avail- ability	Price/Piece €
21,60 - 25,59	81	94	11,5	11,2	1,0	60	6	021.6	●	
25,60 - 32,59	102	115	13,5	15,2	1,0	60	6	025.6	●	
32,60 - 36,59	102	115	15,5	20,3	1,5	60	6	032.6	●	
36,60 - 40,59	102	115	15,5	20,3	1,5	60	6	036.6	●	
40,60 - 45,59	102	115	15,5	24,1	1,5	60	6	040.6	●	
45,60 - 50,59	105	118	18,5	27,8	1,5	60	6	045.6	●	
50,60 - 60,59	105	118	18,5	27,8	1,5	60	6	050.6	●	
60,60 - 70,59	105	126	18,5	37,0	1,5	100	6	060.6	●	
70,60 - 79,59	105	126	18,5	37,0	1,5	100	6	070.6	●	
79,60 - 90,59	117	138	18,5	53,2	1,5	100	8	079.6	○	
90,60 - 100,59	117	138	18,5	53,2	1,5	100	8	090.6	○	

Please note: The holder and cutting ring must be ordered separately.
The tools are fitted complete and are supplied set to nominal dimension.
Blade material details see pages 32 and 33.
Lead details see page 35.

Details required for ordering:

Holder

type	tool size
e. g. MN75286	045.6



Cutting ring

type	ø	tolerance	cutting material	lead
e. g. MN73101	45,75	H7	Carbide	45°

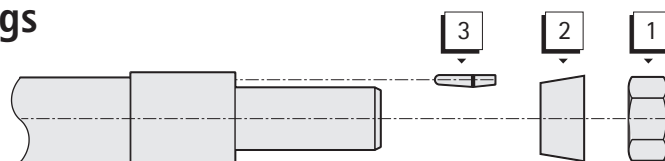
Spares

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22

● available ex stock Germany
○ available ex stock Germany within 7 weeks

Spares for holders for cutting rings with internal coolant for through holes

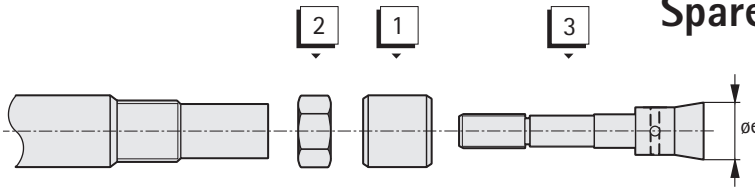
Pages 10 - 13, 16, 18



tool ød ₁ in mm	1. adjusting nut order number	Avail- ability	Price/Piece €	2. adjusting sleeve order number	Avail- ability	Price/Piece €	3. locking pin order number	Avail- ability	Price/Piece €
21,60 - 25,59	MN75297.017.6.111	●		MN75297.017.6.35	●		MN75297.017.6.25	●	
25,60 - 32,59	MN75297.025.6.111	●		MN75297.025.6.35	●		MN75297.025.6.25	●	
32,60 - 36,59	MN75297.032.6.111	●		MN75297.032.6.35	●		MN75297.032.6.25	●	
36,60 - 40,59	MN75297.032.6.111	●		MN75297.032.6.35	●		MN75297.032.6.25	●	
40,60 - 45,59	MN75297.040.6.111	●		MN75297.040.6.35	●		MN75297.040.6.25	●	
45,60 - 50,59	MN75297.045.6.121	●		MN75297.045.6.35	●		MN75297.045.6.25	●	
50,60 - 60,59	MN75297.045.6.121	●		MN75297.045.6.35	●		MN75297.045.6.25	●	
60,60 - 70,59	MN75297.060.6.121	●		MN75297.060.6.35	●		MN75297.060.6.25	●	
70,60 - 79,59	MN75297.060.6.121	●		MN75297.060.6.35	●		MN75297.060.6.25	●	
79,60 - 90,59	MN75297.079.6.121	●		MN75297.079.6.35	●		MN75297.079.6.25	●	
90,60 - 100,59	MN75297.079.6.121	●		MN75297.079.6.35	●		MN75297.079.6.25	●	
100,60 - 110,59	MN75297.100.6.121	●		MN75297.100.6.35	●		MN75297.079.6.25	●	
110,60 - 115,59	MN75297.100.6.121	●		MN75297.110.6.35	●		MN75297.079.6.25	●	
115,60 - 120,59	MN75297.100.6.121	●		MN75297.115.6.35	○		MN75297.079.6.25	●	
120,60 - 125,59	MN75297.100.6.121	●		MN75297.115.6.35	○		MN75297.079.6.25	●	
125,60 - 132,59	MN75297.100.6.121	●		MN75297.125.6.35	○		MN75297.125.6.25	●	
132,60 - 139,59	MN75297.100.6.121	●		MN75297.125.6.35	○		MN75297.125.6.25	●	
139,60 - 145,59	MN75297.100.6.121	●		MN75297.139.6.35	○		MN75297.125.6.25	●	
145,60 - 155,59	MN75297.100.6.121	●		MN75297.145.6.35	○		MN75297.145.6.25	●	
155,60 - 165,59	MN75297.155.6.121	●		MN75297.155.6.35	○		MN75297.145.6.25	●	
165,60 - 175,59	MN75297.155.6.121	●		MN75297.165.6.35	○		MN75297.145.6.25	●	
175,60 - 185,59	MN75297.155.6.121	●		MN75297.175.6.35	○		MN75297.145.6.25	●	
185,60 - 195,59	MN75297.155.6.121	●		MN75297.185.6.35	○		MN75297.145.6.25	●	
195,60 - 200,59	MN75297.155.6.121	●		MN75297.195.6.35	○		MN75297.145.6.25	●	
200,60 - 205,59	MN75297.155.6.121	●		MN75297.195.6.35	○		MN75297.145.6.25	●	
205,60 - 210,59	MN75297.155.6.121	●		MN75297.205.6.35	○		MN75297.145.6.25	●	
210,60 - 215,59	MN75297.155.6.121	●		MN75297.205.6.35	○		MN75297.145.6.25	●	
215,60 - 225,59	MN75297.155.6.121	●		MN75297.215.6.35	○		MN75297.145.6.25	●	
225,60 - 235,59	MN75297.155.6.121	●		MN75297.225.6.35	○		MN75297.145.6.25	●	
235,60 - 245,59	MN75297.155.6.121	●		MN75297.235.6.35	○		MN75297.145.6.25	●	
245,60 - 255,59	MN75297.155.6.121	●		MN75297.245.6.35	○		MN75297.145.6.25	●	
255,60 - 265,59	MN75297.255.6.121	●		MN75297.255.6.35	○		MN75297.145.6.25	●	
265,60 - 275,59	MN75297.255.6.121	●		MN75297.265.6.35	○		MN75297.145.6.25	●	
275,60 - 285,59	MN75297.255.6.121	●		MN75297.275.6.35	○		MN75297.145.6.25	●	
285,60 - 295,59	MN75297.255.6.121	●		MN75297.285.6.35	○		MN75297.145.6.25	●	
295,60 - 300,59	MN75297.255.6.121	●		MN75297.295.6.35	○		MN75297.145.6.25	●	

Spares for holders for cutting rings without internal coolant

for through holes:
Pages 7 - 9



For ø21,60 - ø45,59

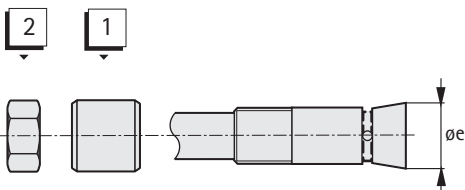
tool ød ₁ mm	1. sleeve order number	Avail- ability	Price/Piece €	2. setting nut order number	Avail- ability	Price/Piece €
21,60 - 25,59	MN73297.021.6.33	●		MN73297.021.6.112	●	
25,60 - 32,59	MN73297.025.6.33	●		MN73297.025.6.112	●	
32,60 - 36,59	MN73297.032.6.33	●		MN73297.032.6.112	●	
36,60 - 40,59	MN73297.036.6.33	●		MN73297.032.6.112	●	
40,60 - 45,59	MN73297.040.6.33	●		MN73297.040.6.112	●	

3. Taper screw

tool ød ₁ mm	for through hole order number	Avail- ability	Price/Piece €	for blind hole øe order number	Avail- ability	Price/Piece €
21,60 - 25,59	MN73297.021.6.453	●		MN73298.021.6.453	●	
25,60 - 32,59	MN73297.025.6.453	●		MN73298.025.6.453	●	
32,60 - 36,59	MN73297.032.6.453	●		MN73298.032.6.453	●	
36,60 - 40,59	MN73297.032.6.453	●		MN73298.032.6.453	●	
40,60 - 45,59	MN73297.040.6.453	●		MN73298.040.6.453	●	

3. taper screw - blind hole after repair

tool ød ₁ mm	øe + 1,2 order number	Avail- ability	Price/Piece €	øe + 2,4 order number	Avail- ability	Price/Piece €
21,60 - 25,59	MN73298.021.6.454	●		MN73298.021.6.455	●	
25,60 - 32,59	MN73298.025.6.454	●		MN73298.025.6.455	●	
32,60 - 36,59	MN73298.032.6.454	●		MN73298.032.6.455	●	
36,60 - 40,59	MN73298.032.6.454	●		MN73298.032.6.455	●	
40,60 - 45,59	MN73298.040.6.454	●		MN73298.040.6.455	●	

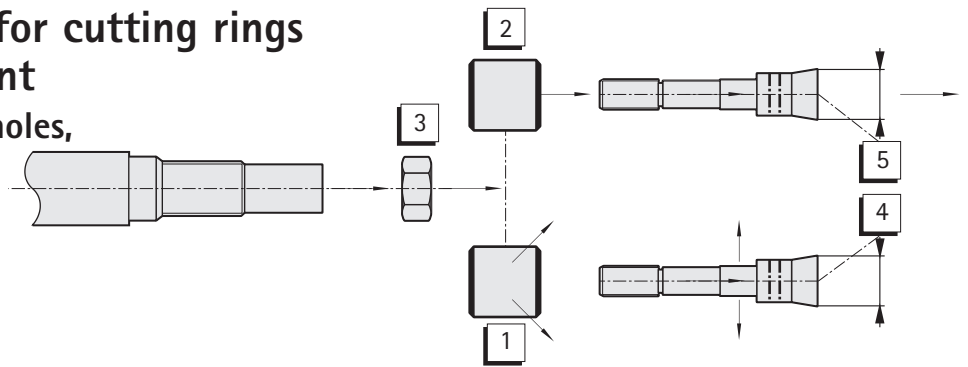


For ø45,60 - ø100,59

tool ød ₁ mm	1. sleeve order number	Avail- ability	Price/Piece €	2. setting nut order number	Avail- ability	Price/Piece €
45,60 - 60,59	MN73297.045.6.33	●		MN73297.045.6.122	●	
60,60 - 79,59	MN73297.060.6.33	●		MN73297.060.6.122	●	
79,60 - 100,59	MN73297.079.6.33	●		MN73297.079.6.122	●	

Spares for holders for cutting rings with internal coolant for through and blind holes, for blind holes

Pages 14, 15, 17, 19



tool ød ₁ mm	1. sleeve with coolant outlet hole order number	Avail- ability	Price/Piece €	2. sleeve order number	Avail- ability	Price/Piece €	3. setting nut order number	Avail- ability	Price/Piece €
21,60 - 25,59	MN75296.021.6.33	●		MN76296.021.6.33	●		MN73297.021.6.112	●	
25,60 - 32,59	MN75296.025.6.33	●		MN76296.025.6.33	●		MN73297.025.6.112	●	
32,60 - 36,59	MN75296.032.6.33	●		MN76296.032.6.33	●		MN73297.032.6.112	●	
36,60 - 40,59	MN75296.036.6.33	●		MN76296.036.6.33	●		MN73297.036.6.112	●	
40,60 - 45,59	MN75296.040.6.33	●		MN76296.040.6.33	●		MN73297.040.6.112	●	
45,60 - 50,59	MN75296.045.6.33	●		MN76296.045.6.33	●		MN73297.045.6.122	●	
50,60 - 60,59	MN75296.050.6.33	●		MN76296.050.6.33	●		MN73297.045.6.122	●	
60,60 - 70,59	MN75296.060.6.33	●		MN76296.060.6.33	●		MN75297.060.6.122	●	
70,60 - 79,59	MN75296.070.6.33	●		MN76296.070.6.33	●		MN75297.060.6.122	●	
79,60 - 90,59	MN75296.079.6.33	●		MN76296.079.6.33	●		MN75297.079.6.122	●	
90,60 - 100,59	MN75296.090.6.33	●		MN76296.090.6.33	●		MN75297.079.6.122	●	

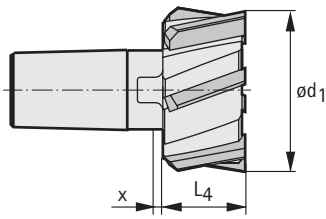
4. Taper screw with coolant outlet hole

tool ød ₁ mm	order number	Avail- ability	Price/Piece €	repair øe + 1,2 order number	Avail- ability	Price/Piece €	repair øe + 2,4 order number	Avail- ability	Price/Piece €
21,60 - 25,59	MN75296.021.6.453	●		MN75296.021.6.454	●		MN75296.021.6.455	●	
25,60 - 32,59	MN75296.025.6.453	●		MN75296.025.6.454	●		MN75296.025.6.455	●	
32,60 - 40,59	MN75296.032.6.453	●		MN75296.032.6.454	●		MN75296.032.6.455	●	
40,60 - 45,59	MN75296.040.6.453	●		MN75296.040.6.454	●		MN75296.040.6.455	●	
45,60 - 60,59	MN75296.045.6.453	●		MN75296.045.6.454	●		MN75296.045.6.455	●	
60,60 - 79,59	MN75296.060.6.453	●		MN75296.060.6.454	●		MN75296.060.6.455	●	
79,60 - 100,59	MN75296.079.6.453	●		MN75296.079.6.454	●		MN75296.079.6.455	●	

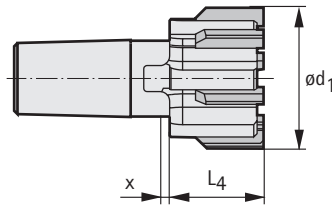
5. Taper screw with central coolant supply

tool ød ₁ mm	order number	Avail- ability	Price/Piece €	repair øe + 1,2 order number	Avail- ability	Price/Piece €	repair øe + 2,4 order number	Avail- ability	Price/Piece €
21,60 - 25,59	MN76296.021.6.453	●		MN76296.021.6.454	●		MN76296.021.6.455	●	
25,60 - 32,59	MN76296.025.6.453	●		MN76296.025.6.454	●		MN76296.025.6.455	●	
32,60 - 40,59	MN76296.032.6.453	●		MN76296.032.6.454	●		MN76296.032.6.455	●	
40,60 - 45,59	MN76296.040.6.453	●		MN76296.040.6.454	●		MN76296.040.6.455	●	
45,60 - 60,59	MN76296.045.6.453	●		MN76296.045.6.454	●		MN76296.045.6.455	●	
60,60 - 79,59	MN76296.060.6.453	●		MN76296.060.6.454	●		MN76296.060.6.455	●	
79,60 - 100,59	MN76296.079.6.453	●		MN76296.079.6.454	●		MN76296.079.6.455	●	

Rapid set heads – Solid carbide




left hand flute



straight flute

Application recommendation	Approach	Tool type
For through holes and high feed rates	left hand flute	MN73401
For through and blind holes	straight flute	MN73501

Carbide: MN73401, MN73501

ϕd_1 mm	x mm		MN73401 L ₄ mm	MN73501 L ₄ mm	Avail- ability	Price in € acc. to order quantity			
						2 - 4	5 - 9	10 - 49	50 - 99
12,60 - 14,10	2,0	4	11,0	13,5	●				
14,11 - 15,59	2,0	4	11,0	13,5	●				
15,60 - 17,10	2,0	*4/6	11,0	14,0	●				
17,11 - 18,59	2,0	*4/6	11,0	14,0	●				
18,60 - 21,30	2,0	6	11,0	16,0	●				
21,31 - 24,00	2,0	6	11,0	16,0	●				
24,01 - 25,50	2,0	6	13,0	18,5	●				
25,51 - 28,50	2,0	6	13,0	18,5	●				
28,51 - 30,10	2,0	6	13,0	18,5	●				
30,11 - 30,90	2,0	6	16,0	18,5	●				
30,91 - 33,70	2,0	6	16,0	18,5	●				
33,71 - 36,70	2,0	6	16,0	18,5	●				
36,71 - 40,00	2,0	6	16,0	18,5	●				
40,01 - 42,20	2,0	6	18,5	18,5	●				
42,21 - 45,20	2,0	6	18,5	18,5	●				
45,21 - 48,20	2,0	6	18,5	18,5	●				
48,21 - 50,70	2,0	6	18,5	18,5	●				
50,71 - 52,00	2,0	6	18,5	18,5	●				
52,01 - 54,00	2,0	6	18,5	18,5	●				
54,01 - 56,00	2,0	6	18,5	18,5	●				
56,01 - 58,00	2,0	6	18,5	18,5	●				
58,01 - 60,00	2,0	6	18,5	18,5	●				

Details required for ordering:

type	ϕ	tolerance	cutting material	lead
e. g. MN73401	45,75	H8	Carbide	45°

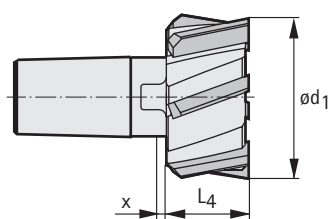
Spare

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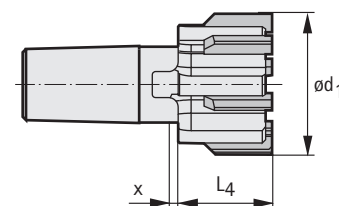
● available ex stock Germany within 2 weeks

left hand flute: 4 teeth | straight flute: 6 teeth

Rapid set heads – TiN-coated




left hand flute



straight flute

Application recommendation	Approach	Tool type
For through holes and high feed rates	left hand flute	MN73402
For through and blind holes	straight flute	MN73502

TiN: MN73402, MN73502

ϕd_1	x mm		MN73402 L ₄ mm	MN73502 L ₄ mm	Avail- ability	Price in € acc. to order quantity			
						2 - 4	5 - 9	10 - 49	50 - 99
12,60 - 14,10	2,0	4	11,0	13,5	●				
14,11 - 15,59	2,0	4	11,0	13,5	●				
15,60 - 17,10	2,0	*4/6	11,0	14,0	●				
17,11 - 18,59	2,0	*4/6	11,0	14,0	●				
18,60 - 21,30	2,0	6	11,0	16,0	●				
21,31 - 24,00	2,0	6	11,0	16,0	●				
24,01 - 25,50	2,0	6	13,0	18,5	●				
25,51 - 28,50	2,0	6	13,0	18,5	●				
28,51 - 30,10	2,0	6	13,0	18,5	●				
30,11 - 30,90	2,0	6	16,0	18,5	●				
30,91 - 33,70	2,0	6	16,0	18,5	●				
33,71 - 36,70	2,0	6	16,0	18,5	●				
36,71 - 40,00	2,0	6	16,0	18,5	●				
40,01 - 42,20	2,0	6	18,5	18,5	●				
42,21 - 45,20	2,0	6	18,5	18,5	●				
45,21 - 48,20	2,0	6	18,5	18,5	●				
48,21 - 50,70	2,0	6	18,5	18,5	●				
50,71 - 52,00	2,0	6	18,5	18,5	●				
52,01 - 54,00	2,0	6	18,5	18,5	●				
54,01 - 56,00	2,0	6	18,5	18,5	●				
56,01 - 58,00	2,0	6	18,5	18,5	●				
58,01 - 60,00	2,0	6	18,5	18,5	●				

Details required for ordering:

type	ϕ	tolerance	cutting material	lead
e. g. MN73402	45,75	H8	TiN-coated	45°

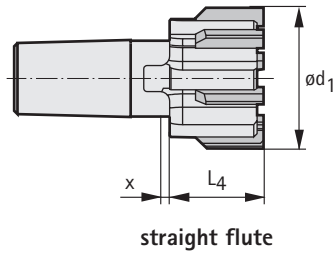
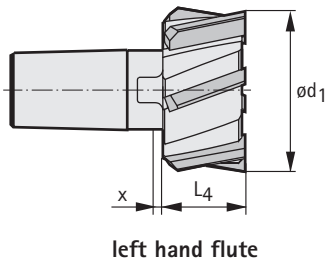
Spares

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● available ex stock Germany within 3 weeks


left hand flute: 4 teeth | straight flute: 6 teeth

Rapid set heads – Cermet



Application recommendation	Approach	Tool type
For through holes and high feed rates	left hand flute	MN73404
For through and blind holes	straight flute	MN73504

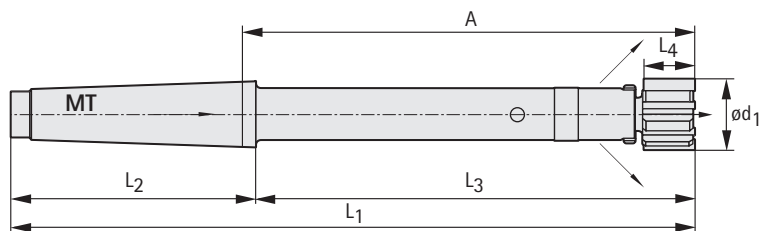
Cermet: MN73404, MN73504

$\varnothing d_1$ mm	x mm		MN73404 L_4 mm	MN73504 L_4 mm	Avail- ability	Price in € acc. to order quantity			
						2 - 4	5 - 9	10 - 49	50 - 99
12,60 - 14,10	2,0	4	11,0	13,5	●				
14,11 - 15,59	2,0	4	11,0	13,5	●				
15,60 - 17,10	2,0	*4/6	11,0	14,0	●				
17,11 - 18,59	2,0	*4/6	11,0	14,0	●				
18,60 - 21,30	2,0	6	11,0	16,0	●				
21,31 - 24,00	2,0	6	11,0	16,0	●				
24,01 - 25,50	2,0	6	13,0	18,5	●				
25,51 - 28,50	2,0	6	13,0	18,5	●				
28,51 - 30,10	2,0	6	13,0	18,5	●				
30,11 - 30,90	2,0	6	16,0	18,5	●				
30,91 - 33,70	2,0	6	16,0	18,5	●				
33,71 - 36,70	2,0	6	16,0	18,5	●				
36,71 - 40,00	2,0	6	16,0	18,5	●				
40,01 - 42,20	2,0	6	18,5	18,5	●				
42,21 - 45,20	2,0	6	18,5	18,5	●				
45,21 - 48,20	2,0	6	18,5	18,5	●				
48,21 - 50,70	2,0	6	18,5	18,5	●				
50,71 - 52,00	2,0	6	18,5	18,5	●				
52,01 - 54,00	2,0	6	18,5	18,5	●				
54,01 - 56,00	2,0	6	18,5	18,5	●				
56,01 - 58,00	2,0	6	18,5	18,5	●				
58,01 - 60,00	2,0	6	18,5	18,5	●				

● available ex stock Germany within 2 weeks

left hand flute: 4 teeth | straight flute: 6 teeth

Holder for rapid set head with internal coolant



tool location	coolant supply	bore type	bore length	tool type
MT	to the blades	through hole	long	MN75726
MT	to the blades	through hole	short	MN75716
MT	central	blind hole	long	MN76726*
MT	central	blind hole	short	MN76716*

MN75726 & MN76726 - long

ød ₁ mm	L ₁ mm	L ₄ mm	L ₃ mm	L ₂ mm	A mm straight flute	MT	Size	Avail- ability	Price/Piece €
12,60 - 15,59	183	13,50	114	69	119,0	2	012.6	●	
15,60 - 18,59	193	14,00	124	69	129,0	2	015.6	●	
18,60 - 24,00	213	14,00	144	69	149,0	2	018.6	●	
24,01 - 30,10	215	16,00	146	69	159,0	2	018.6	●	
30,11 - 40,00	253	18,50	167	86	172,0	3	024.0	●	
40,01 - 50,70	253	18,50	167	86	172,0	3	030.1	●	
50,71 - 60,00	314	18,50	205	109	211,5	4	040.0	●	

MN75716 & MN76716 - short

ød ₁ mm	L ₁ mm	L ₄ mm	L ₃ mm	L ₂ mm	A mm straight flute	MT	Size	Avail- ability	Price/Piece €
12,60 - 15,59	122	13,50	53	69	58,0	2	012.6	●	
15,60 - 18,59	132	14,00	63	69	68,0	2	015.6	●	
18,60 - 24,00	132	14,00	63	69	68,0	2	018.6	●	
24,01 - 30,10	134	16,00	65	69	70,0	2	018.6	●	
30,11 - 40,00	172	18,50	86	86	91,0	3	024.0	●	
40,01 - 50,70	172	18,50	86	86	91,0	3	030.1	●	
50,71 - 60,00	209	18,50	100	109	106,5	4	040.0	●	

Please note: The holder and rapid set head must be ordered separately.
The tools are fitted complete and are supplied set to nominal dimension.

* Not suitable for left hand rapid set heads
MN73401, MN73402 and MN73404.

Details required for ordering:

Holder

type	tool size
e. g. MN75726	040.0



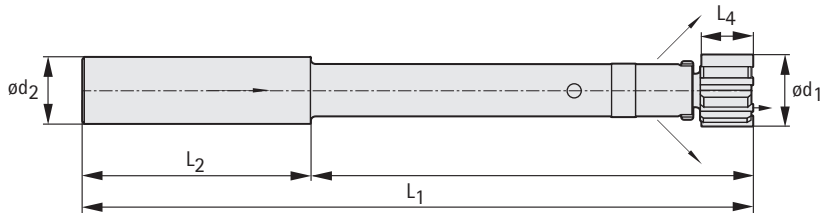
Rapid set head

type	ø	tolerance	cutting material	lead
e. g. MN73401	45,75	H8	Carbide	45°

Spares

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Holder for rapid set head with internal coolant



tool location	coolant supply	bore type	bore length	tool type
cylindrical	to the blades	through hole	long	MN75746
cylindrical	to the blades	through hole	short	MN75736
cylindrical	central	blind from 12,6	long	MN76746*
cylindrical	central	blind from 12,6	short	MN76736*

MN75746 & MN76746 - long

$\varnothing d_1$ mm	L_1 mm straight flute	L_4 mm	L_3 mm	L_2 mm	$\varnothing d_2$ mm	Size	Avail- ability	Price/Piece €
12,60 - 15,59	155	13,5	115	40	16	012.6	●	
15,60 - 18,59	174	14,0	124	50	20	015.6	●	
18,60 - 24,00	194	14,0	144	50	20	018.6	●	
24,01 - 30,10	196	16,0	146	50	20	018.6	●	
30,11 - 40,00	227	18,5	167	60	25	024.0	●	
40,01 - 50,70	227	18,5	167	60	25	030.1	●	
50,71 - 60,00	285	18,5	205	80	32	040.0	●	

MN75736 & MN76736 - short

$\varnothing d_1$ mm	L_1 mm straight flute	L_4 mm	L_3 mm	L_2 mm	$\varnothing d_2$ mm	Size	Avail- ability	Price/Piece €
12,60 - 15,59	102	13,5	62	40	16	012.6	●	
15,60 - 18,59	113	14,0	63	50	20	015.6	●	
18,60 - 24,00	133	14,0	83	50	20	018.6	●	
24,01 - 30,01	135	16,0	85	50	20	018.6	●	
30,11 - 40,00	166	18,5	106	60	25	024.0	●	
40,01 - 50,70	166	18,5	106	60	25	030.1	●	
50,71 - 60,00	190	18,5	110	80	32	050.7	●	

Please note: The holder and rapid set head must be ordered separately.
The tools are fitted complete and are supplied set to nominal dimension.

* Not suitable for left hand rapid set heads
MN73401, MN73402 and MN73404.

Details required for ordering:

Holder

type	tool size
e. g. MN75746	040.0



Rapid set head

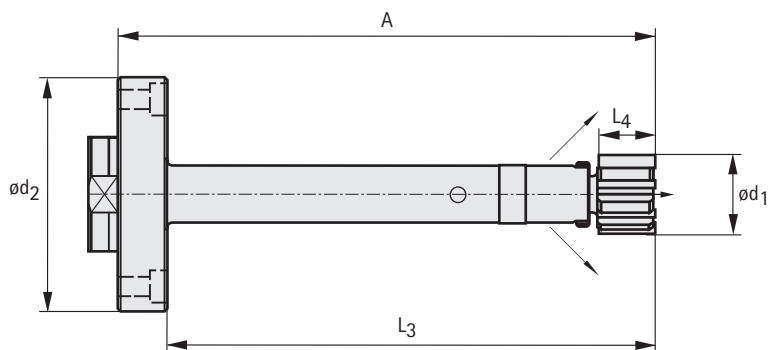
type	\varnothing	tolerance	cutting material	lead
e. g. MN73401	45,75	H8	Carbide	45°

Spares

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Holder for rapid set head with internal coolant

tool location	coolant supply	bore type	bore length	tool type
Module	to the blades	through hole	short	MN75786
Module	central	blind hole	short	MN76786*



MN75786 & MN76786 - short

ød ₁ mm	A mm	L ₄ mm straight flute	L ₃ mm	ød ₂ Module	Size	Avail- ability	Price/Piece €
12,60 - 15,59	95	13,50	82	60	012.6	●	
15,60 - 18,59	95	14,00	82	60	015.6	●	
18,60 - 24,00	115	14,00	102	60	018.6	●	
24,01 - 30,10	138	18,50	125	60	024.0	●	
30,11 - 40,00	138	18,50	125	60	030.1	●	
40,01 - 50,70	152	18,50	139	60	040.0	●	
50,71 - 60,00	152	18,50	139	60	050.7	●	

Please note: The holder and rapid set head must be ordered separately. The tools are fitted complete and are supplied set to nominal dimension.

* Not suitable for left-hand rapid set heads MN73401, MN73402 and MN73404.

Details required for ordering:

Holder

type	tool size
e. g. MN75786	040.0

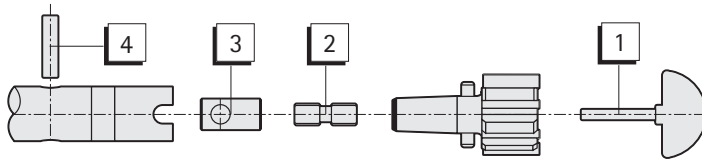


Rapid set head

type	ø	tolerance	cutting material	lead
e. g. MN73401	45,75	H8	Carbide	45°

Spares

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Spares for holders for rapid set heads

(all types)

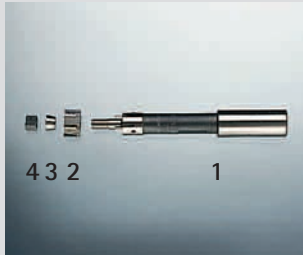
tool ød ₁ mm	1. key order number	Avail- ability	Price/Piece €	2. L.H./R.H. threaded pin order number	Avail- ability	Price/Piece €
12,60 - 15,59	MN75790.012.6.5	●		MN75790.012.6.48	●	
15,60 - 18,59	MN75790.015.6.5	●		MN75790.015.6.48	●	
18,60 - 24,00	MN75790.018.6.5	●		MN75790.018.6.48	●	
24,01 - 40,00	MN75790.024.0.5	●		MN75790.024.0.48	●	
40,01 - 60,00	MN75790.040.0.5	●		MN75790.040.0.48	●	

tool ød ₁ mm	2. L.H./R.H. for blind hole order number	Avail- ability	Price/Piece €	3. threaded sleeve order number	Avail- ability	Price/Piece €
12,60 - 15,59	MN76790.012.6.48	●		MN75790.012.6.34	●	
15,60 - 18,59	MN76790.015.6.48	●		MN75790.015.6.34	●	
18,60 - 24,00	MN76790.018.6.48	●		MN75790.018.6.34	●	
24,01 - 40,00	MN76790.024.0.48	●		MN75790.024.0.34	●	
40,01 - 60,00	MN76790.040.0.48	●		MN75790.040.0.34	●	

tool ød ₁ mm	4. Locking pin for threaded sleeve order number	Avail- ability	Price/Piece €
12,60 - 15,59	MN75790.012.6.47	●	
15,60 - 18,59	MN75790.015.6.47	●	
18,60 - 24,00	MN75790.018.6.47	●	
24,01 - 40,00	MN75790.024.0.47	●	
40,01 - 60,00	MN75790.040.0.47	●	

Handling

Adjustable cutting rings with tapered sleeve



- 1 Basic holder
- 2 Cutting ring
- 3 Tapered sleeve
- 4 Adjusting nut

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).

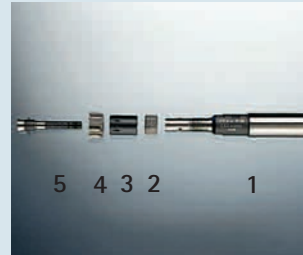
Note: The cut-out on the cutting ring must be in the direction of rotation of the tool at the drive pin.



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



- 1 Basic holder
- 2 Adjusting nut
- 3 Sleeve
- 4 Cutting ring
- 5 Taper screw

Thoroughly clean each of the 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 hole)



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 holes (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 – 24	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

Rapid set heads



- 1 Basic holder
- 2 L.H./R.H. screw
- 3 Rapid set head

Thoroughly clean each of the parts and then lightly grease the L.H./R.H. screw and the taper on the rapid set head (we recommend copper grease).



Tighten L.H./R.H. screw approx. 1 1/2 turns on the rapid set head, then insert into holder and tighten by hand.





Tighten the rapid set head with a torque key as shown in the guideline table.

Note: Drive cams must lie on the shoulder slot on the holder against the direction of rotation.



Torque guideline table for rapid set heads

∅ range	Nm	ft/lbs
12,60 – 15,59	0,7 – 0,9	0,5 – 0,7
15,60 – 18,59	1,1 – 1,4	0,8 – 1,0
18,60 – 24,00	1,8 – 2,3	1,3 – 1,7
24,01 – 40,00	3,0 – 3,8	2,2 – 2,8
40,01 – 50,00	5,2 – 6,6	3,8 – 4,9










Machining in the High Speed Cutting Range (Guidelines)

Material to be machined	Min. tensile strength N/mm ²							Cutting Materials					
		Cutting ring			Rapid set head			Carbide		TiN		Cermet	
		20°	25°	45°	20°	25°	45°	v _c	f _z	v _c	f _z	v _c	f _z
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 0,15
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)

	Min. tensile strength N/mm ²									Cutting Materials	
		Cutting ring				Rapid set head				Carbide	
		Cutting lead		Cutting lead		Cutting lead		Cutting lead		v _c	f _z
		30°/2°	30°/4°	45(30)°	45°/8°	30°/2°	30°/4°	45(30)°	45°/8°		
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

Problem	Cause	Remedy
Conical bore 	Axis not accurate for workpiece/ operating spindle	Reduce axial error max. 0.005 mm If this is not possible, apply axis-parallel adjustment
Conical run-in Conical run-out 	Alignment not correct Difference between spindle and tool axis Blade is cutting from the back	Correct alignment or use centralising device Correct tailstock or use centralising device Improve axial alignment Check back taper on blade
Barrel- shaped bore 	Part may be distorted if walls are thick	Reduce clamping force or change direction of clamping force
Bore too large 	Inaccurate concentricity Alignment incorrect, reamer cutting from behind Wrong coolant Reamer size too large	Use centralising device Adjust alignment or use centralising device or floating holder Use different coolant Smaller reamer, possible lap smaller in diameter Check back taper on blade
Bore not concentric 	Part is distorted Run-out too great and inaccurate alignment Asymmetric cutting	Reduce clamping pressure and possibly use different clamping method Adjust alignment or use centralising device or floating holder Countersink bore
Chatter marks 	Eccentric workpiece/operating spindle	Reduce axial error to max. 0.005 mm If not possible, use axis parallel adjustment
Blade 'digging in' 	Back taper on blade not sufficient	Increase back taper, regrind
Bad surface finish 	Feed rate too high Wrong cutting speed Bad lubrication Inadequate lubrication Chip accumulation Build-up on cutting edges Build-up on radial land Rough machining with insufficient allowance Too much wear on blade	Reduce feed rate Adjust cutting speed to value shown in table Apply lubrication With internal coolant supply, increase amount of coolant Use blade with different radial rake Increase allowance by at least the degree of surface uniformity for the roughing operation Check whether coolant supply is suitable for this operation Use new blade
Bore not true 	Allowance too low for roughing Roughing not properly executed	Increase allowance Check roughing operation

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

Company: _____

Department: _____

Tel. No.: _____

Fax No.: _____

e-mail: _____

Tool order

Type: _____ \varnothing : _____ Tolerance: _____

Details of part to be machined

Material: _____

Tensile strength: _____

Bores

Diameters to be machined and permissible tolerances: _____

Machining allowance: _____

Lengths of bore: _____

Through hole 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: _____

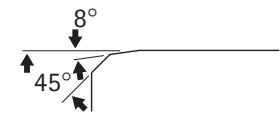
Description/Name: _____

Machine: _____

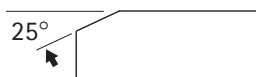
The required cutting lead information:



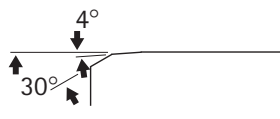
Single Lead 45°: generally used for short chipping materials and for TIN coated reamers



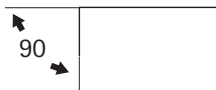
Double Lead 45°/8°: generally used for long chipping materials



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

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

For recommended cutting leads and machining values, see page 32 and 33. Other cutting leads can be supplied on request.



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