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Tools for Clamping between Centers

process oriented **for turning, hard turning, grinding, milling** and **mill-turning**

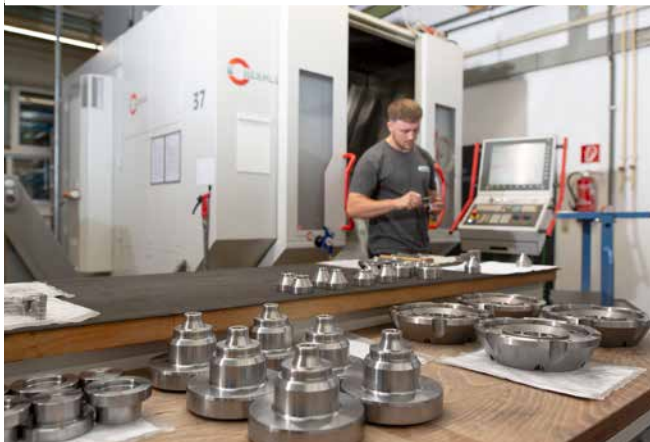
Process oriented clamping solutions
with **maximum torque transmission** and **supreme accuracy**

NEIDLEIN- SPANNZEUGE GmbH

The company NEIDLEIN is a leading international manufacturer of clamping tools in the metalworking industry. All over the world our products help to optimize production processes and to realize high quality requirements. The customer workpieces to be machined are clamped between centers by our tools, this means that the entire outer contour of the workpieces can be machined efficiently and with high precision. Our clamping tools are used in hard turning, cylindrical grinding, milling and mill-turning processes.

With our dedicated team, we develop and manufacture an extensive portfolio that includes both standard products and customized special solutions. We are certified according to ISO9001 and ISO14001 standards.

A high level of customer satisfaction, employee loyalty and sustainability in all areas are very important to us.





A leading edge based on direct dialogue

One of the cornerstones of our policy has always been to provide consistent project-based support – you generally have the same contact partner from the initial enquiry right through to conception, design and delivery.

Close networking between design, production and sales means we make decisions fast. This means short delivery times and a high level of service quality – giving you the competitive advantage and leading edge needed for success.



flange adapter ZFE



dead center FNA and changeable center cone



face driver FSB



live center RN



face driver FFBR



carbide center pin DIN 807



face driver FSP



live center RNCS with carbide tip



mandrel ISD

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FSB



FFB



FSP

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Face Drivers

with appropriate changable parts and accessories



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Face Drivers FSB / SB



with drive pins and movable center pin

The entire surface of the workpiece can be tooled and finished by clamping with a maximum of torque transmission. NEIDLEIN face drivers are mechanical clamping systems which are suited **for turning as well as hard turning.**

Face drivers of type FSB / SB are power-operated by the thrust of the tailstock. Workpieces are clamped centrically using a movable center pin. This way different centerings can be adjusted, thus ensuring a constant datum-point at the end face of the workpieces.

Type FSB with flange retainer

Type FSB is mounted onto the machine spindle nose using a flange adapter.



Type SB with MT or cylindrical retainer

Type SB with taper shank and extracting nut for fast mounting into the machine spindle.



NEIDLEIN face drivers FSB / SB with movable center pins ensure:

- a maximum of torque transmission, thus achieving high metal removing rates
- datum-point at the end face of the workpiece
stable datum-point in case of different centerings
- extended tool-life of driving devices and cutting tools
due to vibration-free running
- run-out deviation in the process 0.015 - 0.02 mm
- clamping force is triggered by tailstock
- fixed center pin/fixed datum-point
in clamped state
- compensating driving devices/ideal clamping
of the workpiece
- simple handling

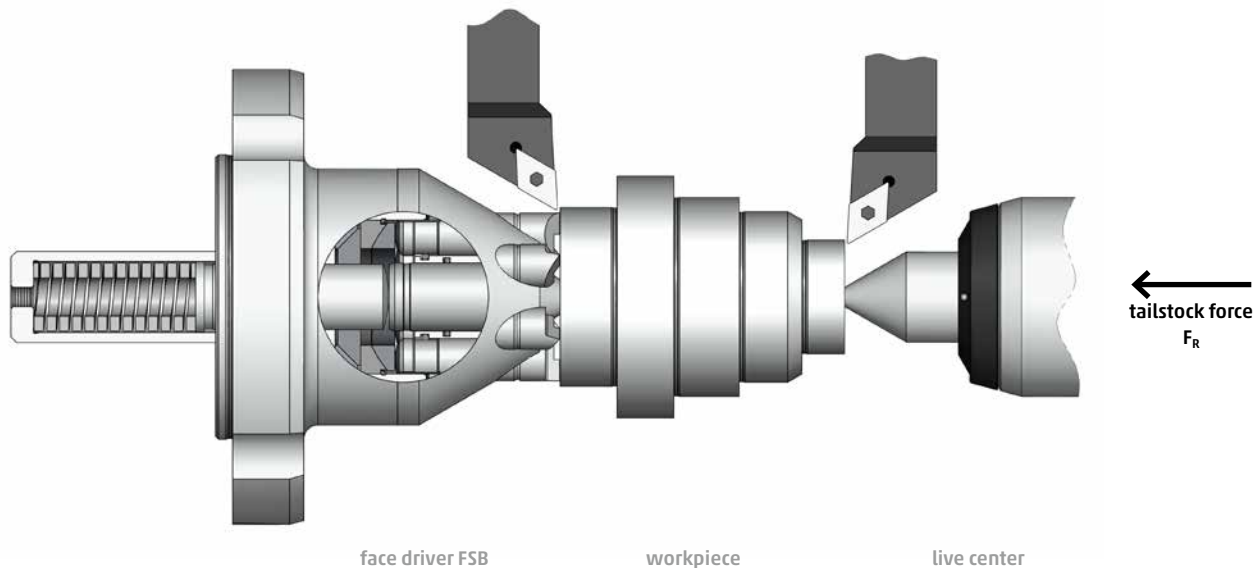
Clamping principle

The center pin located on the side of the tailstock pushes the workpiece against the movable center pin of the face driver. The center pin will draw back until the surface of the workpiece bears against the drive pins. In this state the clamping bolt is clamped over the power flow in order to ensure a fixed datum-point during the entire tooling process.

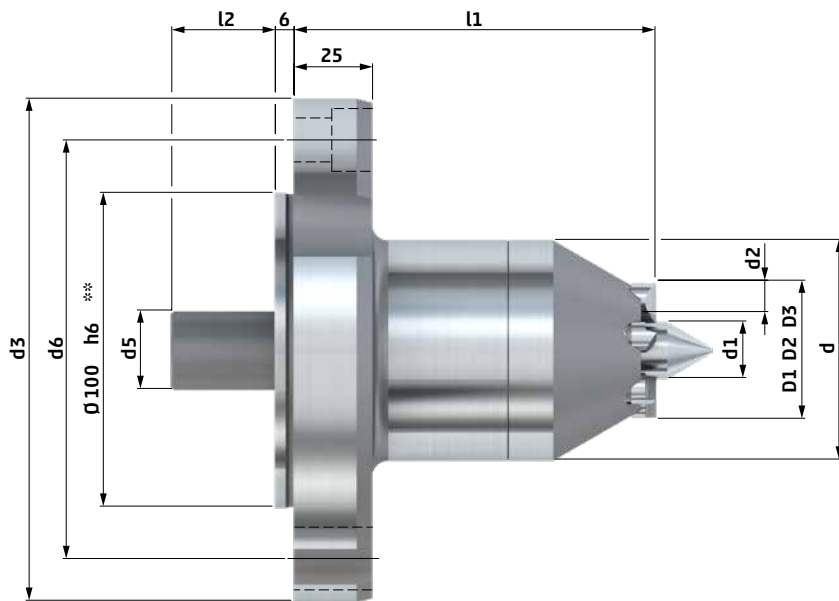
The drive pins are "floatingly", thus compensating for variations in workpiece, squareness and surface finish. The entire surface of the workpiece can now be finished in one single clamping. Please check page 15 - 16 for metal removing rates to be obtained as well as for the tailstock forces required. Compatible standard drive pins and center pins are listed on page 24 - 35.

We will be glad to design clamping devices suitable for your workpieces.

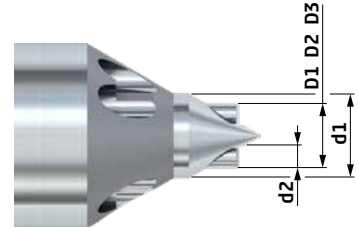
Type FSB with flange retainer



Technical data – type FSB face driver



type FSB 01/0



type	d	d1	center Ø	d2	d3	d5	d6	l1	l2	drive pin	fixing screws	clamping Ø	max. workpiece weight [kg] *	cat. no.
FSB											type pcs	D1 D2 D3		
01	48	22	0-5	6	160	25	133.4	115	28	3	M12 3	8 11 17	6	730 12
0	48	22	0-3	8	160	25	133.4	115	28	3	M12 3	6 11 19	8	730 01
11	42	6	0-6	6	160	25	133.4	115	28	3	M12 3	11 14 20	12	730 11
1	48	8	0-8	8	160	25	133.4	115	28	3	M12 3	13 18 26	25	730 02
2	70	14	2-14	10	160	25	133.4	115	23	6	M12 3	26 31 36	50	730 03
3	70	18	2-18	10	160	25	133.4	115	33	6	M12 3	34 39 44	90	730 04
35	80	14	2-14	15	160	25	133.4	115	33	6	M12 3	29 39 49	130	730 09
4	90	24	3-24	15	160	32	133.4	115	72	6	M12 3	39 49 59	250	730 05
45	100	28	3-28	15	160	32	133.4	115	72	6	M12 3	49 59 69	350	730 10
5	132	35	6-35	20	160	45	133.4	115	164	6	M12 3	69 84 99	700	730 06
55	182	35	6-35	20	220	45	171.4	115	165	6	M16 3	110 125 140	1500	730 08
6	212	35	6-35	20	250	45	210	115	165	6	M20 3	140 155 170	2100	730 07
7	255	50	25-48	20	290	50	250	132	165	6	M20 6	180 195 210	3300	730 13
75	302	50	25-48	20	348	50	310	132	165	6	M20 6	230 245 260	5000	730 14
8	360	80	30-76	30	440	78	394	190	262	6	M20 6	270 290 310	7000	730 16
85	410	80	30-76	30	490	78	444	190	262	6	M20 6	320 340 360	10000	730 15

* The max. workpiece weight also depends on the size of the workpiece center hole / DIN332 part 7

** Type FSB 8/85: Ø 100 h6

- All face drivers are supplied without drive pins. (drive pins see page 24 - 27)
- Types FSB 01/0 are supplied with center body, all other types without center pin. (center pins see page 34 - 35)
- Mounting elements for face drivers see page 112 - 115.
- For vertical use of the face driver the center pin and drive pins must be secured against falling out. (Special design)

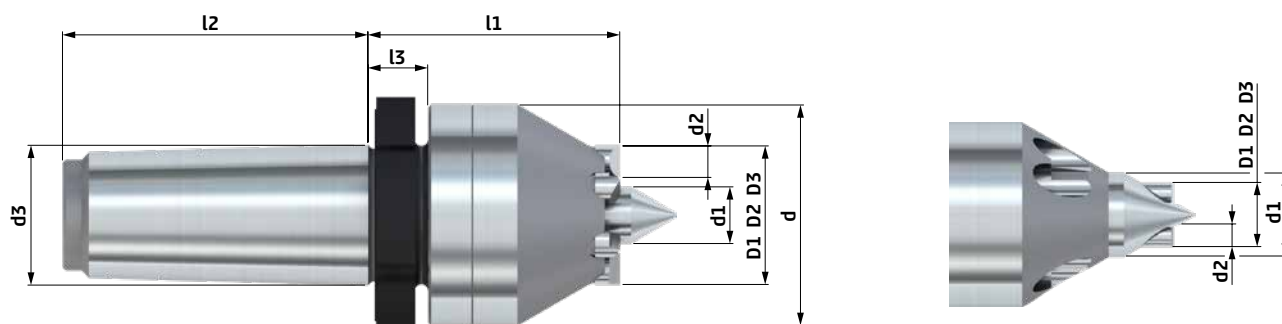
It is the purpose of a flange-adapter to provide stable connection to the machine spindle. We supply these flange adapters for various sizes of spindle noses either in standard size (DIN ISO 702-1 / DIN 55028) or for spindle noses specific to manufacturer of machine-tools. Thus face drivers of type FSB can be used on different machines. Driving devices and center pins can be exchanged front view on the machine without any effort.

Upon request and depending on the tooling direction of the machine the face driver can be equipped optionally with drive pins for counter-clockwise tooling (SR/tooling direction M3), for clockwise tooling (SL/tooling direction M4) or for both tooling directions (NV = bi-directional).

Apart from the clamping diameters listed in the table under D1, D2, D3 we can also supply intermediate dimensions upon request. We can as well make extra-large center pins or mushroom centers appropriate to oversized centerings in workpieces.

Technical data – type SB face driver

type SB 01/0



type SB	MT	d	d1	center Ø	d2	d3	l1	l2	l3	drive pin	clamping Ø			max. workpiece weight [kg] *	cat. no.
											D1	D2	D3		
01	3	48	22	0 - 5	6	M28 x 1.5	87	61	14	3	8	11	17	6	720 16
	4	48	22	0 - 5	6	M35 x 1.5	87	74	16	3	8	11	17	6	720 17
	5	48	22	0 - 5	6	M48 x 1.5	87	97	19	3	8	11	17	6	720 18
0	3	48	22	0 - 3	8	M28 x 1.5	87	61	14	3	6	11	19	8	720 01
	4	48	22	0 - 3	8	M35 x 1.5	87	74	16	3	6	11	19	8	720 02
	5	48	22	0 - 3	8	M48 x 1.5	87	97	19	3	6	11	19	8	720 03
11	3	42	6	0 - 6	6	M28 x 1.5	80	61	14	3	11	14	20	12	720 19
	4	42	6	0 - 6	6	M35 x 1.5	80	74	16	3	11	14	20	12	720 20
	5	42	6	0 - 6	6	M48 x 1.5	80	97	19	3	11	14	20	12	720 21
1	3	48	8	0 - 8	8	M28 x 1.5	80	61	14	3	13	18	26	25	720 04
	4	48	8	0 - 8	8	M35 x 1.5	80	74	16	3	13	18	26	25	720 05
	5	48	8	0 - 8	8	M48 x 1.5	80	97	19	3	13	18	26	25	720 06
2	4	70	14	2 - 14	10	M35 x 1.5	80	74	16	6	26	31	36	50	720 07
	5	70	14	2 - 14	10	M48 x 1.5	80	97	19	6	26	31	36	50	720 08
3	4	70	18	2 - 18	10	M35 x 1.5	80	74	16	6	34	39	44	90	720 09
	5	70	18	2 - 18	10	M48 x 1.5	80	97	19	6	34	39	44	90	720 10
4	5	90	24	3 - 24	15	M48 x 1.5	104	97	19	6	39	49	59	250	720 11
	6	90	24	3 - 24	15	M70 x 1.5	104	134	20	6	39	49	59	250	720 12
5	6	132	35	6 - 35	20	M70 x 1.5	135	134	20	6	69	84	99	700	720 13
55	6	182	35	6 - 35	20	M70 x 1.5	140	134	20	6	110	125	140	1200	720 15
6	6	212	35	6 - 35	20	M70 x 1.5	140	134	20	6	140	155	170	1600	720 14

* The max. workpiece weight also depends on the size of the workpiece center hole / DIN332 part 7

- All face drivers are supplied without drive pins. (drive pins see page 24 - 27)
- Types SB 01/0 are supplied with center body, all other types without center pin. (center pins see page 34 - 35)
- Reducing sleeves for face drivers see page 118 - 119.

Type series SB with MT retainer is embedded directly in the machine spindle and removed by means of an extracting nut. Driving devices and center pins can be exchanged front view on the machine without any effort.

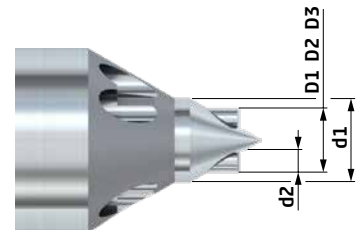
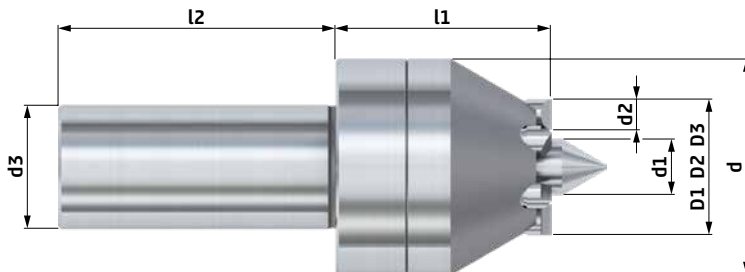
If necessary and depending on the tooling direction of the machine the face driver can be equipped optionally with drive pins for counter-clockwise tooling (SR/tooling direction M3), for

clockwise tooling (SL/tooling direction M4) or for both tooling directions (NV = bi-directional).

Apart from the clamping diameters listed in the table under D1, D2, D3 we also supply intermediate dimensions upon request. We also make extra-large center pins or mushroom centers appropriate to oversized centerings in workpieces.

Technical data – type SB face driver with cylindrical shank

Type SB 01/0



type SB	cyl.	d	d1	center Ø	d2	d3	l1	l2	drive pin	clamping Ø			max. workpiece weight [kg] *	cat. no.
										D1	D2	D3		
01	25	48	22	0 - 5	6	25	71	90	3	8	11	17	6	725 01
0	25	48	22	0 - 3	8	25	71	90	3	6	11	19	8	725 02
11	25	42	6	0 - 6	6	25	70	90	3	11	14	20	12	725 03
1	32	48	8	0 - 8	8	32	70	90	3	13	18	26	25	725 05
2	32	70	14	2 - 14	10	32	70	90	6	26	31	36	50	725 06
3	32	70	18	2 - 18	10	32	70	90	6	34	39	44	90	725 07
	40	70	18	2 - 18	10	40	70	90	6	34	39	44	90	725 08

* The max. workpiece weight also depends on the size of the workpiece center hole / DIN332 part 7

- All face drivers are supplied without drive pins. (drive pins see page 24 - 27)
- Types SB 01/0 are supplied with center body, all other types without center pin. (center pins see page 34 - 35)

Type series SB with cylindrical shank for clamping in a collet or in a chuck. Driving devices and center pins can be exchanged front view on the machine without any effort.

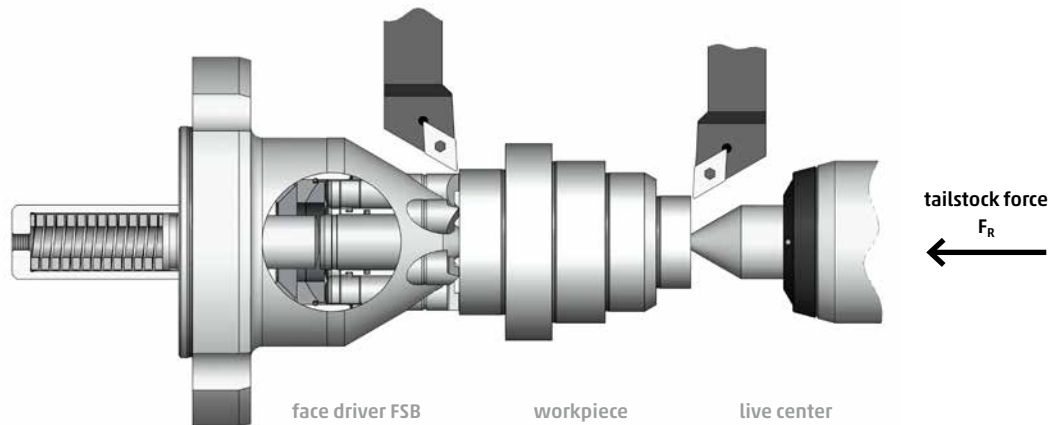
If necessary and depending on the tooling direction of the machine the face driver can be equipped optionally with drive pins for counter-clockwise tooling (SR/tooling direction M3), for clockwise tooling (SL/tooling direction M4) or for both tooling directions (NV = bi-directional).

Apart from the clamping diameters listed in the table under D1, D2, D3 we also supply intermediate dimensions upon request. We also make extra-large center pins or mushroom centers appropriate to oversized centerings in workpieces.

Face Drivers FSB / SB · Calculations

tailstock force / maximum chip cross section of metal removing

PRINCIPLE: The tailstock force pushes the workpiece against the movable center pin of the face driver. The center pin will draw back until the surface of the workpiece bears against the drive pins.



■ tailstock force F_R :

The force onto the face driver required for metal removing is calculated on the basis of the empirical formula:

$$F_R = [(q_{\max} \times 1000 \times \frac{D}{d}) + 1000] \times m$$

F_R	[N]	tailstock force
$q_{\max}$	[mm ²]	maximum of chip cross section for metal removing
D	[mm]	cutting diameter
d	[mm]	clamping diameter
m	[-]	material factor (see adjustment-chart below)

■ maximum chip cross section $q_{\max}$:

At a given tailstock force, maximum chip cross section is calculated as follows:

$$q_{\max} = \frac{\frac{F_R}{m} - 1000}{1000 \times \frac{D}{d}}$$

EXPLANATORY NOTES: The calculations refer to tooling against the face driver. In case of tooling against tailstock the calculated chip cross section is reduced by approx. 40%. The first chip, however, should always be machined toward the face driver, in order to achieve an ideal penetration of the drive pins. The ratio D/d should not exceed 2, otherwise it would work inefficiently.

Material factor m adjustment chart:

material factor m	1.4	1.2	1.1	1.0	0.8
Rm [N / mm²]	1000	800	700	600	400
examples	42CrMo4	16MnCr5	C 15E (Ck 15)	S355J0	S235J0
		25CrMo4	C 45E (Ck 45)	35S20	

Chisel load of drive pins

Keep the chisel load within the following range:
250 - 350 N per mm chisel length

■ **the chisel load is calculated as follows:**

$$BS = \frac{F_R}{n \times s}$$

BS	[N / mm]	chisel load
F _R	[N]	tailstock force
n	[-]	number of drive pins
s	[mm]	chisel length

EXEMPLIFICATION: turning with FSB 3 face driver, 6 drive pins, respective length of chisel 4 mm, tailstock force 7200 N

$$BS = \frac{7200 \text{ N}}{6 \times 4 \text{ mm}} = 300 \frac{\text{N}}{\text{mm}}$$

CALCULATION EXAMPLE for type FSB / SB

Specific data of machine and workpiece:

maximum tailstock force: 10000 N
material of the workpiece: C15E
diameter of the workpiece,
side of face driver: Ø48 mm
turning diameter: Ø90 mm

Selection of face driver:

face driver FSB 3 / clamping Ø 44 mm
6 drive pins each 4 mm chisel length

■ **tailstock force F_R:**

In order to ensure sufficient entrainment (see chisel load of drive pins) a tailstock force of approx. 7200 N has to be supplied.

$$BS = \frac{F_R}{n \times s}$$

$$F_R = 300 \frac{\text{N}}{\text{mm}} \times 6 \times 4 \text{ mm} = 7200 \text{ N}$$

Determination of material factor m:

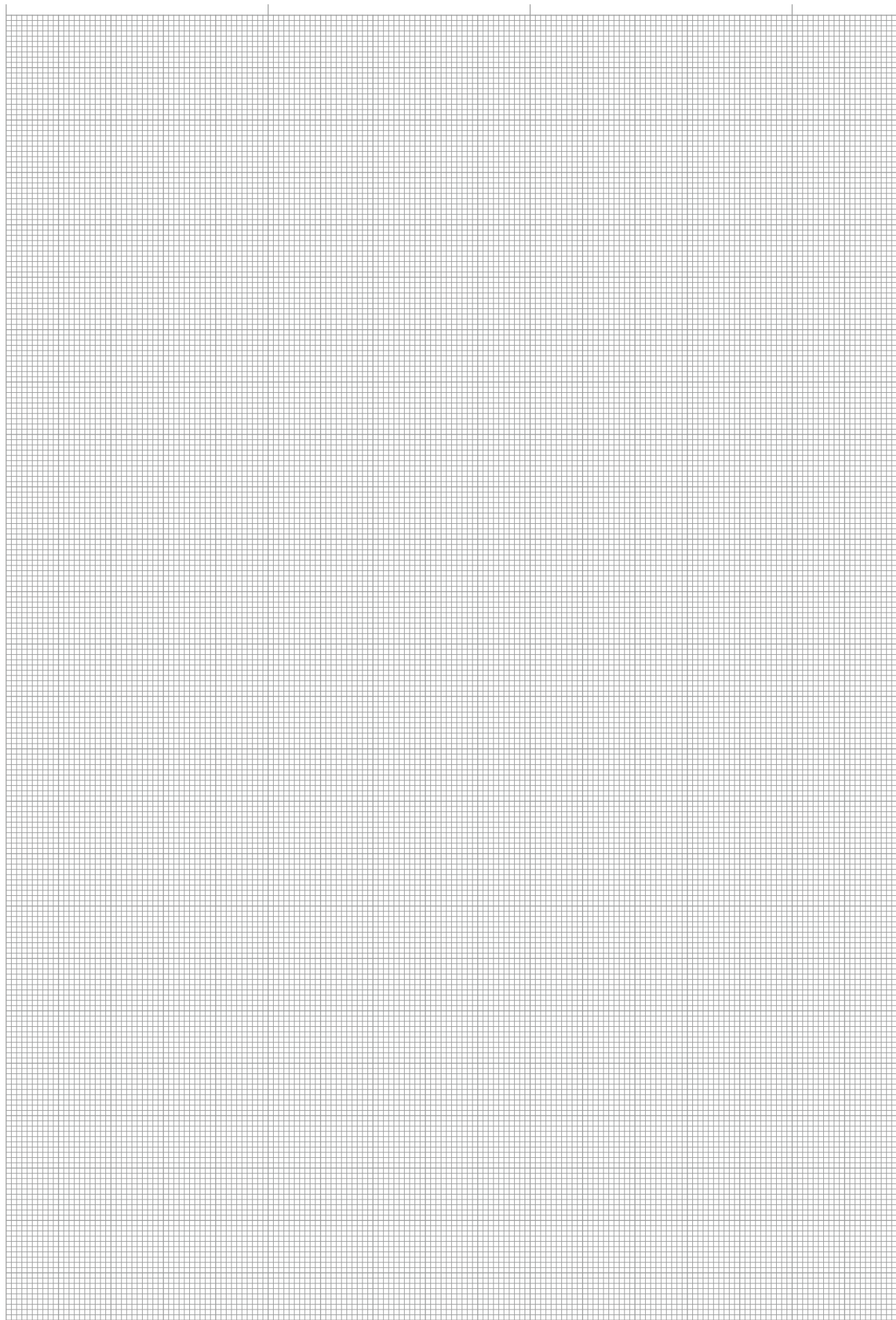
as per adjustment chart material factor: m (C15E) = 1.1

■ **maximum chip cross section q_{max}:**

The maximum chip cross section (at the ultimate turning-Ø) is calculated as follows:

$$q_{\max} = \frac{\frac{7200 \text{ N}}{1.1} - 1000}{1000 \times \frac{90 \text{ mm}}{44 \text{ mm}}} = 2.71 \text{ mm}^2$$

EXPLANATORY NOTES: This calculation refers to tooling against the face driver. The calculated chip cross section refers to the ultimate turning diameter. In case of further tooling towards the axis of rotation of the workpiece, even larger chip cross sections can be achieved (> formula), commensurate with turning diameter.



Face Drivers FFB / FFBH



with drive pins and fixed center pin for high true run accuracy

The entire surface of the workpiece can be completely machined with one single clamping and with a maximum of torque transmission. NEIDLEIN face drivers are mechanical clamping systems, suitable **for turning and hard turning** likewise.

Face drivers of type FFB / FFBH are power-operated on the side of the machine spindle as well as the side of the tailstock. The workpieces are clamped centrically by the fixed center pin. This operation results in high true run-out accuracy.

Drive pins of type FFBH are hydraulically activated and compensated, thus achieving excellent true run-out accuracy.

Type FFB with flange retainer

Type FFB is mounted onto the machine spindle nose using flange-adapter, adjustable for true run-out.



Type FFBH with flange retainer

Type FFBH is mounted onto the machine spindle nose using flange-adapter adjustable for true run-out.



NEIDLEIN face drivers FFB / FFBH with fixed center pin ensure:

- maximum of torque transmission, thus achieving a high rate of metal removing
- datum-point location in the center of the workpiece ensures constant measures of length
- extended service life of drive pins and cutting tools due to vibration-free running
- run-out deviation in the process
 - type FFB: 0.005 - 0.01 mm
 - type FFBH: 0.002 - 0.005 mm
- fixed clamping location
- compensating driving devices/ideal clamping of the workpiece
- easy handling

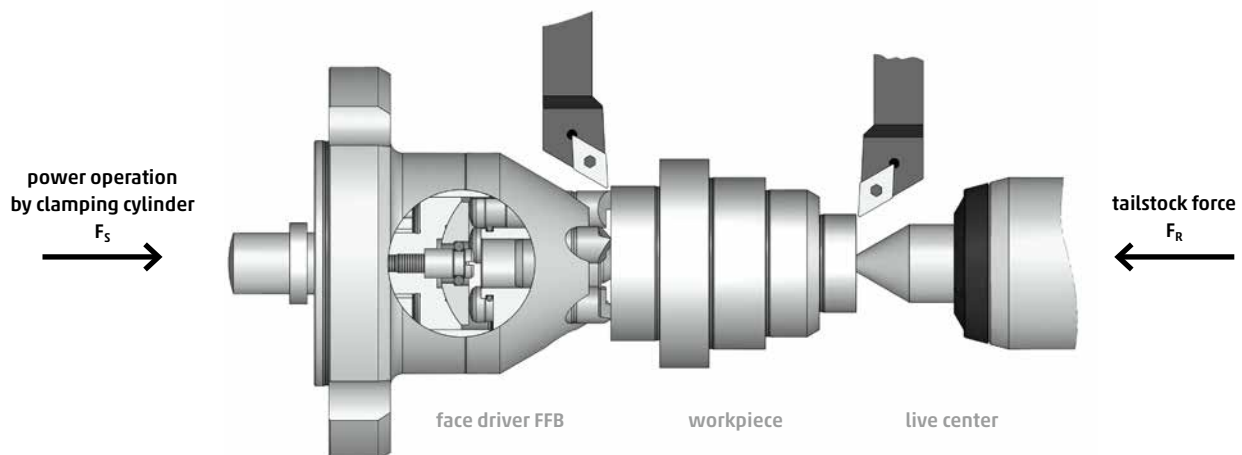
Clamping principle

The center pin located on the side of the tailstock pushes the workpiece against the fixed center pin of the face driver. The motion of the drive pins against the surface of the workpiece is initiated by the clamping cylinder mounted into the machine. The drive pins are "floatingly" suspended, thus compensating irregularities with regard to possible unevenness of the surface of workpieces. The datum-point of workpieces on the machines is determined by the size of the center hole. The entire surface of the workpiece can now be tooled in one single clamping.

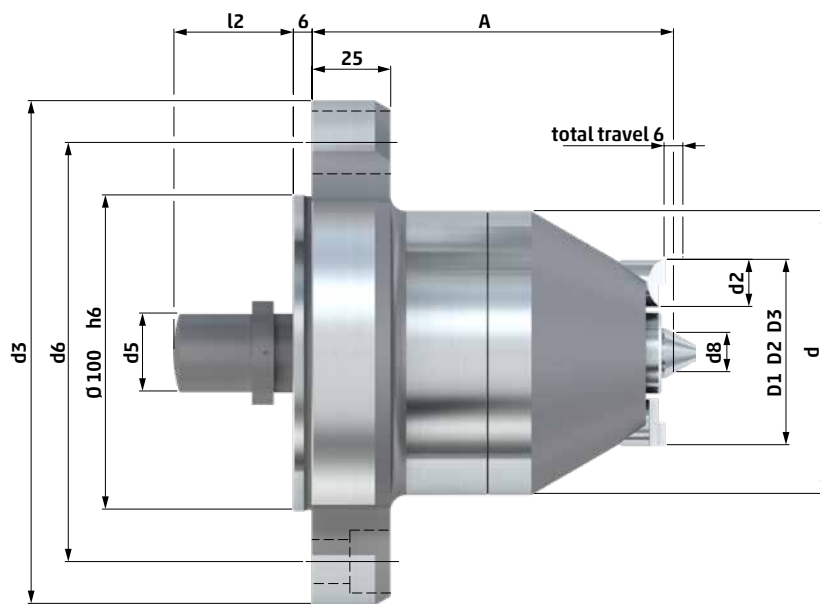
See page 22-23 with data for achievable removal of material and the thrust requested. The appropriate standard drive pins and center pins can be found on page 24 - 35.

We will be glad to design clamping devices suitable for your workpieces.

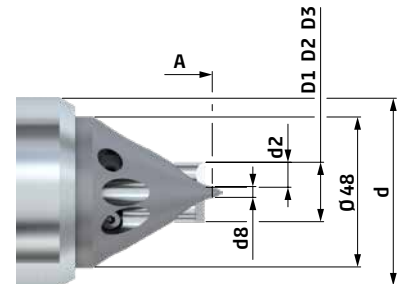
Type FFB / FFBH with flange retainer



Technical data – type FFB face drivers



type FFB 01/0



type	d	center Ø	d2	d3	d5	d6	d8	A	l2	drive pin	fixing screw		clamping Ø			max. workpiece weight [kg] *	cat. no.
											type	pcs	D1	D2	D3		
FFB																	
01	60	1 - 5	6	160	18	133.4	3.5	115	38	3	M12	3	8	11	17	6	731 01
0	60	1 - 3	8	160	18	133.4	3	115	38	3	M12	3	6	11	19	8	731 12
11	42	2 - 6.5	6	160	12	133.4	4.25	115	38	3	M12	3	11	14	20	12	731 11
1	48	4 - 8.5	8	160	18	133.4	6.25	115	38	3	M12	3	13	18	26	25	731 02
2	70	4 - 9	10	160	22	133.4	6.5	115	38	3	M12	3	26	31	36	50	731 03
3	70	6 - 11	10	160	22	133.4	8.5	115	38	3	M12	3	34	39	44	90	731 04
35	80	4 - 9	15	160	22	133.4	6.5	115	38	3	M12	3	29	39	49	130	731 13
4	90	10 - 15	15	160	25	133.4	12.5	115	38	5	M12	3	39	49	59	250	731 05
45	100	10 - 15	15	160	25	133.4	12.5	115	54	5	M12	3	49	59	69	400	731 06
5	132	10 - 15	20	160	25	133.4	12.5	115	54	5	M12	3	69	84	99	1000	731 07
55	182	10 - 15	20	220	40	171.4	12.5	155	54	5	M16	3	110	125	140	1600	731 08
6	220	10 - 15	20	250	40	210	12.5	171	54	5	M20	3	140	155	170	2500	731 09

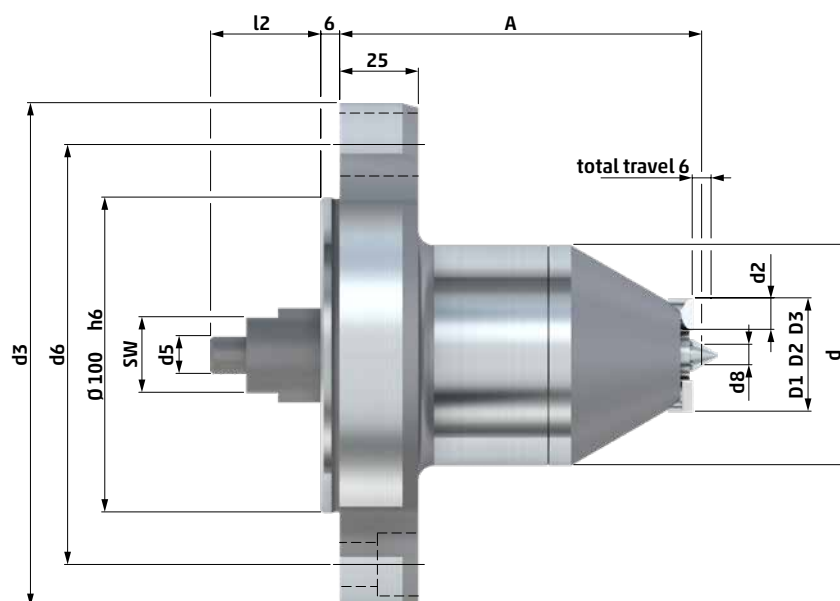
* The max. workpiece weight also depends on the size of the workpiece center hole / DIN332 part 7

- All face drivers are supplied without drive pins. (drive pins see page 24 - 27)
- Types FFB 01/0 are supplied with center body, all other types without center pin. (center pin see page 34 - 35)
- The diameter d8 refers to the standard center pins. (see page 34 - 35)
- Further center pins for other center holes upon request.
- Mounting elements for face drivers see page 112 - 115.
- For vertical use of the face driver the center pin and drive pins must be secured against falling out. (Special design)

It is the purpose of an adjustable flange-adapter to provide stable connection to the machine spindle. We supply these flange adapters for various sizes of spindle noses in standard size (DIN ISO 702-1 / DIN 55028) or for spindle noses specific to machine-tool manufacturer. Thus face drivers of type FFB can be used all-purpose on different machines. Driving devices and center pins can be exchanged front view on the machine without any effort.

Upon request and depending on the tooling direction of the machine, the face driver can be equipped optionally with drive pins for counter-clockwise tooling (SR / tooling direction M3), for clockwise tooling (SL / tooling direction M4) or for both tooling directions (NV = bi-directional).

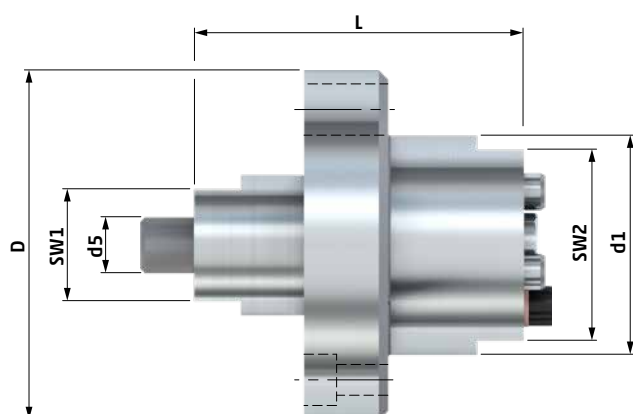
Apart from the clamping diameters enlisted in the table under D1, D2, D3 we can also supply intermediate dimensions upon request. We can as well make extra-large center pins or mushroom centers appropriate to oversized centerings in workpieces.

Technical data – type FFBH face drivers

type	d	center Ø	d2	d3	SW	d5	d6	d8	A	l2	drive pin	fixing screw	clamping Ø	max. workpiece weight [kg] *	cat. no.
FFBH												type pcs	D1 D2 D3		
1	70	4 - 8.5	8	160	24	12	133.4	6.25	115	35	3	M12 3	13 18 26	25	631 02
2	70	4 - 9	10	160	24	12	133.4	6.5	115	35	3	M12 3	26 31 36	50	631 03
3	70	6 - 11	10	160	24	12	133.4	8.5	115	35	3	M12 3	34 39 44	90	631 04
4	90	10 - 15	15	160	34	12	133.4	12.5	132	35	5	M12 3	39 49 59	250	631 06
45	100	10 - 15	15	160	34	12	133.4	12.5	132	35	5	M12 3	49 59 69	400	631 07
5	132	10 - 15	20	160	34	12	133.4	12.5	149	35	5	M12 3	69 84 99	1000	631 08

* The max. workpiece weight also depends on the size of the workpiece center hole / DIN332 part 7

- All face drivers are supplied without drive pins and without center pins. (changeable parts see page 24 - 35)
- The diameter d8 refers to the standard center pins. (see page 34 - 35)
- Further center pins for other center holes upon request.
- Mounting elements for face drivers see page 112 - 115.
- For vertical use of the face driver the center pin and drive pins must be secured against falling out. (Special design)

Technical data – type FFBH hydraulic unit

type	SW1	d5	L	d1	SW2	D	cat. no.
FFBH							
1	24	12	70.5	47	41	75	631 02 HE
2	24	12	70.5	47	41	75	
3	24	12	70.5	47	41	75	
4	34	12	70.5	65	59	93	631 06 HE
45	34	12	70.5	65	59	93	
5	34	12	70.5	87	81	131	631 08 HE

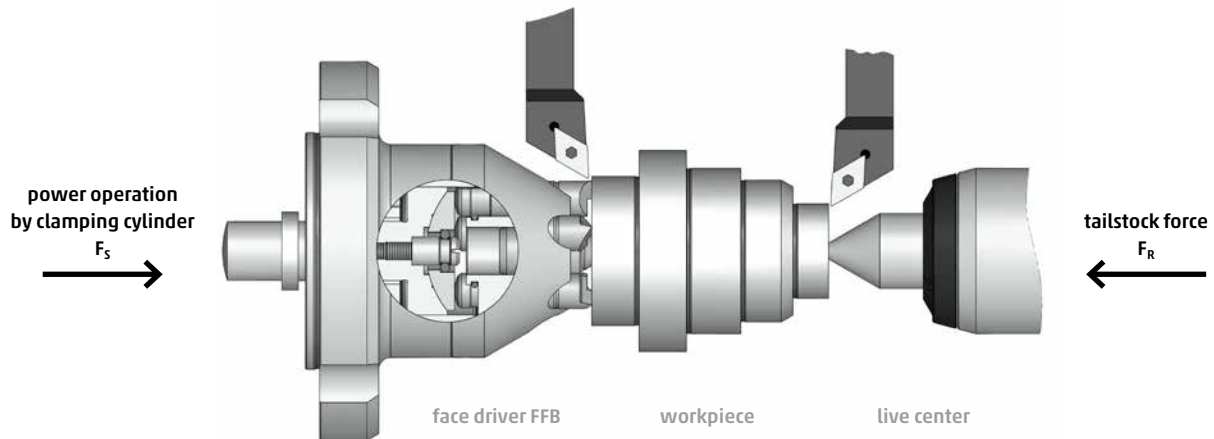
The general explanatory notes for this face driver FFBH can be obtained from the sheet "technical data – type FFB". For safe and smooth operation of face driver we recommend exchange of hydraulic unit after 1500 operating hours.

Furthermore, we offer the option for professional maintenance of the exchanged hydraulic units in our production plant.

Face Drivers FFB / FFBH · Calculations

force of clamping cylinder / maximum chip cross section

PRINCIPLE: The tailstock force pushes the workpiece against the fixed center pin of the face driver. The drive pins are activated by the clamping cylinder mounted into the machine.



■ force of clamping cylinder F_S :

The force onto the face driver required for metal removing is calculated on the basis of the empirical formula:

$$F_S = [(q_{\max} \times 1100 \times \frac{D}{d}) + 1300] \times m$$

F_R	[N]	tailstock force
$q_{\max}$	[mm ²]	maximum of chip cross section for metal removing
D	[mm]	cutting diameter
d	[mm]	clamping diameter
m	[-]	material factor (see adjustment-chart below)

■ maximum chip cross section $q_{\max}$:

At a given force of clamping cylinder, the maximum chip cross section is calculated as follows:

$$q_{\max} = \frac{\frac{F_S}{m} - 1300}{1100 \times \frac{D}{d}}$$

■ tailstock force F_R :

In case of tooling against the face driver the tailstock force has to be approx. 20 % more than the force of the clamping cylinder F_S .

In case of tooling against the tailstock, the tailstock should be approx. 40 - 50 % higher than the force of the clamping cylinder, if not, then the chip cross section should be reduced by approx. 30 %. (as there is an addition of force of clamping cylinder and cutting force).

EXPLANATORY NOTES: The first chip, however, should always be machined toward the face driver, in order to achieve an ideal penetration of the drive pins. The ratio D/d should not exceed 2, otherwise it would work inefficiently.

Material factor m adjustment chart:

material factor m	1.4	1.2	1.1	1.0	0.8
Rm [N/mm ²]	1000	800	700	600	400
examples	42CrMo4	16MnCr5	C 15E (Ck 15)	S355J0	S235J0
		25CrMo4	C 45E (Ck 45)	35S20	

Chisel load of drive pins

Keep the chisel load within the following range:
250 - 350 N per mm chisel length

- the chisel load is calculated as follows:

$$BS = \frac{F_s}{n \times s}$$

EXEMPLIFICATION: turning with FFB 3 face driver, 3 drive pins respective length of chisel 7 mm, force of clamping cylinder 6300 N

$$BS = \frac{4500 \text{ N}}{3 \times 5 \text{ mm}} = 300 \frac{\text{N}}{\text{mm}}$$

BS	[N/mm]	chisel load
F _s	[N]	force of clamping cylinder
n	[-]	number of drive pins
s	[mm]	chisel length

CALCULATION EXAMPLE for type FFB / FFBH

Specific data of machine and workpiece:

maximum force of clamping cylinder: 12000 N
material of the workpiece: 16MnCr5
diameter of the workpiece,
side of face driver: Ø 62 mm
tooling diameter: Ø 120 mm

Selection of face driver:

face driver FFB 4 / clamping Ø 59 mm
5 drive pins each 7.5 mm chisel length

- force of clamping cylinder F_s:

In order to ensure sufficient entrainment (see chisel load of drive pins), a clamping cylinder force of approx. 11250 N is needed.

$$BS = \frac{F_s}{n \times s}$$

$$F_s = 300 \frac{\text{N}}{\text{mm}} \times 5 \times 7.5 \text{ mm} = 11250 \text{ N}$$

- maximum chip cross section q_{max}:

The maximum chip cross section (at OD-Ø) is calculated as follows:

$$q_{\max} = \frac{\frac{11250 \text{ N}}{1.2} - 1300}{1100 \times \frac{120 \text{ mm}}{59 \text{ mm}}} = 3.61 \text{ mm}^2$$

Calculation of material factor m:

as per adjustment chart material factor: m (16MnCr5) = 1.2

EXPLANATORY NOTES: The calculated chip cross section refers to the extreme outer tooling diameter. In case of further tooling towards the axis of rotation of the workpiece, even larger chip cross sections can be achieved (» formula), commensurate with turning diameter.



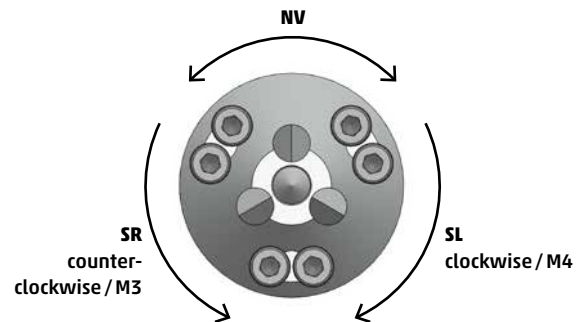
Drive Pins FSB / SB / FFB(H) · Chisel SL / SR / NV

for torque transmission onto the workpiece
for soft / green tooling

Type FSB / SB / FFB(H) · chisel SL / SR / NV

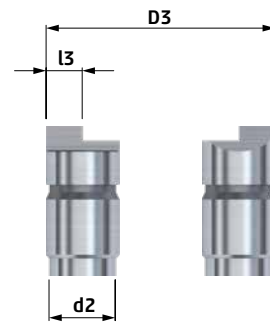
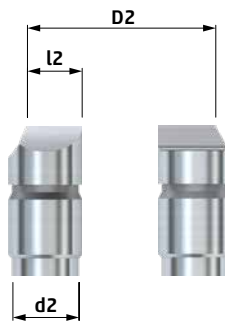
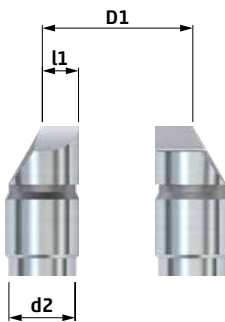


view from tailstock onto the face driver



Technical data – type FSB / SB / FFB(H) · chisel SL / SR / NV

types 01, 11, 8 and 85 with chisel SL and SR are double chiselled



TYPE CHISEL SL
for tooling
direction M4

TYPE CHISEL SR
for tooling
direction M3

TYPE CHISEL NV
for tooling
direction M4 and M3

for type	d2	clamping Ø			chisel length			cat. no.	cat. no.	cat. no.
FSB / SB / FFB(H)		D1	D2	D3	l1	l2	l3			
01	6	8			1.5			736 104	736 101	736 107
	6		11			3		736 105	736 102	736 108
	6			17			6	736 106	736 103	736 109
	6			17			3	736 106S	736 103S	736 109S
0	8	6			1.5			736 04	736 01	736 07
	8		11			4		736 05	736 02	736 08
	8			19			8	736 06	736 03	736 09
	8			19			4	736 06S	736 03S	736 09S
1	8	13			1.5			736 13	736 10	736 16
	8		18			4		736 14	736 11	736 17
	8			26			8	736 15	736 12	736 18
	8			26			4	736 15S	736 12S	736 18S

TYPE CHISEL SL
for tooling
direction M4

TYPE CHISEL SR
for tooling
direction M3

TYPE CHISEL NV
for tooling
direction M4 and M3

for type FSB / SB / FFB(H)	d2	clamping Ø			chisel length			cat. no.	cat. no.	cat. no.
		D1	D2	D3	l1	l2	l3			
11	6	11			1.5			736 76	736 73	736 79
	6		14			3		736 77	736 74	736 80
	6			20			6	736 78	736 75	736 81
	6			20			3	736 78S	736 75S	736 81S
2	10	26			5			736 22	736 19	736 25
	10		31			7.5		736 23	736 20	736 26
	10			36			10	736 24	736 21	736 27
	10			36			5	736 24S	736 21S	736 27S
3	10	34			5			736 31	736 28	736 34
	10		39			7.5		736 32	736 29	736 35
	10			44			10	736 33	736 30	736 36
	10			44			5	736 33S	736 30S	736 36S
35	15	29			5			736 85	736 82	736 88
	15		39			5		736 86	736 83	736 89
	15			49			5	736 87	736 84	736 90
	15			49			7.5	736 87S	736 84S	736 90S
4	15	39			5			736 40	736 37	736 43
	15		49			7.5		736 41	736 38	736 44
	15			59			7.5	736 42	736 39	736 45
	15			59			5	736 42S	736 39S	736 45S
45	15	49			5			736 94	736 91	736 97
	15		59			7.5		736 95	736 92	736 98
	15			69			7.5	736 96	736 93	736 99
	15			69			5	736 96S	736 93S	736 99S
5	20	69			5			736 49	736 46	736 52
	20		84			10		736 50	736 47	736 53
	20			99			10	736 51	736 48	736 54
	20			99			7.5	736 51S	736 48S	736 54S
55	20	110			5			736 58	736 55	736 61
	20		125			10		736 59	736 56	736 62
	20			140			10	736 60	736 57	736 63
	20			140			7.5	736 60S	736 57S	736 63S
6	20	140			5			736 67	736 64	736 70
	20		155			10		736 68	736 65	736 71
	20			170			10	736 69	736 66	736 72
	20			170			7.5	736 69S	736 66S	736 72S
7	20	180			5			736 114	736 111	736 117
	20		195			15		736 115	736 112	736 118
	20			210			20	736 116	736 113	736 119
75	20	230			5			736 344	736 341	736 347
	20		245			15		736 345	736 342	736 348
	20			260			20	736 346	736 343	736 349
8	30	270			10			736 373	736 370	736 376
	30		290			20		736 374	736 371	736 377
	30			310			30	736 375	736 372	736 378
85	30	320			10			736 364	736 361	736 367
	30		340			20		736 365	736 362	736 368
	30			360			30	736 366	736 363	736 369



Drive Pins FSB / SB / FFB(H) · Chisel Carbide

full carbide / carbide inserts

**for torque transmission onto the workpiece
for tooling of high-tensile-strength materials**

Type FSB / SB / FFB(H) · chisel carbide

model B / SR

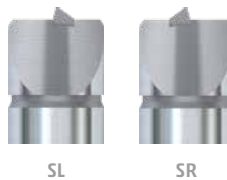


MODEL A



made of full carbide

MODEL B



Technical data – type FSB / SB / FFB(H) · chisel carbide

type 01 - 3 made of full carbide, model A

type 35 - 6 with carbide inserts, model B



MODEL A

TYPE CHISEL SL
for tooling
direction M4

TYPE CHISEL SR
for tooling
direction M3

TYPE CHISEL NV
for tooling
direction M4 and M3

for type FSB / SB / FFB(H)	clamping Ø D3	length l3	cat. no.	cat. no.	cat. no.
01	17	6	736 500	736 518	736 536
0	19	8	736 501	736 519	736 537
1	26	8	736 502	736 520	736 538
11	20	6	736 503	736 521	736 539
2	36	10	736 504	736 522	736 540
3	44	10	736 505	736 523	736 541

MODEL B

for type FSB / SB / FFB(H)	clamping Ø D1 D3	length l3	cat. no.	cat. no.
35	34	6	736 506	736 524
	46	6	736 507	736 525
4	44	6	736 508	736 526
	56	6	736 509	736 527
45	54	6	736 510	736 528
	66	6	736 511	736 529
5	75	6	736 512	736 530
	95	6	736 513	736 531
55	116	6	736 514	736 532
	136	6	736 515	736 533
6	146	6	736 516	736 534
	166	6	736 517	736 535

- Drive Pins are supplied with carbide insert.
- Further clamping-Ø of drive pins upon request.

Changeable inserts for type 35 - 6, model B

changeable parts	cat. no.
carbide insert	736 550
set screw for fastening of carbide insert	736 551

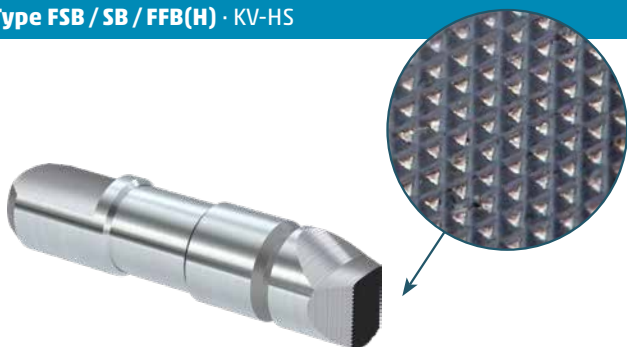




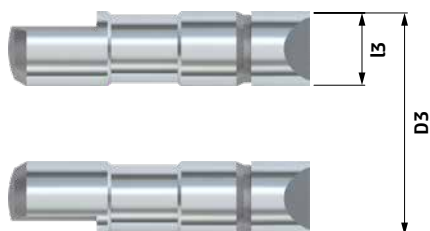
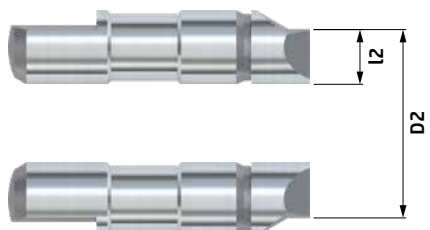
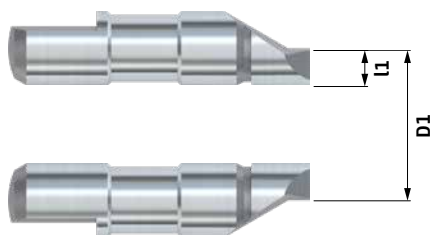
Drive Pins FSB / SB / FFB(H) · KV-HS

cross serrated and coated
for torque transmission onto the workpiece
for hard tooling

Type FSB / SB / FFB(H) · KV-HS



Technical data – type FSB / SB / FFB(H) · KV-HS



for type	clamping Ø			chisel length			cat. no.
FSB / SB / FFB(H)	D1	D2	D3	l1	l2	l3	
01	8			1.5			736 200
		11			3		736 201
			17			6	736 202
0	6			1.5			736 203
		11			4		736 204
			19			8	736 205
1	13			1.5			736 209
		18			4		736 210
			26			8	736 211
11	11			1.5			736 206
		14			3		736 207
			20			6	736 208
2	26			5			736 212
		31			7.5		736 213
			36			10	736 214
3	34			5			736 215
		39			7.5		736 216
			44			10	736 217
35	29			5			736 218
		39			10		736 219
			49			15	736 220
4	39			5			736 221
		49			10		736 222
			59			15	736 223
45	49			5			736 224
		59			10		736 225
			69			15	736 226
5	69			5			736 227
		84			12.5		736 228
			99			20	736 229
55	110			5			736 230
		125			12.5		736 231
			140			20	736 232
6	140			5			736 233
		155			12.5		736 234
			170			20	736 235

- Further clamping Ø of drive pins upon request.
- Clamping forces upon request.

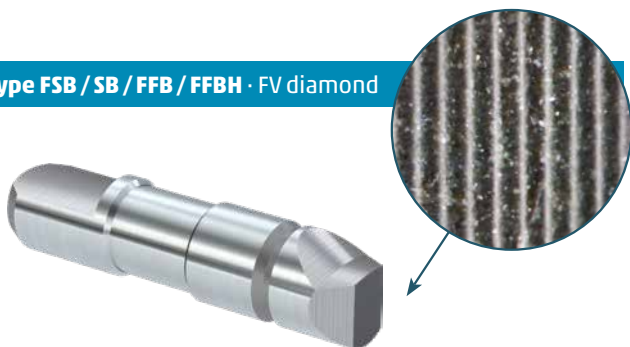


Drive Pins FSB / SB / FFB(H) · FV Diamond

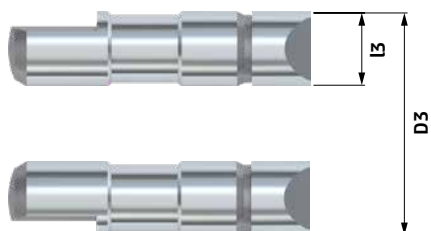
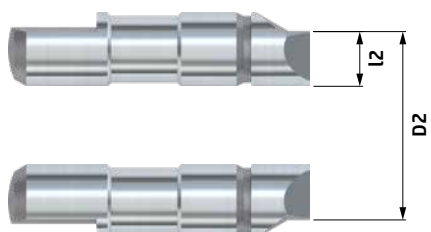
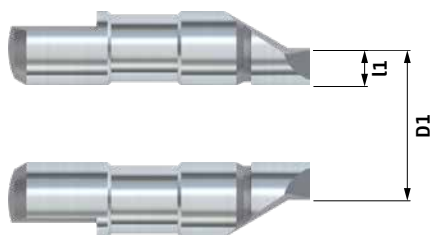
serrated and diamond embedded
for torque transmission onto the workpiece
for hard tooling

for higher friction coefficient and higher tool life of drive pin

Type FSB / SB / FFB / FFBH · FV diamond



Technical data – type FSB / SB / FFB / FFBH · FV diamond



for type FSB / SB / FFB(H)	clamping Ø			chisel length			cat. no.
	D1	D2	D3	l1	l2	l3	
01	8			1.5			736 400
	11				3		736 401
				17		6	736 402
0	6			1.5			736 403
	11				4		736 404
				19		8	736 405
1	13			1.5			736 409
	18				4		736 410
				26		8	736 411
11	11			1.5			736 406
	14				3		736 407
				20		6	736 408
2	26			5			736 412
	31				7.5		736 413
				36		10	736 414
3	34			5			736 415
	39				7.5		736 416
				44		10	736 417
35	29			5			736 418
	39				10		736 419
				49		15	736 420
4	39			5			736 421
	49				10		736 422
				59		15	736 423
45	49			5			736 424
	59				10		736 425
				69		15	736 426
5	69			5			736 427
	84				12.5		736 428
				99		20	736 429
55	110			5			736 430
	125				12.5		736 431
				140		20	736 432
6	140			5			736 433
	155				12.5		736 434
				170		20	736 435

- Further clamping Ø of drive pins upon request.
- Clamping forces upon request.



Drive Pins FSB / SB / FFB · Carbide Tip 90°

for torque transmission onto the workpiece for hardturning

Type FSB / SB / FFB · carbide tip 90°

MODEL A



made of full carbide

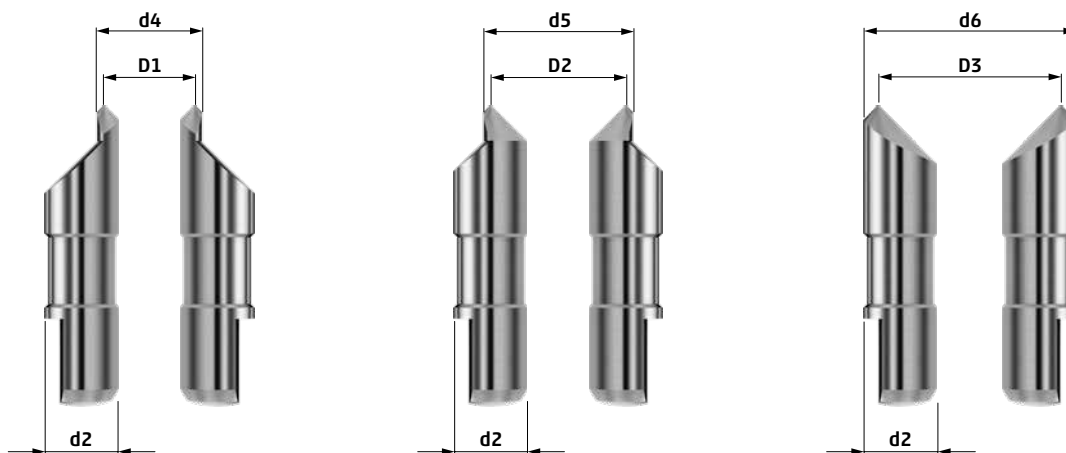
MODEL B



with carbide pin

Technical data – type FSB / SB / FFB · carbide tip 90°

type 1 - 3 made of full carbide, model A



MODEL A

for type FSB / SB / FFB	d2	clamping-Ø						cat. no.
		D1	D2	D3	d4	d5	d6	
1	8	13			15			736 700
	8		18			20		736 701
	8			22			26	736 702
2	10	20			22			736 703
	10		26			28		736 704
	10			32			36	736 705
3	10	28			30			736 706
	10		34			36		736 707
	10			40			44	736 708

■ Clamping forces upon request.

Technical data – type FSB / SB / FFB · carbide tip 90°

type 35 - 5 with carbide pin, model B

**MODEL B**

for type FSB / SB / FFB	d2	clamping-Ø			d4	d5	d6	cat. no.
		D1	D2	D3				
35	15	25			39			736 720
	15		34			44		736 721
	15			43			49	736 722
4	15	35			49			736 723
	15		44			54		736 724
	15			53			59	736 725
45	15	45			59			736 726
	15		54			64		736 727
	15			63			69	736 728
5	20	65			81			736 729
	20		79			90		736 730
	20			93			99	736 731

- Drive Pins are supplied with carbide pin.
- Clamping forces upon request.

Changeable inserts for type 35 - 5, model B

changeable parts	cat. no.
carbide pin 90° 4 x 20	736 760
set crew M4 x 8	736 761





Drive Pins FFBH · Carbide Tip 90°

for torque transmission onto the workpiece for hardturning

Type FFBH · carbide tip 90°

MODEL A



made of full carbide

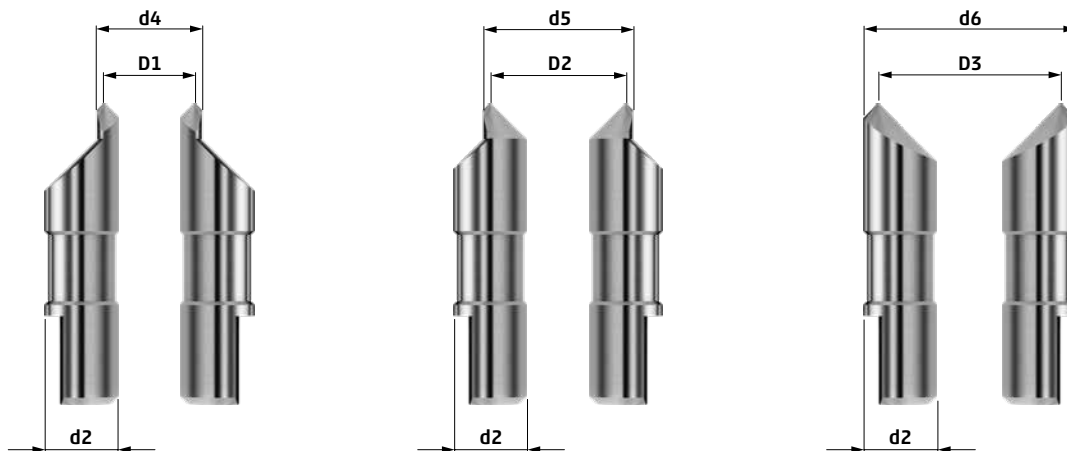
MODEL B



with carbide pin

Technical data – type FFBH · carbide tip 90°

type 1 - 3 made of full carbide, model A



MODEL A

for type FFBH	d2	clamping-Ø			d4	d5	d6	cat. no.
		D1	D2	D3				
1	8	13			15			736 740
	8		18			20		736 741
	8			22			26	736 742
2	10	20			22			736 743
	10		26			28		736 744
	10			32			36	736 745
3	10	28			30			736 746
	10		34			36		736 747
	10			40			44	736 748

■ Clamping forces upon request.

Technical data – type FFBH · carbide tip 90°

type 4 - 5 with carbide pin, model B

**MODEL B**

for type FFBH	d2	clamping-Ø			d4	d5	d6	cat. no.
		D1	D2	D3				
4	15	35			49			736 723
	15		44			54		736 724
	15			53			59	736 725
45	15	45			59			736 726
	15		54			64		736 727
	15			63			69	736 728
5	20	65			81			736 729
	20		79			90		736 730
	20			93			99	736 731

- Drive Pins are supplied with carbide pin.
- Clamping forces upon request.

Changeable inserts for type 4 - 5, model B

changeable parts	cat. no.
carbide pin 90° 4 x 20	736 760
set crew M4 x 8	736 761



Center Pins FSB / SB

for face drivers FSB / SB with movable center pin

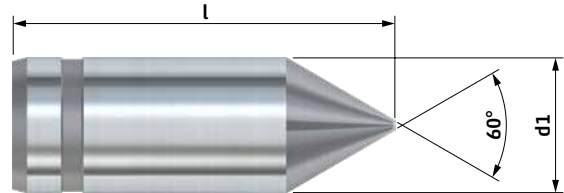
Type FSB / SB · center pin



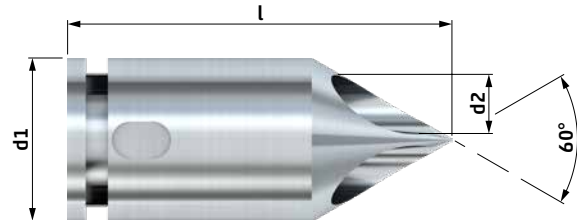
center body type FSB / SB 01 / 0



Technical data – type FSB / SB · center pin



center body type FSB / SB 01 / 0



for type FSB / SB	d1	center Ø	d2	l	cat. no.
01	22	0 - 5	6	52	735 101
0	22	0 - 3	8	52	735 01
11	6	0 - 6	-	53	735 11
1	8	0 - 8	-	53	735 02
2	14	2 - 14	-	47	735 03
3	18	2 - 18	-	51	735 04
35	14	2 - 14	-	47	735 09
4	24	3 - 24	-	70	735 05
45	28	3 - 28	-	74	735 10
5	35	6 - 35	-	96	735 06
55	35	6 - 35	-	96	735 08
6	35	6 - 35	-	96	735 07
7	50	25 - 48	-	100	735 301
75	50	25 - 48	-	100	735 401
8	80	30 - 76	-	135	735 601
85	80	30 - 76	-	135	735 501

■ Further center pins for other center holes upon request.

Center Pins FFB / FFBH

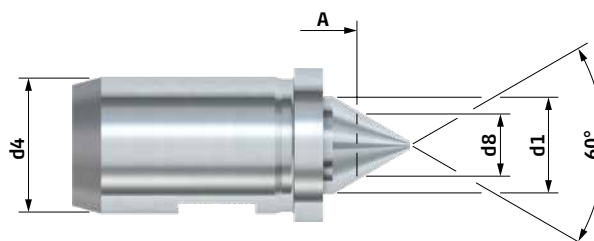
for face drivers FFB / FFBH with fixed center pin

Type FFB / FFBH · tool steel or carbide

Technical data - type FFB / FFBH · tool steel or carbide



with carbide
insert

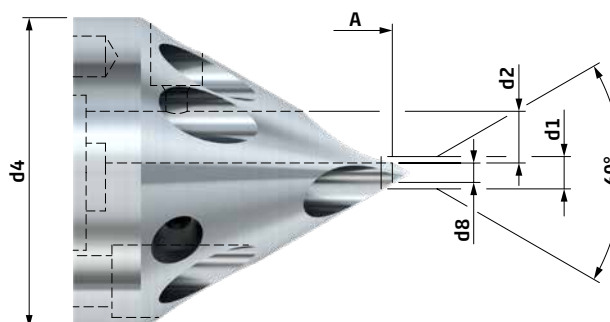


A overhang dimension of face driver
to centre d8 (see page 20 - 21)

center body type FFB / FFBH 01 / 0



center body type FFB / FFBH 01 / 0



TYPE
TOOL STEEL



TYPE
CARBIDE

for type FFB / FFBH	d1	d2	d4	center Ø	d8	cat. no.
01	5	6	48	1 - 5	3.5	734 01
0	3	8	48	1 - 3	3	734 101
11	7.8	-	6	2 - 6.5	4.25	734 11
1	9.8	-	8	4 - 8.5	6.25	734 02
2	10	-	14	4 - 9	6.5	734 03
3	12	-	18	6 - 11	8.5	734 04
35	10	-	14	4 - 9	6.5	734 12
4	16	-	20	10 - 15	12.5	734 05
45	16	-	28	10 - 15	12.5	734 06
5	16	-	35	10 - 15	12.5	734 07
55	16	-	35	10 - 15	12.5	734 08
6	16	-	35	10 - 15	12.5	734 09

cat. no.
734 43
734 44
734 33
734 34
734 35
734 36
734 37
734 38
734 39
734 40
734 41
734 42

■ Further center pins for other center holes upon request.



Face driver FSBR / SBR

with drive pins and movable center body for soft workpieces with high true running accuracy

The entire surface of the workpiece can be tooled and finished by clamping with a maximum of torque transmission. NEIDLEIN face drivers of type FSBR / SBR are mechanical clamping systems which are suited **for turning (for grinding operation upon request)**.

Face drivers of type FSBR/SBR are power-operated by the thrust of the tailstock. Workpieces are clamped centrally using a movable center body. This way different centerings can be adjusted thus ensuring a constant datum-point at the end face of the workpieces.

Type FSBR with flange retainer

Type FSBR is mounted onto the machine spindle nose using a flange adapter.



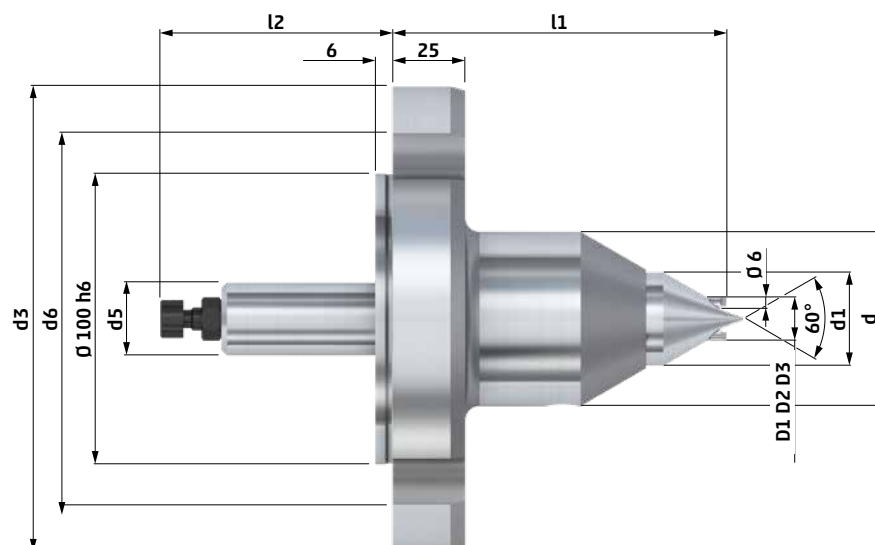
Type SBR with MT retainer

Type SBR with taper shank and extracting nut for fast mounting into the machine spindle.



NEIDLEIN face drivers FSBR / SBR with movable center body ensure:

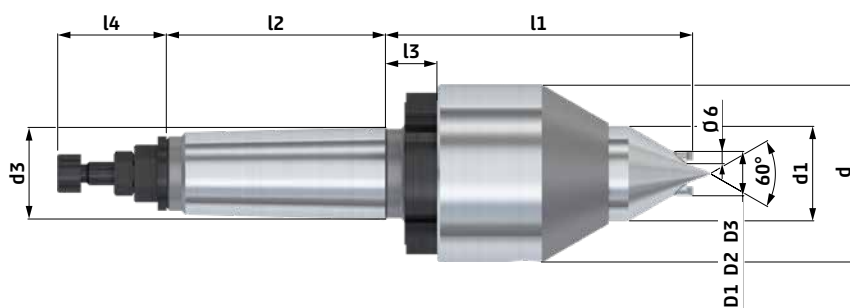
- run-out deviation in the process 0.01-0.015 mm
- high process reliability at small workpieces
- datum-point at the end face of the workpiece
stable datum-point in case of different centerings
- secured drive pins and center body
- clamping force is triggered by tailstock
- fixed center pin / fixed datum-point in clamped state
- compensating driving devices / ideal clamping of the workpiece
- simple handling

Technical data – type FSBR face driver

type FSBR	d	d1	center Ø	d3	d5	d6	l1	l2	drive pin	fixing screw type pcs	clamping-Ø D1 D2 D3			max. workpiece weight [kg] *	cat. no.
01	60	32	0 - 5	160	25	133.4	115	80	3	M12 3	7	11	17	8	730 30
0	60	32	0 - 3	160	25	133.4	115	80	3	M12 3	5	9	15	10	730 31

* The max. workpiece weight also depends on the size of the workpiece center hole / DIN332 part 7

- All face drivers are supplied without drive pins. (drive pins see page 38)
- The center body is already installed.
- Mounting elements for face drivers see page 112 - 115.

Technical data – type SBR face driver

type SBR	MT	d	d1	center Ø	d3	l1	l2	l3	l4	drive pin	clamping-Ø D1 D2 D3			max. workpiece weight [kg] *	cat. no.
01	3	60	32	0 - 5	M28 x 1.5	113	61	16	35	3	7	11	17	8	720 30
	4	60	32	0 - 5	M35 x 1.5	104	74	17.5	37	3	7	11	17	8	720 31
	5	60	32	0 - 5	M48 x 1.5	104	97	19.5	37	3	7	11	17	8	720 32
0	3	60	32	0 - 3	M28 x 1.5	113	61	16	35	3	5	9	15	10	720 35
	4	60	32	0 - 3	M35 x 1.5	104	74	17.5	37	3	5	9	15	10	720 36
	5	60	32	0 - 3	M48 x 1.5	104	97	19.5	37	3	5	9	15	10	720 37

* The max. workpiece weight also depends on the size of the workpiece center hole / DIN332 part 7

- Face driver with cylindrical shaft upon request.
- All face drivers are supplied without drive pins. (drive pins see page 38)
- The center body is already installed.
- Reducing sleeves for face drivers see page 118 - 119.

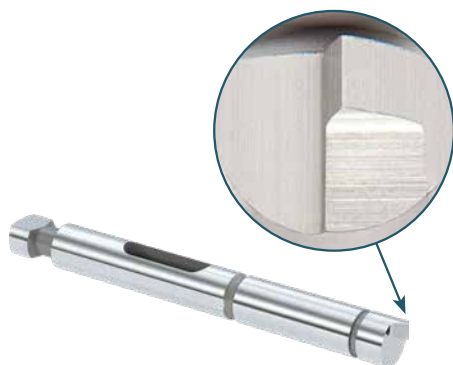


Drive Pins FSBR / SBR · Chisel SL / SR

for torque transmission onto the workpiece for soft / green tooling

For soft workpieces we apply drive pins made of hardened HSS comprising a chisel. They are characterized by high wear-resistance as well as maximum torque transmission.

Type FSBR / SBR Chisel SL/SR



SL

SR

Technical data – type FSBR / SBR drive pins

Form A



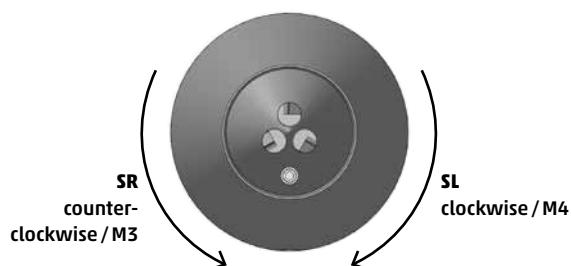
Form B



Form C



view from tailstock onto the face driver



for type	for clamping	model	l	TYPE CHISEL SL DIRECTION M4 cat. no.	TYPE CHISEL SR DIRECTION M3 cat. no.
FSBR SBR	D3	A	2	736 662	736 665
FSBR SBR	D2	B	2	736 661	736 664
FSBR SBR	D1	C	2	736 660	736 663

- Clamping diameter D1, D2, D3 see page 37.
- Further clamping Ø of drive pins upon request.

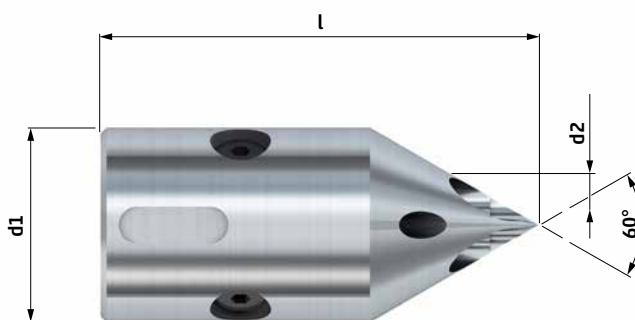
Center body FSBR / SBR

for face drivers FSBR / SBR with movable center pin

Type FSBR / SBR



Technical data - type FSBR / SBR center body



for type FSBR / SBR	d1	center Ø	d2	l	cat. no.
01	32	0 - 5	6	72	735 20
0	32	0 - 3	6	72	735 21



Face Drivers FSP / FSPB / SP

with drive disk and movable center pin

The entire surface of the workpiece can be tooled and finished by clamping with a maximum of torque transmission.

NEIDLEIN face drivers of type FSP / FSPB / SP with drive disks are mechanical clamping systems which are suited **for soft/green as well as heavy tooling**. In application, they feature maximum flexibility and high robustness.

These face drivers are power-operated by the thrust of the tailstock. Workpieces are clamped centrally using a movable center pin. This way different centerings can be adjusted, thus ensuring a constant datum-point at the face end of the workpiece.

Type FSP with flange retainer for screw connection

Type FSP is mounted onto the machine spindle nose using a flange adapter.



Type FSPB with flange retainer for jaw clamping

Type FSPB is directly clamped with the chuck using soft jaws.



Type SP with MT retainer

Type SP with taper shank and extracting nut for fast mounting into the machine spindle.



NEIDLEIN face drivers FSP / FSPB / SP ensure:

- a maximum of torque transmission, thus achieving high metal removing rates
- datum-point at the face end of the workpiece, stable datum-point in case of different centerings
- compensating drive disk for uneven face sides
- high flexibility in the application, wide range of clamping diameters
- fixed center pin in clamped condition
» fixed clamping point
- run-out deviation in the process 0.015 - 0.02 mm
- adjustable spring force (depending on the weight of the workpiece)
- low setup costs due to fast change of drive disks and center pins
- cost efficient exchange of parts that are in contact with the workpiece (changeable carbide inserts)

Clamping principle

The center pin located on the side of the tailstock pushes the workpiece against the movable center pin of the face driver. The center pin will draw back until the surface of the workpiece bears against the drive disk.

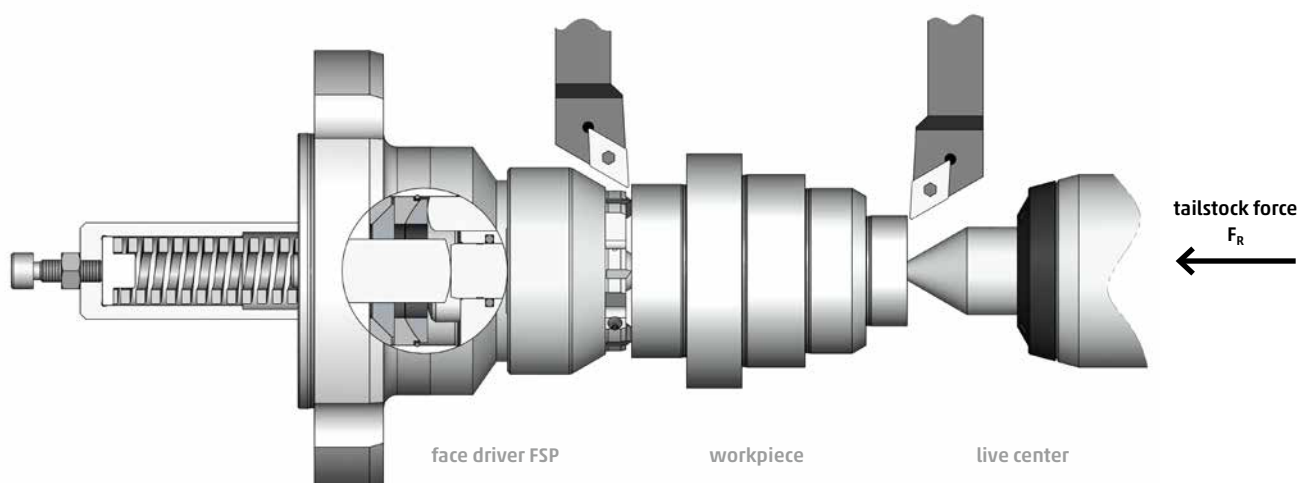
In this state the clamping bolt is clamped over the the power flow, in order to ensure a fixed datum-point throughout the entire tooling process.

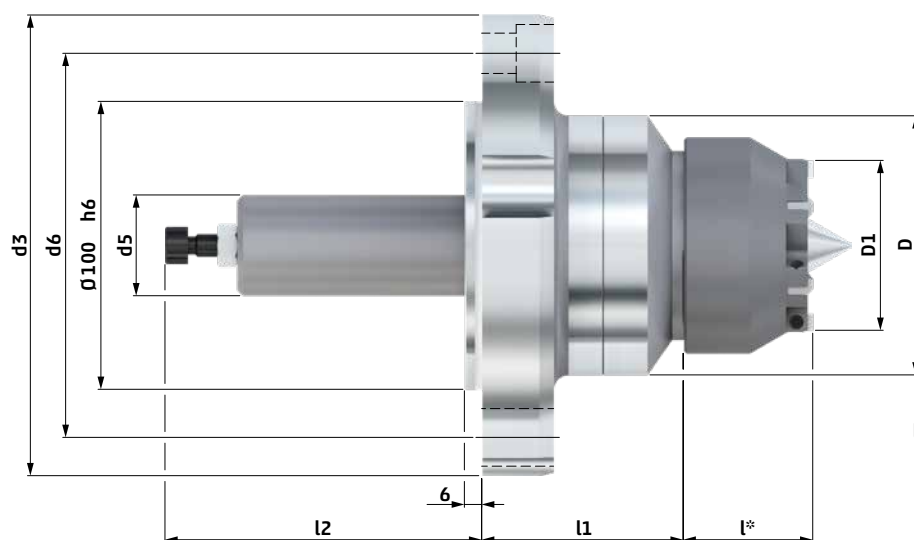
The drive disk is "floatingly" suspended, thus balancing out possible planarity defects of the contact surface of the workpiece.

The entire surface of the workpiece can now be tooled in one single clamping. See page 44 - 45 for data of achievable removal of material and the tailstock thrust requested.

You will find various sizes of face drivers with appropriate standard drive disks and center pins on the following pages.

In case you need special dimensions, we will be glad to design clamping devices suitable for your workpieces.

Type FSP with flange retainer

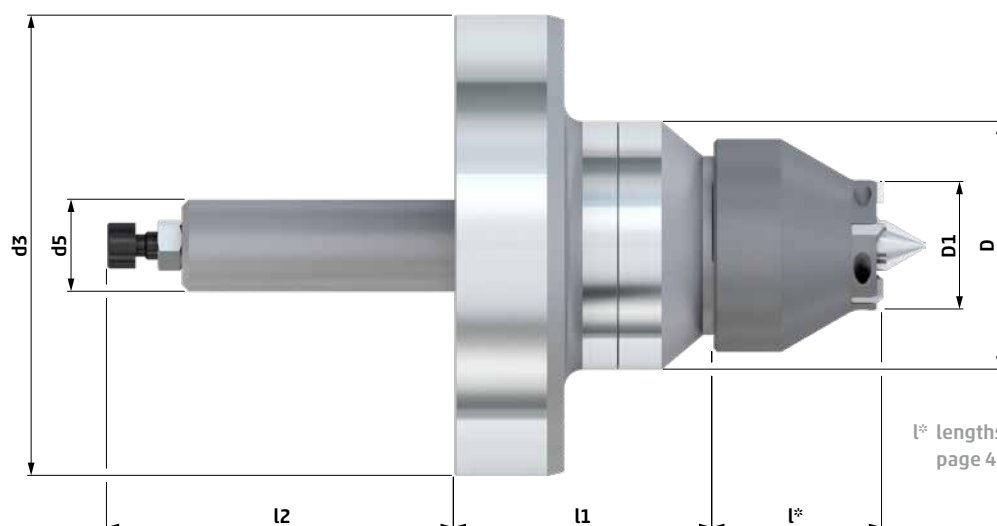
Technical data – type FSP face driver · for screw connection

l* lengths of drive disk see
page 46 - 47

type	D	D1	d3	d5	d6	l1	l2	fixing screws	max. workpiece weight [kg] *	cat. no.
FSP								type pcs		
1	56	9 - 31	160	26	133.4	67	83	M12 3	25	631 99
3	70	14 - 59	160	26	133.4	67	104	M12 3	90	632 01
4	90	31 - 125	160	35	133.4	70	110	M12 3	250	632 03
55	182	84 - 290	220	45	171.4	76	170	M16 3	1500	632 05

* The max. workpiece weight also depends on the size of the workpiece center hole / DIN332 part 7

- All face drivers are provided without drive disk and without center pin. (changeable parts see page 46 - 49)
- Mounting elements for face drivers see page 112 - 115.

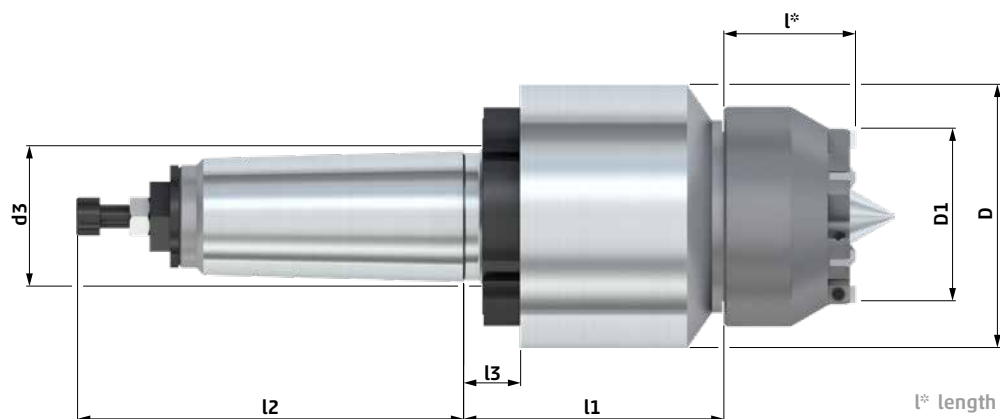
Technical data – type FSPB face driver · for jaw clamping

l* lengths of drive disk see
page 46 - 47

type	D	D1	d3	d5	l1	l2	max. workpiece weight [kg] *	cat. no.
FSPB								
1	56	9 - 31	130	26	73	77	25	632 00
3	70	14 - 59	130	26	73	98	90	632 02
4	90	31 - 125	130	35	76	104	250	632 04

* The max. workpiece weight also depends on the size of the workpiece center hole / DIN332 part 7

- All face drivers are provided without drive disk and without center pin. (changeable parts see page 46 - 49)

Technical data – type SP face driver

l* length of drive disk see
page 46 - 47

type SP	MT	D	D1	d3	l1	l2	l3	max. workpiece weight [kg] *	cat. no.
1	3	56	9 - 31	M28 x 1.5	60	56	16	25	632 57
	4	56	9 - 31	M35 x 1.5	61	74	18	25	632 58
	5	56	9 - 31	M48 x 1.5	63	97	20	25	632 59
3	4	70	14 - 59	M35 x 1.5	78	74	17.5	90	632 60
	5	70	14 - 59	M48 x 1.5	78	97	19.5	90	632 61
4	5	90	31 - 125	M48 x 1.5	89	97	19.5	250	632 62
	6	90	31 - 125	M70 x 1.5	87	134	22	250	632 63

* The max. workpiece weight also depends on the size of the workpiece center hole / DIN332 part 7

- All face drivers are provided without drive disk and without center pin. (changeable parts see page 46 - 49)
- Reducing sleeves for face drivers see page 118 - 119.
- Face driver with cylindrical shank upon request.

Set in a case with drive disks and movable center pins

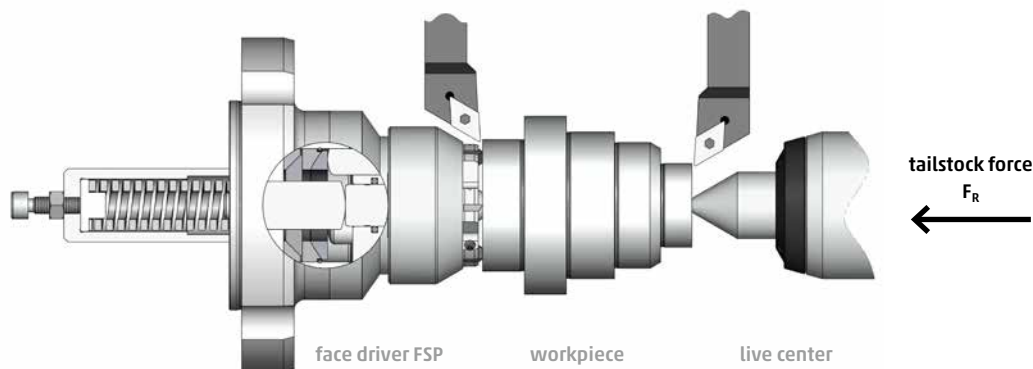
- Face Drivers Set SP / SPV with drive disks and movable center pins in a case see page 62.



Face Drivers FSP / FSPB / SP · Calculations

max. chip cross section of metal removing

PRINCIPLE: The tailstock force pushes the workpiece against the movable center pin of the face driver. The center pin will draw back until the surface of the workpiece bears against the drive disk.



■ tailstock force F_R :

The force onto the face driver required for metal removing is calculated on the basis of the empirical formula:

$$F_R = [(q_{max} \times 1000 \times \frac{D}{d}) + 1000] \times m$$

F_R	[N]	tailstock force
q_{max}	[mm ²]	maximum of chip cross section for metal removing
D	[mm]	cutting diameter
d	[mm]	clamping diameter
m	[-]	material factor (see adjustment-chart below)
a	[mm]	depth of cut
f	[mm/1]	feed rate

NOTE FSPV / FSPBV / SPV:

When using the face driver type SPV/FSPV/FSPBV, the calculated machining chip cross section q_{max} must be reduced by 20%.

■ maximum chip cross section q_{max} :

At a given tailstock force, maximum chip cross section is calculated as follows:

$$q_{max} = \frac{\frac{F_R}{m} - 1000}{1000 \times \frac{D}{d}}$$

■ depth of cut a:

$$a = \frac{q_{max}}{f}$$

EXPLANATORY NOTES: The calculations refer to tooling against the face driver. In case of tooling against tailstock the calculated chip cross section is reduced by approx. 40%. The first chip, however, should always be machined toward the face driver, in order to achieve an ideal penetration of the carbide inserts. The ratio D/d should not exceed 2, otherwise it would work inefficiently.

Material factor m adjustment chart:

material factor m	1.4	1.2	1.1	1.0	0.8
Rm [N/mm ²]	1000	800	700	600	400
examples	42CrMo4	16MnCr5	C 15E (Ck 15)	S355J0	S235J0
		25CrMo4	C 45E (Ck 45)	35S20	

Chisel load of the carbide inserts

Keep the chisel load within the following range:
250 - 350 N per mm chisel length

■ the chisel load is calculated as follows:

$$BS = \frac{F_R}{n \times s}$$

BS [N/mm] chisel load
F_R [N] tailstock force

EXEMPLIFICATION: turning with FSP 3 facé driver, 5 carbide inserts, respective length of chisel 4 mm, tailstock force 6000 N

$$BS = \frac{6000 \text{ N}}{5 \times 4 \text{ mm}} = 300 \frac{\text{N}}{\text{mm}}$$

n [-] number of carbide inserts
s [mm] chisel length

CALCULATION EXAMPLE for type FSP / FSPB / SP

Specific data of machine and workpiece:

maximum tailstock force: 6000 N
material of the workpiece: 16MnCr5
diameter of the workpiece,
side of face driver: Ø 30 mm
turning diameter: Ø 50 mm

Selection of face driver:

face driver FSP 3 / clamping Ø 26 mm
5 carbide inserts, respective length of chisel 4 mm

■ tailstock force F_R:

In order to ensure sufficient entrainment (see chisel load of carbide inserts) a tailstock force of approx. 6000 N has to be supplied.

$$BS = \frac{F_S}{n \times s}$$

$$F_R = 300 \frac{\text{N}}{\text{mm}} \times 5 \times 4 \text{ mm} = 6000 \text{ N}$$

Determination of material factor m:

as per adjustment chart material factor: m (16MnCr5) = 1.2

■ maximum chip cross section q_{max}:

The maximum chip cross section (at the ultimate turning-Ø) is calculated as follows:

$$q_{\max} = \frac{\frac{6000 \text{ N}}{1.2} - 1000}{1000 \times \frac{50 \text{ mm}}{26 \text{ mm}}} = 2.08 \text{ mm}^2$$

EXPLANATORY NOTES: This calculation refers to tooling against the face driver. The calculated chip cross section refers to the ultimate turning diameter. In case of further tooling towards the axis of rotation of the workpiece, even larger chip cross sections can be achieved (» formula), commensurate with turning diameter.



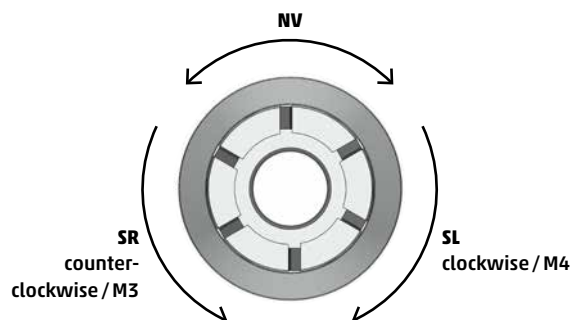
Drive Disks FSP / FSPB / SP · Chisel NV / SL / SR

**with changeable carbide inserts or made of tool steel
for torque transmission onto the workpiece
for the purpose of soft/green tooling**

Type FSP / FSPB / SP · chisel NV / SL / SR



view from tailstock onto the face driver



SL (carbide)

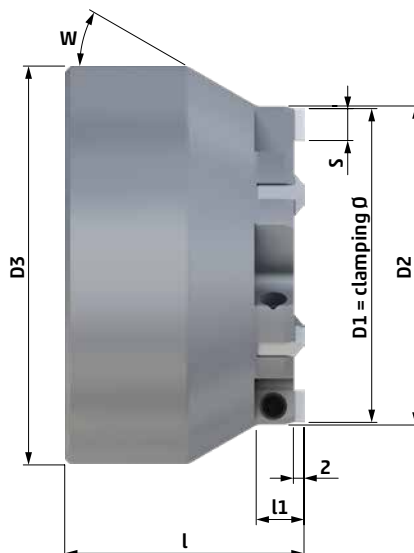


NV (tool steel)



SR (carbide)

Technical data – type FSP / FSPB / SP · chisel NV / SL / SR



TYPE CHISEL NV
for tooling
direction M4 and M3

for type FSP / FSPB / SP	D1	D2	D3	l	l1	W	number of chisels	S	F _R (N)	cat. no.
1	9	9	42	32	5	45°	4 (tool steel)	1.5	1800	738 15
	11	11	42	32	5	45°	4 (tool steel)	2.0	2400	738 16
	14	14	42	32	5	35°	4 (tool steel)	2.0	2400	738 17
	18	18	42	32	5	35°	3 (tool steel)	3.0	2700	738 18
	22	22	42	29	5	30°	3 (tool steel)	3.5	3200	738 19
	26	26	42	29	5	30°	3 (tool steel)	4.0	3600	738 20
	31	31	42	29	5	30°	3 (tool steel)	5.0	4500	738 21
3	14	14	60	57	5	35°	6 (tool steel)	2.5	4500	738 02
	18	18	60	57	5	30°	6 (tool steel)	3	5400	738 03

TYPE CHISEL SL
for tooling
direction M4

TYPE CHISEL SR
for tooling
direction M3

for type FSP / FSPB / SP	D1	D2	D3	l	l1	W	number of chisels	S	F _R (N)	cat. no.	cat. no.
3	22	24	60	57	9	30°	5 (carbide)	4	6000	738 04	738 24
	26	28	60	53	9	30°	5 (carbide)	4	6000	738 05	738 25
	31	33	60	48	9	30°	6 (carbide)	4	7200	738 06	738 26
	36	37	60	48	9	30°	5 (carbide)	6	9000	738 07	738 27
	39	40	60	48	9	30°	5 (carbide)	6	9000	738 08	738 28
	44	45	60	48	9	30°	6 (carbide)	6	10800	738 09	738 29
	49	50	60	48	9	30°	6 (carbide)	6	10800	738 10	738 30
	59	60	60	48			6 (carbide)	6	10800	738 11	738 31
4	31	33	75	50	9	45°	6 (carbide)	4	7200	738 40	738 60
	36	38	75	50	9	38°	6 (carbide)	4	7200	738 41	738 61
	39	41	75	45	9	45°	6 (carbide)	4	7200	738 42	738 62
	44	45	75	45	9	38°	6 (carbide)	6	10800	738 43	738 63
	49	50	75	45	9	30°	6 (carbide)	6	10800	738 44	738 64
	59	60	75	45	9	30°	6 (carbide)	6	10800	738 45	738 65
	69	70	75	45	9	30°	6 (carbide)	6	10800	738 46	738 66
	84	85	75	45	-	-	6 (carbide)	6	10800	738 47	738 67
	99	100	75	45	-	-	6 (carbide)	6	10800	738 48	738 68
	110	111	75	45	-	-	7 (carbide)	6	12600	738 49	738 69
55	125	126	75	45	-	-	7 (carbide)	6	12600	738 50	738 70
	84	85	160	69	9	45°	6 (carbide)	6	10800	738 80	739 00
	99	100	160	69	9	38°	6 (carbide)	6	10800	738 81	739 01
	110	111	160	69	9	30°	7 (carbide)	6	12600	738 82	739 02
	125	126	160	69	9	30°	7 (carbide)	6	12600	738 83	739 03
	140	141	160	69	9	30°	8 (carbide)	6	14400	738 84	739 04
	155	156	160	69	9	30°	8 (carbide)	6	14400	738 85	739 05
	170	171	160	69	-	-	8 (carbide)	6	14400	738 86	739 06
	195	196	160	69	-	-	8 (carbide)	6	14400	738 87	739 07
	230	231	160	69	-	-	7 (carbide)	10	21000	738 88	739 08
	260	261	160	69	-	-	8 (carbide)	10	24000	738 89	739 09
	290	291	160	69	-	-	8 (carbide)	10	24000	738 90	739 10

- All drive disks of type carbide will be provided with the respective carbide inserts.
- Additional clamping diameters of drive disks upon request.

Changeable inserts for drive disks **FSP / FSPB / SP**

Technical data – changeable inserts · drive disks **FSP / FSPB / SP**



CARBIDE INSERTS

for type FSP / FSPB / SP	machining direction	S	cat. no.
3	SL/SR	4	736 548
4			
3	SL/SR	6	736 550
4			
55			
55	SL/SR	10	736 552

SET SCREW

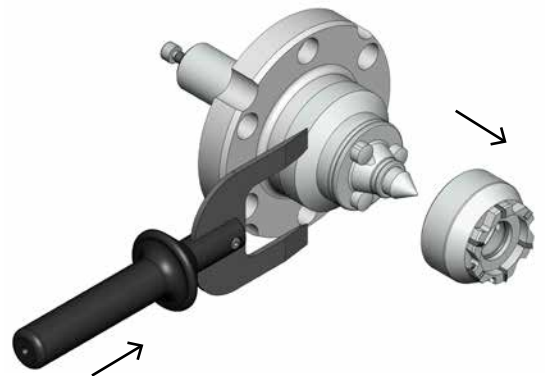
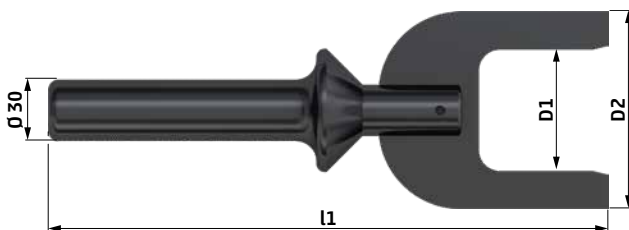
for fixing carbide inserts

for carbide inserts with S =	thread	cat. no.
4	M4	736 549
6	M5	736 551
10	M5	

Removal lever for drive disks **FSP / FSPB / SP**

In order to easily and quickly change the drive disks, the removal lever shown at right may be used.

Technical data – removal lever



The removal lever is placed laterally and easily inserted. Thus the drive disk can be loosened through a tilting movement.

for type FSP / FSPB / SP	D1	D2	l1	cat. no.
1	33	60	260	632 19
3	44.5	80	262	632 20
4	58.5	96	272	632 21
55	130.5	190	310	632 22

INFORMATION FOR CHANGING THE DRIVE DISKS

In order to exclude the risk of injury, we recommend to use suitable gloves for changing drive disks. We can provide a mounting aid upon request.

The drive disks can be pulled off head side. We recommend the use of a removal lever in order to reduce the force required and provide increased safety.

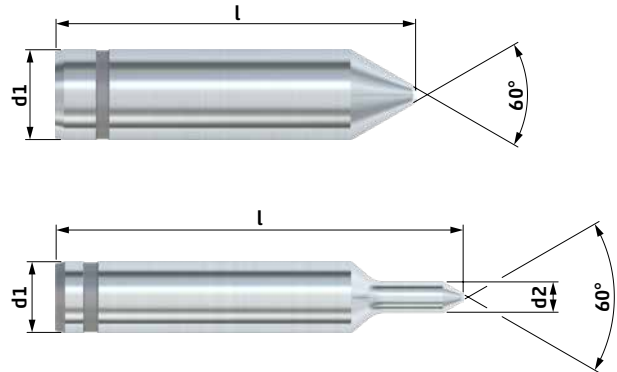
Center Pins FSP / FSPB / SP

for face drivers **FSP / FSPB / SP** with movable center pin

Type **FSP / FSPB / SP** · center pin



Technical data – type **FSP / FSPB / SP** · center pin



for type FSP / FSPB / SP	d1	center Ø	clamping Ø	d2	l	cat. no.
1	8	2 - 4.5	9	4.5	44.5	735 25
		2 - 5.5	11	5.5	44.5	735 26
		3 - 8	14 - 18	-	49	735 27
		3 - 8	22 - 31	-	46	735 28
3	14	3 - 7	14	7	81.5	735 52
		3 - 10	18	10	84.5	735 53
		3 - 11	22	11	85.5	735 54
		3 - 10	26	-	81	735 55
		3 - 10	31 - 59	-	76	735 56
		7 - 14	31 - 59	-	78.5	735 57
4	20	3 - 13	31 - 36	-	80.5	735 70
		3 - 13	39 - 125	-	75.5	735 71
		10 - 20	39 - 125	-	80	735 72
55	35	10 - 20	84 - 290	28	113	735 80
		18 - 28	84 - 290	-	118	735 81
		25 - 35	84 - 290	-	123	735 82

■ Further center pins for other center holes upon request.

Changeable Parts OX for Tensile Samples OBXS / OBX / OCX

in combination with the face driver types FSP1 / FSPB1 / SP1 (page 40 - 45)

In combination with the face driver types FSP1 / FSPB1 / SP1, the machining of tensile samples can be realized in one clamping operation, by simply mounting an OX retainer, an OX drive disk and an OX center pin.

With different changeable OX retainers, the robust OX drive disks of sizes OBXS, OBX and OCX can be used.

These face drivers are power-operated by the thrust of the tailstock. Workpieces are clamped centrically using a movable center pin.

This way different centerings can be adjusted, thus ensuring a constant datum-point at the face end of the workpiece.

OX · retainer

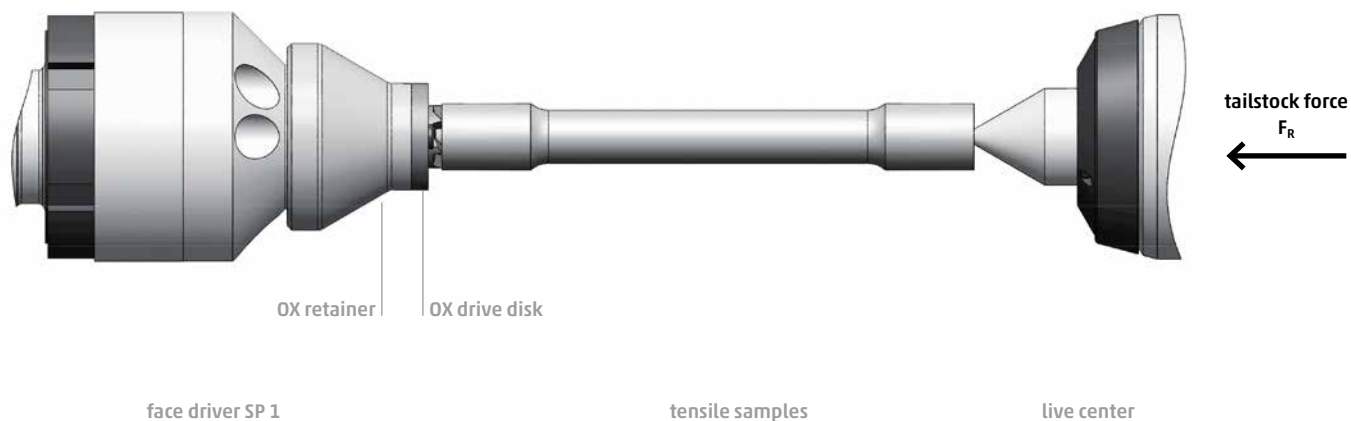


OX · drive disk



NEIDLEIN face drivers FSP1 / FSPB1 / SP1 combined with OX changeable parts ensure:

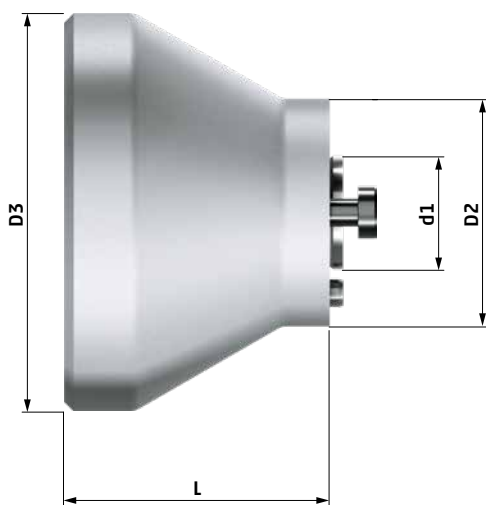
- robust and changeable OX drive disks
- high cutting performance even with low tailstock force
- compensating OX retainer for uneven face sides on the tensile samples
- easy setup of the OX retainer
- easy setup of the OBXS / OBX / OCX drive disks
- wide range of clamping diameters
- run-out deviation in the process 0.02 - 0.1 mm

Type OBXS / OBX / OCX · tensile samples manufacturing

■ Drive disks and center pins see page 52 – 53.

OX retainer

for retaining the drive disks **OBX / OBXS / OCX**

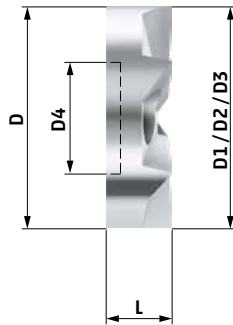
Technical data – type OBXS / OBX / OCX · retainer

type	d1	D2	D3	L	cat. no.
OBXS / OBX	12	24	42	28	738 22
OCX	19	34	42	21	738 23

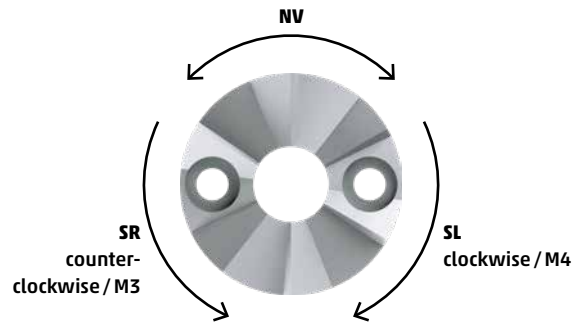
Drive Disks **OBXS / OBX / OCX**

for torque transmission onto the workpiece when preparing tensile samples

Technical data – type **OBXS / OBX / OCX** · drive disks



view from tailstock onto the face driver



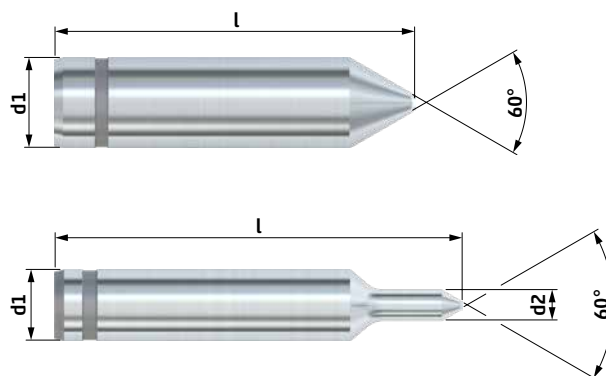
type	machining direction	D	D4	D1	D2	D3	L	cat. no.
OBXS	SR	24	12	9			7	717 01
		24	12	14			7	717 02
		24	12		19		7	717 03
	SL	24	12	9			7	717 04
		24	12	14			7	717 05
		24	12		19		7	717 06
	NV	24	12	9			7	717 07
		24	12	14			7	717 08
		24	12		19		7	717 09
OBX	SR	24	12	14			7	717 10
		24	12	19			7	717 11
		24	12		24		7	717 12
	SL	24	12	14			7	717 13
		24	12	19			7	717 14
		24	12		24		7	717 15
	NV	24	12	14			7	717 16
		24	12	19			7	717 17
		24	12		24		7	717 18
OCX	SR	34	19	19			9	717 19
		34	19	27			9	717 20
		34	19		34		9	717 21
	SL	34	19	19			9	717 22
		34	19	27			9	717 23
		34	19		34		9	717 24
	NV	34	19	19			9	717 25
		34	19	27			9	717 26
		34	19		34		9	717 27

Center Pins OX

Type OX · center pin



Technical data - type OX · center pin



type	d1	center Ø	d2	l	cat. no.
OBXS	8	2 - 5	5	48	735 30
OBX	8	2 - 6	6	49	735 29
OCX	8	2 - 8	-	46	735 28



Face Drivers FSPV / FSPBV / SPV

with drive disk and movable center pin

The entire surface of the workpiece can be tooled and finished by clamping with a maximum of torque transmission.

NEIDLEIN face drivers of type FSPV / FSPBV / SPV with drive disks are mechanical clamping systems for **turn-milling processes**, which are suited for soft / green as well as heavy tooling. In application, they feature maximum flexibility and high robustness.

These face drivers are power-operated by the thrust of the tailstock. Workpieces are clamped centrally using a movable center pin. This way different centerings can be adjusted, thus ensuring a constant datum-point at the face end of the workpiece.

Type FSPV with flange retainer

Type FSPV is mounted onto the machine spindle nose using a flange adapter.



Type FSPBV with flange retainer for jaw clamping

Type FSPBV is directly clamped with the chuck using soft jaws soft jaws.



Type SPV with taper shank

Type SPV with taper shank and extracting nut for fast mounting into the machine spindle.



NEIDLEIN face drivers FSPV / FSPBV / SPV ensure:

- radial, almost backlash-free driving
- datum-point at the face end of the workpiece, stable datum-point in case of different centerings
- compensating drive disk for uneven face sides
- high flexibility in the application, wide range of clamping diameters
- run-out deviation in the process 0.015 - 0.02 mm
- adjustable spring force (depending on the weight of the workpiece)
- low setup costs due to fast change of drive disks and center pins
- cost efficient exchange of parts that are in contact with the workpiece (changeable carbide inserts)
- fixed center pin in clamped condition
» fixed clamping point

Clamping principle

The center pin located on the side of the tailstock pushes the workpiece against the movable center pin of the face driver. The center pin will draw back until the surface of the workpiece bears against the drive disk.

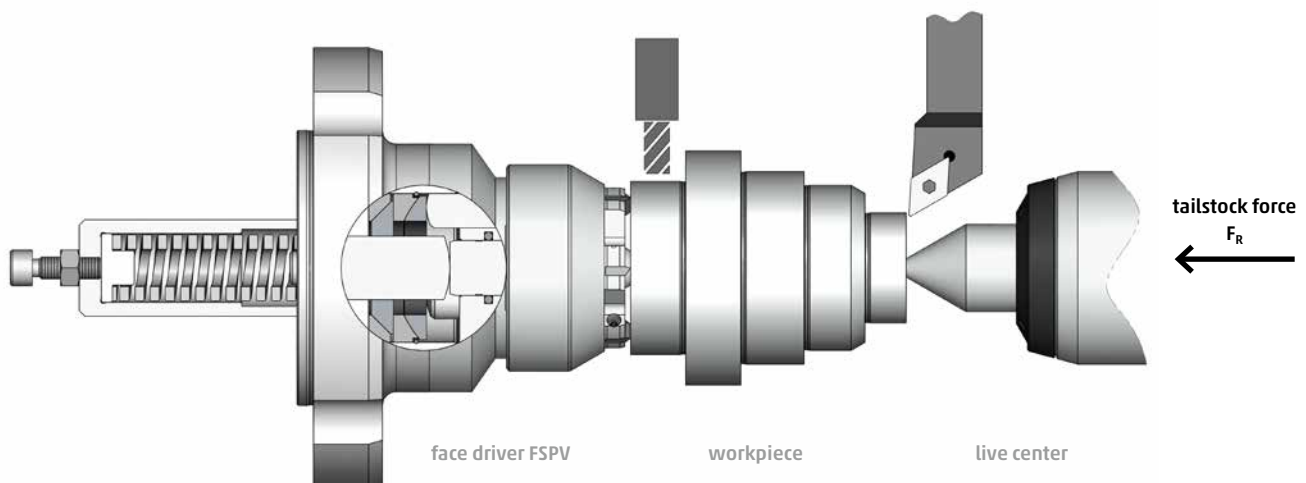
In this state the clamping bolt is clamped over the power flow, in order to ensure a fixed datum-point throughout the entire tooling process.

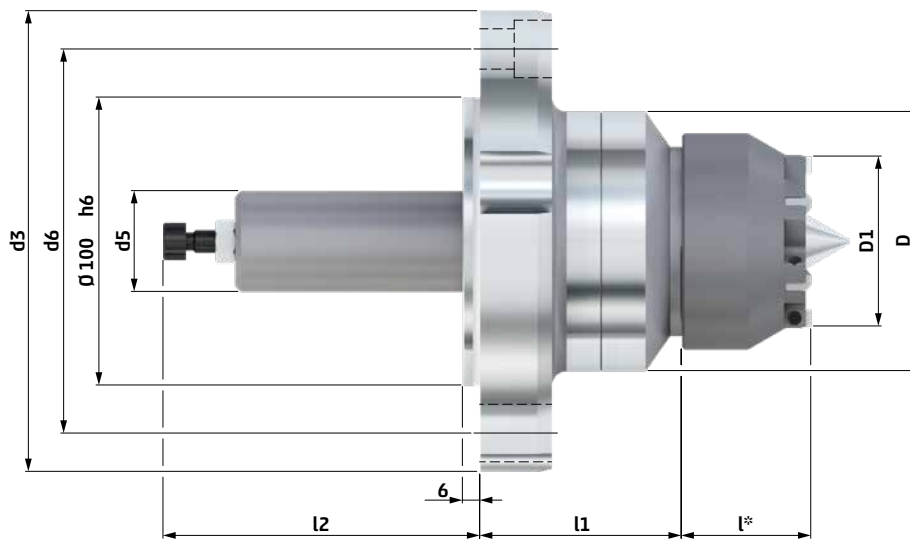
The drive disk is "floatingly" suspended, thus balancing out possible planarity defects of the contact surface of the workpiece.

The entire surface of the workpiece can now be tooled in one single clamping. See page 44 - 45 for data of achievable removal of material and the tailstock thrust requested.

You will find various sizes of face drivers with appropriate standard drive disks and center pins on the following pages.

In case you need special dimensions, we will be glad to design clamping devices suitable for your workpieces.

Type FSPV with flange retainer

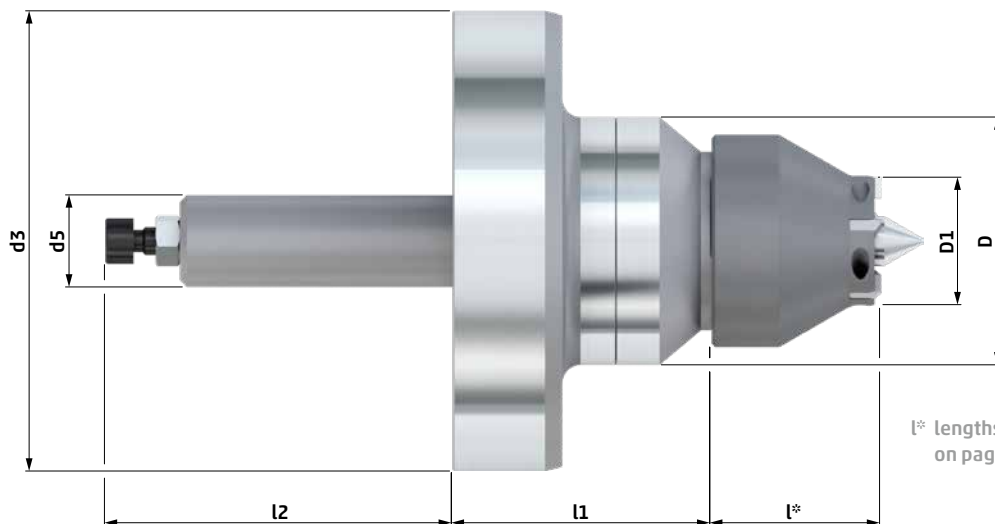
Technical data – type FSPV face driver · for screw connection

l* lengths of drive disk see on page 58 - 59

type	D	D1	d3	d5	d6	l1	l2	fixing screws	max. workpiece weight [kg] *	cat. no.
FSPV								type pcs		
1	56	9 - 31	160	26	133.4	67	83	M12 3	25	632 09
3	70	14 - 59	160	26	133.4	67	104	M12 3	90	632 11
4	90	31 - 125	160	35	133.4	70	110	M12 3	250	632 13
55	182	84 - 290	220	45	171.4	76	170	M16 3	1500	632 15

* The max. workpiece weight also depends on the size of the workpiece center hole / DIN332 part 7

- All face drivers are provided without drive disk and without center pin. (drive disks at page 58 - 59, center pins see page 61)
- Mounting elements for face drivers see page 112 - 115.

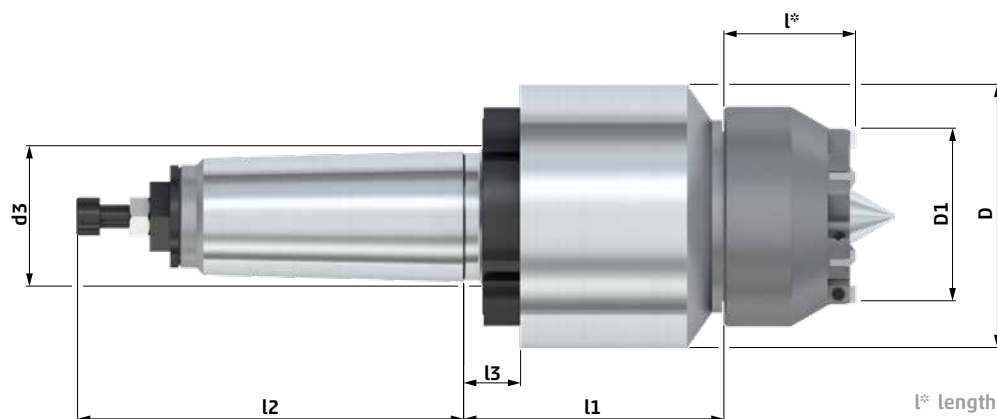
Technical data – type FSPBV face driver · for jaw clamping

l* lengths of drive disk see on page 58 - 59

type	D	D1	d3	d5	l1	l2	max. workpiece weight [kg] *	cat. no.
FSPBV								
1	56	9 - 31	130	26	73	77	25	632 10
3	70	14 - 59	130	26	73	98	90	632 12
4	90	31 - 125	130	35	76	104	250	632 14

* The max. workpiece weight also depends on the size of the workpiece center hole / DIN332 part 7

- All face drivers are provided without drive disk and without center pin. (drive disks at page 58 - 59, center pins see page 61)

Technical data – type SPV face driver

l* lengths of drive disk see
on page 58 - 59

type SPV	MT	D	D1	d3	l1	l2	l3	max. workpiece weight [kg] *	cat. no.
1	3	56	9 - 31	M28 x 1.5	60	56	16	25	632 70
	4	56	9 - 31	M35 x 1.5	61	74	18	25	632 71
	5	56	9 - 31	M48 x 1.5	63	97	20	25	632 72
3	4	70	14 - 59	M35 x 1.5	125	106	17.5	90	632 65
	5	70	14 - 59	M48 x 1.5	125	129	19.5	90	632 66
4	5	90	31 - 125	M48 x 1.5	134	132	19.5	250	632 67
	6	90	31 - 125	M70 x 1.5	134	169	22	250	632 68

- All face drivers are provided without drive disk and without center pin.
(drive disks on page 58 - 59, center pins see page 61)
- Reducing sleeves for face drivers see page 118 - 119.

* The max. workpiece weight also depends on the size of the workpiece center hole / DIN332 part 7

Set in a case with drive disks and movable center pins

- Face Drivers Set SP / SPV with drive disks and movable center pins in a case see page 62.





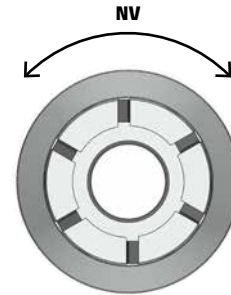
Drive disks FSPV / FSPBV / SPV · Chisel NV

**with changeable carbide inserts or made of tool steel
for torque transmission onto the workpiece
for the purpose of soft / green tooling**

Type FSPV / FSPBV / SPV · Chisel NV



view from tailstock onto the face driver



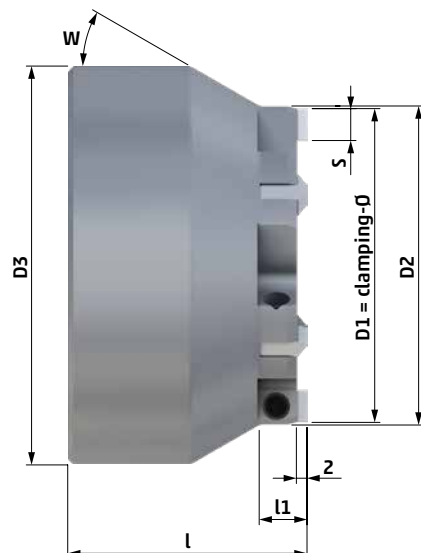
NV (tool steel)

D1 = 9 - 31 · type 1
D1 = 14 - 18 · type 3



NV (carbide)

Technical data – type FSPV / FSPBV / SPV · chisel NV



TYPE CHISEL NV

for tooling direction M4 and M3
(tool steel)

for type FSPV / FSPBV / SPV	D1	D2	D3	l	l1	W	number of chisels	S	F _R (N)	cat. no.
1	9	9	42	32	5	45°	4 (tool steel)	1.5	1800	739 80
	11	11	42	32	5	45°	4 (tool steel)	2.0	2400	739 81
	14	14	42	32	5	35°	4 (tool steel)	2.0	2400	739 82
	18	18	42	32	5	35°	3 (tool steel)	3.0	2700	739 83
	22	22	42	29	5	30°	3 (tool steel)	3.5	3200	739 84
	26	26	42	29	5	30°	3 (tool steel)	4.0	3600	739 85
	31	31	42	29	5	30°	3 (tool steel)	5.0	4500	739 86
3	14	14	60	57	5	35°	6 (tool steel)	2.5	4500	739 22
	18	18	60	57	5	30°	6 (tool steel)	3	5400	739 23

TYPE CHISEL NV

for tooling direction M4 and M3
(carbide)

for type FSPV / FSPBV / SPV	D1	D2	D3	l	l1	W	number of chisels	S	F _R (N)	cat. no.
3	22	24	60	57	9	30°	5 (carbide)	4	6000	739 24
	26	28	60	53	9	30°	5 (carbide)	4	6000	739 25
	31	33	60	48	9	30°	6 (carbide)	4	7200	739 26
	36	37	60	48	9	30°	5 (carbide)	6	9000	739 27
	39	40	60	48	9	30°	5 (carbide)	6	9000	739 28
	44	45	60	48	9	30°	6 (carbide)	6	10800	739 29
	49	50	60	48	9	30°	6 (carbide)	6	10800	739 30
	59	60	60	48	-	-	6 (carbide)	6	10800	739 31
4	31	33	75	50	9	45°	6 (carbide)	4	7200	739 40
	36	38	75	50	9	38°	6 (carbide)	4	7200	739 41
	39	41	75	45	9	45°	6 (carbide)	4	7200	739 42
	44	45	75	45	9	38°	6 (carbide)	6	10800	739 43
	49	50	75	45	9	30°	6 (carbide)	6	10800	739 44
	59	60	75	45	9	30°	6 (carbide)	6	10800	739 45
	69	70	75	45	9	30°	6 (carbide)	6	10800	739 46
	84	85	75	45	-	-	6 (carbide)	6	10800	739 47
	99	100	75	45	-	-	6 (carbide)	6	10800	739 48
	110	111	75	45	-	-	7 (carbide)	6	12600	739 49
55	125	126	75	45	-	-	7 (carbide)	6	12600	739 50
	84	85	160	69	9	45°	6 (carbide)	6	10800	739 60
	99	100	160	69	9	38°	6 (carbide)	6	10800	739 61
	110	111	160	69	9	30°	7 (carbide)	6	12600	739 62
	125	126	160	69	9	30°	7 (carbide)	6	12600	739 63
	140	141	160	69	9	30°	8 (carbide)	6	14400	739 64
	155	156	160	69	9	30°	8 (carbide)	6	14400	739 65
	170	171	160	69	-	-	8 (carbide)	6	14400	739 66
	195	196	160	69	-	-	8 (carbide)	6	14400	739 67
	230	231	160	69	-	-	7 (carbide)	10	21000	739 68
	260	261	160	69	-	-	8 (carbide)	10	24000	739 69
	290	291	160	69	-	-	8 (carbide)	10	24000	739 70

■ Additional clamping diameters of drive disks upon request.

Changeable inserts for drive disks **FSP(V) / FSPB(V) / SP(V)**

Technical data – changeable inserts · drive disks FSPV / FSPBV / SPV



CARBIDE INSERTS

for type FSPV / FSPBV / SPV	machining direction	S	cat. no.
3	NV	4	736 558
4			
3	NV	6	736 560
4			
55	NV	10	736 562
55			

SET SCREW

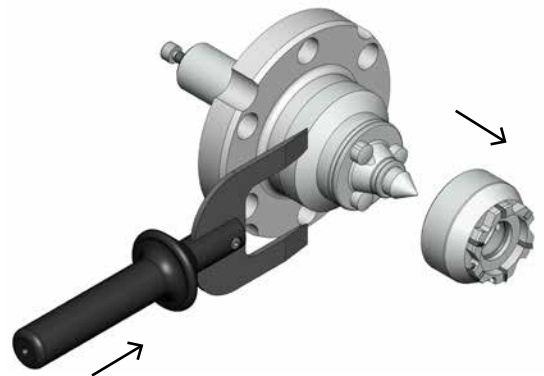
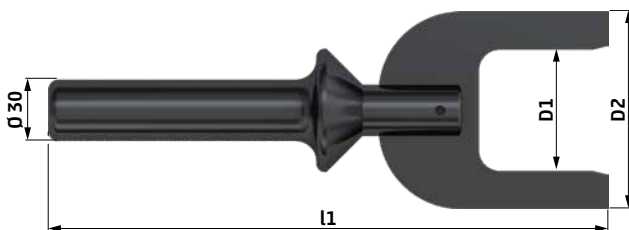
for fixing carbide inserts

for carbide inserts with S =	thread	cat. no.
4	M4	736 549
6	M5	736 551
10	M5	

Removal lever for drive disks **FSP(V) / FSPB(V) / SP(V)**

In order to easily and quickly change the drive disks, the removal lever shown at right may be used.

Technical data – removal lever



The removal lever is placed laterally and easily inserted. Thus the drive disk can be loosened through a tilting movement.

for type FSPV / FSPBV / SPV	D1	D2	l1	cat. no.
1	33	60	260	632 19
3	44.5	80	262	632 20
4	58.5	96	272	632 21
55	130.5	190	310	632 22

INFORMATION FOR CHANGING THE DRIVE DISKS

In order to exclude the risk of injury, we recommend to use suitable gloves for changing drive disks. We can provide a mounting aid upon request.

The drive disks can be pulled off head side. We recommend the use of a removal lever in order to reduce the force required and provide increased safety.

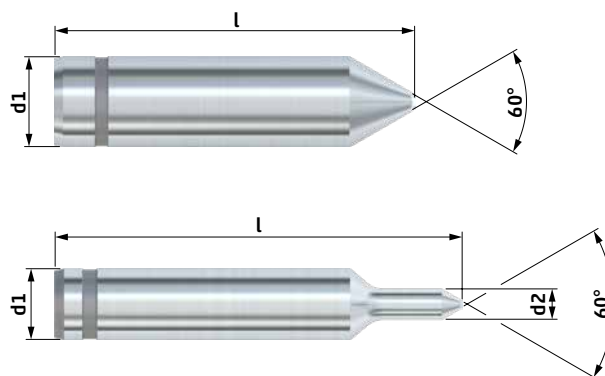
Center Pins FSP(V) / FSPB(V) / SP(V)

for face drivers **FSP(V) / FSPB(V) / SP(V)** with movable center pin

Type **FSP(V) / FSPB(V) / SP(V)** · center pin



Technical data – type **FSP(V) / FSPB(V) / SP(V)** · center pin



for type FSP(V) / FSPB(V) / SP(V)	d1	center Ø	clamping Ø	d2	l	cat. no.
1	8	2 - 4.5	9	4.5	44.5	735 25
		2 - 5.5	11	5.5	44.5	735 26
		3 - 8	14 - 18	-	49	735 27
		3 - 8	22 - 31	-	46	735 28
3	14	3 - 7	14	7	81.5	735 52
		3 - 10	18	10	84.5	735 53
		3 - 11	22	11	85.5	735 54
		3 - 10	26	-	81	735 55
		3 - 10	31 - 59	-	76	735 56
		7 - 14	31 - 59	-	78.5	735 57
4	20	3 - 13	31 - 36	-	80.5	735 70
		3 - 13	39 - 125	-	75.5	735 71
		10 - 20	39 - 125	-	80	735 72
55	35	10 - 20	84 - 290	28	113	735 80
		18 - 28	84 - 290	-	118	735 81
		25 - 35	84 - 290	-	123	735 82

■ Further center pins for other center holes upon request.

Face Drivers Set SP / SPV in a case

with drive disks and movable center pins



Universal face driver set for use in **turning or turn-milling operations**.

The case set including face drivers type SP / SPV, drive disks and movable center pins, features **high flexibility** and a **easy set up to the machine spindle**.

Type SP / SPV with morse taper retainer

with morse taper retainer and cylindrical reducing sleeve



NEIDLEIN face drivers SP / SPV ensure:

- a maximum of torque transmission, thus achieving high metal removing rates
- datum-point at the face end of the workpiece, stable datum-point in case of different centerings
- compensating drive disks
- high flexibility in the application
- fixed center pin in clamped condition
» fixed clamping point
- run-out deviation in the process 0.015 - 0.02 mm
- adjustable spring force (depending on the weight of the workpiece)
- low setup costs due to fast change of drive disks and center pins
- cost efficient exchange of parts that are in contact with the workpiece (changeable carbide inserts)
- radial, almost backlash-free driving for type SPV for turn-milling processes

description	tooling direction	max. workpiece weight [kg] *	cat. no.
SP3 MT4 complete set · version turning	SL (M4)	90	632 80
SP3 MT4 complete set · version turning	SR (M3)	90	632 81
SPV3 MT4 complete set · version turn-milling	NV (M3/M4)	90	632 82

- For a detailed description of the turning direction see pages 46 or 58.
- For technical data and dimensions see pages 40 – 49 and pages 54 – 61.

The complete set includes:

- 1** Face driver type SP3 MT4 or Face driver type SPV3 MT4
- 2** Drive disks (4 pcs.)
clamp. Ø 14, clamp. Ø 22, clamp. Ø 36 and clamp. Ø 49
- 3** Center Pins (4 pcs.)
for center size Ø 3 – Ø 7, center size Ø 3 – Ø 11, center size Ø 3 – Ø 10 and center size Ø 7 – Ø 14
- 4** Reducing sleeve
cylindrical Ø 41 to MT4
- 5** Removal lever
for removing the drive disks safely from the face driver
- 6** Changeable carbide inserts for the drive disks (11 pcs.)



Face Drivers FFP

with drive disk and fixed center pin for high true run accuracy



The entire surface of the workpiece can be tooled and finished by clamping with a maximum of torque transmission.

NEIDLEIN face drivers of type FFP with drive disks are mechanical clamping systems which are suited **for turning as well as for hard turning operations and can also be used for grinding operations.**

Face drivers of the type FFP are power operated on the side of the machine spindle as well as the side of the tailstock. The workpieces are clamped centrally by the fixed center pin. This operation results in high true run accuracy.

Type FFP with flange retainer for screw connection

The face driver FFP is designed for a direct mounting onto a spindle nose. **DIN 702-1 (55028)**



NEIDLEIN face drivers FFP ensure:

- a maximum of torque transmission, thus achieving a high cutting performance
- datum-point location in the center of the workpiece ensures constant measures of length
- compensating drive disk for uneven face sides
- high flexibility in the application, wide range of clamping diameters
- run-out deviation in the process 0.005 - 0.015 mm
- low setup costs due to fast change of drive disks and center pins
- cost efficient exchange of parts that are in contact with the workpiece (changeable carbide inserts)
- suitable changeable parts depending on the hardness of the workpiece

Clamping principle

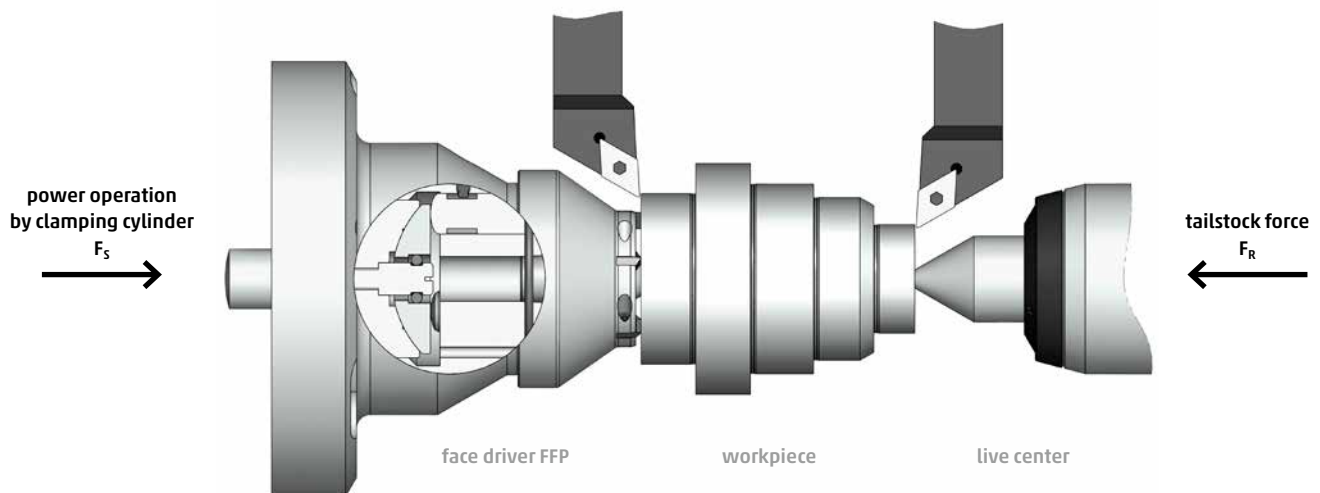
The center pin located on the side of the tailstock pushes the workpiece against the fixed center pin of the face driver. The motion of the drive disk against the workpiece face side is initiated by the clamping cylinder mounted into the machine. The drive disk is "floatingly" suspended, thus balancing out possible planarity defects of the contact surface of the workpiece. The datum-point of workpieces on the machine is determined by the size of the center hole.

The entire surface of the workpiece can now be tooled in one single clamping. See page 67 for data of cutting performance and the clamping forces requested.

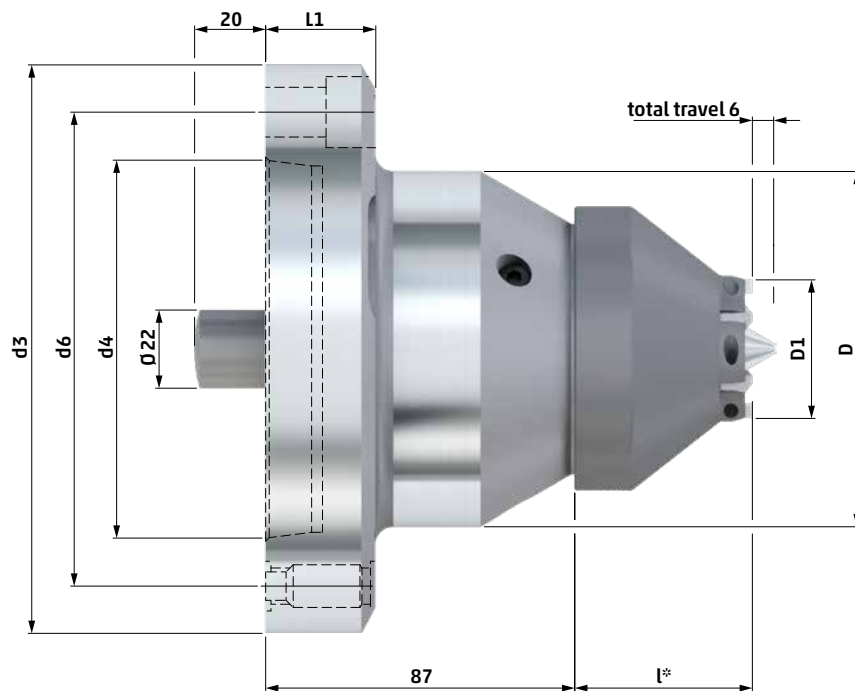
You will find various sizes of face drivers with appropriate standard drive disks and center pins on the following pages.

In case you need special dimensions, we will be glad to design clamping devices suitable for your workpiece.

Type FFP with flange retainer



Technical data – type FFP face driver · for screw connection



* lengths of drive disk see
page 68 - 69, 71

type	D	D1	d3	d4	d6	L1	fixing screws	short taper	max. workpiece weight [kg] *	cat. no.	
FFP							type	pcs	size		
3	80	14 - 59	130	82.563	104.8	31	M12	3	5	90	632 30
	90	14 - 59	160	106.375	133.4	31	M12	3	6	90	632 31
4	90	31 - 125	160	106.375	133.4	31	M12	3	6	250	632 32
	100	31 - 125	220	139.719	171.4	39	M16	3	8	250	632 33

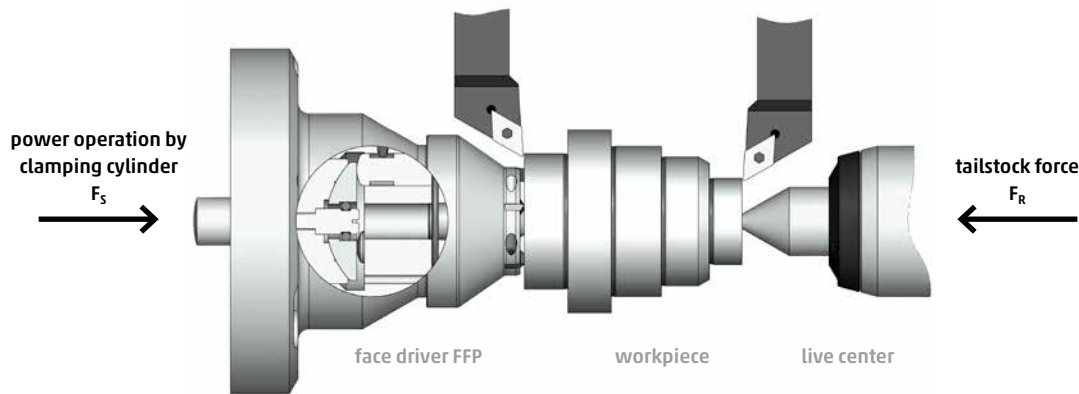
* The max. workpiece weight also depends on the size of the workpiece center hole / DIN332 part 7

■ All face drivers are provided without drive disk and without center pin. (changeable parts see page 68-73)

Face Drivers FFP · Calculations

max. chip cross section of metal removing

PRINCIPLE: The tailstock force pushes the workpiece against the fixed center pin of the face driver. The drive disk is actuated by the clamping cylinder mounted into the machine.



■ maximum chip cross section q_{max} :

At a given force of clamping cylinder, the maximum chip cross section is calculated as follows:

$$q_{max} = \frac{\frac{F_s}{m} - 1300}{1100 \times \frac{D}{d}}$$

■ depth of cut a :

$$a = \frac{q_{max}}{f}$$

F_s	[N]	force of clamping cylinder
q_{max}	[mm ²]	maximum of chip cross section for metal removing
D	[mm]	cutting diameter
d	[mm]	clamping diameter
m	[-]	material factor (see adjustment-chart below)
a	[mm]	depth of cut
f	[mm/1]	feed rate

■ tailstock force F_R :

In case of tooling against the face driver the tailstock force has to be approx. 20 % higher than the force of the clamping cylinder F_s .

In case of tooling against the tailstock, the tailstock should be approx. 40 - 50 % higher than the force of the clamping cylinder, if not, then the chip cross section should be reduced by approx. 30 %. (as there is an addition of force of clamping cylinder and cutting force)

EXPLANATORY NOTES: The first chip, however should always be machined towards the face driver, in order to achieve an ideal penetration of the carbide inserts. The ratio D/d should not exceed 2, otherwise it would work inefficiently.

Material factor m adjustment chart:

material factor m	1.4	1.2	1.1	1.0	0.8
Rm [N/mm ²]	1000	800	700	600	400
examples	42CrMo4	16MnCr5	C 15E (Ck 15)	S355J0	S235J0
		25CrMo4	C 45E (Ck 45)	35S20	

Chisel load of carbide inserts

Keep the chisel load within the following range: 250 - 350 N per mm chisel length

■ the chisel load is calculated as follows:

$$BS = \frac{F_s}{n \times s}$$

BS	[N/mm]	chisel load
F_s	[N]	clamping cylinder force

EXEMPLIFICATION: turning with FFP 3 face driver, 5 carbide inserts respective length of chisel 4 mm, clamping cylinder force 6000 N

$$BS = \frac{6000 \text{ N}}{5 \times 4 \text{ mm}} = 300 \frac{\text{N}}{\text{mm}}$$

n	[-]	number of carbide inserts
s	[mm]	chisel length



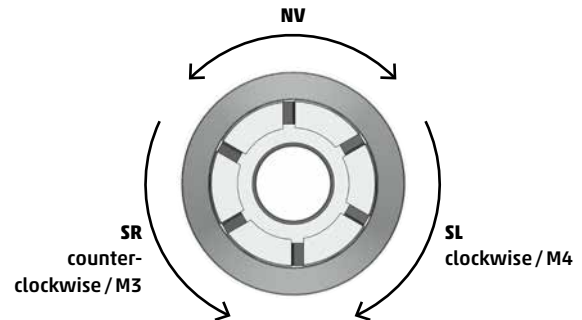
Drive Disks FFP · Chisel NV / SL / SR

**with changeable carbide inserts or made of tool steel
for torque transmission onto the workpiece for the purpose
of soft / green tooling**

Type FFP · chisel NV / SL / SR



view from tailstock onto the face driver



SL (carbide)

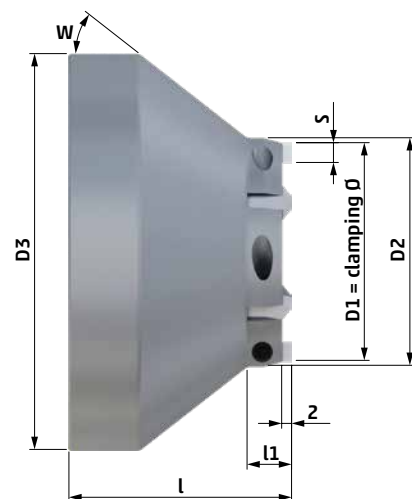


NV (tool steel)



SR (carbide)

Technical data - type FFP · chisel NV / SL / SR



TYPE CHISEL NV
for tooling
direction M4 and M3

for type FFP	D1	D2	D3	l	l1	W	number of chisels	S	F _s (N)	cat. no.
3	14	14	60	59	5	35°	6 (tool steel)	2.5	4500	740 02
	18	18	60	59	5	30°	6 (tool steel)	2.5	4500	740 03

TYPE CHISEL SL
for tooling
direction M4

TYPE CHISEL SR
for tooling
direction M3

for type FFP	D1	D2	D3	l	l1	W	number of chisels	S	F _s (N)	cat. no.	cat. no.
3	22	24	60	59	9	30°	4 carbide	4	4800	740 04	740 20
	26	28	60	53	9	30°	4 carbide	4	4800	740 05	740 21
	31	33	60	53	9	30°	5 carbide	4	6000	740 06	740 22
	36	37	60	45	9	30°	4 carbide	6	7200	740 07	740 23
	39	40	60	45	9	30°	4 carbide	6	7200	740 08	740 24
	44	45	60	45	9	30°	4 carbide	6	7200	740 09	740 25
	49	50	60	45	9	30°	5 carbide	6	9000	740 10	740 26
	59	60	60	45	-	-	5 carbide	6	9000	740 11	740 27
4	31	33	80	57	9	38°	5 carbide	4	6000	740 40	740 60
	36	38	80	57	9	35°	5 carbide	4	6000	740 41	740 61
	39	41	80	50	9	38°	6 carbide	4	7200	740 42	740 62
	44	45	80	45	9	38°	6 carbide	4	7200	740 43	740 63
	49	50	80	45	9	35°	5 carbide	6	9000	740 44	740 64
	59	60	80	45	9	30°	5 carbide	6	9000	740 45	740 65
	69	70	80	45	9	30°	6 carbide	6	10800	740 46	740 66
	84	85	80	45	9	-	6 carbide	6	10800	740 47	740 67
	99	100	80	45	-	-	6 carbide	6	10800	740 48	740 68
	110	111	80	45	-	-	7 carbide	6	12600	740 49	740 69
	125	126	80	45	-	-	7 carbide	6	12600	740 50	740 70

- All drive disks of type carbide will be provided with the respective carbide inserts.
- Additional clamping diameters of drive disks upon request.

Changeable inserts for drive disks FFP

Technical data – changeable inserts · drive disks FFP



CARBIDE INSERTS

for type FFP	machining direction	S	cat. no.
3	SL/SR	4	736 548
4			
3	SL/SR	6	736 550
4			

SET SCREW

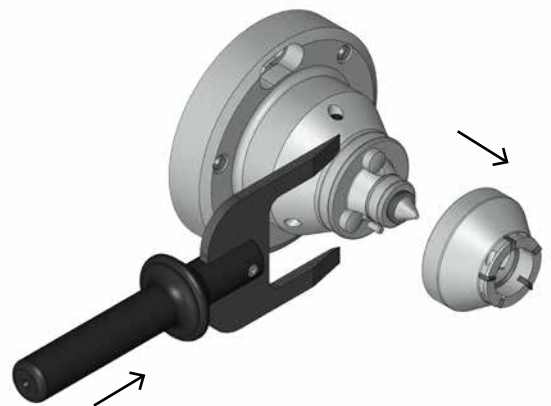
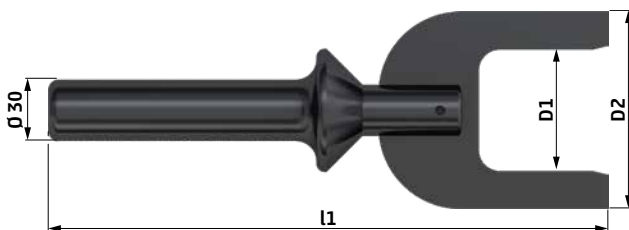
for fixing carbide inserts

for carbide inserts with S =	thread	cat. no.
4	M4	736 549
6	M5	736 551

Removal lever for drive disks FFP

In order to easily and quickly change the drive disks, the removal lever shown at right may be used.

Technical data – removal lever



The removal lever is placed laterally inserted. By a tilting movement the drive disk can be loosened.

for type FFP	D1	D2	l1	cat. no.
3	51	80	275	632 40
4	71	100	285	632 41

INFORMATION FOR CHANGING THE DRIVE DISKS

In order to exclude the risk of injury, we recommend to use suitable gloves for changing drive disks. We can provide a mounting aid upon request.

The drive disks can be pulled off head side. We recommend the use of a removal lever in order to reduce the force required and provide increased safety.

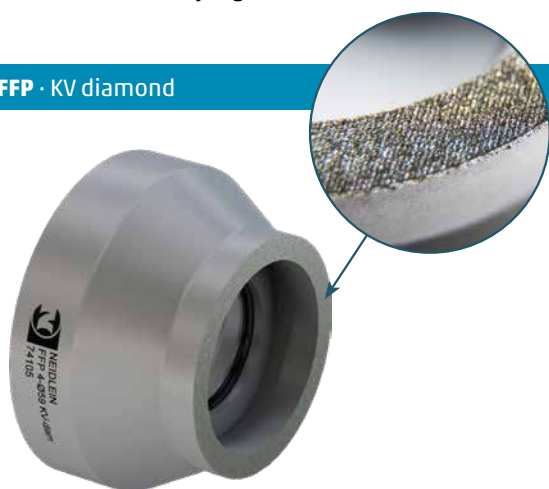
Drive Disks FFP · KV Diamond

cross serrated and diamond embedded
for torque transmission onto the workpiece
at hard turning and grinding operations

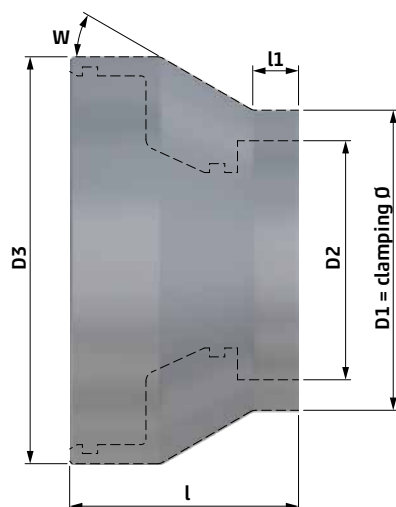
This drive disks have a very high friction coefficient and can be used for both directions of rotation.



Type FFP · KV diamond



Technical data – type FFP · KV diamond



■ A [mm²]



for type FFP	D1	D2	D3	l	l1	W	A [mm ²]	cat. no.
3	14	9	60	59	5	35°	90	740 82
	18	13	60	59	5	30°	120	740 83
	22	13	60	59	9	30°	250	740 84
	26	17	60	53	9	30°	300	740 85
	31	22	60	53	9	30°	370	740 86
	36	24	60	45	9	30°	450	740 87
	39	30	60	45	9	30°	490	740 88
	44	35	60	45	9	30°	560	740 89
	49	39	60	45	9	30°	690	740 90
	59	47	60	45	9		1000	740 91
4	31	22	80	57	9	38°	370	741 00
	36	27	80	57	9	35°	450	741 01
	39	30	80	50	9	38°	490	741 02
	44	35	80	45	9	38°	560	741 03
	49	39	80	45	9	35°	690	741 04
	59	47	80	45	9	30°	1000	741 05
	69	57	80	45	9	30°	1190	741 06
	84	72	80	45	-	-	1470	741 07
	99	87	80	45	-	-	1750	741 08
	110	98	80	45	-	-	1960	741 09
	125	113	80	45	-	-	2240	741 10

- Additional clamping diameters of drive disks upon request.
- Clamping forces upon request.

Center Pins FFP

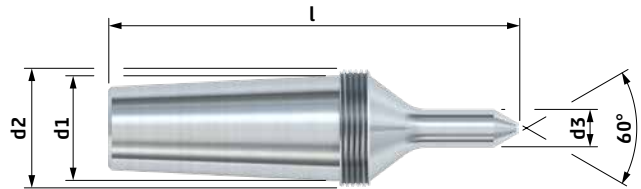
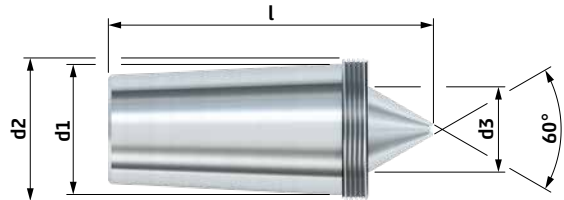
for face drivers FFP with taper shank dead center

Type FFP · tool steel or carbide

Technical data – type FFP · tool steel or carbide



with carbide
insert



TYPE
TOOL STEEL

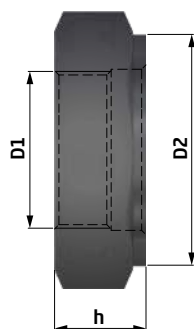


TYPE
CARBIDE

for type FFP	d1	d2	center Ø	clamping Ø	d3	l	cat. no.
3	14	M16 x 1.5	3.35	14	7	55	734 52
	14	M16 x 1.5	4.25	18 - 22	11	56	734 53
	14	M16 x 1.5	5.3	26 - 31	14	50.5	734 54
	14	M16 x 1.5	6.7	36 - 59	11.3	44	734 55
	14	M16 x 1.5	8.5	36 - 59	13.2	45	734 56
	14	M16 x 1.5	10.6	36 - 59	14	46	734 57
4	20	M22 x 1.5	5.3	31 - 36	20	59	734 70
	20	M22 x 1.5	6.7	39	17.1	53	734 71
	20	M22 x 1.5	8.5	44 - 125	13.2	50	734 72
	20	M22 x 1.5	10.6	44 - 125	15.2	51	734 73
	20	M22 x 1.5	13.2	44 - 125	17.8	53	734 74

cat. no.
734 62
734 63
734 64
734 65
734 66
734 67
734 80
734 81
734 82
734 83
734 84

■ Further center pins for other center holes upon request.

Extracting nuts for center pin FFP**Type FFP** · extracting nuts**Technical data – type FFP** · extracting nuts

for type FFP	d2	d1	s	h	cat. no.
3	M16 x 1.5	20	22	10	930 05
4	M22 x 1.5	30	30	10	930 06



Face Drivers FFPV

with drive disk and fixed center pin for high true run accuracy

The entire surface of the workpiece can be tooled and finished by clamping with a maximum of torque transmission.

NEIDLEIN face drivers of type FFPV with drive disks are mechanical clamping systems which are suited for **turn-milling** as well as for hard turn-milling processes.

Face drivers of the type FFPV are power operated on the side of the machine spindle as well as the side of the tailstock. The workpieces are clamped centrally by the fixed center pin. This operation results in high true run accuracy.

Type FFPV with flange retainer for screw connection

The face driver FFPV is designed for a direct mounting onto a spindle nose, DIN 702-1 (55028)



NEIDLEIN face drivers FFPV ensure:

- radial, almost backlash-free driving
- datum-point location in the center of the workpiece ensures constant measures of length
- compensating drive disk for uneven face sides
- high flexibility in the application, wide range of clamping diameters
- run-out deviation in the process 0.005 - 0.015 mm
- low setup costs due to fast change of drive disks and center pins
- cost efficient exchange of parts that are in contact with the workpiece (changeable carbide inserts)
- suitable changeable parts depending on the hardness of the workpiece

Clamping principle

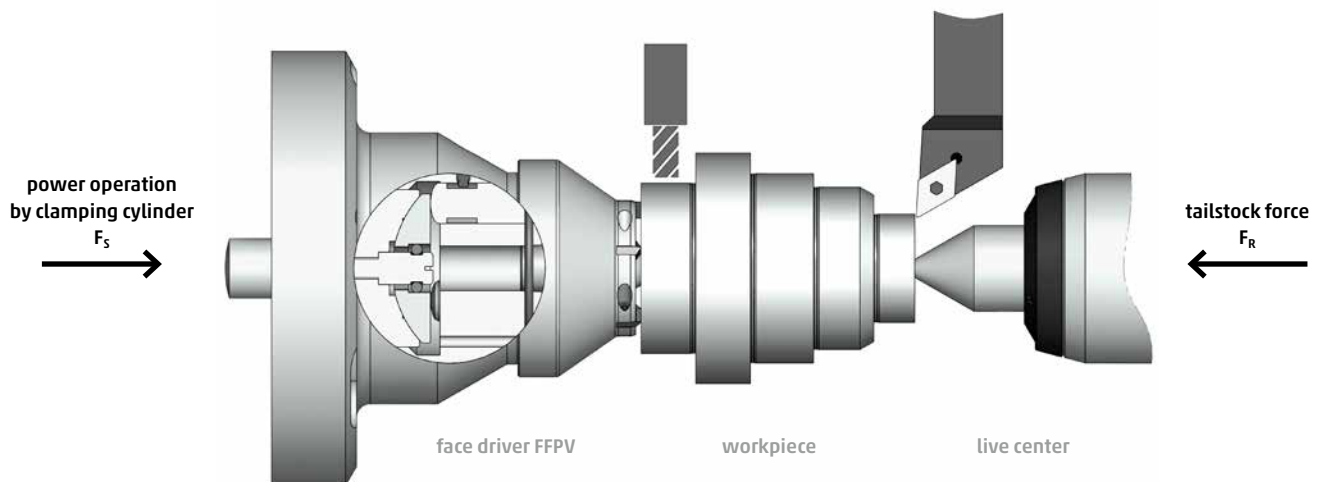
The center pin located on the side of the tailstock pushes the workpiece against the fixed center pin of the face driver. The motion of the drive disk against the workpiece face side is initiated by the clamping cylinder mounted into the machine. The drive disk is "floatingly" suspended, thus balancing out possible planarity defects of the contact surface of the workpiece. The datum-point of workpieces on the machine is determined by the size of the center hole.

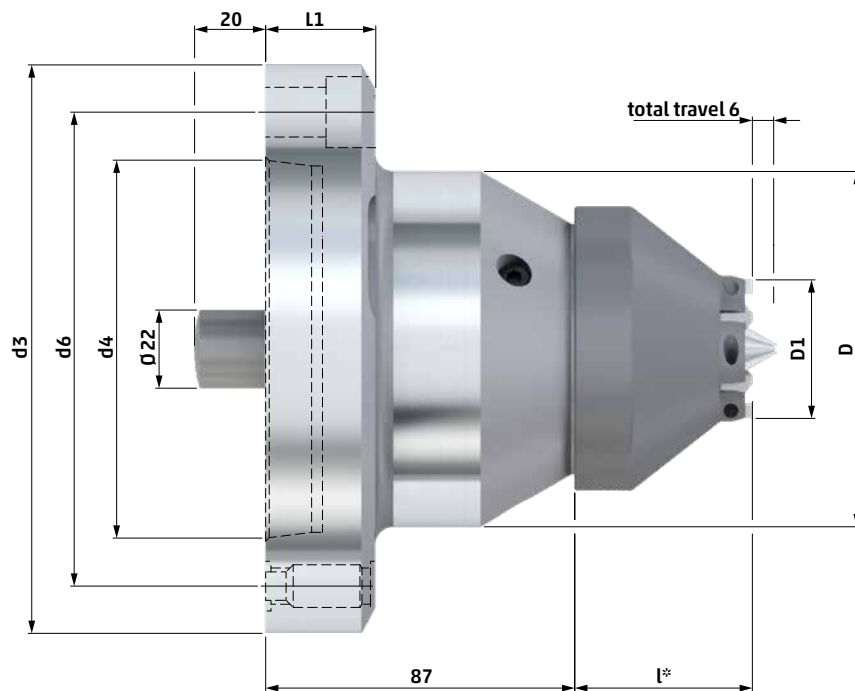
The entire surface of the workpiece can now be tooled in one single clamping. See page 77 for data of cutting performance and the clamping forces requested.

You will find various sizes of face drivers with appropriate standard drive disks and center pins on the following pages.

In case you need special dimensions, we will be glad to design clamping devices suitable for your workpiece.

Type FFPV with flange retainer



Technical data – type FFPV face driver · for screw connection


l* length of drive disks at
page 78 - 79

type	D	D1	d3	d4	d6	L1	fixing screws		short taper size	max. workpiece weight [kg] *	cat. no.
							type	pcs			
FFPV											
3	80	14 - 59	130	82.563	104.8	31	M12	3	5	90	632 50
	90	14 - 59	160	106.375	133.4	31	M12	3	6	90	632 51
4	90	31 - 125	160	106.375	133.4	31	M12	3	6	250	632 52
	100	31 - 125	220	139.719	171.4	39	M16	3	8	250	632 53

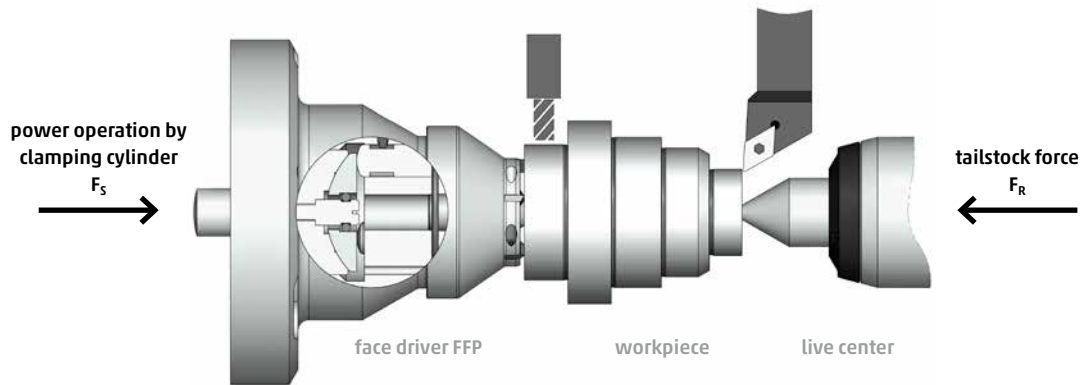
* The max. workpiece weight also depends on the size of the workpiece center hole / DIN332 part 7

- All face drivers are provided without drive disk and without center pin.
(changable parts see page 78 - 82)

Face Drivers FFPV · Calculations

max. chip cross section of metal removing

PRINCIPLE: The tailstock force pushes the workpiece against the fixed center pin of the face driver. The drive disk is actuated by the clamping cylinder mounted into the machine.



■ maximum chip cross section q_{max} :

At a given force of clamping cylinder, the maximum chip cross section is calculated as follows:

$$q_{max} = \frac{\frac{F_s}{m} - 1300}{1100 \times \frac{D}{d}}$$

NOTE FFPV:

When using the face driver type FFPV, the calculated machining chip cross section q_{max} must be reduced by 20%.

■ depth of cut a :

$$a = \frac{q_{max}}{f}$$

F_s	[N]	force of clamping cylinder
q_{max}	[mm ²]	maximum of chip cross section for metal removing
D	[mm]	cutting diameter
d	[mm]	clamping diameter
m	[-]	material factor (see adjustment-chart below)
a	[mm]	depth of cut
f	[mm/1]	feed rate

■ tailstock force F_R :

In case of tooling against the face driver the tailstock force has to be approx. 20 % higher than the force of the clamping cylinder F_s . In case of tooling against the tailstock, the tailstock should be approx. 40 - 50 % higher than the force of the clamping cylinder, if not, then the chip cross section should be reduced by approx. 30 %. (as there is an addition of force of clamping cylinder and cutting force)

EXPLANATORY NOTES: The first chip, however should always be machined towards the face driver, in order to achieve an ideal penetration of the carbide inserts. The ratio D/d should not exceed 2, otherwise it would work inefficiently.

Material factor m adjustment chart:

material factor m	1.4	1.2	1.1	1.0	0.8
Rm [N/mm ²]	1000	800	700	600	400
examples	42CrMo4	16MnCr5	C 15E (Ck 15)	S355J0	S235J0
		25CrMo4	C 45E (Ck 45)	35S20	

Chisel load of carbide inserts

Keep the chisel load within the following range: 250 - 350 N per mm chisel length

■ the chisel load is calculated as follows:

$$BS = \frac{F_s}{n \times s}$$

BS [N/mm] chisel load
 F_s [N] clamping cylinder force

EXEMPLIFICATION: turning with FFPV 3 face driver, 5 carbide inserts respective length of chisel 4 mm, clamping cylinder force 6000 N

$$BS = \frac{6000 \text{ N}}{5 \times 4 \text{ mm}} = 300 \frac{\text{N}}{\text{mm}}$$

n [-] number of carbide inserts
s [mm] chisel length

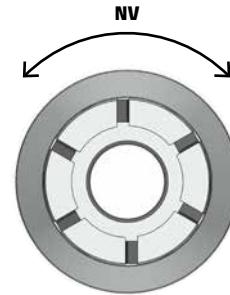
Drive disks FFPV · Chisel NV

with changeable carbide inserts or made of tool steel for torque transmission onto the workpiece for the purpose of soft / green tooling

Type FFPV · chisel NV



view from tailstock onto the face driver

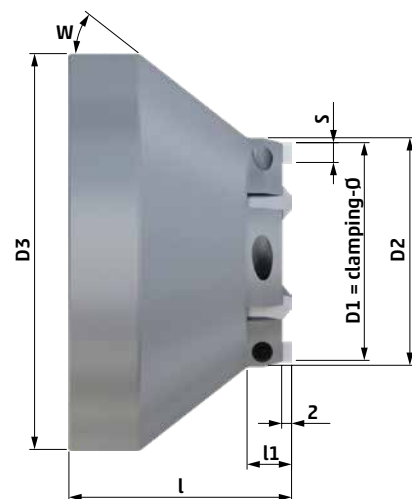


NV (tool steel)
D1 = 14 - 18 · type 3



NV (carbide)

Technical data - type FFPV · chisel NV



TYPE CHISEL NV

for tooling direction M4 and M3
(tool steel)

for type FFPV	D1	D2	D3	l	l1	W	number of chisels	S	F _s (N)	cat. no.
3	14	14	60	59	5	35°	6 (tool steel)	2.5	4500	741 22
	18	18	60	59	5	30°	6 (tool steel)	2.5	4500	741 23

TYPE CHISEL NV

for tooling direction M4 and M3
(carbide)

for type FFPV	D1	D2	D3	l	l1	W	number of chisels	S	F _s (N)	cat. no.
3	22	24	60	59	9	30°	4 (carbide)	4	4800	741 24
	26	28	60	53	9	30°	4 (carbide)	4	4800	741 25
	31	33	60	53	9	30°	5 (carbide)	4	6000	741 26
	36	37	60	45	9	30°	4 (carbide)	6	7200	741 27
	39	40	60	45	9	30°	4 (carbide)	6	7200	741 28
	44	45	60	45	9	30°	4 (carbide)	6	7200	741 29
	49	50	60	45	9	30°	5 (carbide)	6	9000	741 30
	59	60	60	45	-	-	5 (carbide)	6	9000	741 31
4	31	33	80	57	9	38°	5 (carbide)	4	6000	741 40
	36	38	80	57	9	35°	5 (carbide)	4	6000	741 41
	39	41	80	50	9	38°	6 (carbide)	4	7200	741 42
	44	45	80	45	9	38°	6 (carbide)	4	7200	741 43
	49	50	80	45	9	35°	5 (carbide)	6	9000	741 44
	59	60	80	45	9	30°	5 (carbide)	6	9000	741 45
	69	70	80	45	9	30°	6 (carbide)	6	10800	741 46
	84	85	80	45	9	-	6 (carbide)	6	10800	741 47
	99	100	80	45	-	-	6 (carbide)	6	10800	741 48
	110	111	80	45	-	-	7 (carbide)	6	12600	741 49
	125	126	80	45	-	-	7 (carbide)	6	12600	741 50

■ Additional clamping diameters of drive disks upon request.

Changeable inserts for drive disks FFP / FFPV

Technical data – changeable inserts · drive disks FFPV



CARBIDE INSERTS

for type FFP / FFPV	machining direction	S	cat. no.
3	NV	4	736 558
4			
3	NV	6	736 560
4			

SET SCREW

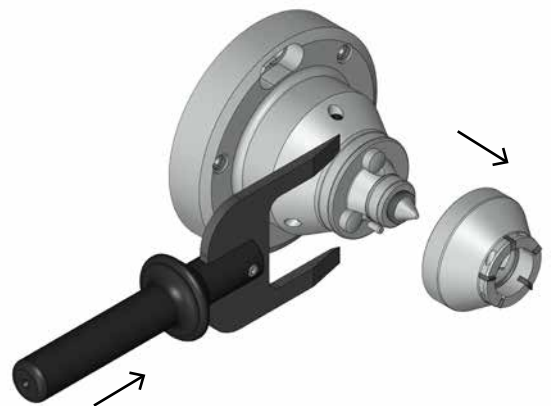
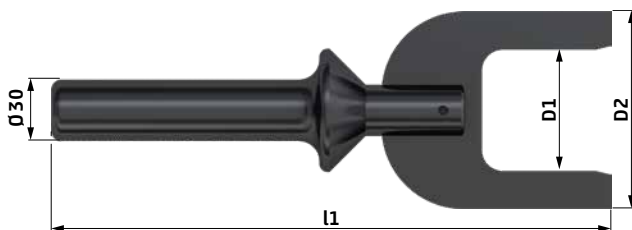
for fixing carbide inserts

for carbide inserts with S =	thread	cat. no.
4	M4	736 549
6	M5	736 551

Removal lever for drive disks FFP / FFPV

In order to easily and quickly change the drive disks, the removal lever shown at right may be used.

Technical data – removal lever



The removal lever is placed laterally inserted.
By a tilting movement the drive disk can be loosened.

for type FFP / FFPV	D1	D2	l1	cat. no.
3	51	80	275	632 40
4	71	100	285	632 41

INFORMATION FOR CHANGING THE DRIVE DISKS

In order to exclude the risk of injury, we recommend to use suitable gloves for changing drive disks. We can provide a mounting aid upon request.

The drive disks can be pulled off head side. We recommend the use of a removal lever in order to reduce the force required and provide increased safety.

Center Pins FFP / FFPV

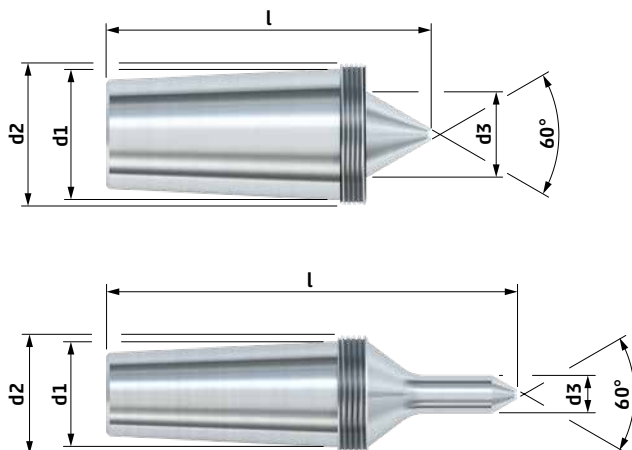
for face drivers FFP / FFPV with taper shank dead center

Type FFP / FFP(V) · tool steel or carbide



with carbide insert

Technical data – type FFP / FFP(V) · tool steel or carbide



TYPE
TOOL STEEL



TYPE
CARBIDE

for type FFP / FFP(V)	d1	d2	center Ø	clamping Ø	d3	l	cat. no.
3	14	M16 x 1.5	3.35	14	7	55	734 52
	14	M16 x 1.5	4.25	18 - 22	11	56	734 53
	14	M16 x 1.5	5.3	26 - 31	14	50.5	734 54
	14	M16 x 1.5	6.7	36 - 59	11.3	44	734 55
	14	M16 x 1.5	8.5	36 - 59	13.2	45	734 56
	14	M16 x 1.5	10.6	36 - 59	14	46	734 57
4	20	M22 x 1.5	5.3	31 - 36	20	59	734 70
	20	M22 x 1.5	6.7	39	17.1	53	734 71
	20	M22 x 1.5	8.5	44 - 125	13.2	50	734 72
	20	M22 x 1.5	10.6	44 - 125	15.2	51	734 73
	20	M22 x 1.5	13.2	44 - 125	17.8	53	734 74

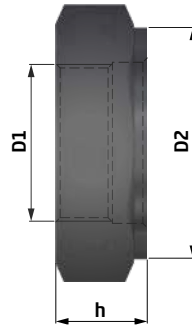
cat. no.
734 62
734 63
734 64
734 65
734 66
734 67
734 80
734 81
734 82
734 83
734 84

■ Further center pins for other center holes upon request.

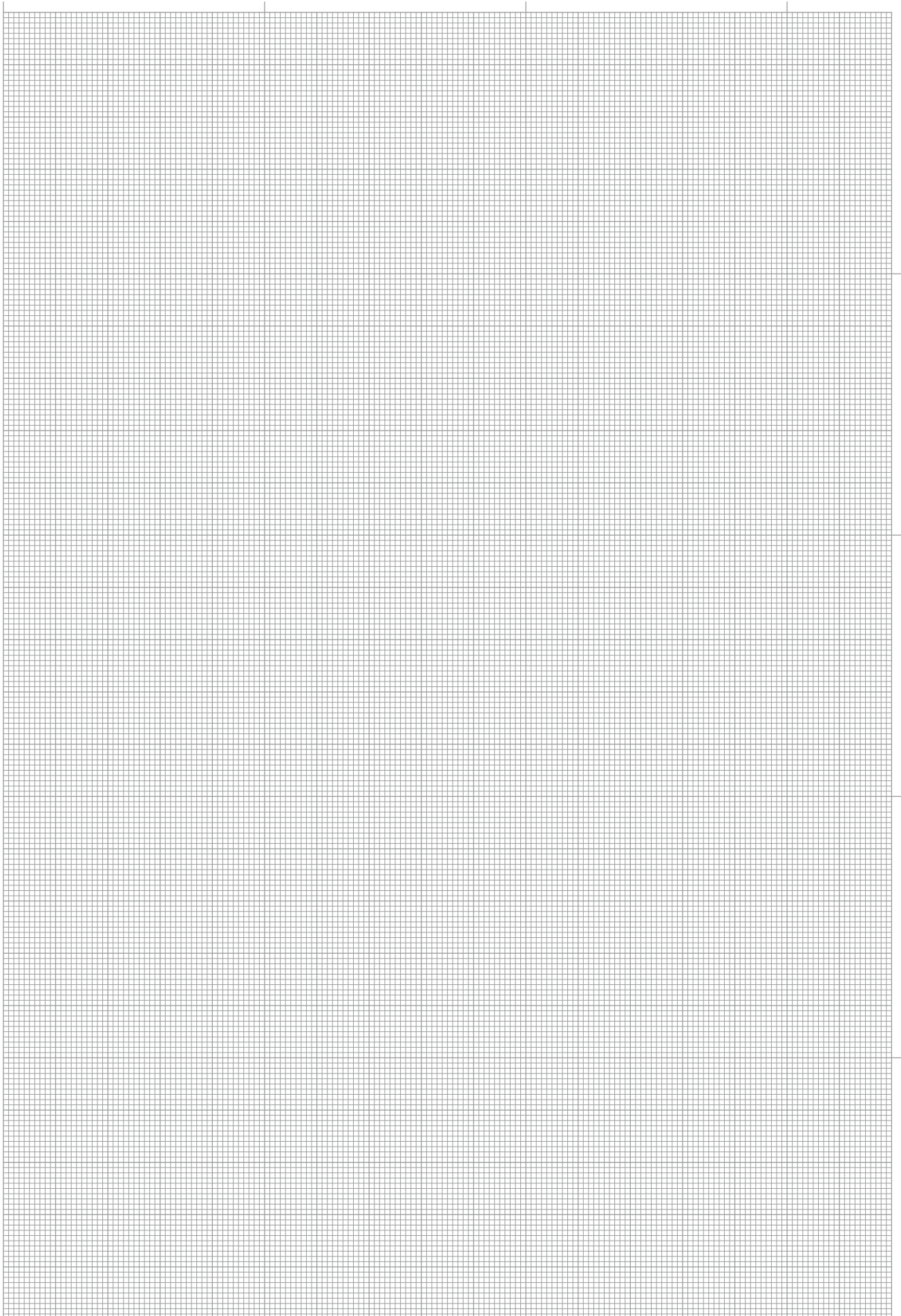
Extracting nuts for center pin FFP / FFPV

Type FFP / FFPV · extracting nuts

Technical data – type FFP / FFPV · extracting nuts



for type FFP / FFPV	d2	d1	s	h	cat. no.
3	M16 x 1.5	20	22	10	930 05
4	M22 x 1.5	30	30	10	930 06





Face Drivers FFBR / FBSR

with drive pins and fixed center pin

The complete surface of both, hardened and soft workpieces, can be finish-ground with one single clamping.

Face drivers types FFBR/FBSR are power-operated on the side of the spindle. The workpieces are clamped centrally using a dead center pin, this way a high true running accuracy is achieved.

Type FFBR with flange retainer

There are two retainer designs for adapting the face drivers onto the machine spindle – either for adaption onto a flange adapter with 140 in diameter or for direct mounting onto a spindle nose DIN 702-1 size 6 (DIN 55026/28).



Type FBSR with morse taper retainer

Like face driver FFBR, but including morse taper shank and extracting nut. Adjustment true by using set screws inside shank for highest true running accuracy.



NEIDLEIN face drivers FFBR / FBSR ensure:

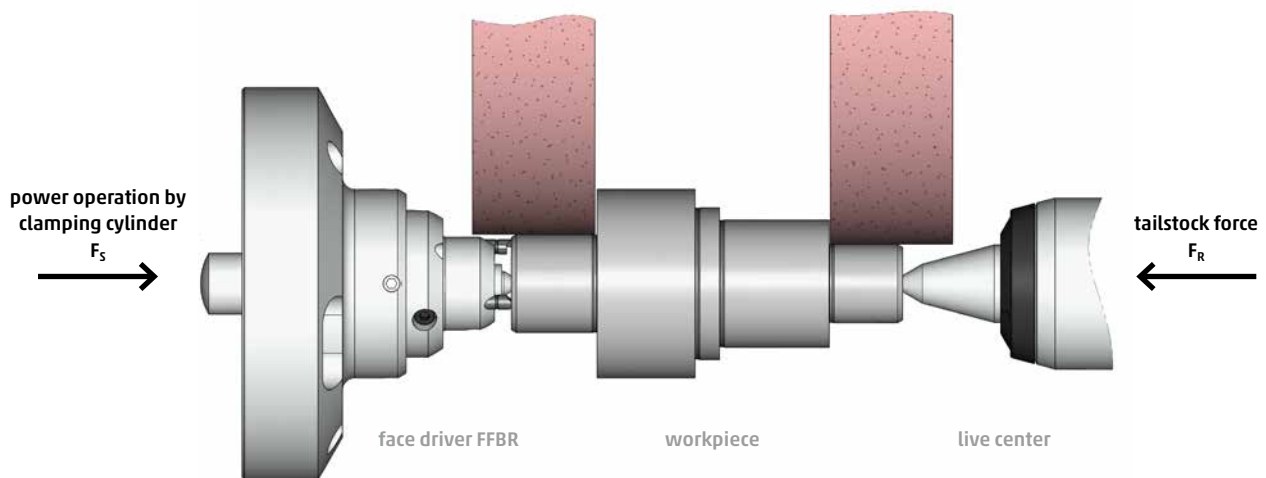
- datum-point located in the center of the workpiece
- run-out deviation in the process 0.002 - 0.005 mm
- compensating drive components
- retractable drive pins for secure loading and unloading of the workpiece
- adjustment true at face drivers for highest run-out requirements
- **Attention:** Not suitable for profile grinding of gears. For generating gear grinding, please contact our technical sales department.

Clamping principle

The center pin located on the side of the tailstock pushes the workpiece against the fixed center pin of the face driver. The motion of the drive pins against the surface of the workpiece is initiated by the clamping cylinder mounted into the machine. The drive pins are "floatingly" suspended, thus compensating

irregularities with regard to possible unevenness of the surface of workpieces. The datum-point of workpieces on the machines is determined by the size of the center hole. The entire surface of workpiece can now be tooled in one single clamping.

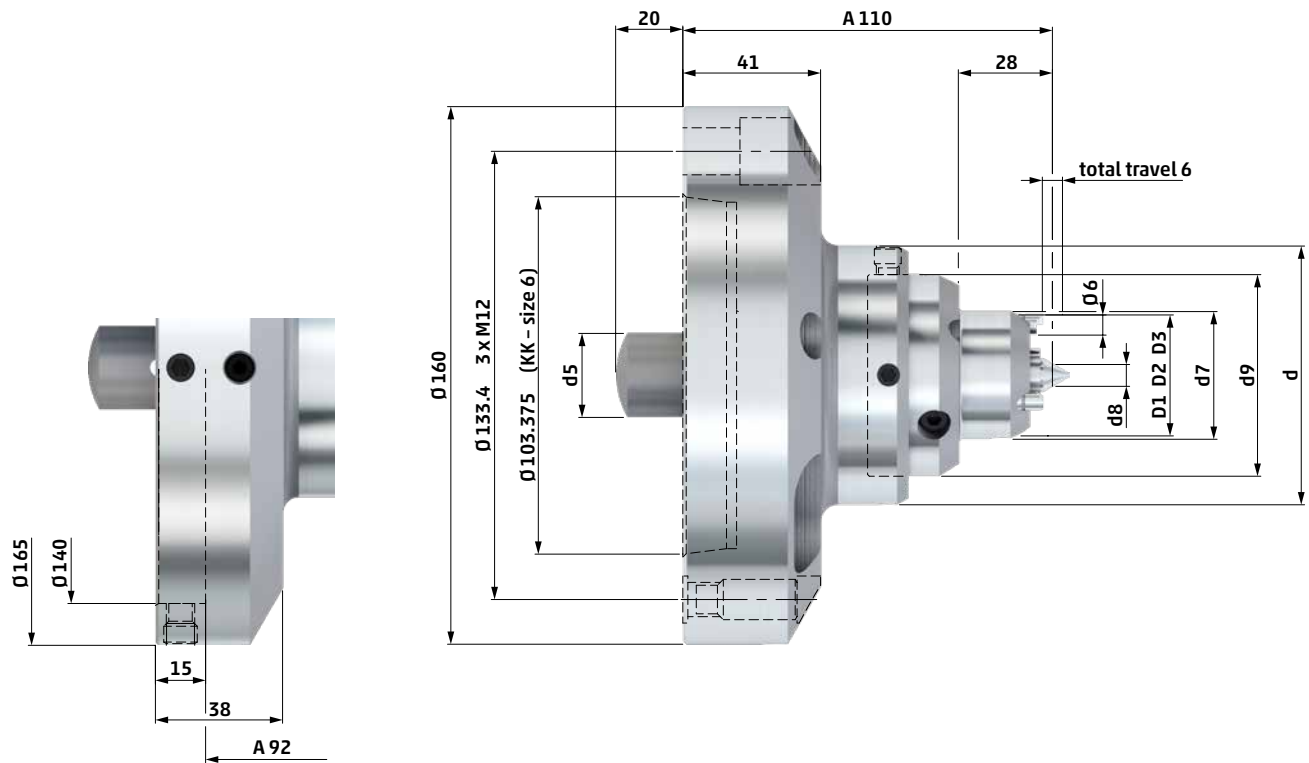
Typ FFBR mit Flanschaufnahme



Technical data – type FFBR face driver

type cylindrical retainer Ø 140 mm
on flange adapter

type short taper retainer DIN 702-1 size 6
directly onto the machine spindle

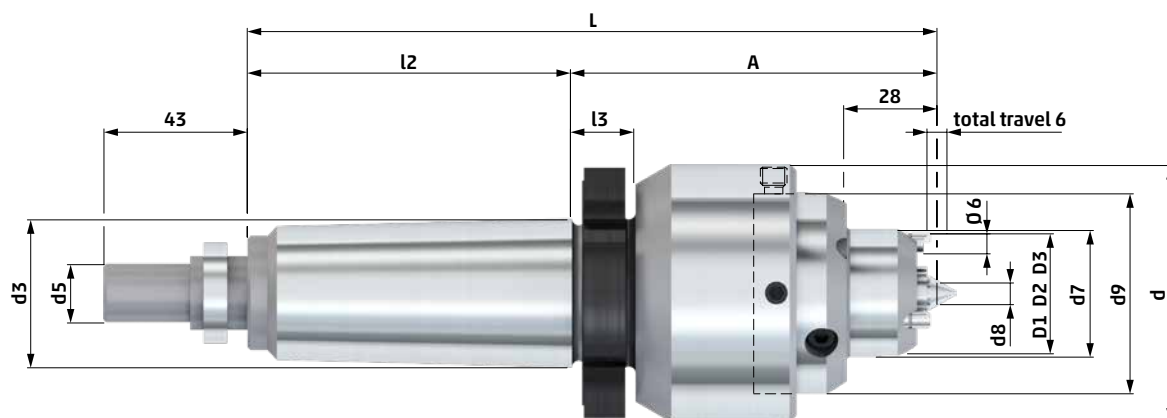
**TYPE CYLINDRICAL
RETAINER Ø 140 mm****TYPE SHORT TAPER
RETAINER SIZE 6**

type FFBR	d	center Ø	d5	d7	d8	d9	clamping Ø			max. workpiece weight [kg] *	cat. no.
							D1	D2	D3		
0	65	1 - 3	18	16	1.5	48	6	9	15	8	726 31
01	65	1 - 5	18	18	3	48	8	11	17	6	726 32
11	65	2 - 6.5	18	21	4.25	48	11	14	20	12	726 33
1	65	4 - 8.5	18	25	6.25	48	15	18	24	25	726 34
2	77	4 - 9	25	38	6.5	60	27	30	36	50	726 35
3	85	6 - 11	25	46	8.5	68	35	38	44	80	726 36
4	110	10 - 15	25	62	12.5	83	50	53	59	150	726 37

cat. no.
726 01
726 02
726 03
726 04
726 05
726 06
726 07

* The max. workpiece weight also depends on the size of the workpiece center hole / DIN332 part 7

- Face drivers without changeable parts (types 0 / 01 include center body). Center pins, center bodies and drive pins see page 88 - 89.
- All face drivers for grinding are designed for 3 drive pins only.
- Diameter d8 refers to standard center pins. (see page 89)
- Further center pins for other center holes upon request.

Technical data – type FBSR face driver

type FBSR	MT	d	A	center Ø	d3	d5	d7	d8	d9	L	l2	l3	clamping Ø			max. workpiece weight [kg] *	cat. no.
													D1	D2	D3		
0	4	65	110	1 - 3	M35 x 1.5	11.5	16	1.5	48	183	73	16	6	9	15	6	726 51
01	4	65	110	1 - 5	M35 x 1.5	11.5	18	3	48	183	73	16	8	11	17	8	726 52
11	4	65	110	2 - 6.5	M35 x 1.5	11.5	21	4.25	48	183	73	16	11	14	20	12	726 53
1	4	65	110	4 - 8.5	M35 x 1.5	11.5	25	6.25	48	183	73	16	15	18	24	25	726 54
	5	65	110	4 - 8.5	M48 x 1.5	17.5	25	6.25	48	207	97	19	15	18	24	25	726 55
2	4	77	110	4 - 9	M35 x 1.5	11.5	38	6.5	60	183	73	16	27	30	36	50	726 56
	5	77	110	4 - 9	M48 x 1.5	17.5	38	6.5	60	207	97	19	27	30	36	50	726 57
3	4	85	110	6 - 11	M35 x 1.5	11.5	46	8.5	68	183	73	16	35	38	44	80	726 58
	5	85	110	6 - 11	M48 x 1.5	17.5	46	8.5	68	207	97	19	35	38	44	80	726 59
4	4	100	120	10 - 15	M35 x 1.5	11.5	62	12.5	83	193	73	16	50	53	59	150	726 60
	5	100	120	10 - 15	M48 x 1.5	17.5	62	12.5	83	207	97	19	50	53	59	150	726 61

* The max. workpiece weight also depends on the size of the workpiece center hole / DIN332 part 7

- Face drivers without changeable parts (types 0 / 01 include center body). Center pins, center bodies and drive pins see page 88 - 89.
- All face drivers for grinding are designed for 3 drive pins only.
- Diameter d8 refers to standard center pins. (see page 89)
- Further center pins for other center holes upon request.



Drive Pins FFBR / FBSR · Chisel SR · Diamond

**for torque transmission onto the workpiece
by grinding soft and hardened workpieces**

For soft workpieces we apply drive pins made of hardened HSS comprising a chisel. They are characterized by high wear-resistance as well as maximum torque transmission.

For hardened workpieces we apply drive pins that are diamond coated. They are characterized by a high friction-coefficient.

Type FFBR / FBSR · chisel SR · diamond



Technical data – type FFBR / FBSR · chisel SR · diamond

model A



model B

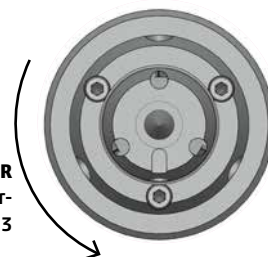


model C



view from tailstock
onto the face driver

SR
counter-
clockwise / M3



TYPE CHISEL SR

for type	for clamping	model	l	cat. no.
FFBR FBSR	D1	C	1.5	736 651
FFBR FBSR	D2	B	2	736 652
FFBR FBSR	D3	A	2	736 653

TYPE DIAMOND COATING

l	cat. no.
1.5	736 654
3	736 655
3	736 656

- Clamping diameter D1, D2, D3 see pages 86 - 87.
- Further clamping Ø of drive pins upon request.
- Clamping for diamond forces upon request.

Center Pins FFBR / FBSR

for face drivers FFBR / FBSR with fixed center pin

For maximum stability and run-out requirements the center pins are produced with narrow tolerances and are fixed safely via set screw and plane surface inside the face driver.

Due to the accurate assembly between center pin and head of face driver we ensure highly accurate replacement.

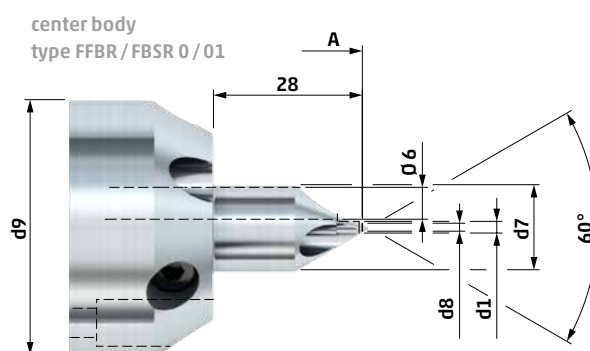
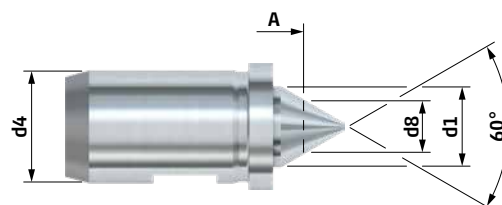
For a large batch of hardened workpieces we recommend the construction comprising carbide insert. Center heads of type 0 / 01 consist of 60°-taper tip that are carbide coated.

Type FFBR / FBSR · tool steel or carbide



with carbide insert

Technical data – type FFBR / FBSR · tool steel or carbide



A overhang dimension of face driver to centre d8 (see page 86 - 87)

TYPE TOOL STEEL

for type FFBR / FBSR	d1	d4	center Ø	d7	d8	d9	cat. no.
0	3	-	1 - 3	16	1.5	48	734 15
01	5	-	1 - 5	18	3	48	734 16
11	7.8	6	2 - 6.5	-	4.25	-	734 11
1	9.8	8	4 - 8.5	-	6.25	-	734 02
2	10	14	4 - 9	-	6.5	-	734 03
3	12	18	6 - 11	-	8.5	-	734 04
4	16	20	10 - 15	-	12.5	-	734 05



TYPE CARBIDE

cat. no.
734 31
734 32
734 33
734 34
734 35
734 36
734 38

- Further center pins for other center holes upon request.
- At type FFBR/FBSR 0/01 (type carbide) the 60° tip is carbide coated.



Face Drivers FFB / FFBH

with drive pins and fixed center pin

The entire surface of the workpiece can be finished with one single clamping and with a maximum of torque transmission. NEIDLEIN face drivers are clamping systems, which are equally suitable **for grinding soft and hard workpieces**.

Face drivers of types FFB / FFBH are power-operated on the side of the spindle.

Originally conceived for turning, face drivers of type FFB / FFBH provide a multitude of possible applications for grinding. Without retraction of drive pins and with NEIDLEIN retainer Ø 100 type FFB / FFBH provides an alternative to face drivers of type FFBR / FBSR, especially when machining large-size workpieces.

When FFBH is used, the compensation of drive pins is implemented hydraulically, thus achieving excellent true runout results.

Type FFB with flange retainer

Type FFB is adapted onto the machine spindle using an adjustable flange adapter.



Type FFBH with flange retainer

Type FFBH is adapted onto the machine spindle using an adjustable flange adapter.

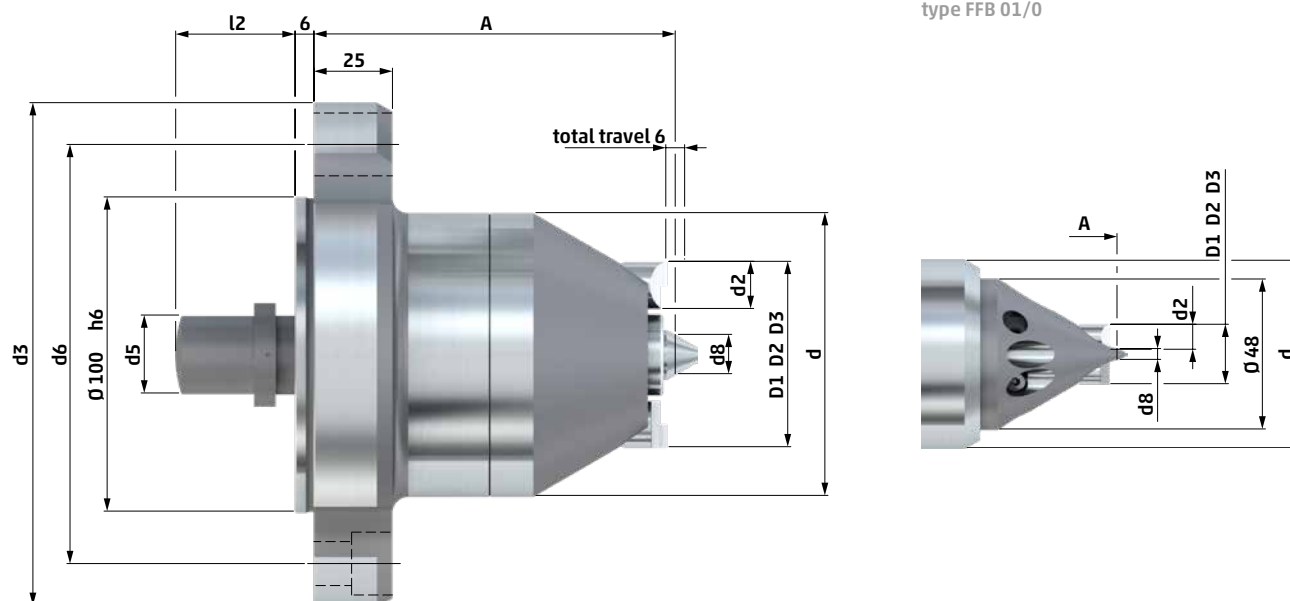


NEIDLEIN face drivers FFB / FFBH ensure:

- datum-point located in the center of the workpiece
- run-out deviation in the process
 - type FFB: 0.005 - 0.01 mm
 - type FFBH: 0.002 - 0.005 mm
- adjustment true via adjustable flange adapter for highest run-out requirements
- easy handling
- compensating drive components / optimal clamping of the workpiece
- face driver type FFBH comprises a hydraulic unit which is exchangeable as a cartridge
- **Attention:** Not suitable for profile grinding of gears. For generating gear grinding, please contact our technical sales department.

Technical data – type FFB face driver

type FFB 01/0



type FFB	d	center Ø	d2	d3	d5	d6	d8	A	l2	drive pins	fixing screws type pcs	clamping Ø D1 D2 D3	max. workpiece weight [kg] *	cat. no.
01	60	1 - 5	6	160	18	133.4	3.5	115	38	3	M12 3	8 11 17	6	731 01
0	60	1 - 3	8	160	18	133.4	3	115	38	3	M12 3	6 11 19	8	731 12
11	42	2 - 6.5	6	160	12	133.4	4.25	115	38	3	M12 3	11 14 20	12	731 11
1	48	4 - 8.5	8	160	18	133.4	6.25	115	38	3	M12 3	13 18 26	25	731 02
2	70	4 - 9	10	160	22	133.4	6.5	115	38	3	M12 3	26 31 36	50	731 03
3	70	6 - 11	10	160	22	133.4	8.5	115	38	3	M12 3	34 39 44	90	731 04
35	80	4 - 9	15	160	22	133.4	6.5	115	38	3	M12 3	29 39 49	130	731 13
4	90	10 - 15	15	160	25	133.4	12.5	115	38	5	M12 3	39 49 59	250	731 05
45	100	10 - 15	15	160	25	133.4	12.5	115	54	5	M12 3	49 59 69	400	731 06
5	132	10 - 15	20	160	25	133.4	12.5	115	54	5	M12 3	69 84 99	1000	731 07
55	182	10 - 15	20	220	40	171.4	12.5	155	54	5	M16 3	110 125 140	1600	731 08
6	220	10 - 15	20	250	40	210	12.5	171	54	5	M20 3	140 155 170	2500	731 09

* The max. workpiece weight also depends on the size of the workpiece center hole / DIN332 part 7

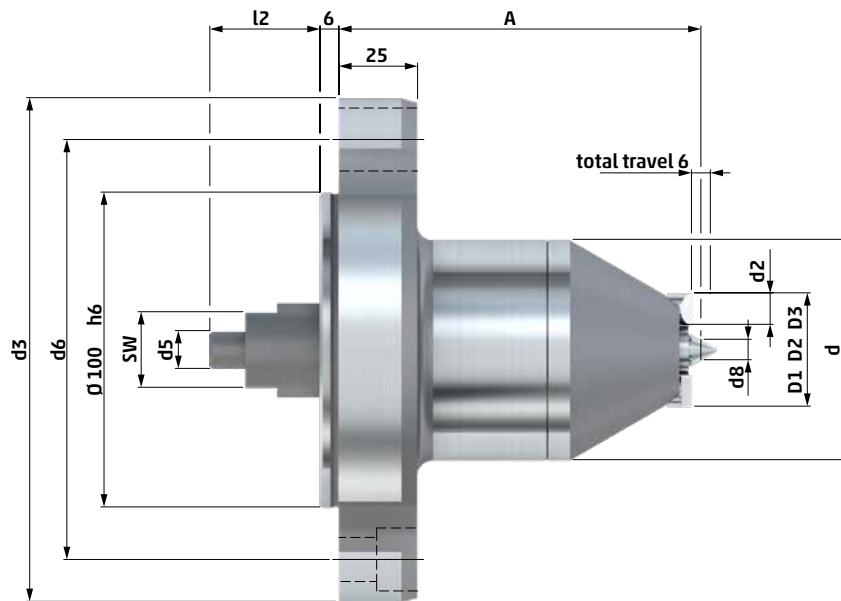
- All face drivers are supplied without drive pins. (drive pins see page 94 - 95)
- Types FFB 01/0 are supplied with center body, all other types without center pin. (center pin see page 93)
- Diameter d8 refers to standard center pins. (see page 93)
- Further center pins for other center holes upon request.
- Mounting elements for face drivers see page 112 - 115.

A stable assembly on the machine spindle is implemented using an adjustable flange adapter. We supply these flange adapters for various sizes of spindle heads in standardized size (DIN ISO 702-1 / DIN 55028) or for vendor-specific spindle heads in particular. Thus face drivers of range FFB can be assembled universally on various machines. Driving components and center pin are easily exchanged from the front part of the machine.

As required, the face driver can be equipped with either drive pins comprising a chisel for machining soft workpieces, or with diamond coated drive pins for machining hardened workpieces.

Apart from the clamping diameters listed above D1, D2, D3, we can also provide alternative sizes upon request. We are also able to manufacture larger center pins or mushroom centers for oversize centering.

Technical data – type FFBH face driver

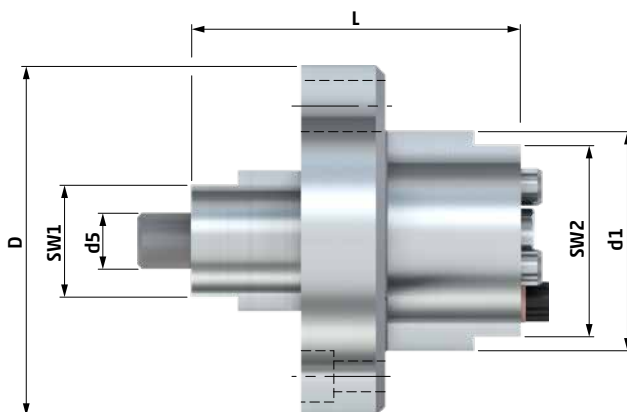


type	d	center Ø	d2	d3	SW	d5	d6	d8	A	l2	drive pins	fixing screws	clamping Ø	max. workpiece weight [kg] *	cat. no.
FFBH												type pcs	D1 D2 D3		
1	70	4 - 8.5	8	160	24	12	133.4	6.25	115	35	3	M12 3	13 18 26	25	631 02
2	70	4 - 9	10	160	24	12	133.4	6.5	115	35	3	M12 3	26 31 36	50	631 03
3	70	6 - 11	10	160	24	12	133.4	8.5	115	35	3	M12 3	34 39 44	90	631 04
4	90	10 - 15	15	160	34	12	133.4	12.5	132	35	5	M12 3	39 49 59	250	631 06
45	100	10 - 15	15	160	34	12	133.4	12.5	132	35	5	M12 3	49 59 69	400	631 07
5	132	10 - 15	20	160	34	12	133.4	12.5	149	35	5	M12 3	69 84 99	1000	631 08

* The max. workpiece weight also depends on the size of the workpiece center hole / DIN332 part 7

- All face drivers are supplied without drive pins and without center pins. (changeable parts see page 93 - 95)
- The diameter d8 refers to the standard center pins. (see page 93)
- Further center pins for other center holes upon request.
- Mounting elements for face drivers see page 112 - 115.

Technical data – type FFBH hydraulic unit



type	SW1	d5	L	d1	SW2	D	cat. no.
FFBH							
1	24	12	70.5	47	41	75	631 02 HE
2	24	12	70.5	47	41	75	
3	24	12	70.5	47	41	75	
4	34	12	70.5	65	59	93	631 06 HE
45	34	12	70.5	65	59	93	
5	34	12	70.5	87	81	131	631 08 HE

The general explanatory notes for this face driver FFBH can be obtained from the sheet "technical data – type FFB". For safe and smooth operation of face driver we recommend exchange of hydraulic unit after 1500 operating hours.

Furthermore, we offer the option for professional maintenance of the exchanged hydraulic units in our production plant.

Center Pins FFB / FFBH

for face drivers FFB / FFBH with fixed center pin

For maximum stability and run-out requirements the center pins are produced with narrow tolerances and are fixed safely via set screw and plane surface inside the face driver.

For a large batch of hardened workpieces we recommend the construction comprising carbide insert. Center heads of type 0 / 01 consist of 60°-taper tip that are carbide coated.

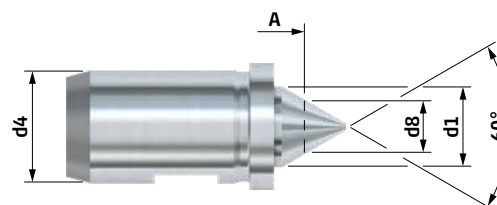
Due to the accurate assembly between center pin and head of face driver we ensure highly accurate replacement.

Type FFB / FFBH · tool steel or carbide

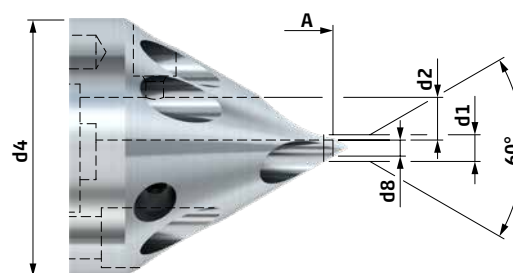


with carbide insert

Technical data – type FFB / FFBH · tool steel or carbide



center body type FFB / FFBH 01 / 0



A overhang dimension of face driver to centre d8 (see page 91 - 92)

TYPE TOOL STEEL

for type FFB / FFBH	d1	d2	d4	center Ø	d8	cat. no.
01	5	6	48	1 - 5	3.5	734 01
0	3	8	48	1 - 3	3	734 101
11	7.8	-	6	2 - 6.5	4.25	734 11
1	9.8	-	8	4 - 8.5	6.25	734 02
2	10	-	14	4 - 9	6.5	734 03
3	12	-	18	6 - 11	8.5	734 04
35	10	-	14	4 - 9	6.5	734 12
4	16	-	20	10 - 15	12.5	734 05
45	16	-	28	10 - 15	12.5	734 06
5	16	-	35	10 - 15	12.5	734 07
55	16	-	35	10 - 15	12.5	734 08
6	16	-	35	10 - 15	12.5	734 09



TYPE CARBIDE

cat. no.
734 43
734 44
734 33
734 34
734 35
734 36
734 37
734 38
734 39
734 40
734 41
734 42

■ Further center pins for other center holes upon request.



Drive Pins FFB / FFBH · Chisel SR · Diamond

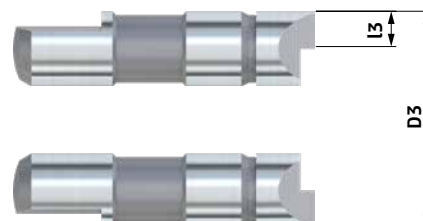
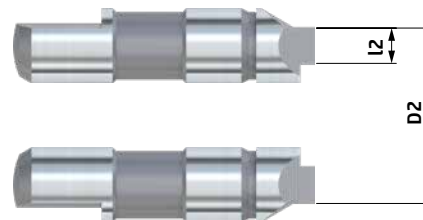
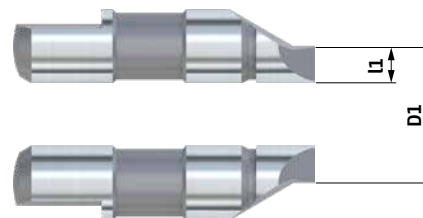
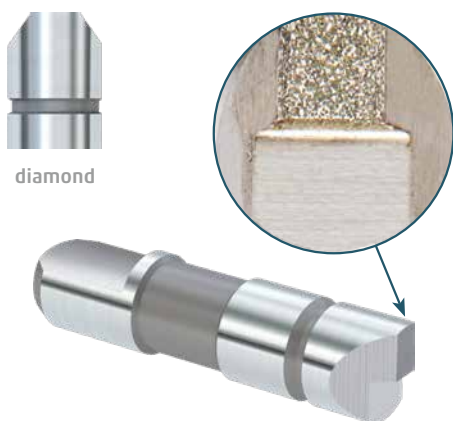
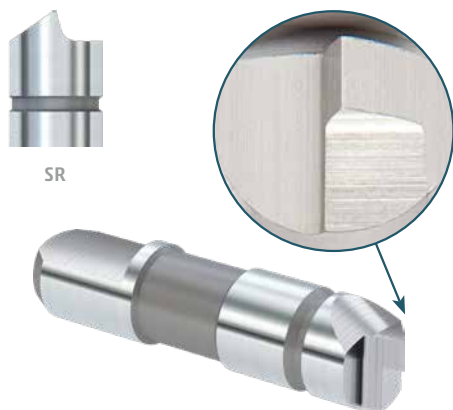
for torque transmission onto the workpiece when grinding soft and hardened workpieces

Drive pins made of hardened HSS with chisel are used **for grinding soft workpieces**. These are characterized by a high resistance to wear and tear and a maximum torque transmission.

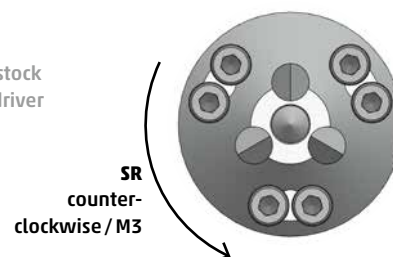
Diamond coated drive pins are applied **for grinding hardened workpieces**. These are characterized by a high resistance to wear and tear, a maximum of torque transmission and by a high friction-coefficient.

Type FFB / FFBH · chisel SR · diamond

Technical data – type FFB / FFBH · chisel SR · diamond



view from tailstock
onto the face driver



TYPE
CHISEL SR

for type FFB / FFBH	d	clamping Ø			chisel length			cat. no.
		D1	D2	D3	l1	l2	l3	
01	6	8			1.5			736 600
	6		11			2		736 601
	6			17			2	736 602
0	8	6			1.5			736 603
	8		11			2		736 604
	8			19			2	736 605
11	6	11			1.5			736 606
	6		14			2		736 607
	6			20			2	736 608
1	8	13			1.5			736 609
	8		18			2		736 610
	8			26			2	736 611
2	10	26			3			736 612
	10		31			3		736 613
	10			36			3	736 614
3	10	34			3			736 615
	10		39			3		736 616
	10			44			3	736 617
35	15	29			3			736 618
	15		39			3		736 619
	15			49			3	736 620
4	15	39			3			736 621
	15		49			3		736 622
	15			59			3	736 623
45	15	49			3			736 624
	15		59			3		736 625
	15			69			3	736 626
5	20	69			4			736 627
	20		84			4		736 628
	20			99			4	736 629
55	20	110			4			736 630
	20		125			4		736 631
	20			140			4	736 632
6	20	140			4			736 633
	20		155			4		736 634
	20			170			4	736 635

■ Further clamping Ø of drive pins upon request.

■ Clamping for diamond forces upon request.

TYPE
DIAMOND COATING

chisel length			cat. no.
l1	l2	l3	
1.5			736 300
	3		736 301
		3	736 302
1.5			736 303
	4		736 304
		4	736 305
1.5			736 306
	3		736 307
		3	736 308
1.5			736 309
	4		736 310
		4	736 311
5			736 312
	5		736 313
		5	736 314
5			736 315
	5		736 316
		5	736 317
5			736 318
	5		736 319
		5	736 320
5			736 321
	5		736 322
		5	736 323
5			736 324
	5		736 325
		5	736 326
5			736 327
	7.5		736 328
		7.5	736 329
5			736 330
	7.5		736 331
		7.5	736 332
5			736 333
	7.5		736 334
		7.5	736 335



Face Drivers FDNC

with drive heads and movable center pin

Face drivers for clamping workpieces **for milling** free from backlash for gear hobbing, keyway milling and other surfaces.

Type FDNC with flange retainer

Type FDNC is mounted onto the machine spindle nose using a flange adapter.

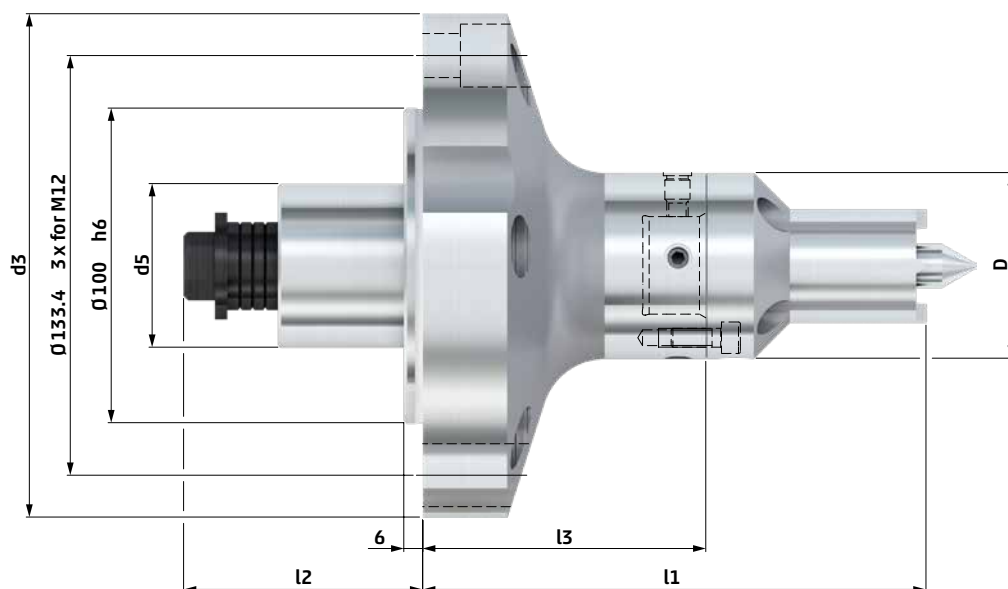
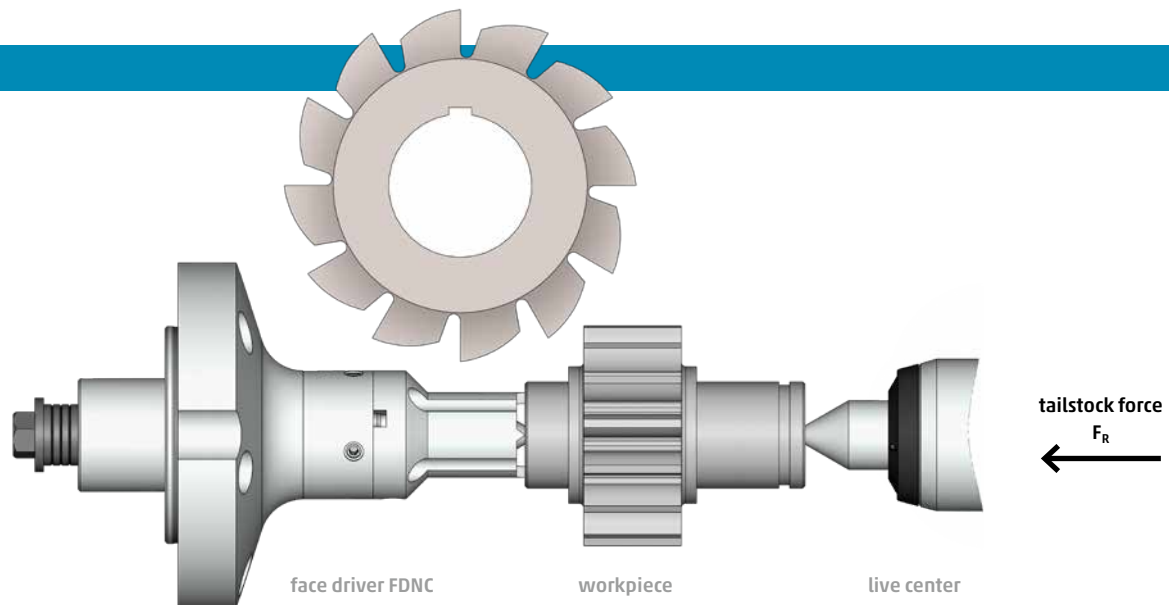


NEIDLEIN face drivers FDNC ensure:

- machining free from backlash due to fixed driving elements
- stability and mounting of high transverse thrust using adjustable, spring-loaded center pins
- constant datum point on the end face of the workpiece
- run-out deviation in the process 0.015 - 0.02 mm (a machined and rectangular face side of the workpiece is required)
- adjustment of dissimilar bore holes
- adjustment true at drive head for high true running accuracy
- tapered design for optimum tool path

Clamping principle

The workpiece is pushed by the tailstock force against the moving center pin, which moves back until the workpiece face side is in contact with the drive head.



type	D	d3	d5	l1	l2	l3	cat. no.
FDNC							
11-4	59	160	52	160	77	90	732 01

- All face drivers are supplied without drive heads and without center pins. (changeable parts see page 98 - 99)
- Mounting elements for face drivers see page 112 - 115



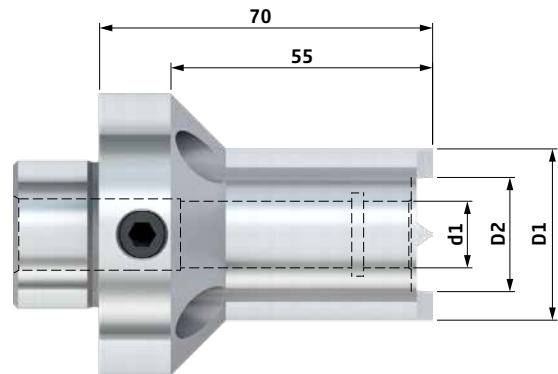
Drive Heads FDNC

changeable drive heads for basic body FDNC

Type FDNC · drive head



Technical data – type FDNC · drive head



for type FDNC	D1	D2	d1	max. workpiece weight [kg] *	cat. no.
11.11	11	7	6	12	737 01
11.14	14	9	6	12	737 02
11.18	18	12	6	12	737 03
1.22	22	14	8	20	737 04
1.26	26	18	8	20	737 05
2.30	30	20	14	40	737 06
2.36	36	24	14	40	737 07
3.39	39	29	18	60	737 08
3.44	44	34	18	60	737 09
4.49	49	39	24	100	737 10
4.59	59	49	24	100	737 11
4.69	69	69	24	100	737 12
4.84	84	74	24	100	737 13
4.99	99	89	24	100	737 14

* The max. workpiece weight also depends on the size of the workpiece center hole / DIN332 part 7

■ Additional dimensions for drive heads upon request.

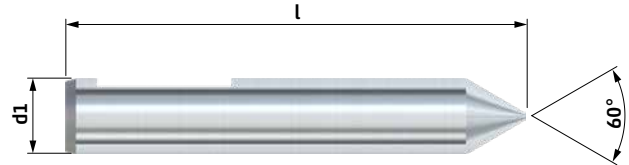
Center Pins FDNC

**changeable center pins for basic body
and drive heads FDNC**

Type FDNC · center pin



Technical data – type FDNC · center pin



for type FDNC	d1	l	center Ø	cat. no.
11	6	78	1 - 6	733 01
1	8	80	1 - 8	733 02
2	14	86	1 - 14	733 03
3	18	89	3 - 18	733 04
4.1	24	89	3 - 18	733 05
4.2	24	96	16 - 24	733 06

■ Further center pins for other center holes upon request.



Pipe Drivers & Drive Dog



NDG



DH

Pipe Drivers NDG / AND

102

Drive Dog DH

104



Pipe Drivers NDG / AND

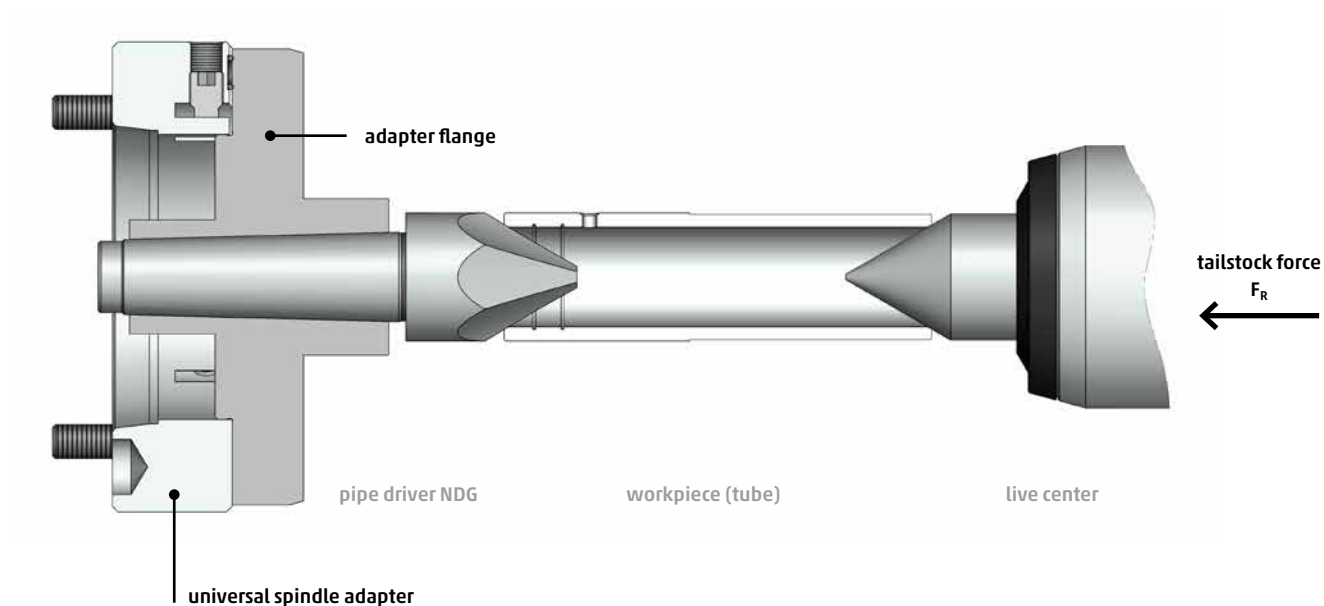
The entire outside surface of a tubular workpiece can be tooled with one single clamping and high torque transmission.

By means of a pipe driver, large clamping areas can be covered.

Type NDG pipe driver



Clamping principle



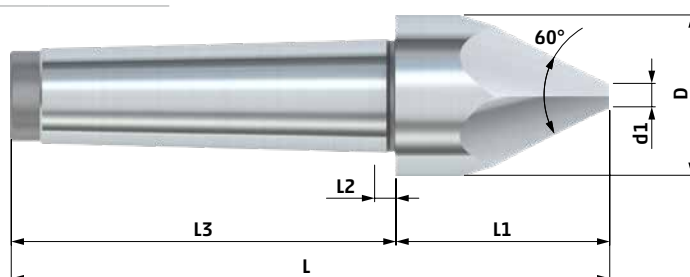
NEIDLEIN pipe drivers NDG and AND ensure:

- high torque transmission, thus achieving a high rate of metal removing
- finishing of outer surface by clamping » saving of time
- extended service life of driving chisels
- easy handling
- a large clamping area of tubular workpieces 2 - 155 mm bore-diameter

■ Mounting elements see page 112 - 119.

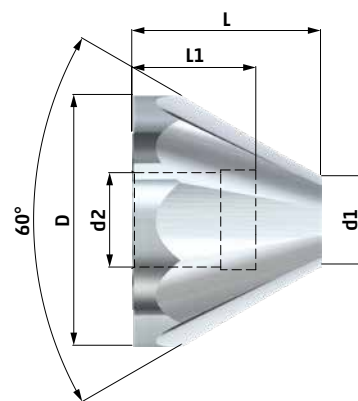
Technical data – type NDG pipe driver

type NDG	morse taper	D	d1	L	L1	L2	L3	a	chisel pcs	for bore-Ø from to	cat. no.
0/15	2	18	0	100	31	4	68	60°	6	2 17	750 01
0/30	3	31	0	135	50	5	85	60°	6	2 30	750 02
10/40	3	45	8	145	60	5	85	60°	6	9 43	750 03
20/60	3	63	18	147	62	5	85	60°	8	19 60	750 04
10/40	4	45	8	168	60	6	108	60°	6	9 43	750 05
20/60	4	63	18	170	62	6	108	60°	8	19 60	750 06



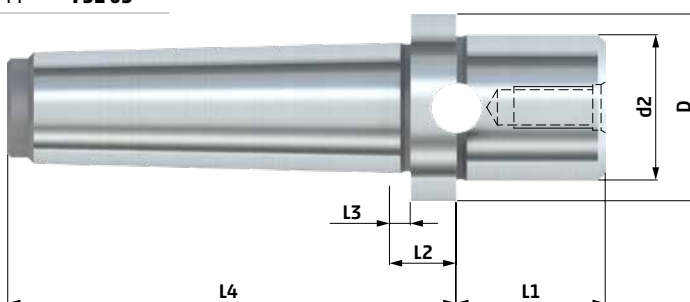
Technical data – type NDG drive cone exchangeable

type NDG	D	d1	d2	L	L1	a	chisel pcs	for bore-Ø from to	cat. no.
35/90	93	32.8	35	70	46	60°	10	33 90	751 01
90/155	158	88	35	75	46	60°	10	88 155	751 02



Technical data – type AND arbor

type AND	morse taper	D	d2	L1	L2	L3	L4	cat. no.
35/4	4	46	35	36	16	5	108	752 01
35/5	5	44.5	35	36	16	5	130	752 02
35/6	6	64	35	36	16	5	144	752 03



Drive Dog DH



driver for turning and grinding operations

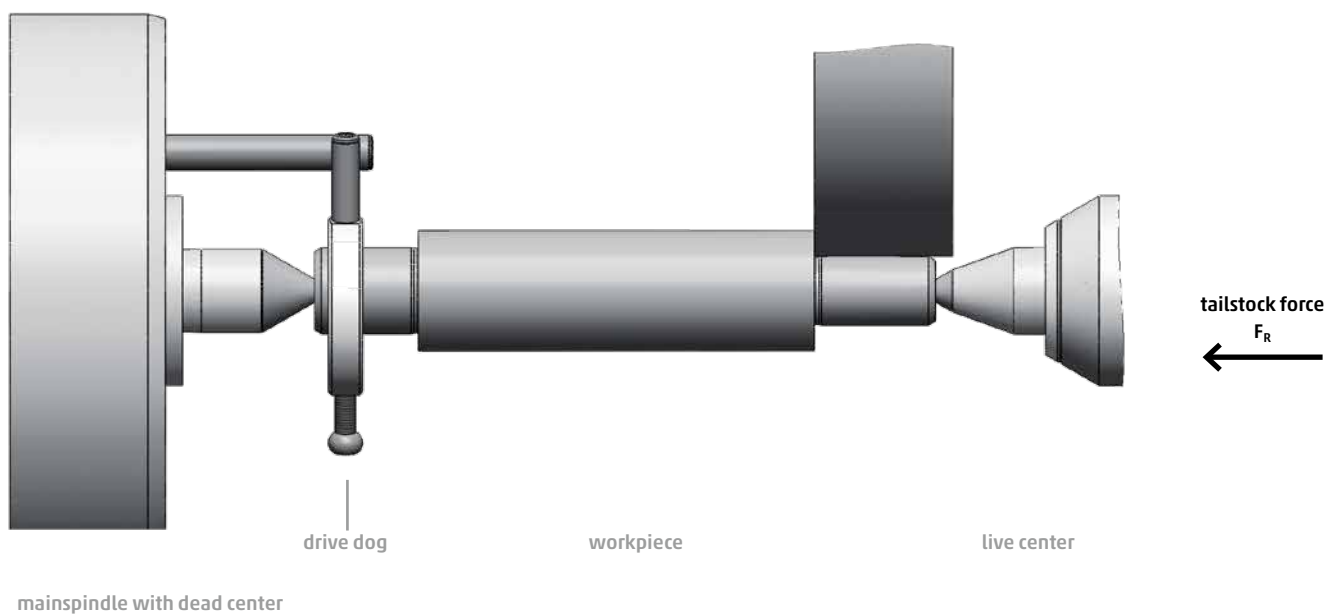
NEIDLEIN drive dogs are used as a driver for turning and grinding operations. The drive dog's special design and the overlapping clamping ranges ensure a safe and reliable driving of all your workpieces. With 8 different sizes, you are able to clamp and drive shafts from Ø 5 mm to Ø 100 mm.

Attention: Only use the drive dogs in machines with guard doors!

Type DH drive dog

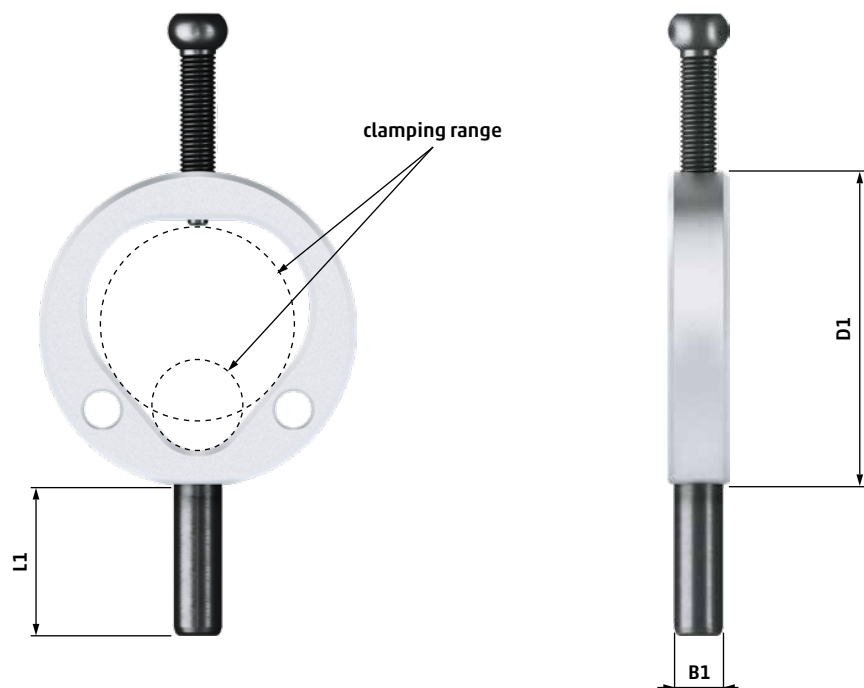


Clamping principle



Consisting of the following features:

- high strength aluminium body
- clamping screw made of unhardened steel
- interchangeable drive pin made of hardened steel

Technical data - type DH drive dog

type DH	clamping range Ø	D1	B1	L1	cat.-no.
12	5 - 12	26	5	15	710 00
20.5	10 - 20	36	5	20	710 01
20	10 - 20	36	10	20	710 02
32	18 - 32	52	10	25	710 03
46	30 - 46	72	10	30	710 04
62	44 - 62	95	10	35	710 05
82	60 - 82	122	14	40	710 06
100	80 - 100	150	14	45	710 07
set	5 - 100	complete assortment			710 10



Mandrels



GSD



ISD

Mandrels GSD	108
Mandrels ISD	108

Mandrels GSD / ISD



with fixed centering and floating clamping elements

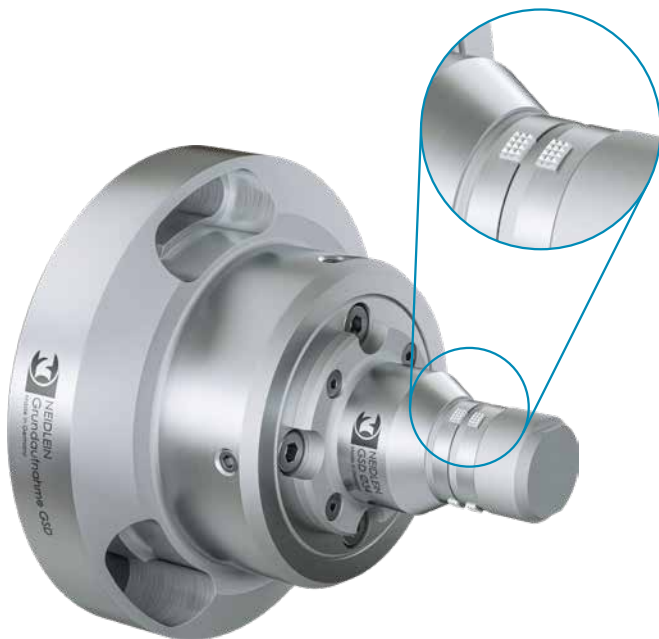
Mandrels of type GSD and ISD

The entire surface of the workpiece can be completely machined with one single clamping and with a maximum of torque transmission. NEIDLEIN mandrels are mechanical clamping systems, suitable for turning, hard turning and grinding operations likewise.

Mandrels of type GSD and ISD are power-operated on the side of the machine spindle as well as the side of the tailstock. The workpieces are clamped centrally by the fixed centering. This operation results in high true run-out accuracy.

Type GSD sliding jaw mandrel

Type GSD is mounted onto the machine spindle nose using flange-adapter, adjustable for true run-out.



Type ISD internal clamping mandrel

Type ISD is mounted onto the machine spindle nose using flange-adapter, adjustable for true run-out.



NEIDLEIN mandrels GSD / ISD with fixed centering ensure:

- maximum of torque transmission, thus achieving a high cutting performance
- datum-point location in the center of the workpiece ensures constant measures of length
- run-out deviation in the process 0.005 - 0.01mm
- fixed clamping location
- floating clamping elements
» compensating internal clamping
- sliding jaw mandrels GSD available for bore hole diameters starting from Ø 18 mm
- internal clamping mandrel ISD available for bore hole diameters starting from Ø 10 mm
- changeable centering unit

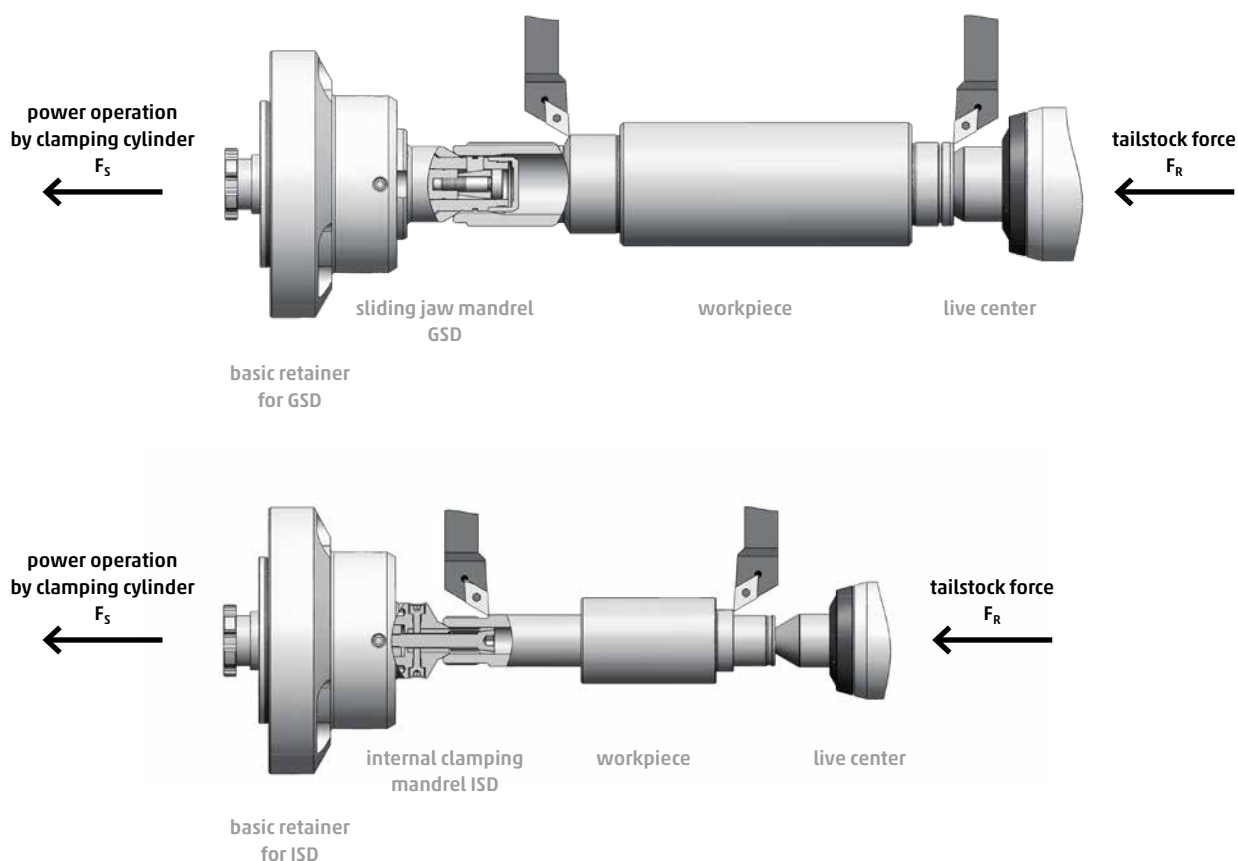
Clamping principle

The center pin located on the side of the tailstock pushes the workpiece against the fixed centering of the mandrel. The actuation of the sliding jaws / clamping sleeve against the surface of the workpiece bore hole is initiated by the clamping cylinder mounted into the machine. The sliding jaws / clamping sleeve are "floatingly" suspended, thus compensating irregularities with regard to possible eccentricity of the workpiece bore hole. The datum-point of workpieces on the machines is determined by the size of the centering. The entire surface of the workpiece can now be tooled in one single clamping.

The data for achievable cutting performance and the thrust requested, you can find in the provided documentation or upon request from our technical sales department.

We will be glad to design clamping devices suitable for your workpieces.

Type GSD / ISD



Sizes and prices of the mandrels and basic retainer upon request



ZF

Mounting Elements

with appropriate accessories
for mounting of clamping tools on machine tools



ZFE



RF



RH

Flange Adapters ZF	112
Flange Adapters ZFE (adjustable)	114
Reducing Adapters RF	116
Reducing Sleeves RH / RHZ	118

Flange Adapters ZF

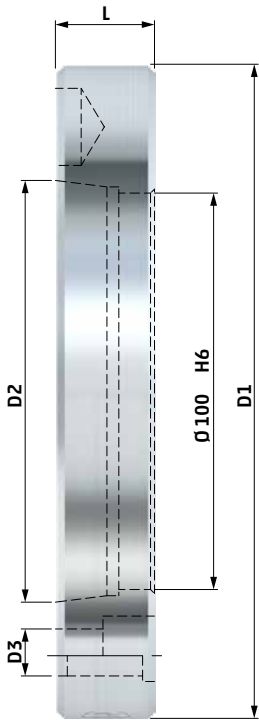
according to DIN ISO 702-1 (DIN 55028)
for mounting of face drivers type FSB / FSBR / FSP / FDNC

The flange adapter is used for direct mounting of **face drivers with movable center pin** on machine tool spindle noses DIN ISO 702-1 (DIN 55026).

Our flange adapters are made of non-hardened steel. This helps to protect the spindle nose and serves for a better damping property.

Type ZF with short taper

Technical data – type ZF with short taper



type ZF	spindle size	D1	D2	D3 for	L	for face drivers FSB / FSBR / FSP / FDNC	cat. no.
5	5	160	82.563	M10	25	01 - 5	742 02
6	6	165	106.375	M12	25	01 - 5	742 04
8	8	220	139.719	M16	60	01 - 55	742 062
11	11	280	196.869	M20	60	01 - 6	742 082

- Adapters are supplied with mounting screws to suit the machine tool spindle nose.
- Other sizes and special adapters are available upon request.
- Hardened flange adapters are available upon request.

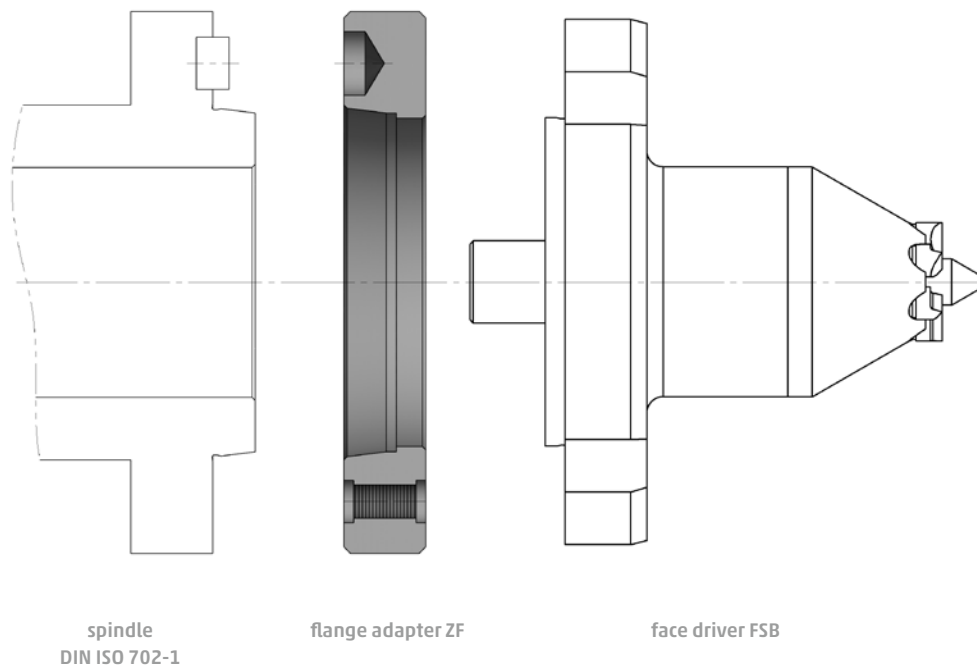
Clamping principle

Face drivers with movable center pin and all other face drivers with retainer Ø 100 are mounted onto the machine tool spindle via flange adapter ZF.

Because of the exactly fitting of the mounting diameter Ø 100 it is possible to adapt the face driver without adjusting the run out.

For increased run out requirements the face driver should be adjusted in the flange adapter.

Type **ZF** with short taper



Flange Adapters ZFE (adjustable)

according to DIN ISO 702-1 (DIN 55028)
for mounting face drivers type FFB / FFBH
und reducing sleeves type RF

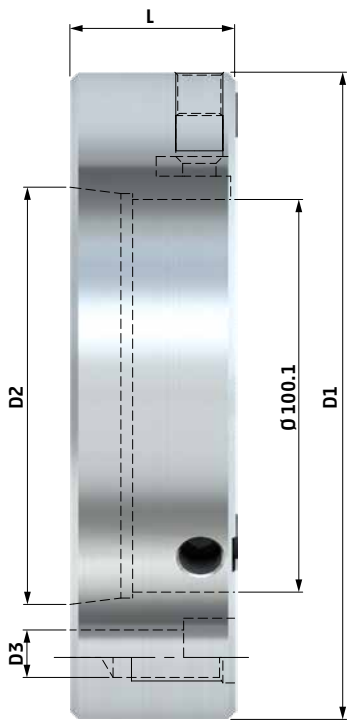
The flange adapter is used for direct mounting of **face drivers type FFB and FFBH** with adjustment true. Adaption on machine tool spindle noses DIN ISO 702-1 (DIN 55026).

Our flange adapters are made of non-hardened steel. This helps to protect the spindle nose and serves for a better damp-ing property.

Type ZFE with short taper

for adjustment at high run out requirements

Technical data – type ZFE with short taper



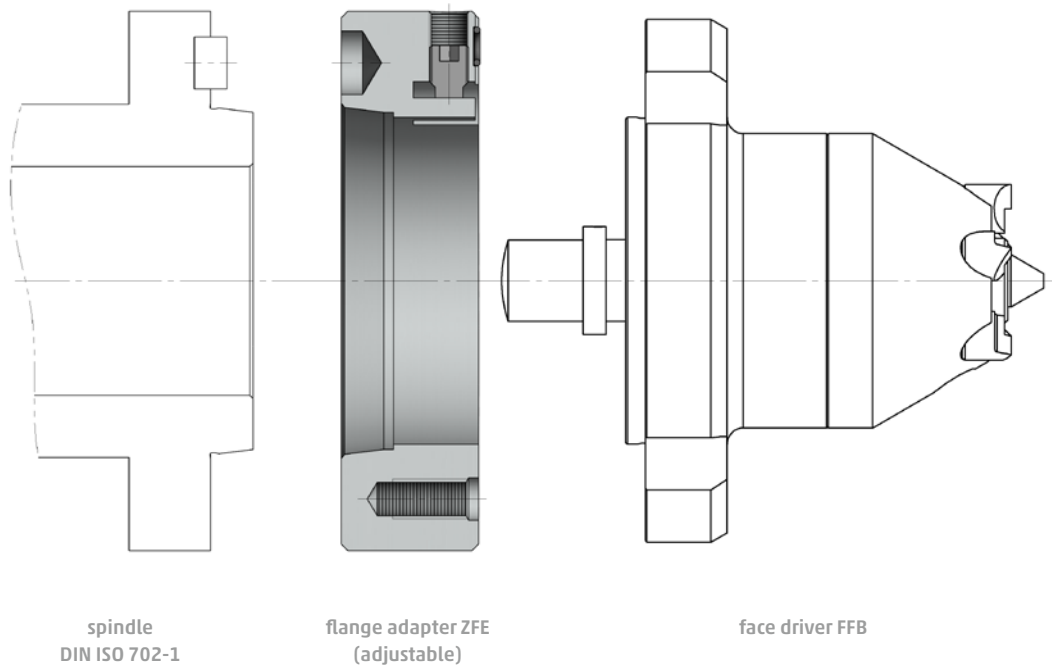
type ZFE	spindle size	D1	D2	D3 for	L	for face drivers FFB / FFBH	cat. no.
5	5	160	82.563	M10	40	01 - 5	742 12
6	6	165	106.375	M12	42	01 - 5	742 14
8	8	220	139.719	M16	42	01 - 55	742 16
11	11	280	196.869	M20	60	01 - 6	742 18

- Adapters are supplied with mounting screws to suit the machine tool spindle nose.
- Other sizes and special adapters are available upon request.
- Hardened flange adapters are available upon request.

Clamping principle

Face drivers of the type FFB / FFBH and all other face drivers with retainer $\varnothing 100$ which need a very precise run out adjustment are mounted onto the machine tool spindle via flange adapter ZFE.

Type ZFE with short taper



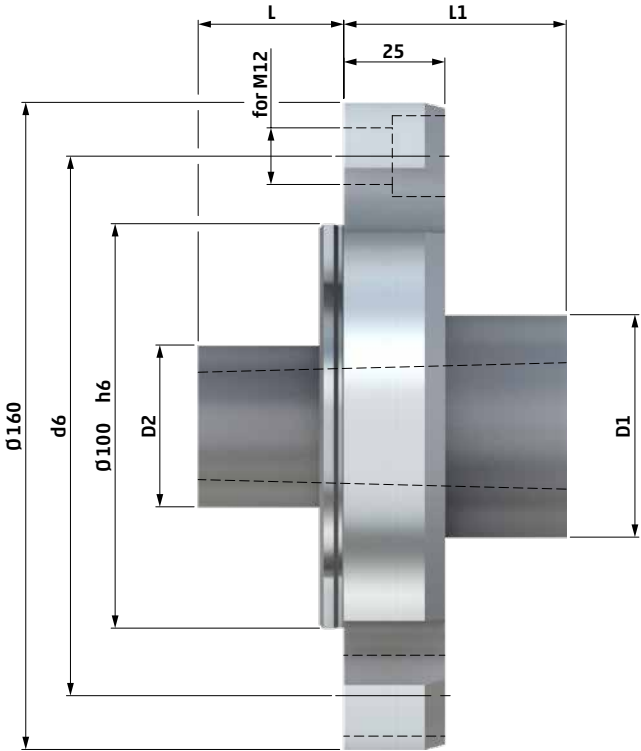
Reducing Adapters RF

for mounting clamping tools with morse taper shank

The reducing adapter is used for direct mounting of **face driver type SB**, **pipe driver type NDG** or of **various center pins** with morse taper shank.

Type RF with morse taper

Technical data – type RF with morse taper



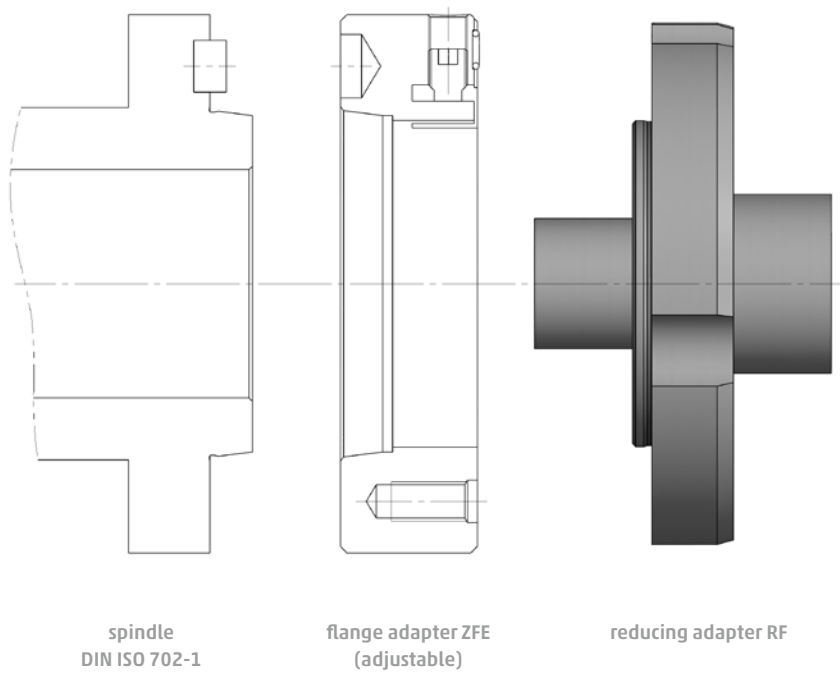
type	MT	D1	D2	L	L1	d6	cat. no.
RF							
3	3	42	36	15	55	133.4	743 01
4	4	55	40	36	55	133.4	743 02
5	5	68	55	63	55	133.4	743 03
6	6	90	80	75	70	133.4	743 04

- Adapters are supplied with mounting screws to suit the machine tool spindle nose.
- Other sizes and special adapters are available upon request.

Clamping principle

For mounting a clamping tool with morse taper shank onto a machine tool spindle DIN ISO 702-1, a reducing flange RF is used by mounting it onto the machine tool spindle via flange adapter ZFE (e. g. at a double spindle CNC lathe).

Type RF with morse taper



Reducing Sleeves RH / RHZ

for reducing of morse cone retainers

The reducing sleeve is used for mounting of face driver type SB, pipe driver type NDG or of various center pins with morse taper shank.

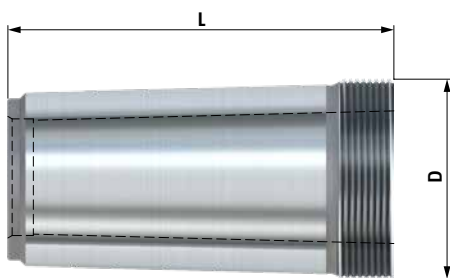
Type RH with morse taper



Type RHZ with cyl. retainer

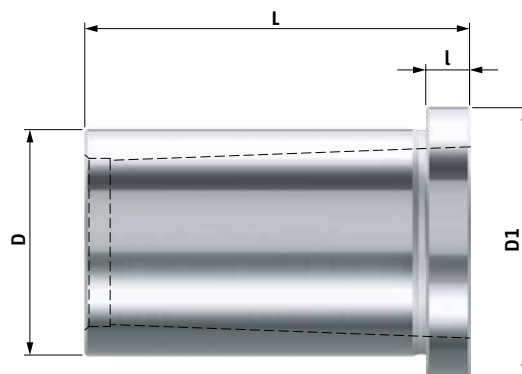


Technical data – type RH with morse taper



type	MT	MT	D	L	cat. no.
RF	outside	inside	screw thread		
4/3	4	3	M35 x 1.5	82	932 09
5/3	5	3	M48 x 1.5	91	932 10
5/4	5	4	M48 x 1.5	91	932 11
6/3	6	3	M70 x 1.5	128	932 12
6/4	6	4	M70 x 1.5	128	932 13
6/5	6	5	M70 x 1.5	128	932 14

Technical data – type RHZ with cyl. retainer



type	cyl. Ø	MT	D1	L	l	cat. no.
RHZ	D	inside	collar			
35/3	35	3	44	65	8	932 20
41/4	41	4	49	70	8	932 21
61/5	61	5	72	80	10	932 22
85/6	85	6	96	85	10	932 23

■ Other sizes and special sleeves are available upon request.

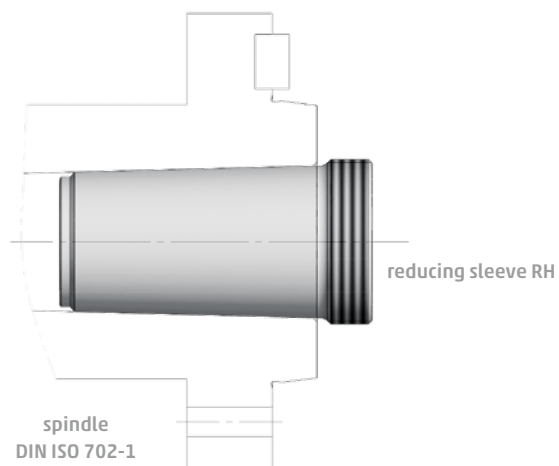
■ Other sizes and special sleeves are available upon request.

Clamping principle

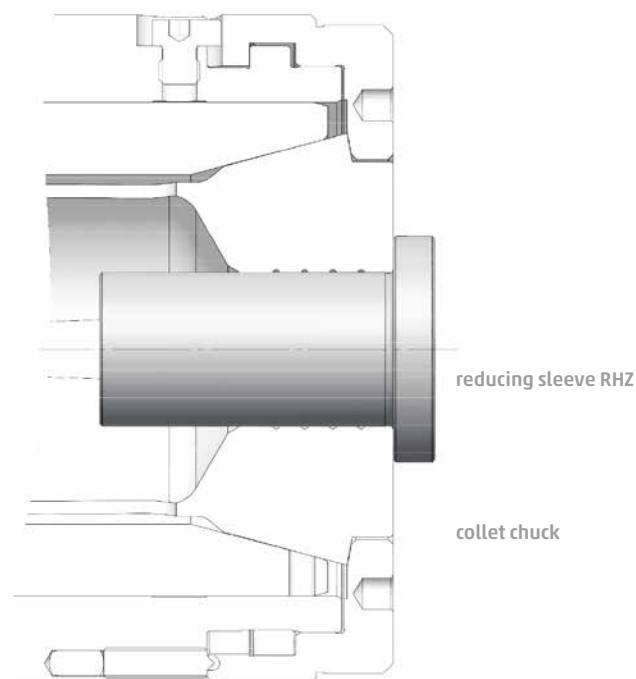
Reducing sleeve RH – For retaining a morse cone shank which is smaller than the available tailstock quill or machine tool spindle, a reducing sleeve with matching size is adapted.

Reducing sleeve RHZ – For retaining a morse cone shank in a collet chuck or a 3 jaw chuck, a reducing sleeve RHZ with cylindrical retainer is adapted.

Type RH with morse taper



Type RHZ with cyl. retainer

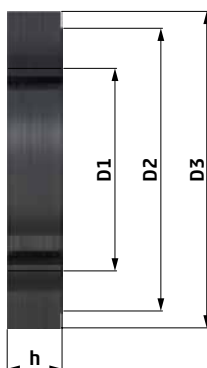


Extracting nut DIN 1804 h - for reducing sleeve RH

Type DIN 1804 h



Technical data - type DIN 1804 h



D1	D2	D3	h	cat. no.
M35 x 1.5	47	55	11	830 41
M48 x 1.5	67	75	13	830 43
M70 x 1.5	90	100	14	830 44



RN

RNW and changeable inserts

RNCS with carbide tip

LIVE CENTERS
FOR TURNING AND GRINDING



Ultra Live Centers RN / RNC / RNZ	122
Ultra Live Centers RNA	128
Bullnose Ultra Live Centers RK	130
Bullnose Ultra Live Centers RKA	132
Ultra Live Centers RNW	134
Ultra Live Centers RN / RNW with cylindrical retainer	136
Ultra Live Centers RNF / RNCF	138
Ultra Live Centers RNF / RNCF VDI	140
Ultra Live Centers RNWF MT + VDI	142

LIVE CENTERS
ESPECIALLY FOR GRINDING



Ultra Live Centers RNS / RNCS	144
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Load Charts for Live Centers	148
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Live Centers & Dead Centers

with appropriate accessories



RNF VDI



carbide dead center DIN 807



FNA and changeable center cone

DEAD CENTERS FOR TURNING, HARD TURNING AND GRINDING



Dead Centers DIN 806 · tool-steel	154
Dead Centers FN / FN extended / FNC / FNZ	155
Dead Centers Shanks FNA / FNW	158
Dead Centers FNM / FNCM / FNZM Mazak	160
Dead Centers FNAM / FNWM Mazak	162
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Carbide Dead Centers DIN 807	170
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Carbide Bull Nose Cones FNK	174
Dead Centers FE / FEC – type taper 1:7.5 / Ø 28.33	176

ACCESSORIES

Changeable Center Cones for type RNA / FNA / FNAM	178
Changeable Center Cones for type RKA	179
Changeable Inserts for type RNW / FNW / FNWM	180

Ultra Live Centers RN / RNC / RNZ



for general use

NEIDLEIN ultra live centers are designed for employment **in turning, grinding and other production machine tools.**

Owing to the application of bearing and the stable design high axial and radial load can be absorbed accurately. Therefore our live centers are outstanding for any application, especially for tooling with face drivers.

Type RN with morse taper



with full carbide tip



with half carbide tip

NEIDLEIN revolving ultra live centers type RN / RNC ensure:

- application of live centers in case of high thrust and loading
- run-out deviation max.
0.005 mm · type turning
0.003 mm · type grinding
- enhanced true running accuracy HQ upon request
- maintenance-free, due to gasket system and life-time lubrication of bearings; gasket system comprising variable seal and steel protection cover
- excellent demounting by means of extracting nut and extracting disk, which ensures safe and easy removal of the live center from the tailstock spindle sleeve

Type RNC with morse taper

» **extended tooling clearance**
for better access of machining tools



with carbide tip

↑ 0.005



↑ 0.003

**Type RNZ with morse taper**

» **extended tooling clearance**
extended version for more tool clearance



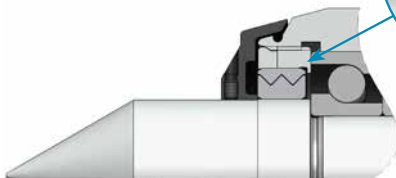
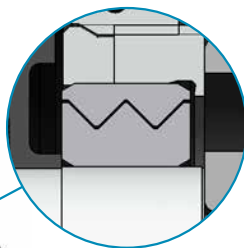
↑ 0.005



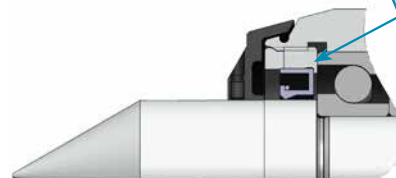
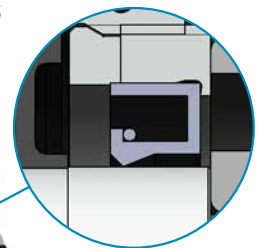
↑ 0.003

**TYPE TURNING**

- with contact-free labyrinth seal
- true running accuracy max. 0.005 guaranteed

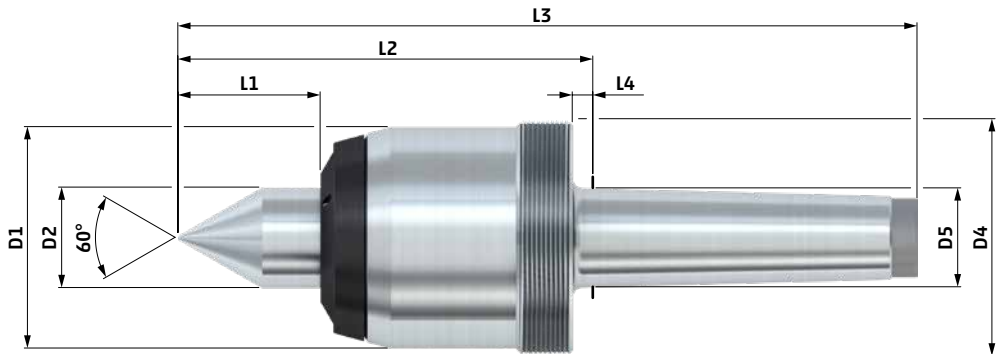
**TYPE GRINDING**

- with contact spindle seal
- true running accuracy max. 0.003 guaranteed



Technical data – type RN with morse taper

type tool steel tip



WITH TOOL STEEL TIP



**TYPE
TURNING**



**TYPE
GRINDING**

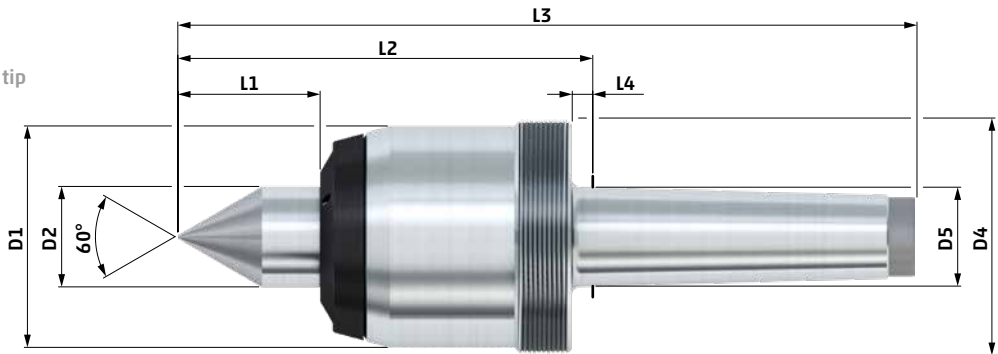
type RN	MT	D1	D2	D4	D5	L1	L2	L3	L4	rpm max. [1/min]	cat. no.
3	3	55	22	M58 x 1.5	23.83	26	102	183	5	6000	812 01
	4	55	22	M58 x 1.5	31.27	26	103.5	206	6.5	6000	812 02
	5	55	22	M58 x 1.5	44.4	26	103.5	233	6.5	6000	812 03
4	4	70	32	M75 x 1.5	31.27	45	131.2	233.7	6.5	5000	812 04
	5	70	32	M75 x 1.5	44.4	45	131.2	260.7	6.5	5000	812 05
5	5	92	45	M95 x 2	44.4	60	156.2	285.7	6.5	4000	812 06
	6	92	45	M95 x 2	63.35	60	157.7	339.7	8	4000	812 07
6	6	107	55	M110 x 2	63.35	60	169.7	351.7	8	3000	812 08

cat. no.
812 0102
812 0202
812 0302
812 0402
812 0502
812 0602
812 0702
812 0802

- Run-out deviation max.: type turning 0.005 mm · type grinding 0.003 mm.
- Extracting nuts and extracting disks see page 192 - 193 for accessories.
- Load chart see page 148.



type full carbide tip



WITH FULL CARBIDE TIP



**TYPE
TURNING**



**TYPE
GRINDING**

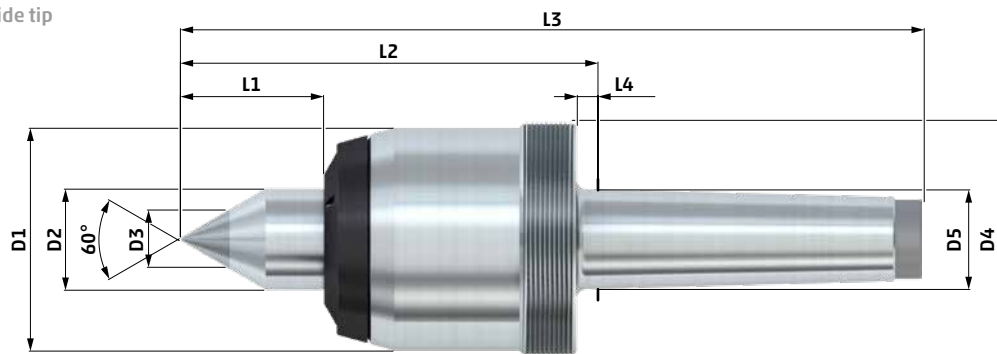
type RN	MT	D1	D2	D4	D5	L1	L2	L3	L4	rpm max. [1/min]	cat. no.
3	3	55	22	M58 x 1.5	23.83	26	102	183	5	6000	812 0104
	4	55	22	M58 x 1.5	31.27	26	103.5	206	6.5	6000	812 0204
	5	55	22	M58 x 1.5	44.4	26	103.5	233	6.5	6000	812 0304
4	4	70	32	M75 x 1.5	31.27	45	131.2	233.7	6.5	5000	812 0404
	5	70	32	M75 x 1.5	44.4	45	131.2	260.7	6.5	5000	812 0504
5	5	92	45	M95 x 2	44.4	60	156.2	285.7	6.5	4000	812 0604
	6	92	45	M95 x 2	63.35	60	157.7	339.7	8	4000	812 0704
6	6	107	55	M110 x 2	63.35	60	169.7	351.7	8	3000	812 0804

cat. no.
812 0106
812 0206
812 0306
812 0406
812 0506
812 0606
812 0706
812 0806

- Run-out deviation max.: type turning 0.005 mm · type grinding 0.003 mm.
- Extracting nuts and extracting disks see page 192 - 193 for accessories.
- Load chart see page 148.

Technical data – type RN with morse taper

type half carbide tip

**WITH HALF CARBIDE TIP****TYPE
TURNING****TYPE
GRINDING**

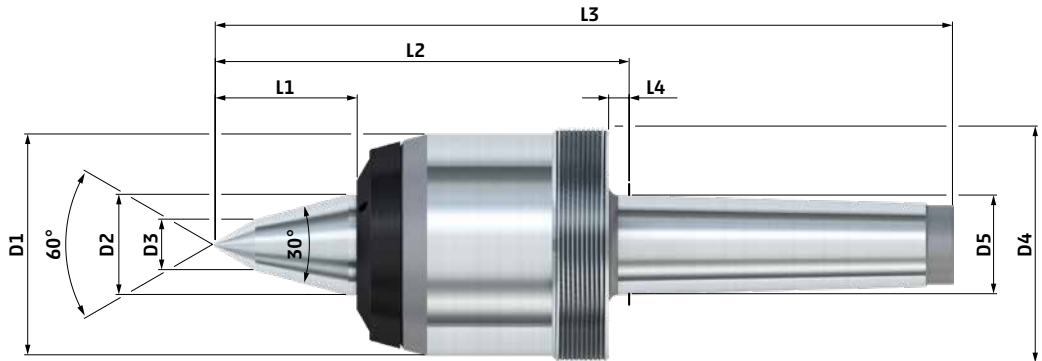
type RN	MT	D1	D2	D3	D4	D5	L1	L2	L3	L4	rpm max. [1/min]	cat. no.
3	3	55	22	11	M58 x 1.5	23.83	26	102	183	5	6000	812 0103
	4	55	22	11	M58 x 1.5	31.27	26	103.5	206	6.5	6000	812 0203
	5	55	22	11	M58 x 1.5	44.4	26	103.5	233	6.5	6000	812 0303
4	4	70	32	14	M75 x 1.5	31.27	45	131.2	233.7	6.5	5000	812 0403
	5	70	32	14	M75 x 1.5	44.4	45	131.2	260.7	6.5	5000	812 0503
5	5	92	45	22	M95 x 2	44.4	60	156.2	285.7	6.5	4000	812 0603
	6	92	45	22	M95 x 2	63.35	60	157.7	339.7	8	4000	812 0703
6	6	107	55	28	M110 x 2	63.35	60	169.7	351.7	8	3000	812 0803

cat.no
812 0105
812 0205
812 0305
812 0405
812 0505
812 0605
812 0705
812 0805

- Run-out deviation max.: type turning 0.005 mm · type grinding 0.003 mm.
- Extracting nuts and extracting disks see page 192 - 193 for accessories.
- Load chart see page 148.

Technical data – type RNC with morse taper

type tool steel tip



WITH TOOL STEEL TIP

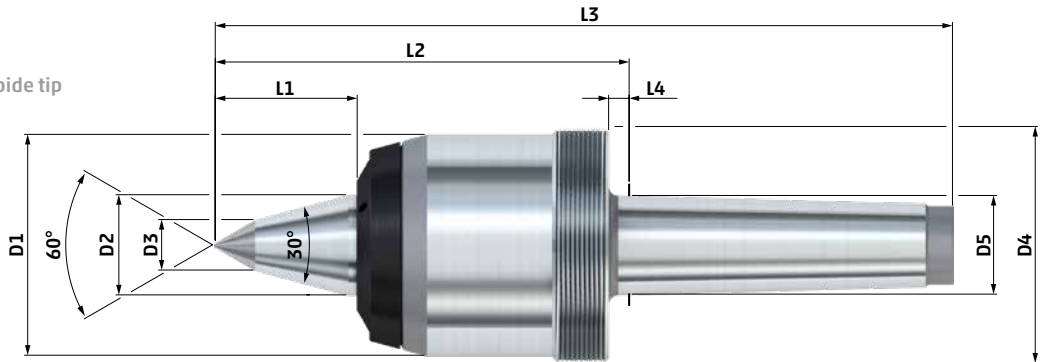


type RNC	MT	D1	D2	D3	D4	D5	L1	L2	L3	L4	rpm max. [1/min]	cat. no.
3	3	55	22	10	M58 x 1.5	23.83	32	108	189	5	6000	813 01
	4	55	22	10	M58 x 1.5	31.27	32	109.5	212	6.5	6000	813 02
	5	55	22	10	M58 x 1.5	44.4	32	109.5	239	6.5	6000	813 03
4	4	70	32	16	M75 x 1.5	31.27	45	131.2	233.7	6.5	5000	813 04
	5	70	32	16	M75 x 1.5	44.4	45	131.2	260.7	6.5	5000	813 05
5	5	92	45	22	M95 x 2	44.4	62	158.2	287.7	6.5	4000	813 06
	6	92	45	22	M95 x 2	63.35	62	159.7	341.7	8	4000	813 07
6	6	107	55	28	M110 x 2	63.35	72	181.7	363.7	8	3000	813 08

- Run-out deviation max.: type turning 0.005 mm · type grinding 0.003 mm.
- Extracting nuts and extracting disks see page 192 - 193 for accessories.
- Load chart see page 148.



type full carbide tip



WITH CARBIDE TIP

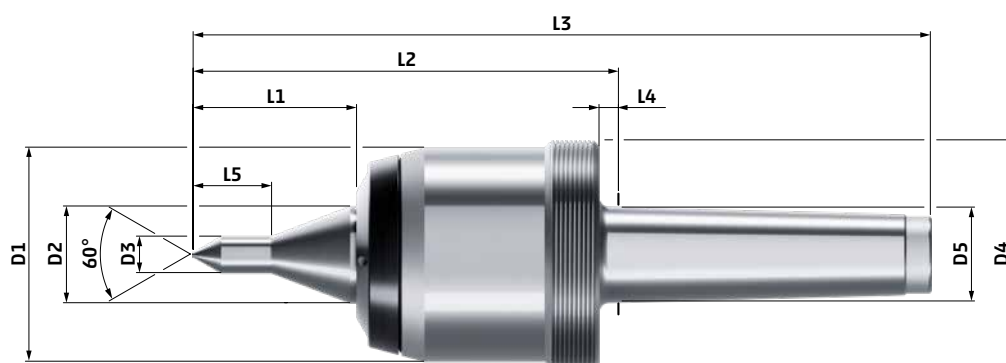


type RNC	MT	D1	D2	D3	D4	D5	L1	L2	L3	L4	rpm max. [1/min]	cat. no.
3	3	55	22	10	M58 x 1.5	23.83	32	108	189	5	6000	813 0104
	4	55	22	10	M58 x 1.5	31.27	32	109.5	212	6.5	6000	813 0204
	5	55	22	10	M58 x 1.5	44.4	32	109.5	239	6.5	6000	813 0304
4	4	70	32	16	M75 x 1.5	31.27	45	131.2	233.7	6.5	5000	813 0404
	5	70	32	16	M75 x 1.5	44.4	45	131.2	260.7	6.5	5000	813 0504
5	5	92	45	22	M95 x 2	44.4	62	158.2	287.7	6.5	4000	813 0604
	6	92	45	22	M95 x 2	63.35	62	159.7	341.7	8	4000	813 0704
6	6	107	55	28	M110 x 2	63.35	72	181.7	363.7	8	3000	813 0804

- Run-out deviation max.: type turning 0.005 mm · type grinding 0.003 mm.
- Extracting nuts and extracting disks see page 192 - 193 for accessories.
- Load chart see page 148.

Technical data – type RNZ with morse taper

type tool steel tip

**TYPE
TURNING****TYPE
GRINDING**

type RNZ	MT	D1	D2	D3	L5	D4	D5	L1	L2	L3	L4	rpm max. [1/min]	cat. no.
3	3	55	22	10	21	M58 x 1.5	23.83	48	124	205	5.0	6000	812 51
	4	55	22	10	21	M58 x 1.5	31.27	48	125.5	228	6.5	6000	812 52
4	4	70	32	12	26	M75 x 1.5	31.27	54	140.2	242.7	6.5	5000	812 54
	5	70	32	12	26	M75 x 1.5	44.4	54	140.2	269.7	6.5	5000	812 55
5	5	92	45	14	31	M95 x 1.5	44.4	65	161.2	290.7	6.5	4000	812 56
	6	92	45	14	31	M95 x 1.5	63.35	65	162.7	344.7	8.0	4000	812 57

cat. no.
812 5102
812 5202
812 5402
812 5502
812 5602
812 5702

- Run-out deviation max.: type turning 0.005 mm · type grinding 0.003 mm.
- Extracting nuts and extracting disks see page 192 - 193 for accessories.
- Load chart see page 149.

Ultra Live Centers RNA



high flexibility at large workpiece center holes

NEIDLEIN ultra live centers type RNA are designed for employment **in turning, grinding and other production machines.**

Type RNA with morse taper

high degree of flexibility for clamping of workpieces with large centers



0.01

incl. center cone



changeable center cone
see page 178

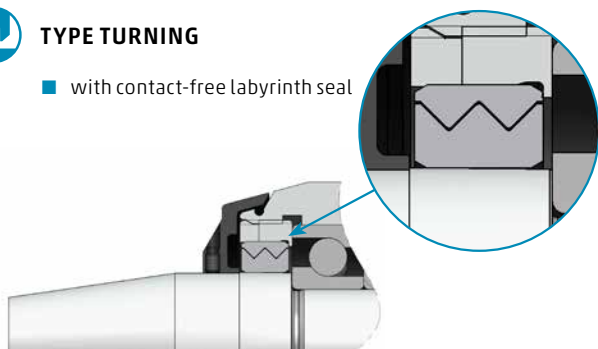
NEIDLEIN revolving ultra live centers type RNA ensure:

- application of live centers in case of high thrust and loading
- run-out deviation max.: 0.01 mm incl. center cone
- easy exchange of center cones using SK30 short taper interface and cylinder screw
- maintenance-free, due to gasket system and life-time lubrication of bearings; gasket system comprising variable seal and steel comprehensive protection cover
- excellent demounting by means of extracting nut and extracting disk, which ensures safe and easy removal of the live center from the tailstock spindle sleeve



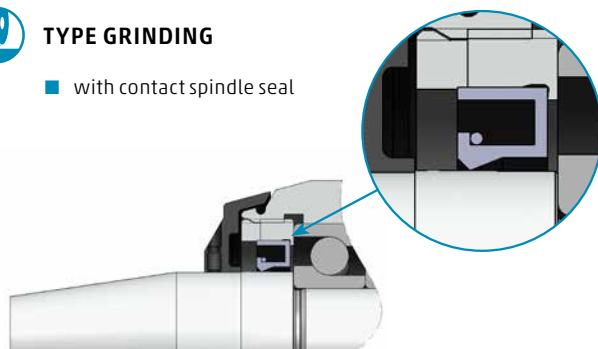
TYPE TURNING

- with contact-free labyrinth seal

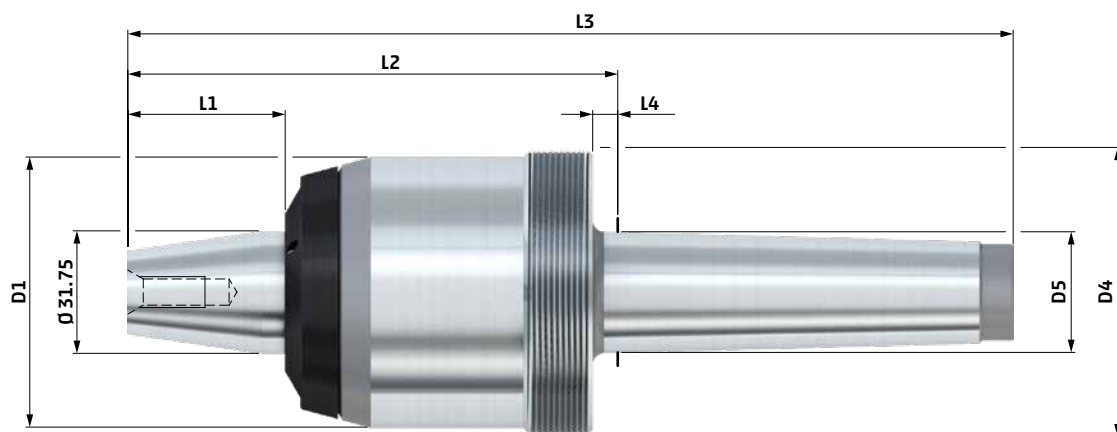


TYPE GRINDING

- with contact spindle seal



Technical data – type RNA with morse taper



TYPE
TURNING



TYPE
GRINDING

type RNA	MT	D1	D4	D5	L1	L2	L3	L4	rpm max. [1 / min]	cat. no.	cat. no.
4	4	70	M75 x 1.5	31.27	41	127	229.5	6.5	6000	814 04	814 0402
	5	70	M75 x 1.5	44.4	41	127	256.5	6.5	6000	814 05	814 0502
5	5	92	M95 x 2	44.4	41	137.2	266.7	6.5	5000	814 06	814 0602
	6	92	M95 x 2	63.35	41	138.7	320.7	8	5000	814 07	814 0702
6	6	107	M110 x 2	63.35	41	151.7	333.7	8	3000	814 08	814 0802

- Run-out deviation max.: 0.01 mm incl. center cone.
- Variety of center cones ranging from Ø 25 to Ø 315, see page 178.
- Special cones up to Ø 400 available upon customer's request.
- Extracting nuts and extracting disks see page 192 - 193 for accessories.
- Speed-dependent load see page 148.

Bullnose ultra live centers RK



for work pieces with large center holes

NEIDLEIN bullnose ultra live centers type RK are characterized by a large clamping range and therefore they can cover large work piece center holes.

The clamping system allows for a high degree of flexibility. It enables clamping of work pieces with center hole sizes from $\varnothing 6$ to $\varnothing 340$. Due to the heavy duty bearing system, work pieces up to 5000 kg can be clamped.

Type RK with morse taper



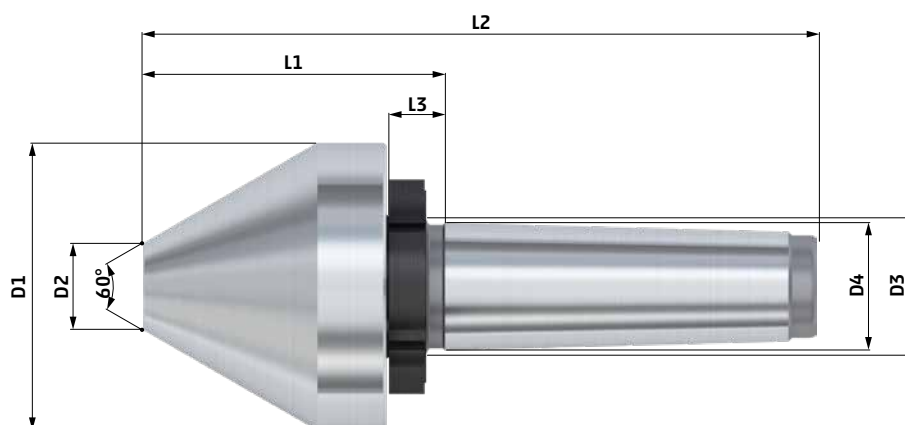
↑ **0.005**
type RK3 + RK4

↑ **0.007**
type RK5

↑ **0.01 - 0.02**
type RK6

NEIDLEIN bullnose ultra live centers type RK ensure:

- high flexibility due to the large diameter range
- run-out deviation max.: 0.005 - 0.02 (depending onto type)
- high true run accuracy even when using low axial forces
- use in case of high thrust and loads
- maintenance free due to gasket system and life-time lubrication of the bearings; gasket system by use of a shaft seal ring
- excellent demounting by means of extracting nut, which ensures safe and easy removal of the bull nose live center from the tailstock spindle sleeve

Technical data - type RK with morse taper

type RK	MT	D1	D2	D3	D4	L1	L2	L3	rpm. max (1/min.)	cat. no.
3	2	70	2	M22 x 1.5	17.78	93	157	15.5	3000	820 00
	3	70	2	M28 x 1.5	23.83	93.5	174.5	16	3000	820 01
	4	70	2	M35 x 1.5	31.27	95	197.5	17.5	3000	820 02
4	4	100	30	M35 x 1.5	31.27	103	205.5	17.5	2500	820 03
	5	100	30	M48 x 1.5	44.4	105	234.5	19.5	2500	820 04
5	4	160	90	M35 x 1.5	31.27	135.5	238	17.5	2000	820 05
	5	160	90	M48 x 1.5	44.4	137.5	267	19.5	2000	820 06
	6	160	90	M70 x 1.5	63.35	140	322	22	2000	820 07
6	5	220	150	M48 x 1.5	44.4	157.5	287	19.5	1500	820 08
	6	220	150	M70 x 1.5	63.35	160	342	22	1500	820 09
	6	280	210	M70 x 1.5	63.35	160	342	22	1500	820 10

- load chart see page 149.
- At speeds lower than 500 rpm and high loads, upon request it's possible to use a heavy duty grease for lubrication of the bearings
- The extraction nut is included.



Bullnose ultra live centers RKA

for heavy workpieces with large centers

NEIDLEIN bullnose ultra live centers type cone head RKA are designed for heavy workpieces with large centers.

The modular clamping system allows for a high degree of flexibility. It enables clamping of workpieces with centers from $\varnothing 50$ to $\varnothing 460$.

Type RKA basic retainer with morse taper



0.005

without center cone



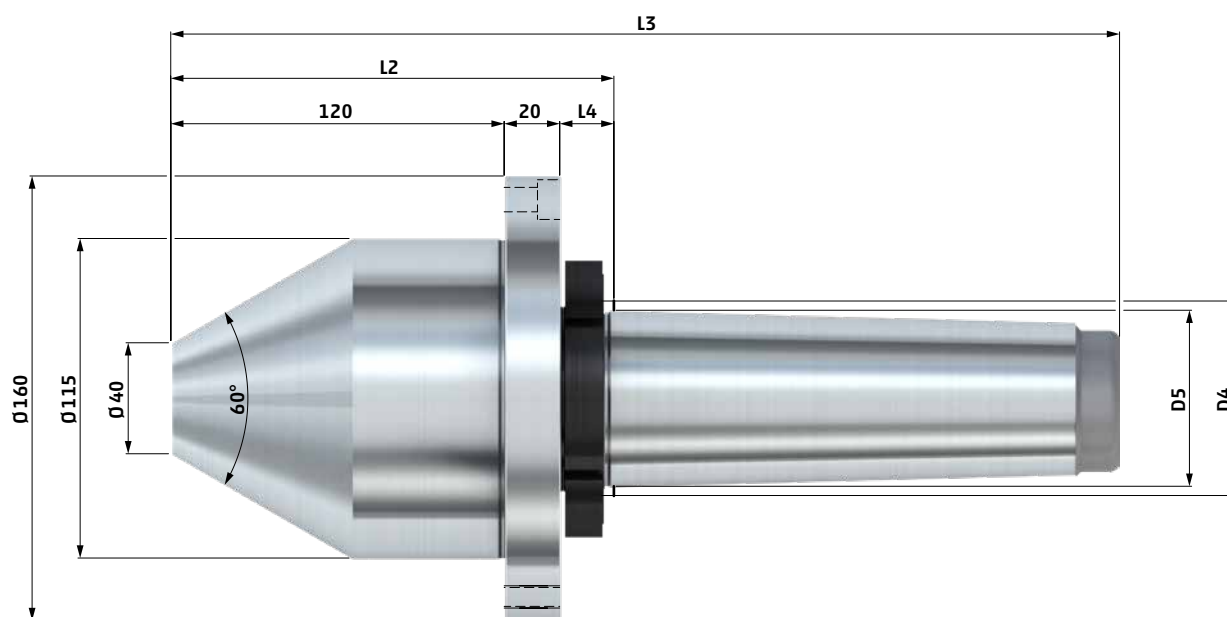
0.02

incl. center cone



changeable center cones
see page 179

Technical data – type RKA basic retainer with morse taper



**TYPE
TURNING**

type RKA	MT	D4	D5	L2	L3	L4	rpm max. [1/min]	cat. no.
6	5	M48 x 1.5	44.4	159.5	289	19.5	2500	814 09
	6	M70 x 1.5	63.35	162.5	344.5	22	2500	814 10

- Run-out deviation max.: 0.005 mm without center cone · 0.02 mm incl. center cone.
- Workpieces with centers between Ø50 and Ø115 can be clamped using the basic retainer. In this case the max. radial loads (see page 150) must be reduced by 50%.
- Special basic retainer available upon customer's request.
- Basic retainer including extraction nut.
- Accessories on page 179.
- Load chart see page 150.

Ultra Live Centers RNW



high flexibility by using different changable inserts

NEIDLEIN ultra live centers type RNW are designed for employment **in turning, grinding and other production machines.**

Type RNW with morse taper

the adaptation of various changeable inserts ensures a high degree of flexibility and saving of costs



0.01

incl. insert



changeable inserts
see page 180 - 181

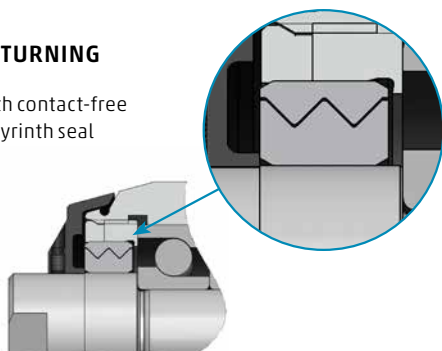
NEIDLEIN revolving ultra live centers type RNW ensure:

- application of live centers in case of high thrust and loading
- run-out deviation max.: 0.01 mm incl. insert
- easy exchange of changeable inserts using spanner flat and open-end wrench or Tommy bar
- maintenance-free, due to gasket system and life-time lubrication of bearings; gasket system comprising variable seal and steel comprehensive protection cover
- excellent demounting by means of extracting nut and extracting disk, which ensures safe and easy removal of the live center from the tailstock spindle sleeve



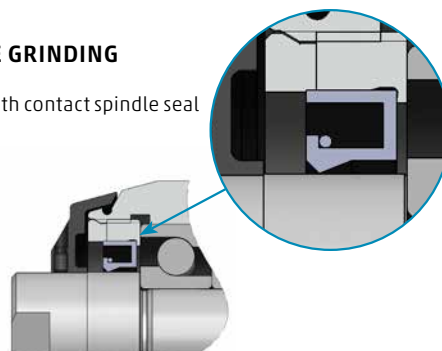
TYPE TURNING

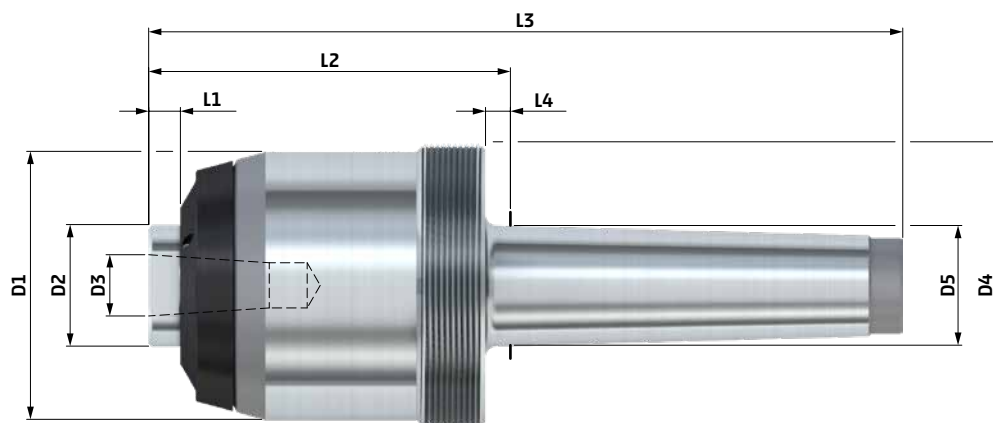
- with contact-free labyrinth seal



TYPE GRINDING

- with contact spindle seal



Technical data - type RNW with morse taper

**TYPE
TURNING**

**TYPE
GRINDING**

type RNW	MT	D1	D2	D3	D4	D5	L1	L2	L3	L4	rpm max. [1/min]	cat. no.	cat. no.
3	3	55	22	16	M58 x 1.5	23.83	6.3	82	163	5	6000	815 01	815 0102
	4	55	22	16	M58 x 1.5	31.27	6.3	83.5	186	6.5	6000	815 02	815 0202
	5	55	22	16	M58 x 1.5	44.4	6.3	83.5	213	6.5	6000	815 03	815 0302
4	4	70	32	16	M75 x 1.5	31.27	8.3	94.5	197	6.5	5000	815 04	815 0402
	5	70	32	16	M75 x 1.5	44.4	8.3	94.5	224	6.5	5000	815 05	815 0502
5	5	92	45	22	M95 x 2	44.4	10.3	106.5	236	6.5	4000	815 06	815 0602
	6	92	45	22	M95 x 2	63.35	10.3	108	290	8	4000	815 07	815 0702
6	6	107	55	22	M110 x 2	63.35	10.3	120	302	8	3000	815 08	815 0802

- Run-out deviation max.: 0.01 mm incl. insert.
- Various changeable inserts of different designs, see page 180 - 181.
- Special inserts available upon customer's request.
- Extracting nuts and extracting disks see page 192 - 193 for accessories.
- Speed-dependent load see page 150.



Ultra Live Centers RN / RNW

with cylindrical retainer

NEIDLEIN ultra live centers type RN/RNW with cylindrical retainer are designed for employment **in turning and other production machine tools** and are preferably used in **counter spindles and various machine turrets**.

Owing to the application of bearing and the stable design high axial and radial load can be absorbed accurately. Therefore our live centers are outstanding for any application, especially for tooling with face drivers.

Type RN with cylindrical retainer

↑ 0.005



Type RNW with cylindrical retainer

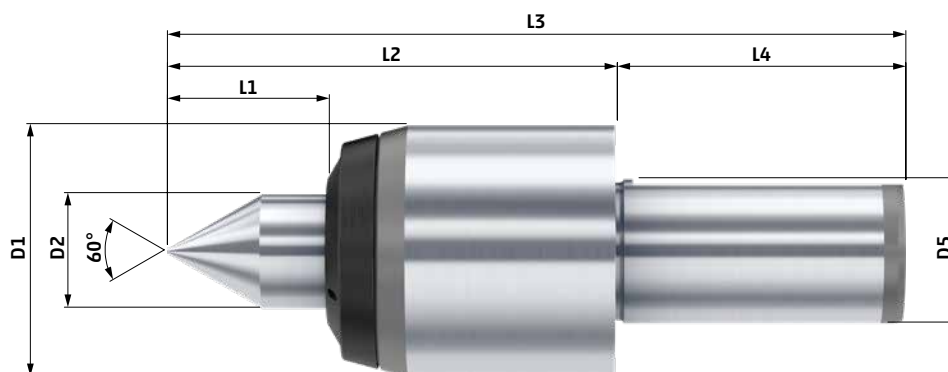
↑ 0.01
incl. insert



changeable inserts
see page 180 - 181

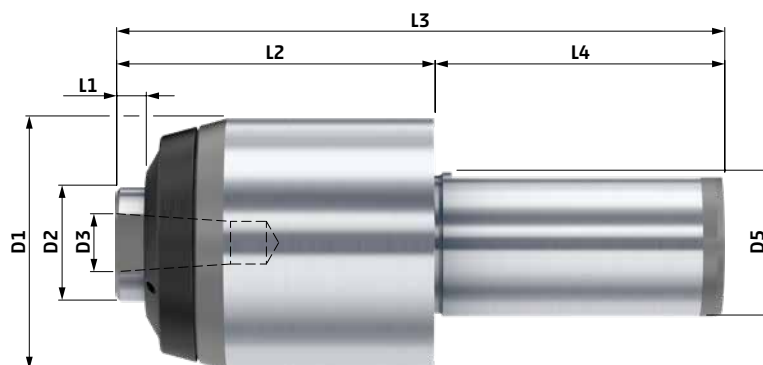
NEIDLEIN revolving ultra live centers type RN / RNW ensure:

- application of live centers in case of high thrust and loading
- run-out deviation max.
0.005 mm · type RN
0.01 mm · type RNW incl. changeable insert
- maintenance-free, due to gasket system and life-time lubrication of bearings; gasket system comprising variable seal and steel protection cover
- easy exchange of changeable inserts using spanner flat and open-end wrench or Tommy bar

Technical data – type RN with cylindrical retainer**TYPE
TURNING**

type RN	D5	D1	D2	L1	L2	L3	L4	rpm max. [1/min]	cat. no.
3	25	55	21.75	26.2	97	152	55	6000	812 60
	32	55	21.75	26.2	97	162	65	6000	812 61
4	32	70	31.75	45	124.7	189.7	65	5000	812 62
	40	70	31.75	45	124.7	204.7	80	5000	812 63

- Run-out deviation max.: 0.005 mm
- Load chart see page 148.

Technical data – type RNW with cylindrical retainer**TYPE
TURNING**

type RNW	D5	D1	D2	D3	L1	L2	L3	L4	rpm max. [1/min]	cat. no.
3	25	55	21.75	16	6.2	77	132	55	6000	815 10
	32	55	21.75	16	6.2	77	142	65	6000	815 11
4	32	70	31.75	16	8.2	88	153	65	5000	815 12
	40	70	31.75	16	8.2	88	168	80	5000	815 13

- Run-out deviation max.: 0.01 mm incl. insert.
- Various changeable inserts of different designs, see page 180 - 181.
- Special inserts available upon customer's request.
- Speed-dependent load see page 150.



Ultra Live Centers RNF / RNCF

spring loaded live center

NEIDLEIN ultra live centers type RNF are especially suitable for **employment in turrets, in manual tailstocks and in case of linear thermal extension of workpieces.**

The spring loaded, moving spindle and the engraved scale rings enable the adjustment and/or programming of various axial forces.

Type RNF with morse taper

↑ **0.003**



Type RNCF with morse taper

» **extended tooling clearance**
for better access of machining tools

↑ **0.003**

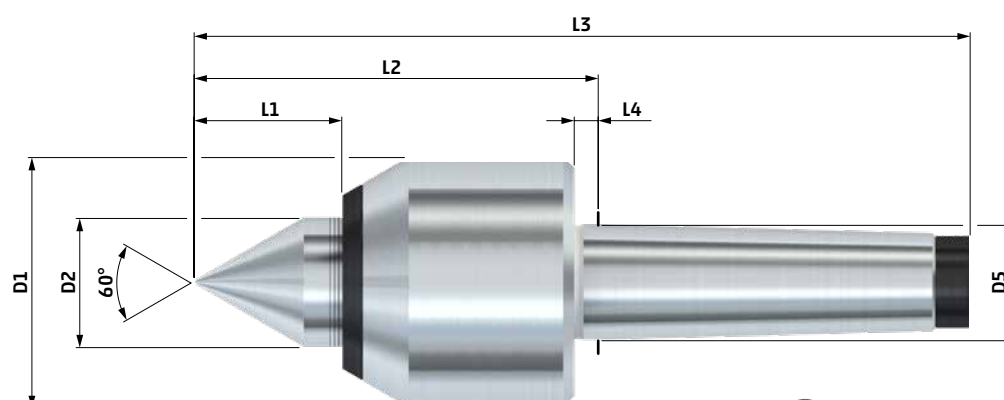


NEIDLEIN ultra live centers type RNF / RNCF ensure:

- employment of live centers in turrets and manual tailstocks when hydraulic systems cannot guarantee any repositioning
- compensation if there is a linear thermal extension of workpieces or if the extension is caused by the process of machining
- run-out deviation max.: 0.003 mm
- maintenance free, due to the gasket system and the lifetime lubrication filling of the bearing
- obtaining of the axial forces applied via scale rings as well as clarification of the force ranges on the outside of the housing

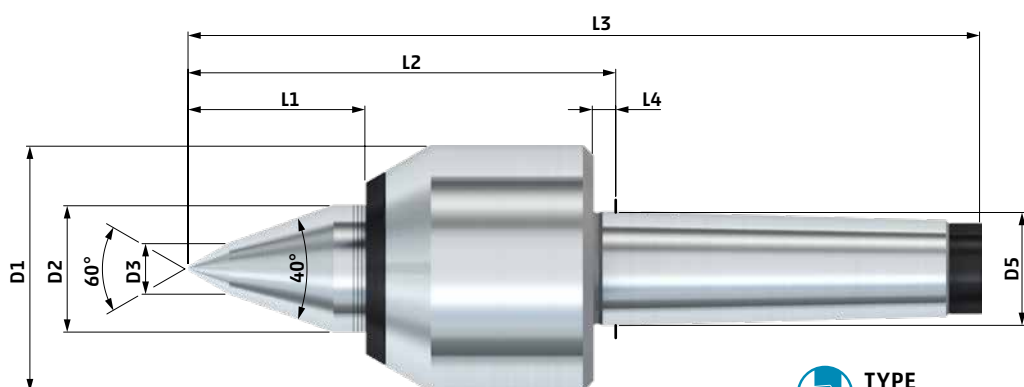


Example type RNF 4 MT4

Technical data - type RNF with morse taper
 **TYPE
TURNING**

type RNF	MT	D1	D2	D3	D5	L1	L2	L3	L4	rpm max. [1/min]	cat. no.
3	3	55	25	-	23.83	28.5	84.5	165	5	4500	817 01
	4	55	25	-	31.27	28.5	86	185.5	6.5	4500	817 02
	5	55	25	-	44.4	28.5	86	215.5	6.5	4500	817 03
4	4	68	35	-	31.27	40	109.5	210.3	6.5	4000	817 04
	5	68	35	-	44.4	40	109.5	239	6.5	4000	817 05
5	5	92	50	-	44.4	53	138.5	268	6.5	3500	817 09

- Run-out deviation max.: 0.003 mm.
- Models with extraction thread or with special spindles are available upon customer's request.
- Load chart see page 151.

Technical data - type RNCF with morse taper
 **TYPE
TURNING**

type RNCF	MT	D1	D2	D3	D5	L1	L2	L3	L4	rpm max. [1/min]	cat. no.
3	3	55	25	12	23.83	37	93	173.5	5	4500	818 01
	4	55	25	12	31.27	37	94.5	194	6.5	4500	818 02
	5	55	25	12	44.4	37	94.5	224	6.5	4500	818 03
4	4	68	35	14	31.27	49	118.5	219.3	6.5	4000	818 04
	5	68	35	14	44.4	49	118.5	248	6.5	4000	818 05
5	5	92	50	22	44.4	65	150.5	280	6.5	3500	818 09

- Run-out deviation max.: 0.003 mm.
- Models with extraction thread or with special spindles are available upon customer's request.
- Load chart see page 151.



Ultra Live Centers RNF / RNCF VDI

spring loaded live center with VDI retainer

NEIDLEIN ultra live centers type RNF/RNCF VDI are adapted in the tool turret and are **especially suited for CNC machines without tailstock or with sub spindle**.

The spring loaded, moving spindle and the engraved scale rings enable the adjustment and/or programming of various axial forces.

Type RNF with VDI retainer

↑ **0.003**



Type RNCF with VDI retainer

» **extended tooling clearance**
for better access of machining tools

↑ **0.003**



NEIDLEIN ultra live centers type RNF / RNCF VDI ensure:

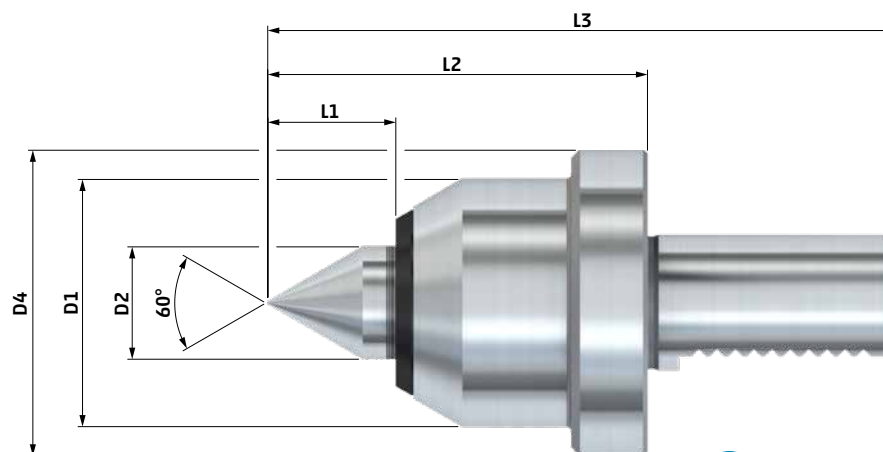
- employment of live centers in turrets when hydraulic systems cannot guarantee any repositioning
- compensation if there is a linear thermal extension of workpieces or if the extension is caused by the process of machining
- run-out deviation max.: 0.003 mm
- maintenance free, due to the gasket system and the lifetime lubrication filling of the bearing
- obtaining of the axial forces applied via scale rings as well as clarification of the force ranges on the outside of the housing



Example type RNF 4 VDI 40

Technical data – type RNF with VDI retainer

DIN ISO 10889-1

**TYPE
TURNING**

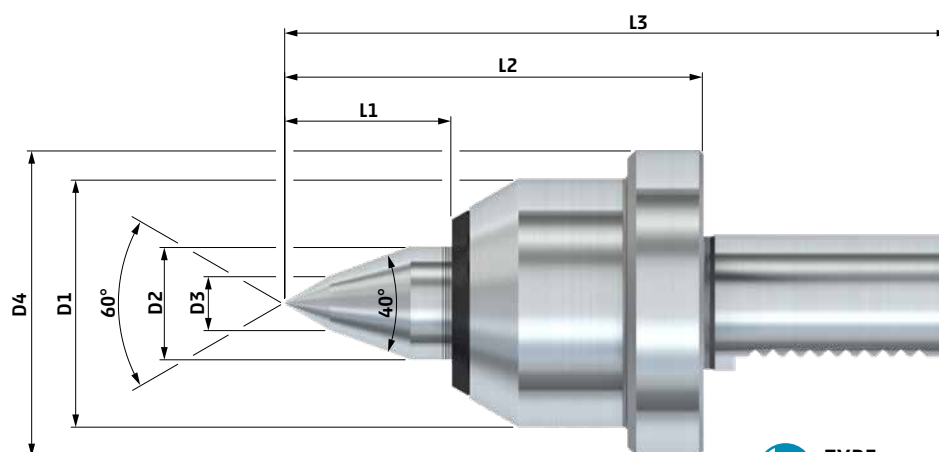
type RNF	VDI	D1	D2	D3	D4	L1	L2	L3	rpm max. [1/min]	cat. no.
3	30	55	25	-	68	28.5	84.5	139.5	4500	817 06
	40	55	25	-	83	28.5	84.5	147.5	4500	817 07
4	40	68	35	-	83	40	108	171	4000	817 08

■ Run-out deviation max.: 0.003 mm.

■ Load chart see page 151.

Technical data – type RNCF with VDI retainer

DIN ISO 10889-1

**TYPE
TURNING**

type RNCF	VDI	D1	D2	D3	D4	L1	L2	L3	rpm max. [1/min]	cat. no.
3	30	55	25	12	68	37	93	148	4500	818 06
	40	55	25	12	83	37	93	156	4500	818 07
4	40	68	35	14	83	49	117	180	4000	818 08

■ Run-out deviation max.: 0.003 mm.

■ Load chart see page 151.



Ultra Live Centers RNWF MT + VDI

spring loaded live center with morse taper and VDI retainer

NEIDLEIN ultra live centers type RNWF are especially suitable for **employment in turrets, in manual tailstocks and in case of linear thermal extension of workpieces.**

The spring loaded, moving spindle and the engraved scale rings enable the adjustment and/or programming of various axial forces.

Type RNWF with morse taper

the adaptation of various changeable inserts ensures a high degree of flexibility and saving of costs

0.01
incl. insert



Type RNWF with VDI retainer

0.01
incl. insert

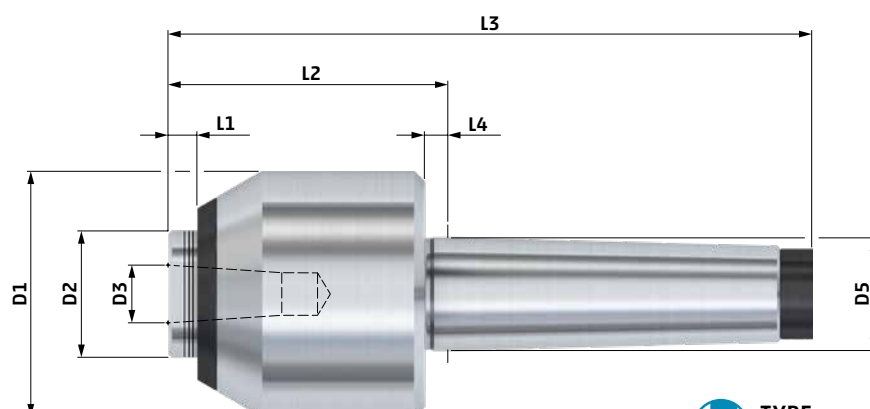


changeable inserts
see page 180 - 181

NEIDLEIN ultra live centers type RNWF ensure:

- employment of live centers in turrets and manual tailstocks when hydraulic systems cannot guarantee any repositioning
- compensation if there is a linear thermal extension of workpieces or if the extension is caused by the process of machining
- run-out deviation max.: 0.01 mm incl. insert
- easy exchange of changeable inserts using spanner flat and open-end wrench or Tommy bar
- maintenance free, due to the gasket system and the lifetime lubrication filling of the bearing
- obtaining of the axial forces applied via scale rings as well as clarification of the force ranges on the outside of the housing



Technical data – type RNWF with morse taper

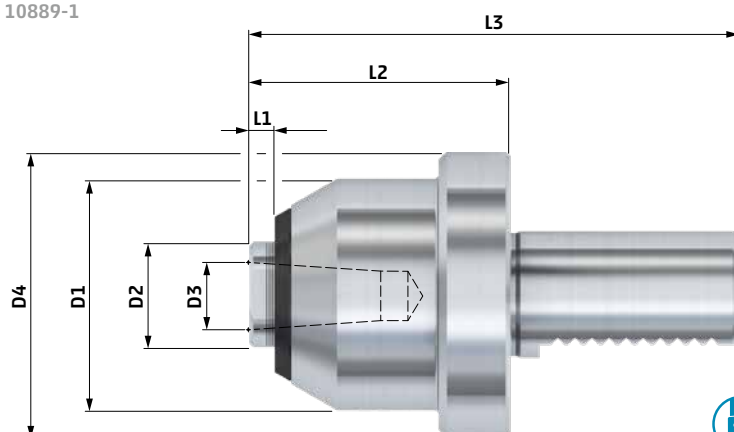
**TYPE
TURNING**

type RNWF	MT	D1	D2	D3	D5	L1	L2	L3	L4	rpm max. [1 / min]	cat. no.
3	3	55	25	16	23.83	6	62	142.5	5	4500	818 15
	4	55	25	16	31.27	6	63.5	163	6.5	4500	818 16
	5	55	25	16	44.4	6	63	193	6.5	4500	818 17
4	4	68	35	16	31.27	8	77.5	178.3	6.5	4000	818 18
	5	68	35	16	44.4	8	77.5	207	6.5	4000	818 19
5	5	92	50	22	44.4	10	95.5	225	6.5	3500	818 20

- Run-out deviation max.: 0.01 mm with insert.
- Models with extraction thread or with special spindles are available upon customer's request.
- Load chart see page 151.
- Various changeable inserts of different designs, see page 180 - 181.

Technical data – type RNWF with VDI retainer

DIN ISO 10889-1



**TYPE
TURNING**

type RNWF	VDI	D1	D2	D3	D4	L1	L2	L3	rpm max. [1 / min]	cat. no.
3	30	55	25	16	68	6	62	117	4500	818 21
	40	55	25	16	83	6	62	125	4500	818 22
4	40	68	35	16	83	8	76	139	4000	818 23

- Run-out deviation max.: 0.01 mm with insert.
- Load chart see page 151.
- Various changeable inserts of different designs, see page 180 - 181.



Ultre Live Centers RNS / RNCS

especially for grinding operations

NEIDLEIN ultra live centers type RNS / RNCS are **especially suited for the use in grinding and other production machine tools.**

By the specific arrangement of the bearings, the design of the live centers is very short and also the live centers can be

used for precise clamping of heavy workpieces with high axial forces. Therefore they are ideal for every use, especially in combination with face drivers.

Type RNS with morse taper


0.003


with carbide tip
for hardened workpieces
and high production quantities

NEIDLEIN ultra live centers RNS / RNCS ensure:

- short projection length
- run-out deviation max.: 0.003 mm
- high true run accuracy even when using low axial forces
- application of live centers in case of high axial and radial loads
- maintenance free, due to the gasket system and the lifetime lubrication of the bearings
- easy and safe removal by means of extracting nut and extracting disk

Type RNCS with morse taper

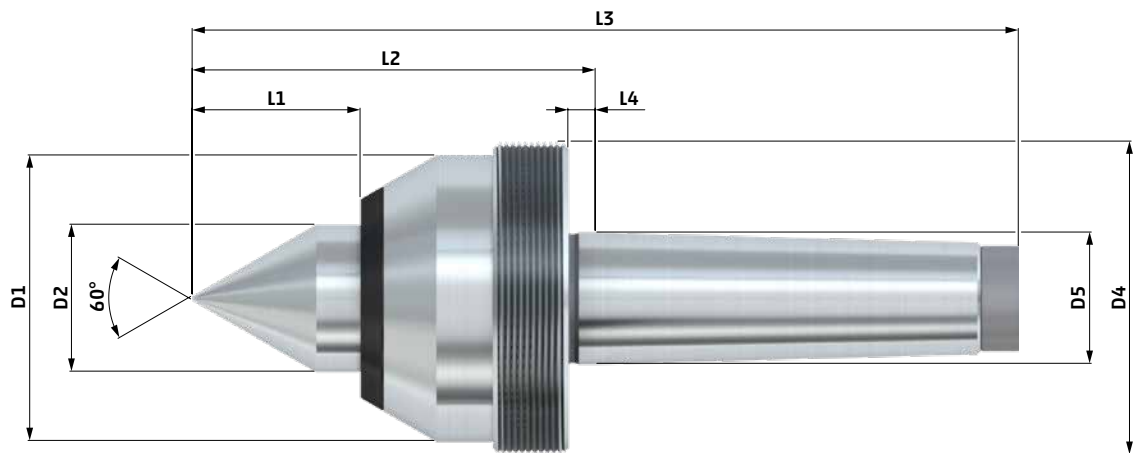
» **extended tooling clearance**
for better access of machining tools

 **0.003**



with carbide tip
for hardened workpieces
and high production quantities

Technical data – type RNS with morse taper



type caride tip



TYPE GRINDING

TYPE
TOOL STEEL

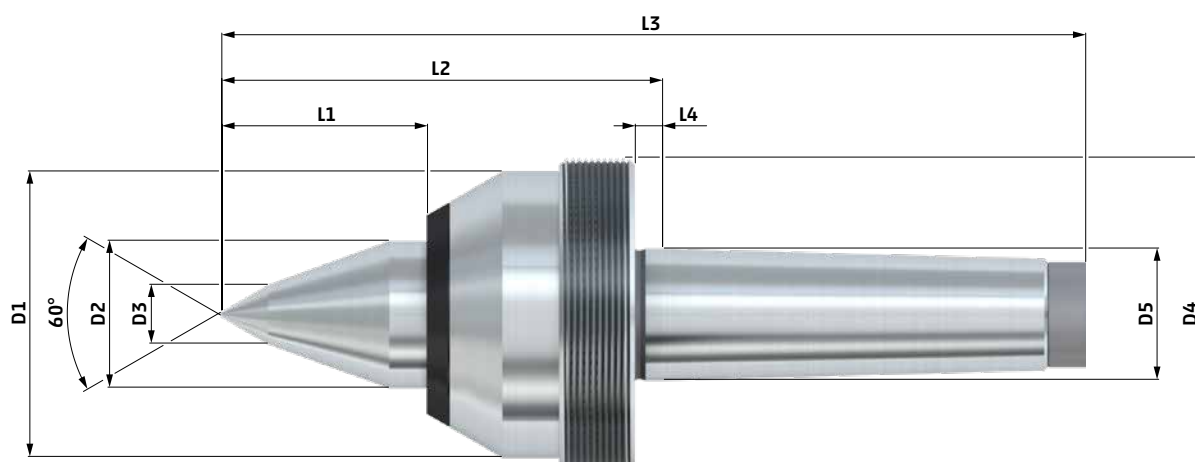


TYPE
CARBIDE

type RNS	MT	D1	D2	D4	D5	L1	L2	L3	L4	rpm max. [1/min]	cat. no.
1	2	34	18	M36 x 1.5	17.78	20	61	125	5	6000	818 97
	3	34	18	M36 x 1.5	23.83	20	61	142	5	6000	818 98
2	3	42	22	M48 x 1.5	23.83	25	72	152.5	5	5500	818 99
	4	42	22	M48 x 1.5	31.27	25	73.5	173	6.5	5500	819 00
3	3	55	25	M58 x 1.5	23.83	28	74.5	155	5	4500	819 01
	4	55	25	M58 x 1.5	31.27	28	76	175.5	6.5	4500	819 02
	5	55	25	M58 x 1.5	44.4	28	76	205.5	6.5	4500	819 03
4	4	68	35	M75 x 1.5	31.27	40	96	197	6.5	4000	819 04
	5	68	35	M75 x 1.5	44.4	40	96	225.5	6.5	4000	819 05
5	5	92	50	M95 x 2	44.4	53	119	248.5	6.5	3600	819 06

cat. no.
818 9706
818 9806
818 9906
819 0006
819 0106
819 0206
819 0306
819 0406
819 0506
819 0606

- Run-out deviation max.: 0.003 mm.
- Extracting nuts and extracting disks see page 192 - 193 for accessories.
- Load chart see page 152.

Technical data – type RNCS with morse taper

type caride tip



TYPE GRINDING

TYPE
TOOL STEELTYPE
CARBIDE

type RNCS	MT	D1	D2	D3	D4	D5	L1	L2	L3	L4	rpm max. [1/min]	cat. no.
1	2	34	18	6	M36 x 1.5	17.78	26	67	131	5	6000	819 17
	3	34	18	6	M36 x 1.5	23.83	26	67	148	5	6000	819 18
2	3	42	22	10	M48 x 1.5	23.83	29	76	156.5	5	5000	819 19
	4	42	22	10	M48 x 1.5	31.27	29	77.5	177	6.5	5000	819 20
3	3	55	25	12	M58 x 1.5	23.83	37	83.5	164	5	4500	819 21
	4	55	25	12	M58 x 1.5	31.27	37	85	186.5	6.5	4500	819 22
	5	55	25	12	M58 x 1.5	44.4	37	85	214.5	6.5	4500	819 23
4	4	68	35	14	M75 x 1.5	31.27	49	105.5	206	6.5	4000	819 24
	5	68	35	14	M75 x 1.5	44.4	49	105	234.5	6.5	4000	819 25
5	5	92	50	22	M95 x 2	44.4	65	131	260.5	6.5	3600	819 26

cat. no.

819 1706**819 1806****819 1906****819 2006****819 2106****819 2206****819 2306****819 2406****819 2506****819 2606**

- Run-out deviation max.: 0.003 mm.
- Extracting nuts and extracting disks see page 192 - 193 for accessories.
- Load chart see page 152.

Load Charts for Live Centers

TYPE RN tool steel and with full carbide tip

TYPE RNC / RNZ / RNA tool steel

type	rpm [1/min]	typ of load	load [daN]	max. load [daN]	max. workpiece weight [daN]
3	250	radial	110	110	220
	500		90		
	1000		70		
	2000		50		
	4000		30		
	6000		10		
	250	axial	600	600	
	500		600		
	1000		600		
	2000		500		
	4000		400		
	6000		350		
4	250	radial	250	250	500
	500		210		
	1000		170		
	2000		120		
	3500		70		
	5000		20		
	250	axial	900	900	
	500		900		
	1000		700		
	2000		600		
	3500		500		
	5000		500		
5	250	radial	600	600	1200
	500		520		
	1000		420		
	2000		310		
	3000		200		
	4000		50		
	250	axial	1500	1500	
	500		1400		
	1000		1300		
	2000		1100		
	3000		900		
	4000		700		
6	250	radial	750	750	1500
	500		650		
	1000		520		
	2000		360		
	3000		200		
	250	axial	2000	2000	
	500		2000		
	1000		1600		
	2000		1400		
	3000		1200		

- The max. load is based on a bearing service life of min. 2000 operating hours.
- Higher loads are possible for short periods.

TYPE RN with half carbide tip

TYPE RNC with carbide tip

type	rpm [1/min]	typ of load	load [daN]	max. load [daN]	max. workpiece weight [daN]
3	250	radial	75	75	150
	500		65		
	1000		55		
	2000		40		
	4000		25		
	6000		10		
	250	axial	600	600	
	500		600		
	1000		600		
	2000		500		
	4000		400		
	6000		350		
4	250	radial	150	150	300
	500		130		
	1000		110		
	2000		85		
	3500		60		
	5000		20		
	250	axial	900	900	
	500		900		
	1000		700		
	2000		600		
	3500		500		
	5000		500		
5	250	radial	300	300	600
	500		250		
	1000		200		
	2000		150		
	3000		100		
	4000		40		
	250	axial	1500	1500	
	500		1400		
	1000		1300		
	2000		1100		
	3000		900		
	4000		700		
6	250	radial	450	450	900
	500		380		
	1000		300		
	2000		220		
	3000		120		
	250	axial	2000	2000	
	500		2000		
	1000		1600		
	2000		1400		
	3000		1200		

- The max. load is based on a bearing service life of min. 2000 operating hours.
- Higher loads are possible for short periods.

TYPE RNZ tool steel

type	rpm [1/min]	typ of load	load [daN]	max. load [daN]	max. workpiece weight [daN]
3	250	radial	30	30	60
	500		25		
	1000		20		
	2000		15		
	4000		10		
	6000		5		
	250	axial	500	500	
	500		500		
	1000		450		
	2000		400		
	4000		350		
	6000		300		
4	250	radial	45	45	90
	500		40		
	1000		35		
	2000		30		
	3500		20		
	5000		10		
	250	axial	700	700	
	500		700		
	1000		650		
	2000		600		
	3500		500		
	5000		450		
5	250	radial	75	75	150
	500		70		
	1000		60		
	2000		50		
	3000		40		
	4000		25		
	250	axial	1200	1200	
	500		1200		
	1000		1200		
	2000		1100		
	3000		900		
	4000		700		

- The max. load is based on a bearing service life of min. 2000 operating hours.
- Higher loads are possible for short periods.

TYPE RK

type	rpm [1/min]	typ of load	load [daN]	max. load [daN]	max. workpiece weight [daN]
3	500	radial	150	150	300
	1000		110		
	2000		70		
	3000		30		
	500	axial	600	600	
	1000		550		
	2000		400		
	3000		300		
4	500	radial	400	400	800
	1000		300		
	1800		200		
	2500		100		
	500	axial	1000	1000	
	1000		800		
	1800		700		
	2500		600		
5	250	radial	1500*	1500*	3000*
	500		1000*		
	1000		600*		
	1500		300		
	250	axial	2500	2500	
	500		2500		
	1000		2000		
	1500		1500		
6	250	radial	2500**	2500**	5000**
	500		2000**		
	800		1500**		
	1200		1000		
	250	axial	3500	3500	
	500		3000		
	800		2500		
	1200		2000		

- The max. load is based on a bearing service life of min. 2000 operating hours.
- Higher loads are possible for short periods.
- * In version MT4 the max. radial load is 400daN (=work piece weight 800daN) and in version MT5 the max. radial load is 1000daN (=work piece weight 2000daN)
- ** in version MT5 the max. radial load is 1000daN (=work piece weight 2000daN)

TYPE RKA

type	rpm [1/min]	typ of load	load [daN]	max. load [daN]	max. workpiece weight [daN]
6 MT5	250	radial	1000*	1000	2000
	500		850*		
	1000		700*		
	1500		500*		
	2000		300*		
	250	axial	2000	2000	
	500		2000		
	1000		1600		
	1500		1400		
	2000		1000		
6 MT6	250	radial	1250*	1250	2500
	500		1100*		
	1000		900*		
	1500		650*		
	2000		350*		
	250	axial	2000	2000	
	500		2000		
	1000		1600		
	1500		1400		
	2000		1000		

- The max. load is based on a bearing service life of min. 2000 operating hours.
- Higher loads are possible for short periods.
- * When just using the basic retainer for work piece clamping (up to ϕ 115) the declared loads must be reduced by 50%.

TYPE RNW tool steel

type	rpm [1/min]	typ of load	load [daN]	max. load [daN]	max. workpiece weight [daN]
3	250	radial	110	110	220
	500		90		
	1000		70		
	2000		50		
	4000		30		
	6000		10		
	250	axial	600	600	
	500		600		
	1000		600		
	2000		500		
	4000		400		
	6000		350		
4	250	radial	150	150	300
	500		130		
	1000		110		
	2000		90		
	3500		70		
	5000		20		
	250	axial	900	900	
	500		900		
	1000		700		
	2000		600		
	3500		500		
	5000		500		
5	250	radial	325	325	650
	500		280		
	1000		250		
	2000		200		
	3000		160		
	4000		50		
	250	axial	1200	1200	
	500		1200		
	1000		1200		
	2000		1100		
	3000		900		
	4000		700		
6	250	radial	325	325	650
	500		280		
	1000		250		
	2000		200		
	3000		160		
	250	axial	1200	1200	
	500		1200		
	1000		1200		
	2000		1200		
	3000		1200		

- The max. load is based on a bearing service life of min. 2000 operating hours.
- Higher loads are possible for short periods.

TYPE RNF / RNCF

type	rpm [1/min]	typ of load	load [daN]	max. load [daN]	max. workpiece weight [daN]
3	250	radial	150	150	300
	500		130		
	1000		105		
	1800		80		
	3000		50		
	4500		15		
	250	axial	650	650	
	500		550		
	1000		450		
	1800		400		
	3000		330		
	4500		250		
4	250	radial	350	350	700
	500		300		
	1000		250		
	1800		190		
	2800		110		
	4000		40		
	250	axial	800	800	
	500		700		
	1000		600		
	1800		500		
	2800		400		
	4000		300		
5	250	radial	650	650	1300
	500		540		
	900		420		
	1600		290		
	2400		160		
	3500		60		
	250	axial	1350	1350	
	500		1200		
	900		1000		
	1600		800		
	2400		700		
	3500		600		

- The max. load is based on a bearing service life of min. 2000 operating hours.
- Higher loads are possible for short periods.

TYPE RNWF

type	rpm [1/min]	typ of load	load [daN]	max. load [daN]	max. workpiece weight [daN]
3	250	radial	75	75	150
	500		65		
	1000		50		
	1800		40		
	3000		30		
	4500		15		
	250	axial	650	650	
	500		550		
	1000		450		
	1800		400		
	3000		330		
	4500		250		
4	250	radial	175	175	350
	500		150		
	1000		130		
	1800		110		
	2800		85		
	4000		40		
	250	axial	800	800	
	500		700		
	1000		600		
	1800		500		
	2800		400		
	4000		300		
5	250	radial	325	325	650
	500		280		
	900		250		
	1600		200		
	2400		160		
	3500		60		
	250	axial	1350	1350	
	500		1200		
	900		1000		
	1600		800		
	2400		700		
	3500		600		

- The max. load is based on a bearing service life of min. 2000 operating hours.
- Higher loads are possible for short periods.

TYPE RNS tool steel and with carbide tip
TYPE RNCS tool steel

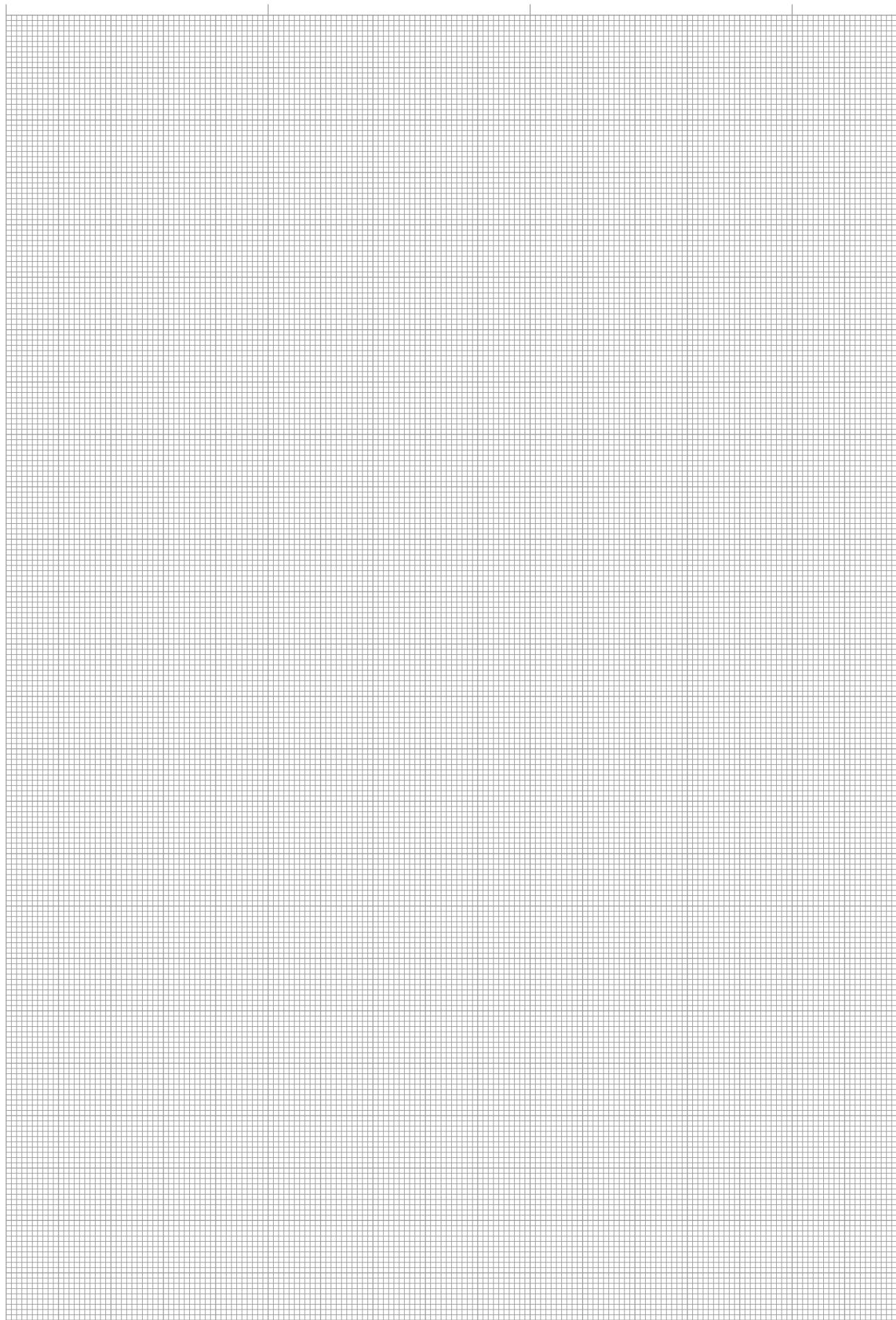
type	rpm [1/min]	typ of load	load [daN]	max. load [daN]	max. workpiece weight [daN]
1	250	radial	50	50	100
	500		40		
	1000		30		
	2000		20		
	3900		10		
	6000		5		
	250	axial	250	250	
	500		200		
	1000		180		
	2000		160		
	3900		130		
	6000		120		
2	250	radial	125	125	250
	500		105		
	1000		85		
	2000		60		
	3500		35		
	5500		10		
	250	axial	380	380	
	500		320		
	1000		280		
	2000		260		
	3500		190		
	5500		100		
3	250	radial	150	150	300
	500		130		
	1000		105		
	2000		80		
	3200		50		
	4500		15		
	250	axial	550	550	
	500		450		
	1000		400		
	2000		330		
	3200		250		
	4500		200		
4	250	radial	350	350	700
	500		300		
	1000		250		
	1800		190		
	2800		110		
	4000		40		
	250	axial	800	800	
	500		700		
	1000		600		
	1800		500		
	2800		400		
	4000		300		
5	250	radial	650	650	1300
	500		540		
	1000		420		
	1700		290		
	2500		160		
	3600		60		
	250	axial	1400	1400	
	500		1350		
	1000		1100		
	1700		900		
	2500		700		
	3600		600		

- The max. load is based on a bearing service life of Min. 2000 operating hours.
- Higher loads are possible for short periods.

TYPE RNCS with carbide tip

type	rpm [1/min]	typ of load	load [daN]	max. load [daN]	max. workpiece weight [daN]
1	250	radial	25	25	50
	500		22		
	1000		18		
	2000		15		
	3900		10		
	6000		5		
	250	axial	250	250	
	500		200		
	1000		180		
	2000		160		
	3900		130		
	6000		120		
2	250	radial	50	50	100
	500		45		
	1000		40		
	2000		30		
	3900		20		
	6000		8		
	250	axial	380	380	
	500		320		
	1000		280		
	2000		260		
	3500		190		
	5500		100		
3	250	radial	100	100	200
	500		90		
	1000		75		
	2000		60		
	3200		40		
	4500		12		
	250	axial	550	550	
	500		450		
	1000		400		
	2000		330		
	3200		250		
	4500		200		
4	250	radial	150	150	300
	500		130		
	1000		110		
	1800		80		
	2800		50		
	4000		15		
	250	axial	800	800	
	500		700		
	1000		600		
	1800		500		
	2800		400		
	4000		300		
5	250	radial	300	300	600
	500		260		
	1000		210		
	1700		150		
	2500		90		
	3600		30		
	250	axial	1500	1500	
	500		1350		
	1000		1100		
	1700		900		
	2500		700		
	3600		600		

- The max. load is based on a bearing service life of Min. 2000 operating hours.
- Higher loads are possible for short periods.



Dead Centers DIN 806 · tool-steel

tool-steel
for general use

For rotating and fixed tailstock spindle sleeves. Designed for employment **in turning, grinding and other production machines.**



Type DIN 806 with morse taper

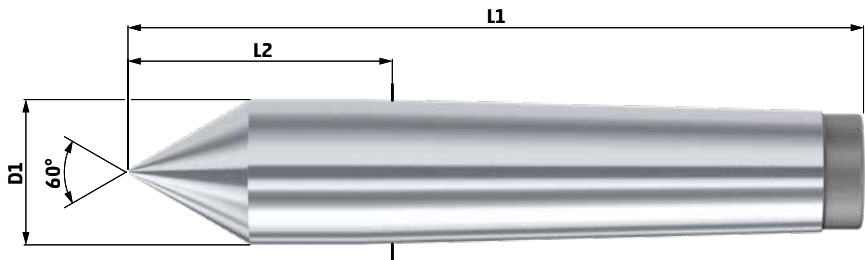
» can be reground

 **0.002**



- Run-out deviation max.: 0.002 mm.
- Made of fully hardened tool-steel.
- Max. load of the dead centers upon request.
- Special design upon request.

Technical data – type DIN 806 with morse taper



MT	D1	L1	L2	cat. no.
1	12.2	80	26.5	900 01
2	18	100	36	900 02
3	24.1	125	44	900 03
4	31.6	160	57.5	900 04
5	44.7	200	70.5	900 05
6	63.8	270	88	900 06

Dead Centers FN / FN extended / FNC / FNZ



for general use

For rotating and fixed tailstock spindle sleeve. Designed for employment **in turning, grinding and other production machines.**

Type FN with morse taper

» can be reground



0.002



- Run-out deviation max.: 0.002 mm.
- Made of fully hardened tool-steel.
- All types with extracting thread to prevent spindle ball bearings or solid spindle sleeves from damage.
- Extracting nuts DIN 807, see page 193.
- Max. load of the dead centers upon request.
- Special design upon request.

Type FN extended with morse taper

» can be reground

for better access of machining tools



0.002



- Run-out deviation max.: 0.002 mm.
- Made of fully hardened tool-steel.
- Max. load of the dead centers upon request.
- Special design upon request.
- Extracting nuts DIN 807, see page 193.
- All types with extracting thread to prevent spindle ball bearings or solid spindle sleeves from damage.

Type FNC with morse taper

» extended tooling clearance

for better access of machining tools



0.002



Type FNZ with morse taper

» can be reground

for general use with extended length for better tool clearance

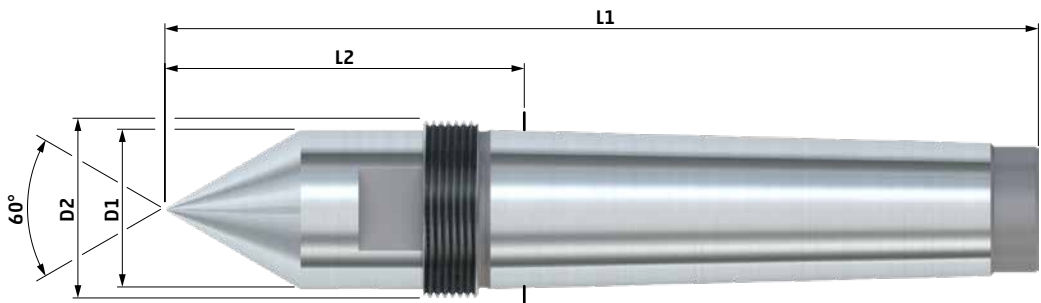


0.002



- Run-out deviation max.: 0.002 mm.
- Made of fully hardened tool-steel.
- With cylindrical set down and extended length for better tool clearance
- All types with extracting thread to prevent spindle ball bearings or solid spindle sleeves from damage.
- Extracting nuts DIN 807, see page 193.
- Max. load of the dead centers upon request.
- Special design upon request.

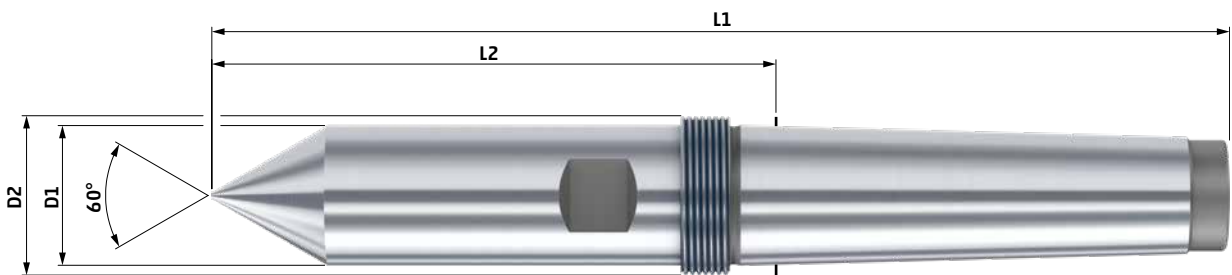
Technical data – type **FN** with morse taper



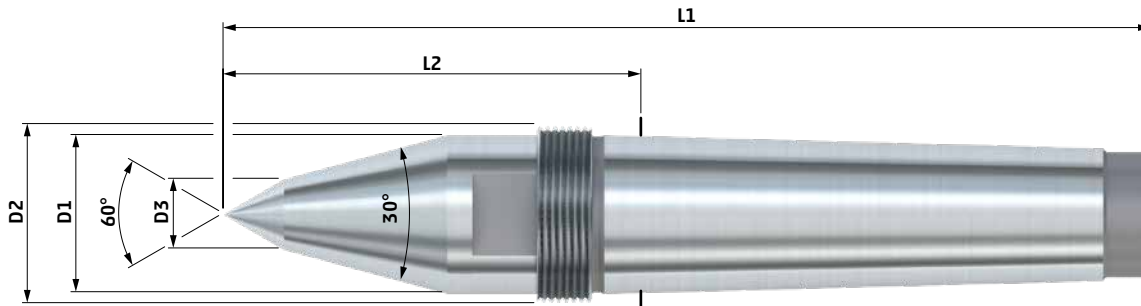
TYPE **FN**

MT	D1	D2	D3	L1	L2	cat. no.
2	24	M27 x 1.5	-	138	57	920 00
3	24	M27 x 1.5	-	138	57	920 01
4	31.6	M36 x 1.5	-	175	72.5	920 02
5	44.7	M48 x 1.5	-	217	87.5	920 03
6	63.8	M68 x 1.5	-	290	108	920 04

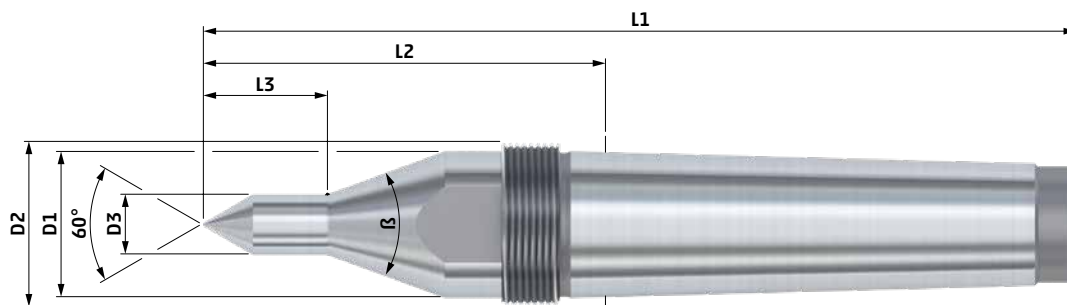
Technical data – type **FN** extended with morse taper



MT	D1	D2	L1	L2	cat. no.
3	24	M27 x 1.5	170	89	920 06
4	31.6	M36 x 1.5	230	127.5	920 07
5	44.7	M48 x 1.5	250	120.5	920 08

Technical data – type FNC with morse taper**TYPE FNC**

MT	D1	D2	D3	L1	L2	cat. no.
2	24	M27 x 1.5	10	148	67	921 00
3	24	M27 x 1.5	10	148	67	921 01
4	31.6	M36 x 1.5	14	187	84	921 02
5	44.7	M48 x 1.5	16	242	112	921 03
6	63.8	M68 x 1.5	20	330	148	921 04

Technical data – type FNZ with morse taper**TYPE FNZ**

MT	D1	D2	D3	L1	L2	L3	β	cat. no.
2	18	M22 x 1.5	9	120	56	17	40	921 10
	18	M22 x 1.5	11	120	56	21	40	921 11
3	24	M27 x 1.5	9	150	69	17	40	921 12
	24	M27 x 1.5	13	150	69	25	40	921 13
4	31.6	M36 x 1.5	9	190	87.5	17	40	921 14
	31.6	M36 x 1.5	13	190	87.5	27	40	921 15
	31.6	M36 x 1.5	19	190	87.5	53	90	921 16
5	44.7	M48 x 1.5	19	245	115	53	40	921 17
	44.7	M48 x 1.5	28	245	115	65	60	921 18



Dead Centers Shanks FNA / FNW

high flexibility at different workpiece center holes

Type FNA with morse taper

» for large workpiece centers

high degree of flexibility for clamping of workpieces with large centers



0.01

incl. center cone



changeable center cones
see page 178

Type FNW with morse taper

» maximum flexibility

the adaptation of various changeable inserts ensures a high degree of flexibility and saving of costs



0.01

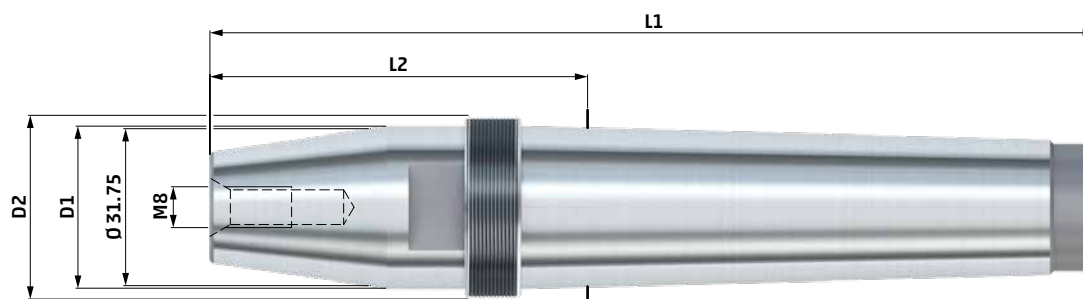
incl. insert



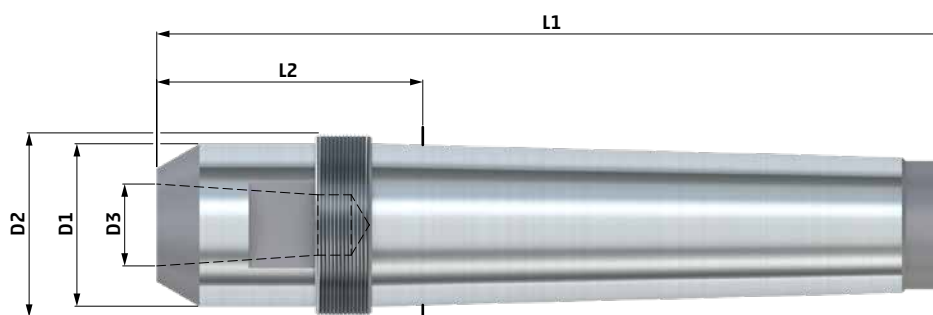
changeable inserts
see page 180 - 181

- Run-out deviation max.: 0.01 mm incl. center cone.
- Different types of center cones from Ø 25 to Ø 315, see page 178.
- Special center cones up to Ø 400 available upon customer's request.
- Extracting nuts DIN 807, see page 193.
- Max. load of the dead centers upon request.

- Run-out deviation max.: 0.01 mm incl. insert.
- Various changeable inserts of different designs, see page 180 - 181.
- Special inserts available upon customer's request.
- Extracting nuts, see page 193 for accessories.
- Max. load of the dead centers upon request.

Technical data – type FNA with morse taper**TYPE FNA**

MT	D1	D2	D3	L1	L2	cat. no.
3	32	M27 x 1.5	-	149	68	922 01
4	32	M36 x 1.5	-	173.5	71	922 02
5	45	M48 x 1.5	-	202.5	73	922 03
6	64	M68 x 1.5	-	263.5	81.5	922 04

Technical data – type FNW with morse taper**TYPE FNW**

MT	D1	D2	D3	L1	L2	cat. no.
3	24	M27 x 1.5	16	121	40	923 01
4	32	M36 x 1.5	16	154.5	52	923 02
5	45	M48 x 1.5	22	190	60	923 03
6	64	M68 x 1.5	22	252	70	923 04



Dead Centers FNM / FNCM / FNZM

design **Mazak**

For use in **Mazak machine tools**. Equipped with a **special sealing surface** for the Mazak sleeve sealing, in sizes MT4 and MT5.

Type FNM with morse taper

↑ 0.002



Type FNCM with morse taper

» **extended tooling clearance**
for better access of machining tools

↑ 0.002



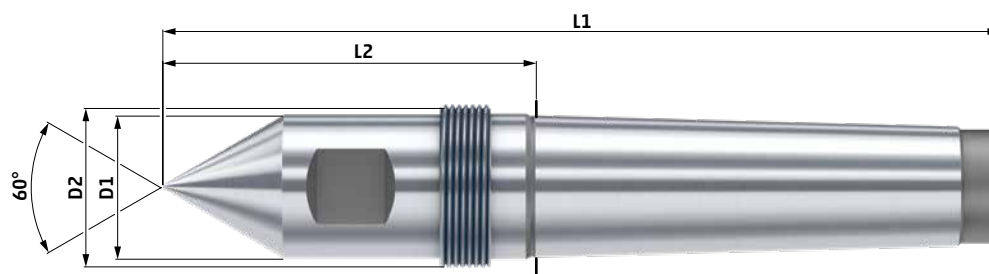
Type FNZM with morse taper

» **cylindrical set down**
for general use with extended length for better tool clearance

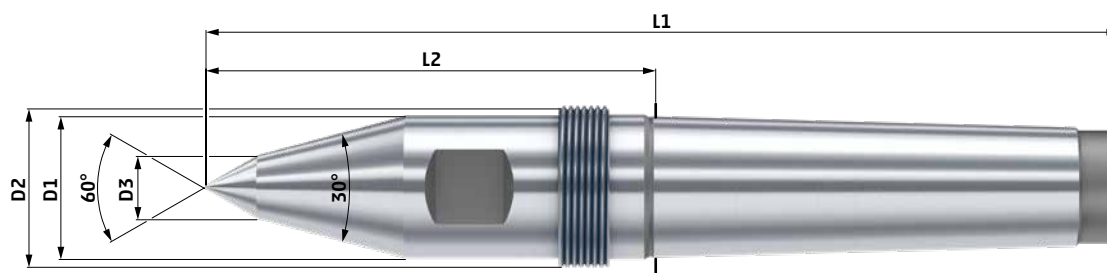
↑ 0.002



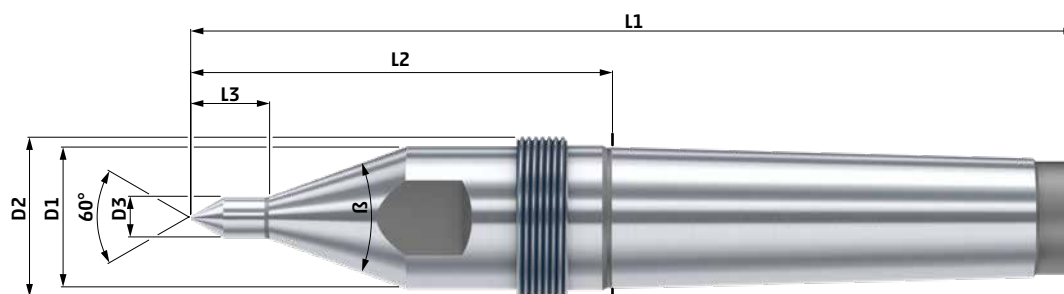
- Run-out deviation max.: 0.002 mm.
- Made of fully hardened tool-steel.
- With cylindrical set down and extended length for better tool clearance.
- All types with extracting thread to prevent spindle ball bearings or solid spindle sleeves from damage.
- Extracting nuts DIN 1804 h, see page 193.
- Max. load of the dead centers upon request.
- Special design upon request.

Technical data – type FNM with morse taper**TYPE FNM**

MT	D1	D2	D3	L1	L2	cat. no.
4	31.6	M35x1.5	-	185	82.5	924 00
5	44.7	M50x1.5	-	237	107.5	924 01

Technical data – type FNCM with morse taper**TYPE FNCM**

MT	D1	D2	D3	L1	L2	cat. no.
4	31.6	M35x1.5	14	202	99.5	924 05
5	44.7	M50x1.5	16	267	137.5	924 06

Technical data – type FNZM with morse taper**TYPE FNZM**

MT4	D1	D2	D3	L1	L2	L3	β	cat. no.
4	31.6	M35x1.5	9	196	93.5	17	40	924 10
	31.6	M35x1.5	13	200	97.5	27	40	924 11
	31.6	M35x1.5	19	208	105.5	53	90	924 12
5	44.7	M50x1.5	19	275	145.5	53	40	924 13
	44.7	M50x1.5	28	267	137.5	65	60	924 14



Dead Centers FNAM / FNWM

design **Mazak**

Type FNAM with morse taper

» for large workpiece centers

high degree of flexibility for clamping of workpieces with large centers



0,01

incl. center cone



changeable center cones
see page 178

- Run-out deviation max.: 0.01 mm incl. center cone.
- Different types of center cones from Ø 25 to Ø 315, see page 158 in our main catalogue.
- Special center cones up to Ø 400 available upon customer's request.
- Extracting nuts DIN 1804 h, see page 193.
- Max. load of the dead centers upon request.

Type FNWM with morse taper

» maximum flexibility

the adaptation of various changeable inserts ensures a high degree of flexibility and saving of costs



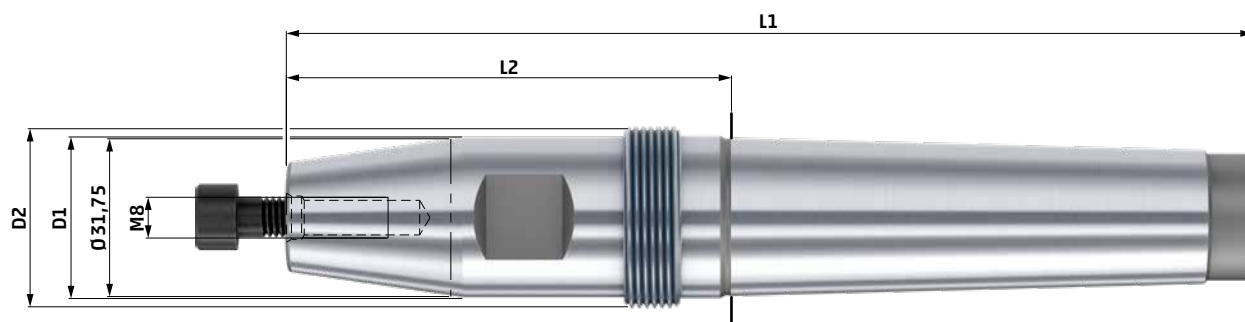
0,01

incl. insert

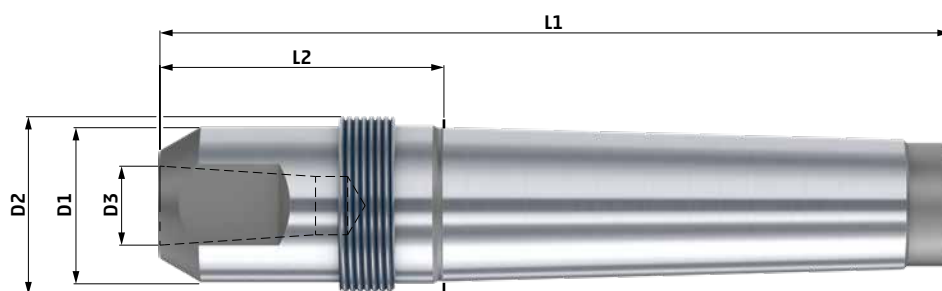


changeable inserts
see page 180 - 181

- Run-out deviation max.: 0.01 mm incl. insert.
- Various changeable inserts of different designs, see page 160 - 161 in our main catalogue.
- Special inserts available upon customer's request.
- Extracting nuts DIN 1804 h, see page 193.
- Max. load of the dead centers upon request.

Technical data – type FNAM with morse taper**TYPE FNAM**

MT	D1	D2	D3	L1	L2	cat. no.
4	31,6	M35x1,5	-	190	87,5	924 20
5	44,7	M50x1,5	-	240	110,5	924 21

Technical data – type FNWM with morse taper**TYPE FNWM**

MT	D1	D2	D3	L1	L2	cat. no.
4	31,6	M35x1,5	16	160	57,5	924 25
5	44,7	M50x1,5	22	200	70,5	924 26

Dead Centers FH · Carbide coated



carbide coated for friction drive

For use in rotating headstocks. The center pins with a tungsten carbide-based coating are characterized by a **high coefficient of friction and good wear resistance**.

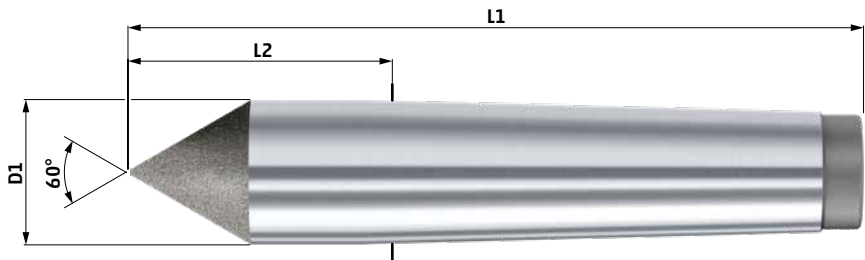
Type FH · carbide coated with morse taper

» 60° tip carbide coated



- Run- out deviation on the workpiece max.: 0.008 mm.
- Made of fully hardened tool-steel.
- 60° tip carbide coated Rz= 15 µm +/-2.
- Thickness of the coating approx. 20 µm.
- Hardness 80 – 85 HRC.
- Max. load of the dead centers upon request.
- Special design upon request.
- The coating can be renewed in the event of wear.

Technical data – type FH · carbide coated with morse taper



MT	D1	L1	L2	cat. no.
2	18	100	36	900 10
3	24.1	125	44	900 11
4	31.6	160	57.5	900 12

Dead Centers FNH · Carbide coated



carbide coated for friction drive / Version with extracting thread

For use in rotating headstocks and tailstocks. The center pins with a tungsten carbide-based coating are characterized by a **high coefficient of friction and good wear resistance.**

Type FNH · carbide coated with morse taper

» 60° tip carbide coated

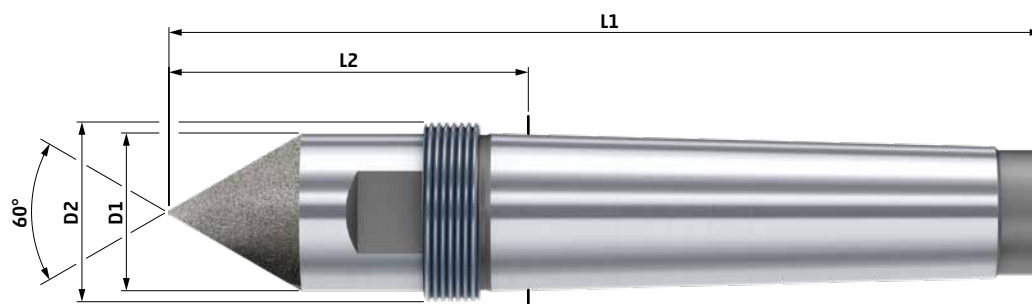


0.008



- Run- out deviation on the workpiece max.: 0.008 mm.
- Made of fully hardened tool-steel.
- 60° tip carbide coated $R_z = 15 \mu\text{m} \pm 2$.
- Thickness of the coating approx. 20 μm .
- Hardness 80 – 85 HRC.
- Max. load of the dead centers upon request.
- Special design upon request.
- Extracting nuts DIN 807, see page 193.
- All types with extracting thread to prevent spindle ball bearings or solid spindle sleeves from damage.
- The coating can be renewed in the event of wear.

Technical data – type FNH · carbide coated with morse taper



MT	D1	D2	L1	L2	cat. no.
2	18	M22x1.5	112	48	920 10
3	24	M27x1.5	138	57	920 11
4	31.6	M36x1.5	175	72	920 12

Dead Centers FNZH · Carbide coated



carbide coated for friction drive /Version with extracting thread

For use in rotating headstocks and tailstocks. The center pins with a tungsten carbide-based coating are characterized by a **high coefficient of friction and good wear resistance.**

Type FNZH · carbide coated with morse taper

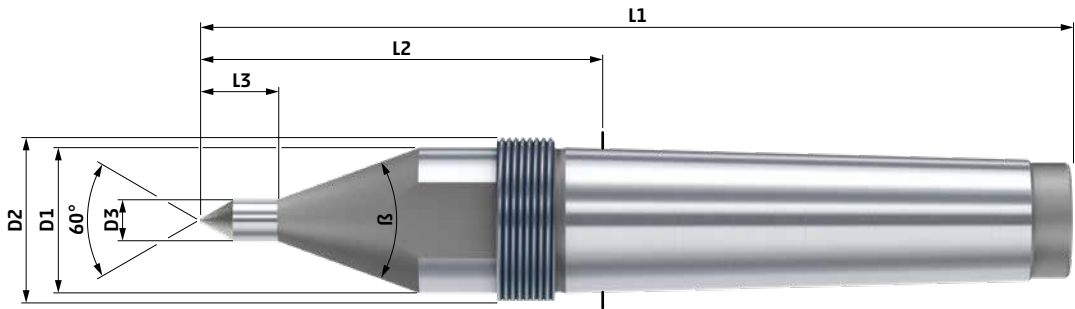
» **60° tip carbide coated**
for general use with extended length
for better tool clearance

 **0.008**



- Run- out deviation on the workpiece max.: 0.008 mm.
- With cylindrical set down and extended length for better tool clearance.
- Made of fully hardened tool-steel.
- **60° tip carbide coated Rz = 15 µm +/-2.**
- **Thickness of the coating approx. 20 µm.**
- **Hardness 80 – 85 HRC.**
- Max. load of the dead centers upon request.
- Special design upon request.
- Extracting nuts DIN 807, see page 193.
- All types with extracting thread to prevent spindle ball bearings or solid spindle sleeves from damage.
- The coating can be renewed in the event of wear.

Technical data – type FNZH · carbide coated with morse taper



MT	D1	D2	D3	L1	L2	L3	β	cat. no.
2	18	M22x1.5	9	120	56	17	40	921 20
	18	M22x1.5	11	120	56	21	40	921 21
3	24	M27x1.5	9	150	69	17	40	921 22
	24	M27x1.5	13	150	69	25	40	921 23
4	31.6	M36x1.5	9	190	87.5	17	40	921 24
	31.6	M36x1.5	13	190	87.5	27	40	921 25
	31.6	M36x1.5	19	190	87.5	53	90	921 26

Dead Centers FND · Diamond



diamond coated for friction drive / Version with extracting thread

For use in rotating headstocks. The center pins with a diamond coating are characterized by a **very high coefficient of friction**.

Type FND · diamond coated with morse taper

» 60° tip diamond coated

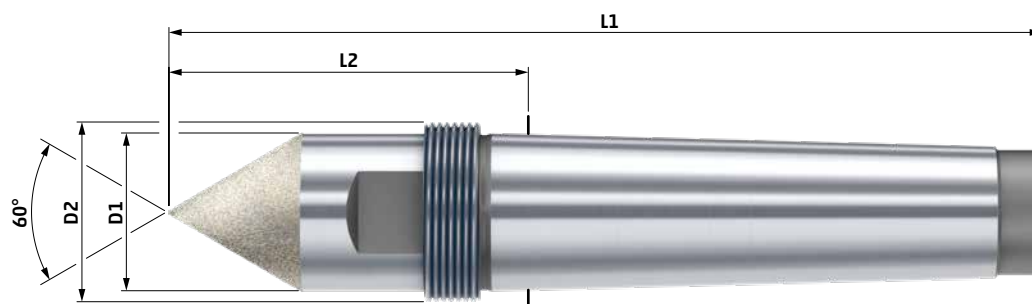


0.008



- Run- out deviation on the workpiece max.: 0.008 mm.
- Made of fully hardened tool-steel.
- **60° tip diamond coated $R_z = 50 \mu\text{m} \pm 5$.**
- Max. load of the dead centers upon request.
- Special design upon request.
- Extracting nuts DIN 807, see page 193.
- All types with extracting thread to prevent spindle ball bearings or solid spindle sleeves from damage.
- The coating can be renewed in the event of wear.

Technical data – type FND · diamond coated with morse taper



MT	D1	D2	L1	L2	cat. no.
2	18	M22x1.5	112	48	920 20
3	24	M27x1.5	138	57	920 21
4	31.6	M36x1.5	175	72	920 22

Carbide Dead Centers DIN 806



for hardened workpieces

To be applied with hardened workpieces. For headstocks and fixed tailstock spindle sleeves. Designed for employment in grinding and other production machines.

Type DIN 806 · model E



with full carbide tip



0.002



Type DIN 806 · model HE



flattened with half carbide tip



0.002



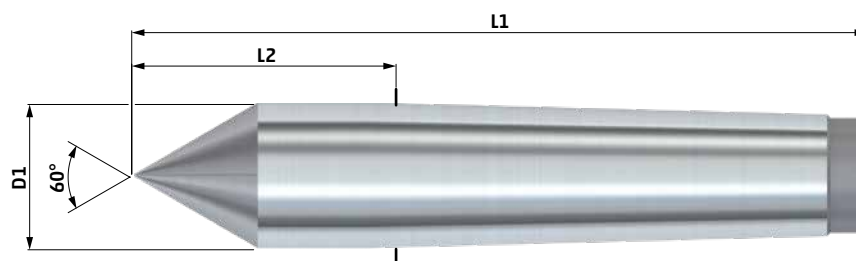
with half carbide tip



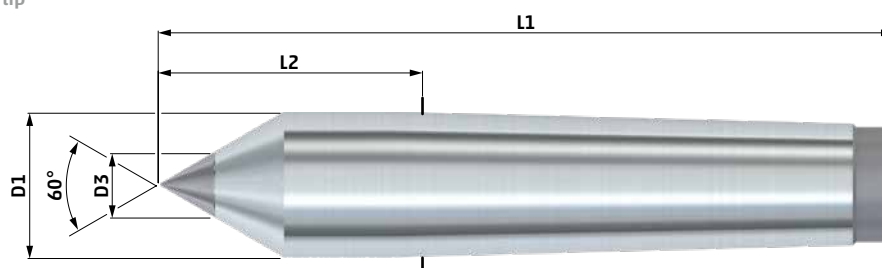
- Run-out deviation max.: 0.002 mm.
- With carbide insert.
- Max. load of the dead centers upon request.
- Special design upon request.

Technical data – type DIN 806 · model E/HE

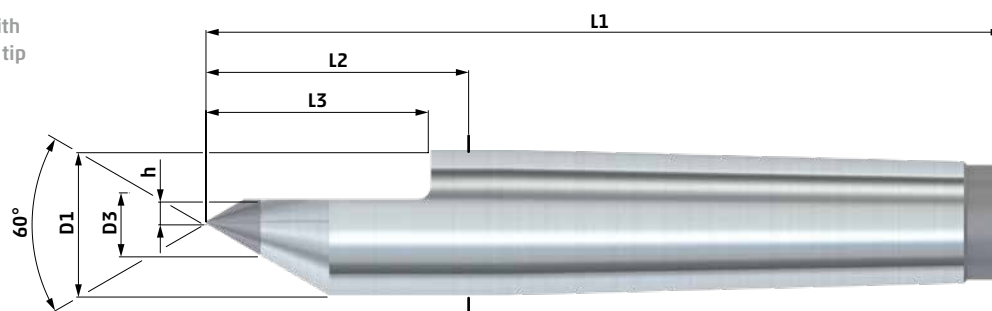
similar to DIN 806 · model E
with full carbide tip



model E
with half carbide tip



model HE
flattened with
half carbide tip

**MODEL E**

MT	D1	L1	L2
1	12.2	80	26.5
2	18	100	36
3	24.1	125	44
4	31.6	160	57.5
5	44.7	200	70.5
6	63.8	270	88

cat. no.**910 02****910 05****910 08****910 11****910 14****910 18****D3 cat. no.**7 **910 01**7 **910 03**11 **910 06**14 **910 09**18 **910 12**18 **910 15****MODEL HE**

D3	h	L3	cat. no.
7	1.5	22	911 01
7	2	30	911 02
11	3	38	911 04
14	5	50	911 06
18	7	63	911 08
18	10	79	911 10

Carbide Dead Centers DIN 807



type with extraction screw thread for hardened workpieces

With extraction screw thread

Dead centers according to DIN 807 are designed with an extraction thread. This serves to protect the spindle bearings and is necessary for use in non-drilled sleeves.

Type DIN 807 · model E



with full carbide tip



0.002



Type DIN 807 · model HE



flattened with half carbide tip



0.002



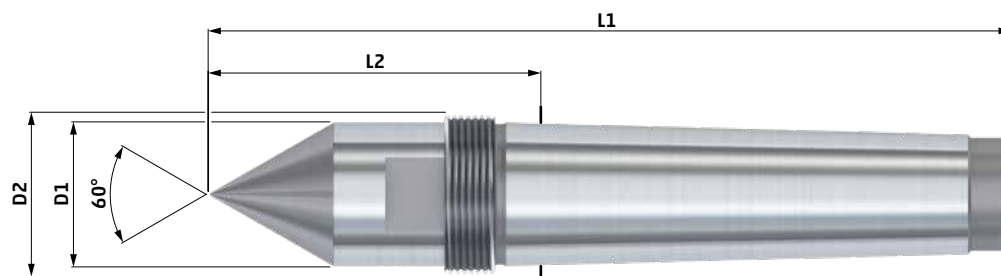
with half carbide tip



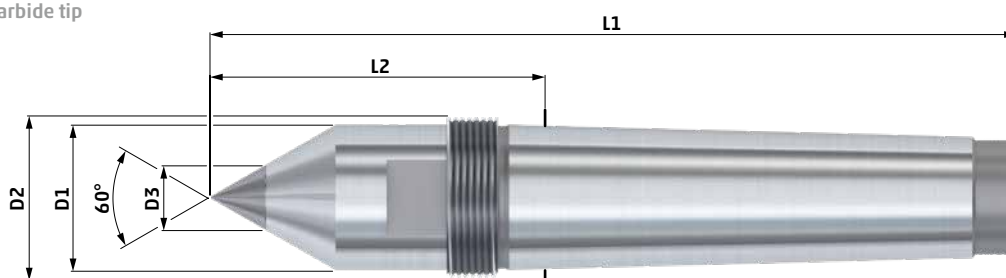
- Run-out deviation max.: 0.002 mm.
- With carbide insert.
- Max. load of the dead centers upon request.
- Special design upon request.
- For demounting and for preventing the spindle bearing from damage of for spindle sleeves which have no through bore the center pins come with an extracting screw thread.
- Extracting nuts DIN 807, see page 193.

Technical data – type DIN 807 · model E/HE

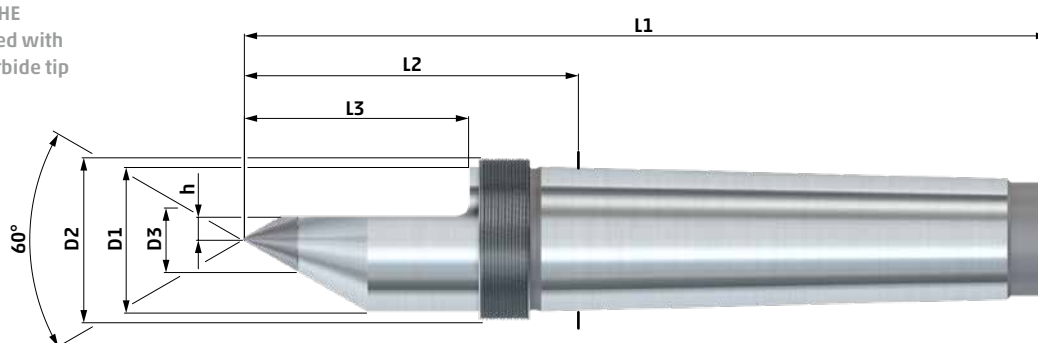
similar to DIN 807 · model E
with full carbide tip



model E
with half carbide tip



model HE
flattened with
half carbide tip

**MODEL E****MODEL HE**

MT	D1	D2	L1	L2
1	12.2	M16 x 1.5	90	36.5
2	18	M22 x 1.5	112	48
3	24.1	M27 x 1.5	138	57
4	31.6	M36 x 1.5	175	72.5
5	44.7	M48 x 1.5	217	87.5
6	63.8	M68 x 1.5	290	108

cat. no.
912 02
912 05
912 08
912 11
912 14
912 18

D3	cat. no.
7	912 01
7	912 03
11	912 06
14	912 09
18	912 12
18	912 15

D3	h	L3	cat. no.
7	1.5	22	913 01
7	2	30	913 03
11	3	38	913 06
14	5	50	913 09
18	7	63	913 12
18	10	79	913 15



Carbide Dead Centers HE / HEG · extended

extended design for increased grinding wheel clearance

Suitable for use in grinding machines with fixed tailstock sleeves. Available with or without extraction thread, can be used for soft and hardened workpieces.

Type HE · without extracting thread



flattened with half carbide tip



0.002



Type HEG · with extracting thread



flattened with half carbide tip



0.002

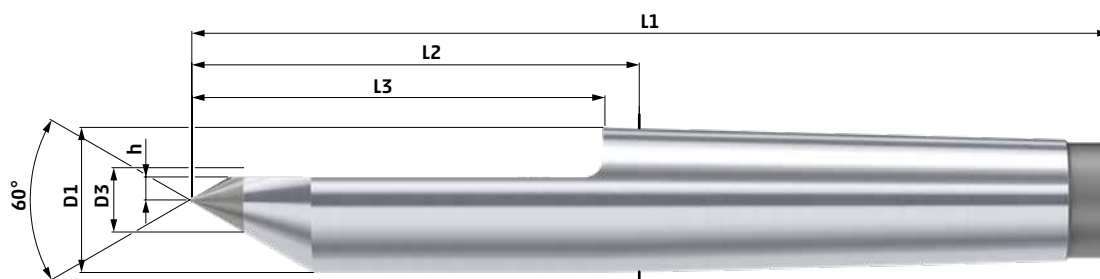


- Run-out deviation max.: 0.002 mm.
- With carbide insert.
- Max. load of the dead centers upon request.
- Special design upon request.
- Extended version of DIN 806 type HE and DIN 807 type HE.
- Extracting nuts DIN 807, see page 193.

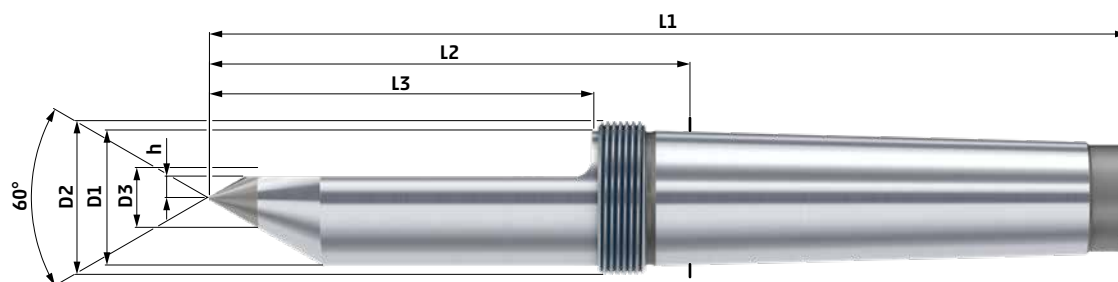
Technical data - type HE / HEG · extended



type HE
flattened with half carbide tip



type HEG
flattened with half carbide tip



TYPE HE



MT	D1	D3	L3	h
2	18	7	55	2
3	24.1	11	68	3
4	31.6	14	90	5
5	44.7	18	113	7

L1	L2	cat. no.
125	61	911 21
155	74	911 22
200	97.5	911 23
250	120.5	911 24

TYPE HEG



D2	L1	L2	cat. no.
M22x1.5	137	73	913 21
M27x1.5	168	87	913 22
M36x1.5	215	112.5	913 23
M48x1.5	267	137.5	913 24

Carbide Bull Nose Cones FNK

for hardened workpieces



Our carbide bull nose cones FNK are made for hardened workpieces, with big center holes, for grinding and other manufacturing machines. For headstocks and fixed tailstock spindle sleeves.

Type FNK



mushroom carbide bull nose



0.002



- Run-out deviation max.: 0.002mm.
- With carbide insert.

Upon request:

- Max. load of the bull nose cone.
- Special designs.

with extraction screw thread for hardened workpieces

FNK bull nose cones are made with extraction screw thread. This serves to protect the spindle bearings and is used for sleeves that are non-drilled.

Type FNK with extraction screw thread



mushroom carbide bull nose



0.002

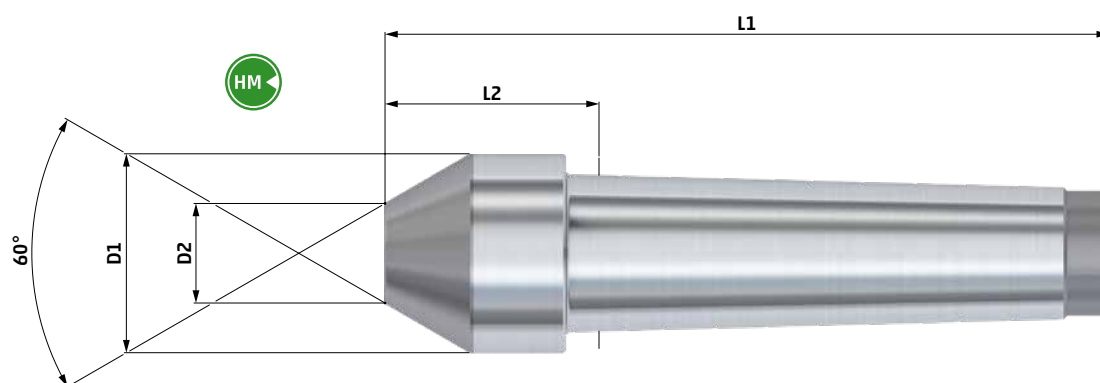


- Run-out deviation max.: 0.002mm.
- With carbide insert.
- With spanner flat.
- All types with extraction screw threads for protecting the spindle bearings or for non-drilled sleeves.
- Extracting nuts see page 193 for accessories.

Upon request:

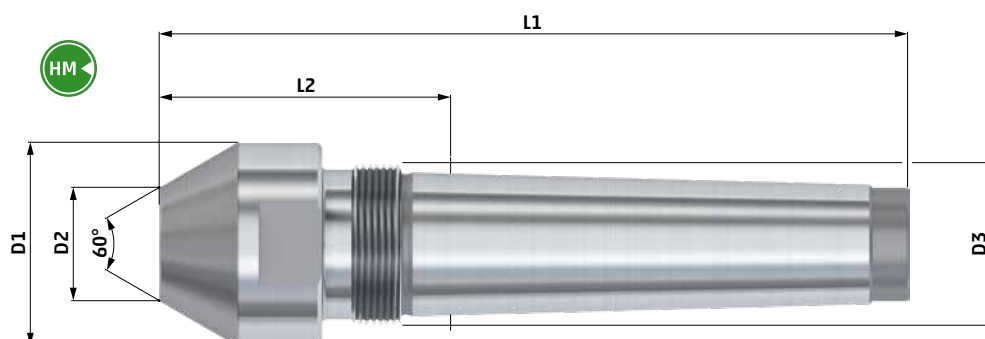
- Max. load of the bull nose cone.
- Special design.

Technical data - type FNK



MT	D1	D2	D3	L1	L2	cat. no.
2	30	10	-	100.5	36.5	915 01
2	40	20	-	103.5	39.5	915 03
2	50	30	-	108.5	44.5	915 05
3	30	10	-	118.5	37.5	915 06
3	35	15	-	121.5	40.5	915 07
3	40	20	-	121.5	40.5	915 08
3	45	25	-	121.5	40.5	915 09
3	55	35	-	126.5	45.5	915 11
3	70	50	-	131.5	49.5	915 13
4	40	20	-	145.5	43	915 17
4	50	30	-	150.5	48	915 19
4	60	40	-	155.5	53	915 21
4	70	50	-	155.5	53	915 22
4	80	60	-	155.5	53	915 23
5	55	35	-	177.5	48	915 29
5	60	40	-	182.5	53	915 30
5	70	50	-	182.5	53	915 31
5	80	60	-	182.5	53	915 32

Technical data - type FNK with extraction screw thread



MT	D1	D2	D3	L1	L2	cat. no.
3	35	15	M27 x 1.5	138	57	915 071
3	50	30	M27 x 1.5	142	61	915 101
4	45	25	M36 x 1.5	167	64.5	915 181
4	60	40	M36 x 1.5	168	65.5	915 211
5	55	35	M48 x 1.5	197	67.5	915 291
5	70	50	M48 x 1.5	199	69.5	915 311

Dead centers FE / FEC



Type taper 1:7.5 / Ø 28.33

For use in **EMAG turning-, grinding- and other production machines**

Type FE taper 1:7.5

» can be reground

0.002



Type FEC taper 1:7.5

» extending tool clearance
for better access of the machining tool

0.002



- Run- out deviation max.: 0.002mm
- Made of through hardened tool steel
- All types with extracting thread to prevent spindle bearings and solid spindle sleeves from damage
- Extracting nuts see page 193 for accessories
- Max. load of the dead centers upon request
- Special design upon request

Type FE carbide taper 1:7.5

0.002



with full carbide tip



Type FEC carbide taper 1:7.5

» extending tooling clearance
for better access of machining tool

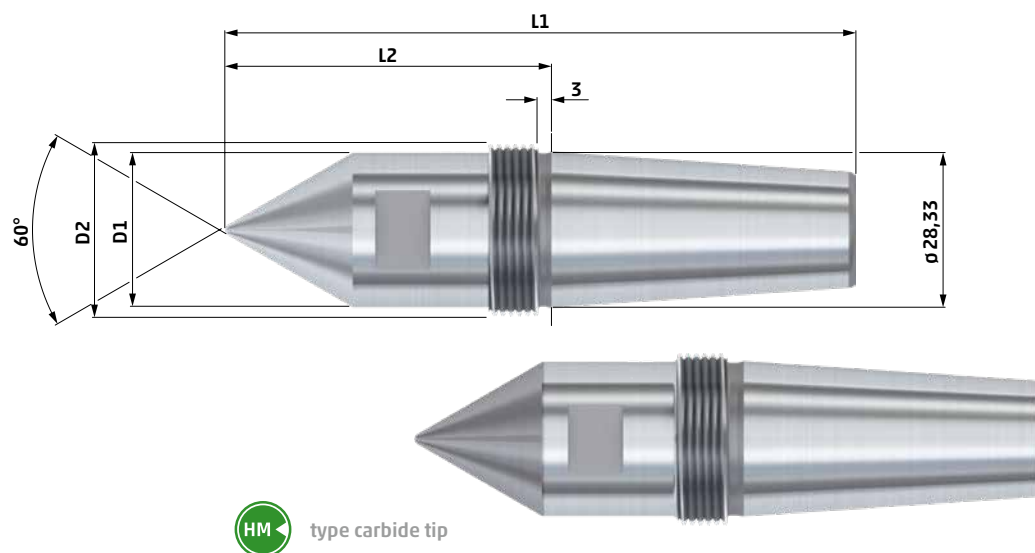
0.002



with half carbide tip

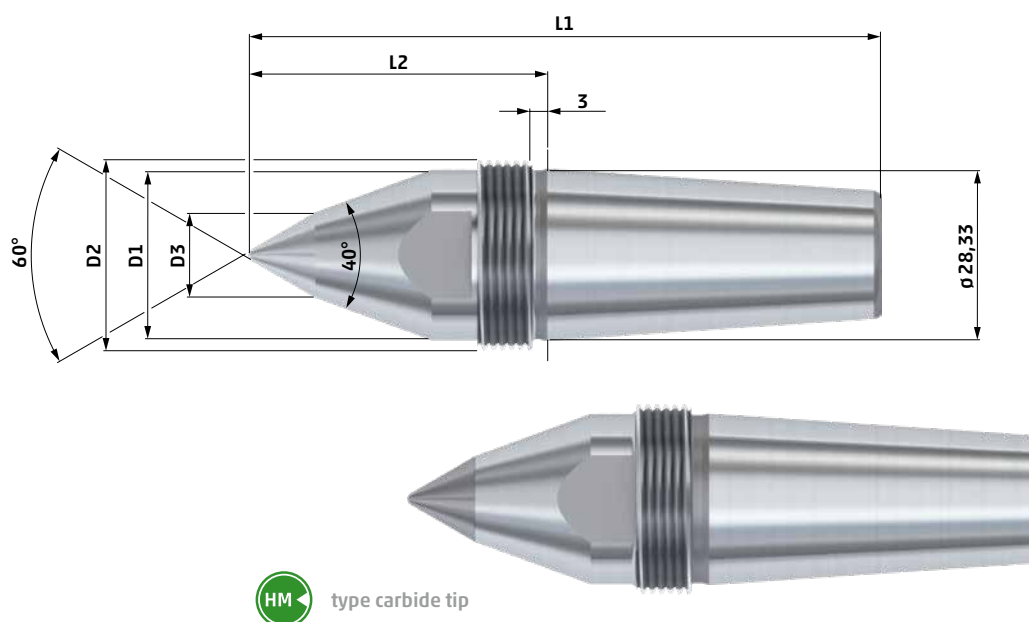


- Run- out deviation max.: 0.002mm
- With carbide insert
- Max. load of the dead centers upon request
- Special design upon request
- All types with extracting thread to prevent spindle bearings and solid spindle sleeves from damage
- Extracting nuts see page 193 for accessories

Technical data – type FE / FE HM taper 1:7.5

type	D1	D2	D3	L1	L2	cat. no.
FE	28	M32x1.5	-	115	60	914 03

type	cat. no.
FE carbide	
FE carbide	914 13

Technische Daten – type FEC / FEC HM taper 1:7.5

type	D1	D2	D3	L1	L2	cat. no.
FEC	28	M32x1.5	8	105	50	914 01
FEC	28	M32x1.5	14	105	50	914 02

type	cat. no.
FEC carbide	
FEC carbide	914 11
FEC carbide	914 12

Changeable Center Cones for type RNA / FNA / FNAM

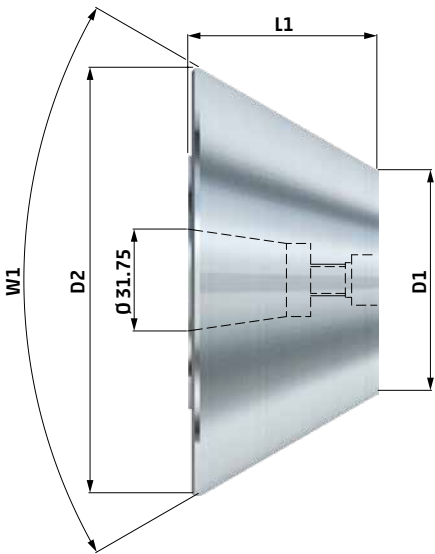
center cones for large workpiece centers

High degree of flexibility for clamping of workpieces with large centers.

For type RNA / FNA / FNAM with SK30 interface



Technical data – for type RNA / FNA / FNAM with SK30 interface



- Suitable for live centers type RNA on page 128 - 129 and for dead centers type FNA on page 158 - 159 / type FNAM on page 162.
- Special cones up to Ø 400 available upon customer's request.
- The center cones are fastened with a screw M8 DIN 912 onto the base body.
- The center cones can be drawn off with a screw M10.

FOR TYPE RNA / FNA / FNAM

W1	D1	D2	L	cat. no.
60	20	85	60	814 50
60	70	135	60	814 51
60	120	185	60	814 52
60	170	235	60	814 53
60	220	285	60	814 54
75	20	105	60	814 55
75	90	175	60	814 56
75	160	245	60	814 57
75	230	315	60	814 58
90	20	130	60	814 59
90	100	210	60	814 60
90	180	290	60	814 61

Changeable Center Cones for type RKA

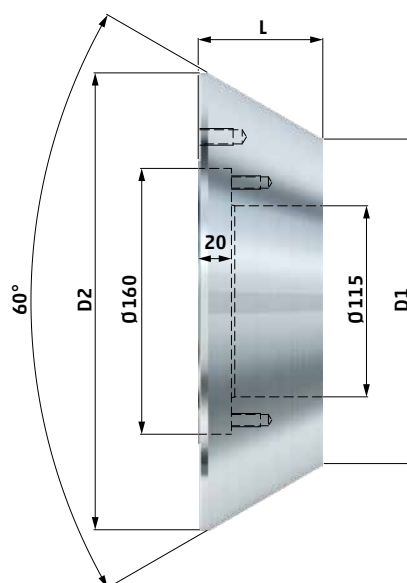
center cones for large workpiece centers

Workpieces with large center holes from Ø120 to Ø460 are clamped with a basic retainer and a changeable center cone.

for type RKA · centering taper



Technical data – for type RKA · centering taper



- Suitable for live center type RKA on page 132 - 133.
- Special changeable center cones (90° / 75° / various diameters) available upon customer's request.
- True run-out accuracy max 0.02 at changeable center cone is guaranteed.

FOR TYPE RKA

D1	D2	L	cat. no.
113	220	98.5	814 80
195	275	75	814 81
270	350	75	814 82
345	425	75	814 83
380	460	75	814 84

Changeable Inserts for type RNW / FNW / FNWM

Changeable inserts for a maximum of flexibility

The adaptation of various changeable inserts ensures a high degree of flexibility and saving of costs.

For type RNW / FNW / FNWM with taper interface

model B



model G



- Suitable for live centers type RNW on page 134 - 135, for the live centers type RNWF on page 142 - 143 and for the dead centers type FNW on page 158 - 159 / type FNWM on page 162.
- Special inserts available upon customer's request.
- For quick demounting all changeable inserts come with spanner flat or cross hole.

FOR TYPE RNW3 / 4

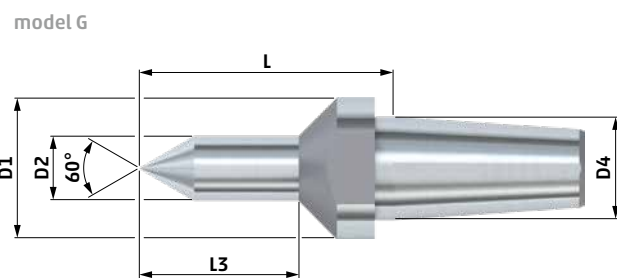
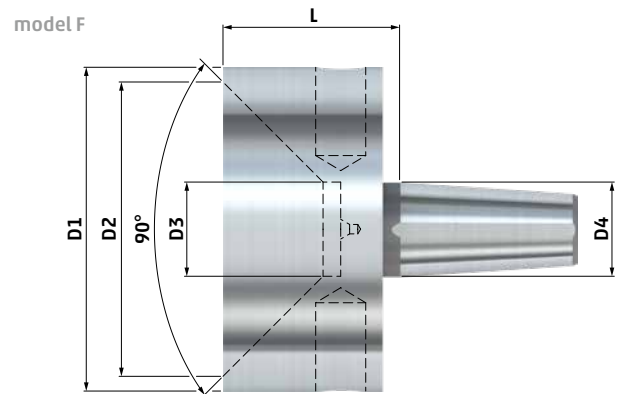
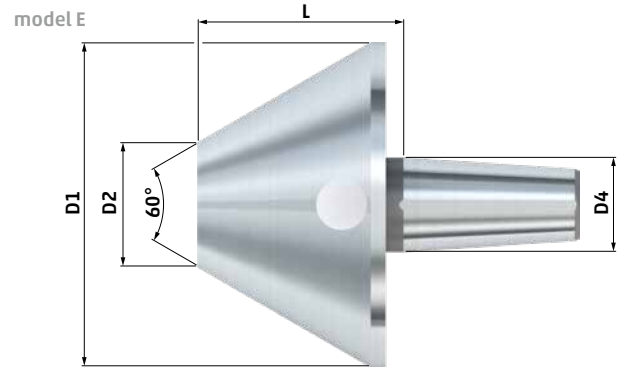
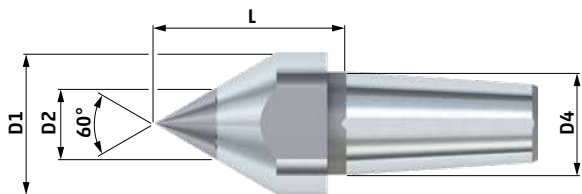
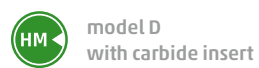
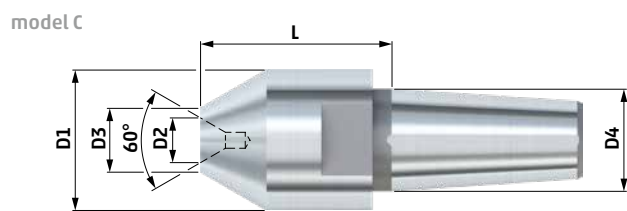
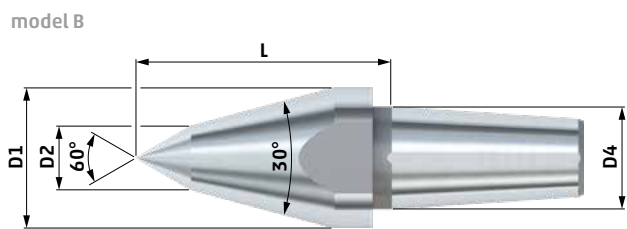
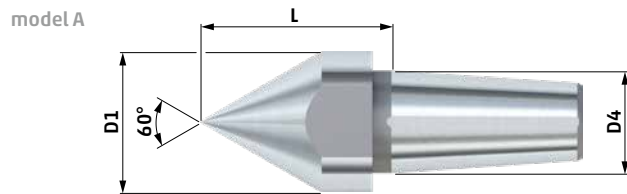
FNW / FNWM MT3 / MT4

model	D1	D2	D3	D4	L	cat. no.
A	22	-	-	16	30	815 50
B	22	10	-	16	40	815 51
C	22	7	10	16	30	815 52
D	22	11	-	16	30	815 53
E	55	21	-	16	35	815 54
F	55	50	16	16	30	815 55
G	22	10	-	16	40	815 56

FOR TYPE RNW5 / 6

FNW / FNWM MT5 / MT6

model	D1	D2	D3	D4	L	cat. no.
A	34	-	-	22	35	815 60
B	34	16	-	22	54	815 61
C	34	7	10	22	29	815 62
D	34	18	-	22	35	815 63
E	70	33	-	22	38	815 64
F	70	64	24	22	34	815 65
G	34	16	-	22	54	815 66

Technical data – for type RNW / FNW / FNWM with taper interface




positive driver

In addition to our standard portfolio, we manufacture a large number of special applications according to customer requirements.

Based on your processes, specifications and drawings we will prepare an appropriate offer for you. Our aim is to develop a suitable clamping tool for you and to manufacture it to the highest quality standards.

From your inquiry to the practical use of the new clamping tool directly on site, we guarantee expert advice and seamless support.

Developing new clamping tools or improving existing processes is part of our daily business and we look forward to supporting you, on your way to finding the clamping tool that is suitable for you.

Special Applications



dead center with carbide ball



RNS with air purge



friction taper

Special Face Drivers

Face Driver FFB	184
Positive Driver	184
Face Driver FSB	185
Face Driver FDNC	185

Special Live Centers

Live Center RNS with speed monitoring	186
Live Center RN adjustable	186
Live Center RNS with air purge	187
Live Center RN with 3-spot contact	187

Special Dead Centers

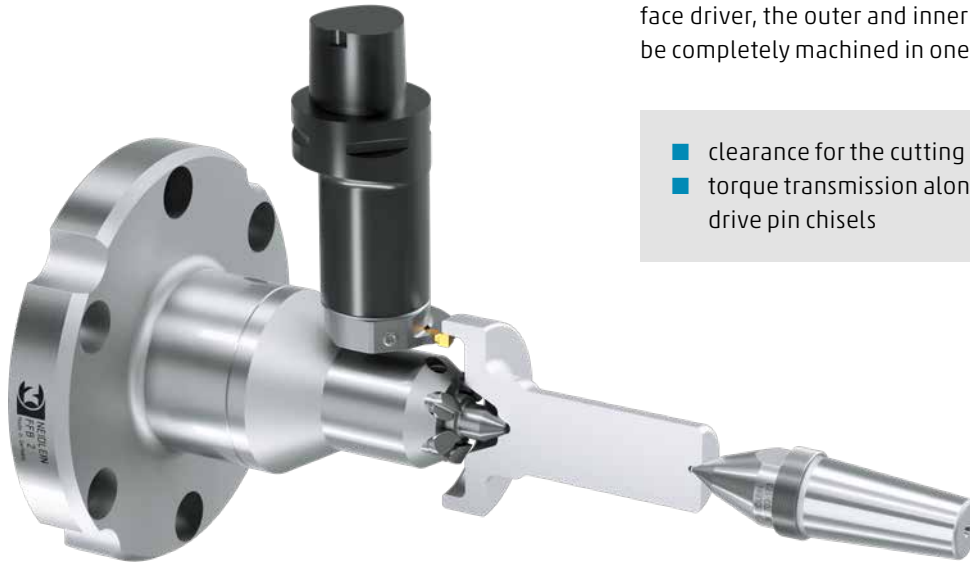
Dead Center with carbide ball	188
Female Dead Center flattened	188
Dead Center with HSK-C50 retainer	188
Dead Center with carbide bars	189
Dead Center with flange retainer	189
Friction Taper with carbide ring	189



Face Driver FFB

cylindrical set down and extended in length

Type FFB · special design



Thanks to the cylindrical set down and extended design of the face driver, the outer and inner contours of the workpiece can be completely machined in one single clamping.

- clearance for the cutting tool
- torque transmission along a radius by using angled drive pin chisels



Positive Driver

with changeable drive head

Type positive driver · special design



Torque transmission by special adapted drive heads, according to the work piece shape.

- changeable drive heads
- robust torque transmission by positive driving

Face Driver FSB



with big centering and internal clamping diameter

Type FSB · special design



The reduced weight by cylindrical set down of the short taper flange and the special mushroom type center pin with recesses for the drive pins, are the features of this face driver.

- extended deflection
- special center pin with recesses

Face Driver FDNC



with customer specific retainer

Type FDNC · special design



FDNC face driver with customized retainer, for direct mounting in a gear hobbing machine.

- customized quick change retainer



Live Center RNS with speed monitoring

integrated speed monitoring sensor with plug-in connection

Type RNS · special design



with carbide tip



Used to monitor the workpiece rotation during the manufacturing process. If the workpiece rotation is stopped by a collision, the speed monitoring sensor of the live center detects this and stops the machine spindle immediately.

- integrated speed monitoring sensor
- minimizing the damage caused by a collision
- easy integration to the machine control

Live Center RN adjustable

eccentric adjustable center pin



Type RN · special design



This live center was designed to adjust the center pin radially. On the one hand, eccentric workpieces can be adjusted to ± 1 mm from the center and on the other hand, the center pin can be adjusted to approx. 1 μ run out accuracy.

- radial adjustable center pin

Live Center RNS with air purge



air purge connection and flange retainer

Type RNS · special design



with carbide tip



This live center was designed according to customer specifications and is characterized by an air purge connection, flange mount and speed monitoring using a wrench flat.

- air purge connector
- flange retainer
- half carbide tip
- spindle for speed monitoring

Live Center RN with 3-spot contact



3-spot contact made of carbide

Type RN · special design



with carbide tip



This live center is characterized by a special manufactured, mushroom type spindle with carbide tip, which ensures a 3-spot contact of the workpieces.

- segmented 3-spot contact made of carbide
- for rough work piece center holes

Dead Center with carbide ball

Special design



with carbide ball



For grinding operations with fixed tailstock spindle sleeves or alternatively for hard turning operation with live tailstock sleeves. When used with fixed tailstocks, the spherical shape reduces friction in the center hole.

- morse taper size 4 retainer
- with carbide ball Ø18
- extracting thread M30 x 1.5

Female Dead Center flattened

Special design



with carbide insert



For grinding operations with fixed tailstock spindle sleeves. The flattening of the centering area provides clearance for the grinding wheel.

- morse taper size 2 retainer
- with carbide insert Ø15
- female centering Ø12 / 90°
- flattened h = 6.9 mm

Dead Center with HSK-C50 retainer

Special design



with carbide tip



For use in grinding and milling machines.

- HSK-C50 retainer
- with carbide insert Ø40

Dead Center with carbide bars

Special design



with carbide bars



The 3-spot contact is used for grinding and other hard manufacturing operations with not perfectly round center holes.

- flange retainer
- with carbide bars

Dead Center with flange retainer

Special design



with carbide tip



For use in manufacturing machines, like grinding and other hard manufacturing operations.

- flange retainer Ø 100
- with carbide tip Ø 55

Friction Taper with carbide ring

Special design



with carbide insert



For use in manufacturing machines, like grinding and other hard manufacturing operations. Torque transmission to the work piece via high-precision female taper, by using axial force.

- friction taper
- with carbide ring Ø 40.6 x 14°
- retainer Ø 50

General accessories



Extracting nut DIN 1804 h



thrust indicator KMD

GENERAL ACCESSORIES

Extracting Disks and Extracting Nuts

Extracting Disks	192
Extracting Nuts DIN 1804 h	193
Extracting Nuts DIN 807	193

Hook Wrench and Open-End Wrench

Hook Wrench DIN 1810 A (for extracting nut DIN 1804 h)	194
Open-End Wrench DIN 894 (for extracting nut DIN 807)	194

Puller Set	195
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Pliers	195
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Thrust Measuring System	196
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Taper Cleaner / Cone Wiper	198
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Installation- / Removal Paste	198
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Service & Training



Repair service



Training

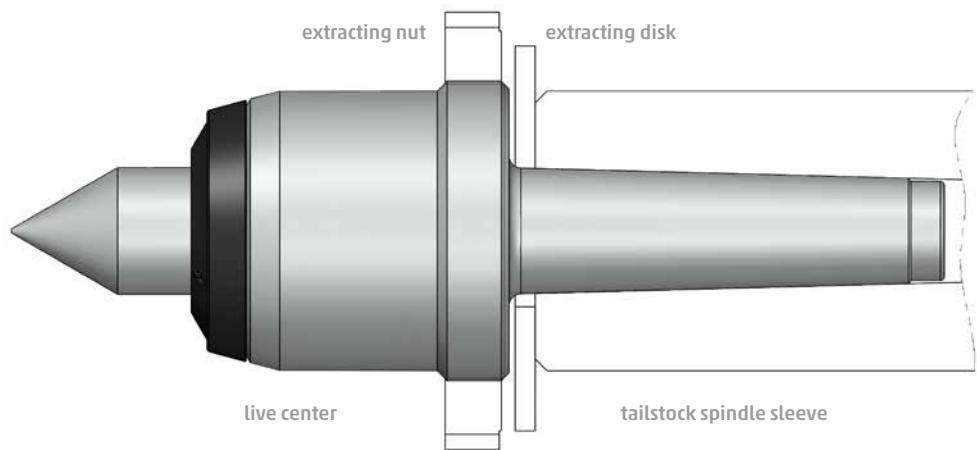
SERVICE & TRAINING

Repair Service	199
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Extracting Disks and Extracting Nuts

Accessories for demounting

Accessories for safe and quick demounting of our ultra live centers, dead centers, center pins and face drivers.

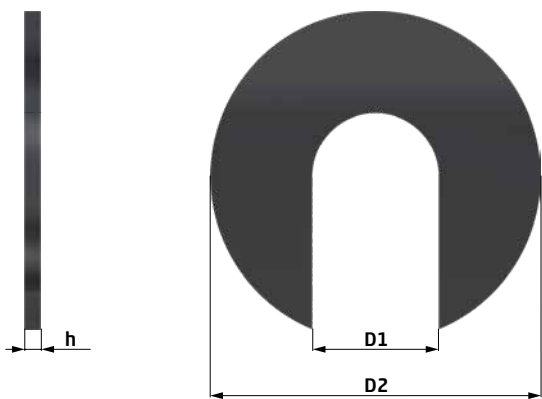


Extracting disks

Extracting disk

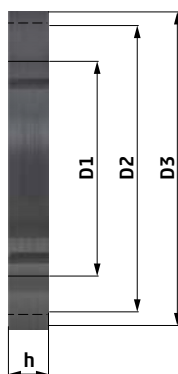


Technical data – extracting disk



for ultra live centers **type RN/RNC/RNA/RNW/RNS**

for type	MT	D1	D2	h	cat. no.
1	2	22	60	4	830 30
	3	28	80	4	830 31
3	4	38	80	5	830 32
	5	49	80	5	830 33
4	4	38	100	5	830 34
	5	49	100	5	830 35
5	5	49	120	5	830 36
	6	70	120	6	830 37
6	6	70	140	6	830 38

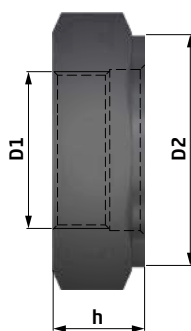
Extracting nuts DIN 1804 h**Type DIN 1804 h****Technical data – type DIN 1804 h**

for ultra live centers, center pins and face drivers

D1	D2	D3	h	cat. no.
M28 x 1.5	43	50	10	830 39
M32 x 1.5	45	52	11	830 40
M35 x 1.5	47	55	11	830 41
M36 x 1.5	48	55	11	830 42
M48 x 1.5	67	75	13	830 43
M50 x 1.5	67	75	13	830 45

D1	D2	D3	h	cat. no.
M58 x 1.5	80	90	13	830 22
M70 x 1.5	90	100	14	830 44
M75 x 1.5	100	110	14	830 23
M95 x 2	120	135	16	830 24
M110 x 2	140	155	16	830 25

■ Hook wrench DIN 1810 A see page 194.

Extracting nuts DIN 807**Type DIN 807****Technical data – type DIN 807**

for dead centers and center pins

MT	D1	D2	h	s	cat. no.
1	M16 x 1.5	23	12	24	929 99
2	M22 x 1.5	30	15.5	32	930 00
3	M27 x 1.5	39	17.5	41	930 01
4	M36 x 1.5	53	21	55	930 02
5	M48 x 1.5	67	23	75	930 03
6	M68 x 1.5	90	25.5	100	930 04

■ Open-end wrench DIN 894 see page 194.

Hook Wrench and Open-End Wrench

Hook Wrench DIN 1810 A

Hook wrench DIN 1810 A

for extracting nut DIN 1804 h



	cat. no.
M28 x 1.5	830 50
M32 x 1.5	830 51
M35 x 1.5	830 51
M36 x 1.5	830 51
M48 x 1.5	830 52
M50 x 1.5	830 52
M58 x 1.5	830 53
M70 x 1.5	830 54
M75 x 1.5	830 55
M95 x 1.5	830 56
M110 x 1.5	830 57

Open-End Wrench DIN 894

Open-end wrench DIN 894

for extracting nut DIN 807



SW		cat. no.
24	M16 x 1.5	830 70
32	M22 x 1.5	830 71
41	M27 x 1.5	830 72
55	M36 x 1.5	830 73
75	M48 x 1.5	830 74
100	M68 x 1.5	830 75

Puller Set

complete with case

Puller set with slide hammer in plastic case

Stable extractor (galvanised) with ergonomically shaped slide hammer.

In conjunction with the appropriate adapter, the centre pin is removed by means of vigorous strikes with the slide hammer.

Use:

For removing centre pins with internal thread

Puller set with slide hammer in plastic case

Pin extractor in plastic case (275 x 230 x 80 mm)
with thread inserts (M3 - M12)



type	cat. no.
M3 - M12	500 20

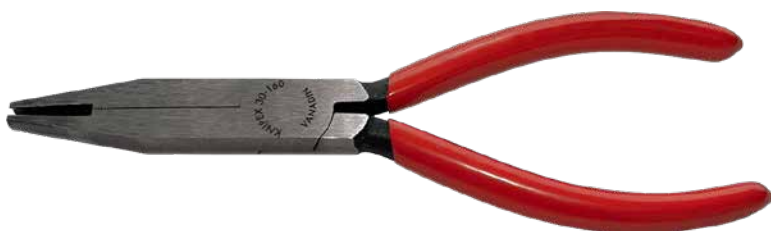
Pliers

Use:

For gripping and dismounting drive pins Ø6 - 10 mm

Pliers

type	cat. no.
6 - 10	500 50



Thrust Measuring System

Hydraulic measuring of clamping thrust for face drivers and live centers for measuring the ideal clamping thrust on machine tools

For setting up and checking the clamping thrust required, it is necessary to have a thrust indicator. A pressure gauge on the machine without tabulation or conversion is insufficient.

The hydraulic thrust measuring system is perfectly suitable for safe adjusting and checking of the clamping thrust within the machine.

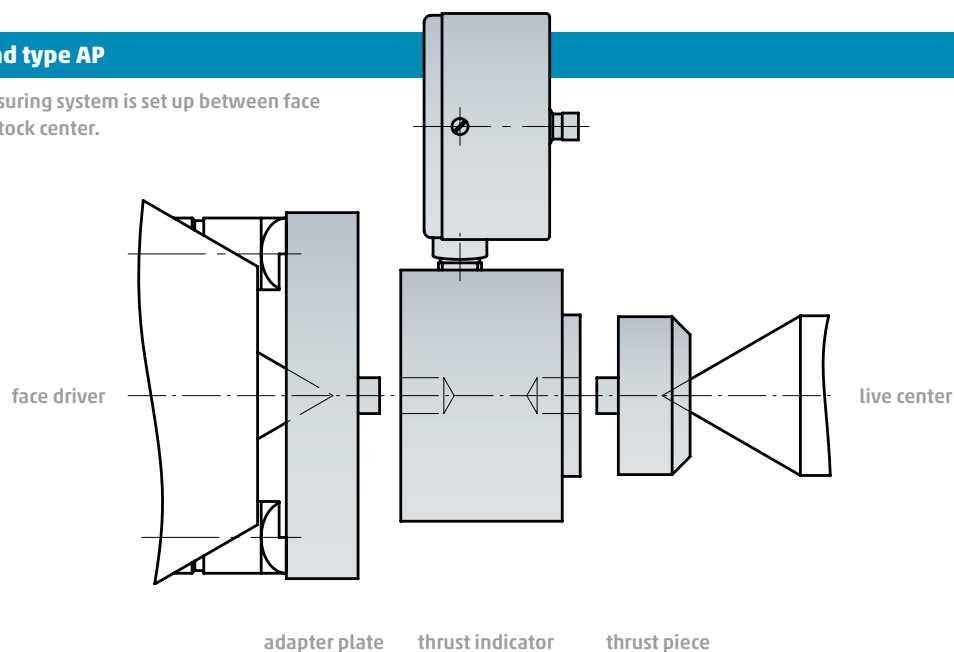
Type KMD - thrust indicator including centered tailstock piece and case



Clamping principle

Type KMD and type AP

The thrust measuring system is set up between face driver and tailstock center.



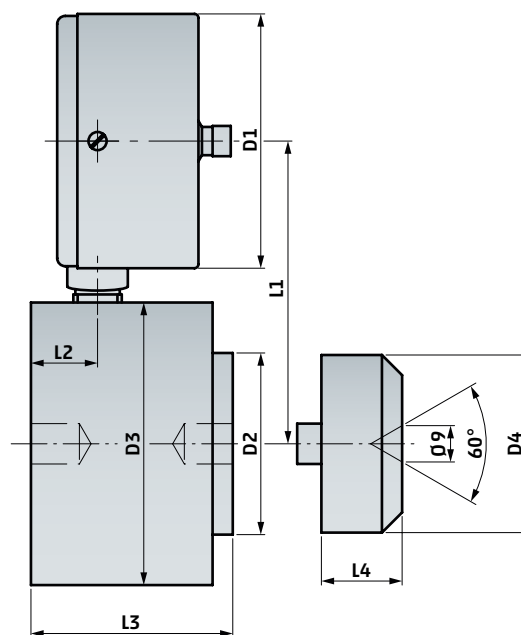
Thrust indicator

Device for measuring clamping thrust in machine tools

All thrust indicators are equipped with a differential thrust indicator as well as a centered tailstock piece.

In order to ensure a perfect torque transmission of the face drivers onto the work piece, it is essential to determine the chisel load of the drive pins accurately.

Technical data – type KMD



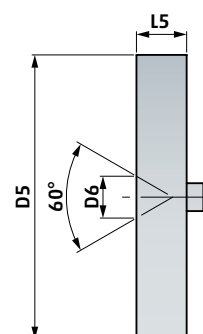
type KMD	D1	D2	D3	L1	L2	L3	D4	L4	measuring range [kN]	scale division [daN]	scale division [kN]	application	cat. no.
250	63	45	70	75	16	50	44	20	0 - 2.5	0 - 250	0.1	grinding	500 01
1600	63	45	70	75	16	50	44	20	0 - 16	0 - 1600	0.5	turning	500 02
2500	63	45	70	75	16	50	44	20	0 - 25	0 - 2500	1	turning	500 03

Thrust piece

interim plate on face driver

In order to measure the impact of thrust onto the face driver, it is essential to have an adapter plate for parallel and even contact of the drive pins.

Technical data – type AP

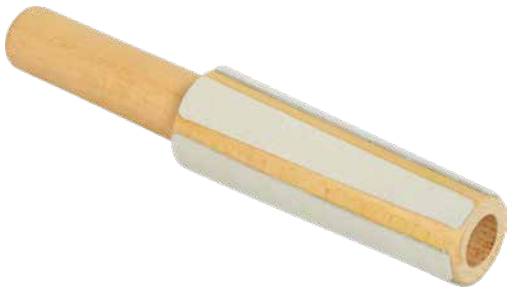


type AP	D5	D6	L5	for face driver sizes	cat. no.
50	50	5	12	0 - 35	500 10
102	102	15	18	4 - 5	500 11
175	175	20	28	55 - 6	500 12

Taper Cleaner / Cone Wiper

for cleaning an inner Morse taper
(e. g. work spindle or tailstock)

Taper cleaner / cone wiper



MT	cat. no.
1	500 31
2	500 32
3	500 33
4	500 34
5	500 35
6	500 36

Installation- / Removal Paste

**Universal use as installation paste and
for preventing fretting corrosion**

Castrol Optimol Paste White T is ideal for all installation work as well as for base-film and thin-film lubrication. The paste prevents fretting rust as well as facilitating installation and removal of our clamping tools.

It is resilient to hot and cold water and provides anti-corrosion protection.

Installation- / removal paste

white, virtually colourless when applied as a thin film

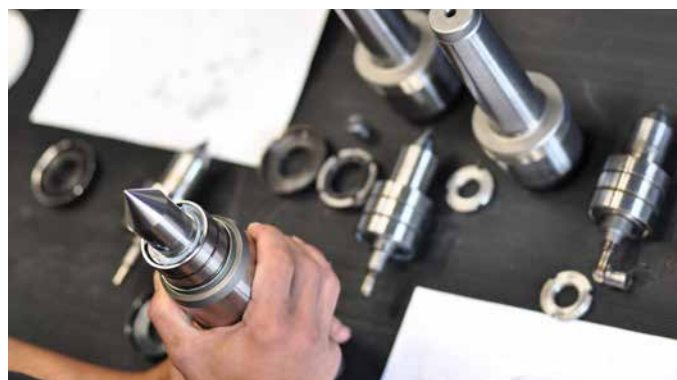


cat. no.
500 40

Repair Service

Our service for sustainable machining

Our clamping tools boast a long service life. After continuous use over lengthy periods of time or if damage occurs during production, we get the tools back into perfect shape with the necessary maintenance or repair. This investment is generally worthwhile since you then have a tool that is fully functional and virtually as good as new.



We will be pleased to compile a cost estimate for repair and maintenance, including delivery period.



Training

We provide free product training so as to enable you to put our products to effective use in line with requirements.

Whether on our premises or yours, we give you an overview of our product range and as well a detailed specialist knowledge in terms of cost efficiency, quality and safety.

Training is provided in German and English.

If you wish to take advantage of our training programmes, please get in touch with our Technical Sales department and our staff will take care of everything else.

www.neidlein.de

» Contact » Contact person » technical sales



You will find our GTB at

www.neidlein.de



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