



Face Drivers for Soft and Hard Turning with Drive Pins

- FSB
- SB
- FFB
- FFBH
- Pipe Driver
- Changeable Parts



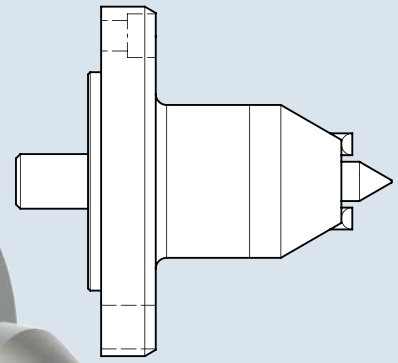
Face Drivers FSB / SB

Clamping tools for tooling between centers

The entire surface of the work piece can be tooled and finished by clamping with a maximum of torque transmission. NEIDLEIN face drivers are mechanical clamping systems which are suited for soft/green as well as hard tooling.

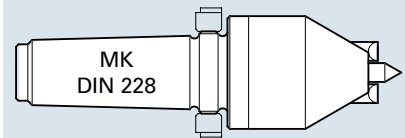
Face drivers of type FSB/SB are power-operated by the thrust of the tailstock. Work pieces are clamped centrally using a movable center pin. This way different centerings can be adjusted, thus ensuring a constant datum-point at the end face of work piece.

Type FSB with flange-retainer



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

Type SB with MK- or cylindrical retainer

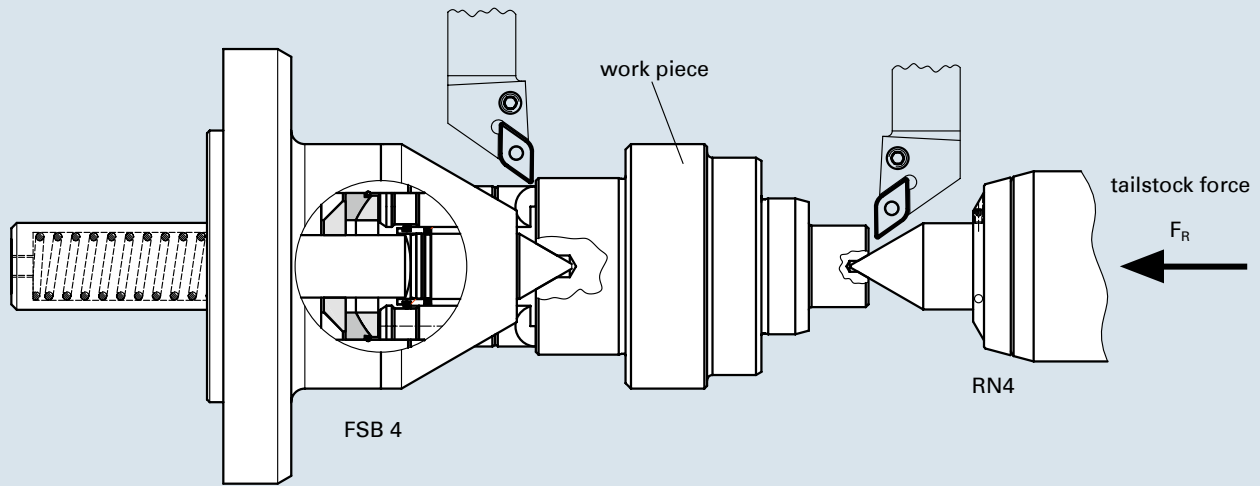


Type SB with taper shank and extracting nut for fast mounting into machine spindle.

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 work piece stable datum-point in case of different centerings
- extended tool-life of driving devices and cutting tools due to vibration-free running
- true run-out accuracy up to 0.02 mm maximum
- clamping force is triggered by tailstock
- fixed center pin/fixed datum-point in clamped state
- compensating driving devices/ideal clamping of work piece
- simple handling

Type FSB with flange-retainer



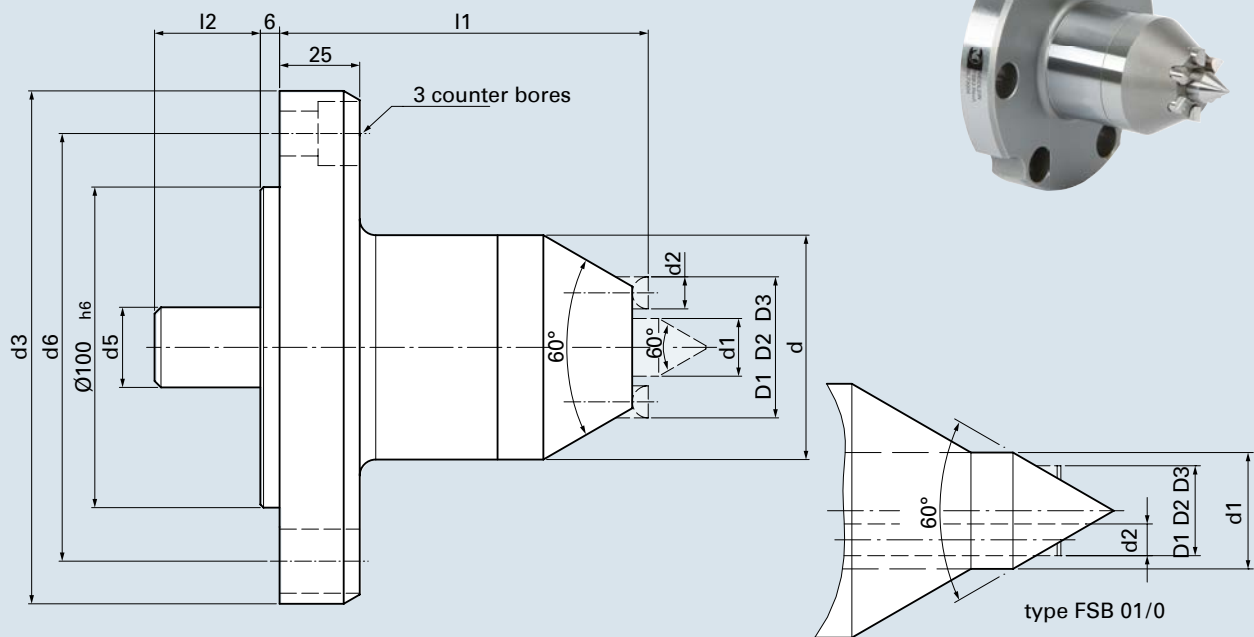
Clamping principle

The center pin located on the side of the tailstock pushes the work piece against the movable center pin of the face driver. The center pin will draw back until the surface of the work piece 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 work piece, squareness and surface finish. The entire surface of the workpiece can now be finished in one single clamping. Please check page 6 and 7 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 16 to 21.

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

Technical data – type FSB face driver



cat. no.	type	d	d1	center Ø	d2	d3	d5	d6	l1	l2	drive pin	fastening screw type	pcs	clamping Ø		
73012	FSB 01	48	22	0 - 5	6	160	25	133.4	115	28	3	M12	3	8	11	17
73001	FSB 0	48	22	0 - 3	8	160	25	133.4	115	28	3	M12	3	6	11	19
73011	FSB 11	42	6	0 - 6	6	160	25	133.4	115	28	3	M12	3	11	14	20
73002	FSB 1	48	8	0 - 8	8	160	25	133.4	115	28	3	M12	3	13	18	26
73003	FSB 2	70	14	2 - 14	10	160	25	133.4	115	23	6	M12	3	26	31	36
73004	FSB 3	70	18	2 - 18	10	160	25	133.4	115	33	6	M12	3	34	39	44
73009	FSB 35	80	14	2 - 14	15	160	25	133.4	115	33	6	M12	3	29	39	49
73005	FSB 4	90	24	3 - 24	15	160	32	133.4	115	72	6	M12	3	39	49	59
73010	FSB 45	100	28	3 - 28	15	160	32	133.4	115	72	6	M12	3	49	59	69
73006	FSB 5	132	35	6 - 35	20	160	45	133.4	115	164	6	M12	3	69	84	99
73008	FSB 55	182	35	3 - 35	20	220	45	171.4	115	165	6	M16	3	110	125	140
73007	FSB 6	212	35	3 - 35	20	250	45	210	115	165	6	M20	3	140	155	170
73013	FSB 7	255	50	25 - 48	20	290	50	250	132	165	6	M20	6	180	195	210
73014	FSB 75	302	50	25 - 48	20	348	50	310	132	165	6	M20	6	230	245	260
73016	FSB 8	360	80	30 - 76	30	440	78	394	190	262	6	M20	6	270	290	310
73015	FSB 85	410	80	30 - 76	30	490	78	444	190	262	6	M20	6	320	340	360

- All face drivers are supplied without drive pins. (Drive pins see page 16-20)
- Types FSB 01/0 are supplied with center body, all other types without center pin. (Center pins see page 21)
- Retaining elements for face drivers see brochure 2.0

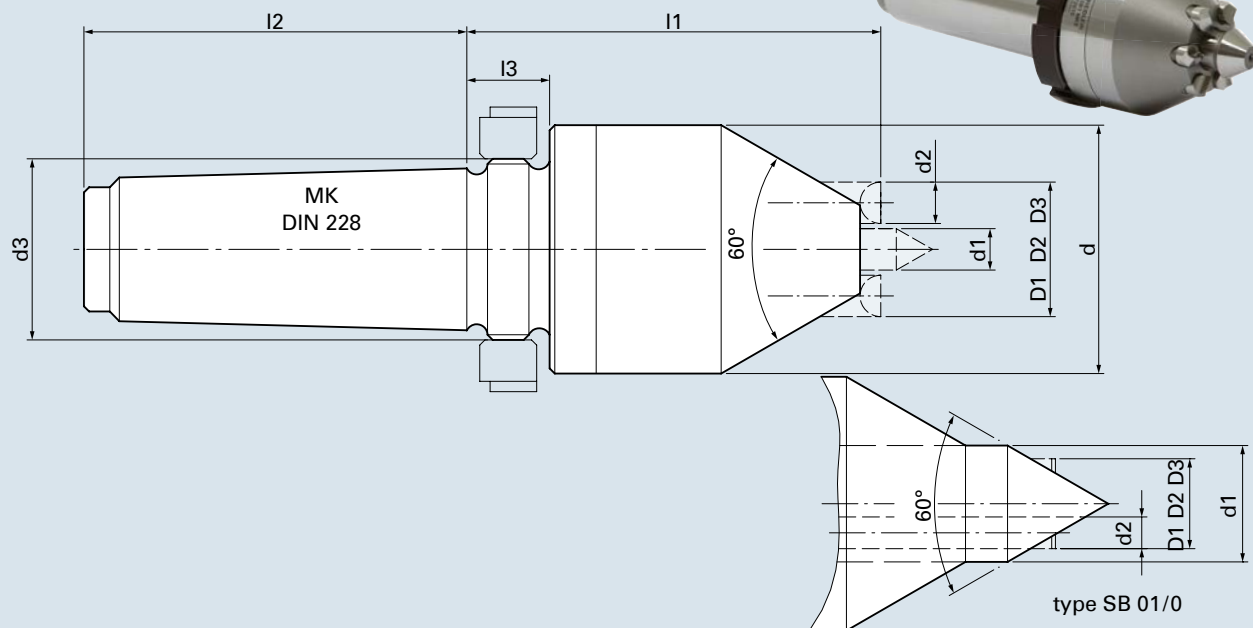
It is the purpose of a flange-adapter to provide stable junction to the spindle machine. We supply these flange adapters for various sizes of spindle noses either in standard size (DIN 55028) or for spindle noses specific to manufacturer of machine-tools. Thus face drivers of range FSB can be used on 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 work pieces.



Technical data – type SB face driver



cat. no.	type	MK	d	d1	center Ø	d2	d3	l1	l2	l3	drive pin	clamping Ø		
												D1	D2	D3
72016	SB 01	3	48	22	0 - 5	6	M28 x 1.5	87	61	14	3	8	11	17
72017	SB 01	4	48	22	0 - 5	6	M35 x 1.5	87	74	16	3	8	11	17
72018	SB 01	5	48	22	0 - 5	6	M48 x 1.5	87	97	19	3	8	11	17
72001	SB 0	3	48	22	0 - 3	8	M28 x 1.5	87	61	14	3	6	11	19
72002	SB 0	4	48	22	0 - 3	8	M35 x 1.5	87	74	16	3	6	11	19
72003	SB 0	5	48	22	0 - 3	8	M48 x 1.5	87	97	19	3	6	11	19
72019	SB 11	3	42	6	0 - 6	6	M28 x 1.5	80	61	14	3	11	14	20
72020	SB 11	4	42	6	0 - 6	6	M35 x 1.5	80	74	16	3	11	14	20
72021	SB 11	5	42	6	0 - 6	6	M48 x 1.5	80	97	19	3	11	14	20
72004	SB 1	3	48	8	0 - 8	8	M28 x 1.5	80	61	14	3	13	18	26
72005	SB 1	4	48	8	0 - 8	8	M35 x 1.5	80	74	16	3	13	18	26
72006	SB 1	5	48	8	0 - 8	8	M48 x 1.5	80	97	19	3	13	18	26
72007	SB 2	4	70	14	2 - 14	10	M35 x 1.5	80	74	16	6	26	31	36
72008	SB 2	5	70	14	2 - 14	10	M48 x 1.5	80	97	19	6	26	31	36
72009	SB 3	4	70	18	2 - 18	10	M35 x 1.5	80	74	16	6	34	39	44
72010	SB 3	5	70	18	2 - 18	10	M48 x 1.5	80	97	19	6	34	39	44
72011	SB 4	5	90	24	3 - 24	15	M48 x 1.5	104	97	19	6	39	49	59
72012	SB 4	6	90	24	3 - 24	15	M70 x 1.5	104	134	20	6	39	49	59
72013	SB 5	6	132	35	3 - 35	20	M70 x 1.5	135	134	20	6	69	84	99
72015	SB 55	6	182	35	3 - 35	20	M70 x 1.5	135	134	20	6	110	125	140
72014	SB 6	6	212	35	3 - 35	20	M70 x 1.5	135	134	20	6	140	155	170

- Face driver with cylindrical shank upon request.
- All face drivers are supplied without drive pins. (Drive pins see page 16-20)
- Types SB 01/0 are supplied with center body, all other types without center pin. (Center pins see page 21)

Type series SB with MK 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),

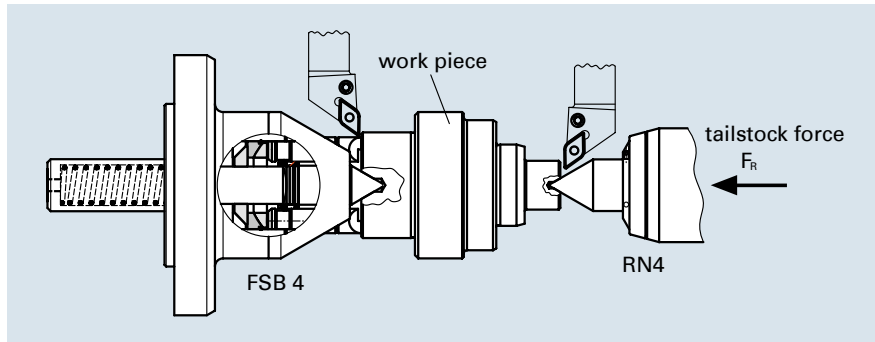
for clockwise tooling (SL/tooling direction M4) or for both tooling directions (NV = bi-directional).

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 work pieces.

Face Drivers FSB/SB: Calculations

Tailstock force / maximum chip cross section of metal removing

Principle: the tailstock force pushes the work piece against the movable center pin of the face driver. The center pin will draw back until the surface of the work piece 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. 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

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

Calculation example for type FSB/SB

Specific data of machine and work piece:

maximum tailstock force: 10000 N
material of work piece: C15E
diameter of work piece,
side of face driver: Ø 48 mm
turning diameter: Ø 90 mm

Selection of face driver:

Face driver FSB 3/clamping diameter 44 mm
6 drive pins: chisel length 4 mm each

- tailstock force F_R :**
In order to ensure sufficient
pull-in power (see chisel load
of drive pins) a tailstock force
of approx. 7200 N has to be
supplied.

$$BS = \frac{F_R}{n \times s} \longrightarrow F_R = 300 \frac{N}{mm} \times 6 \times 4mm = 7200 N$$

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 sec-
tion (at the ultimate turning-Ø)
is calculated as follows:

$$q_{max} = \frac{\frac{7200N}{1,1} - 1000}{1000 \times \frac{90mm}{44mm}} = 2,71 mm^2$$

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 toward pivot of work
piece, even larger chip cross
sections can be achieved
(► formula), commensurate
with turning diameter.

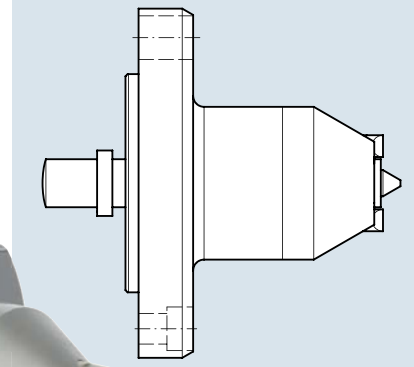
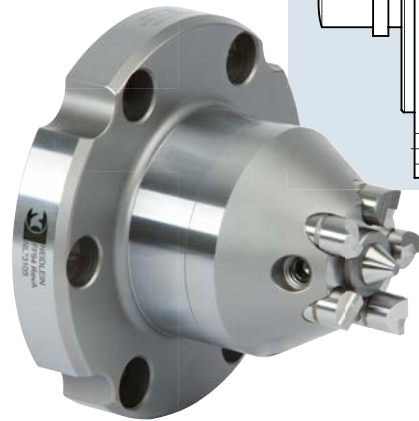
Face Drivers FFB / FFBH

Clamping tools for tooling between center pins

The entire surface of work piece can be completely machined with one single clamping and with a maximum of torque transmission. NEIDLEIN face drivers are mechanical clamping systems, suitable for soft/green tooling and hard turning likewise.

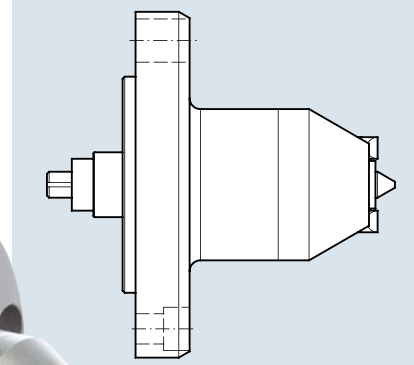
Face drivers of type FFB/FFBH are power-operated on the side of the machine spindle as well as the side of the tailstock. The work pieces are clamped centrally by the fixed center pin. This operation results in high true run-out accuracy.

Type FFB with flange-mount



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

Typ FFBH with flange-mount

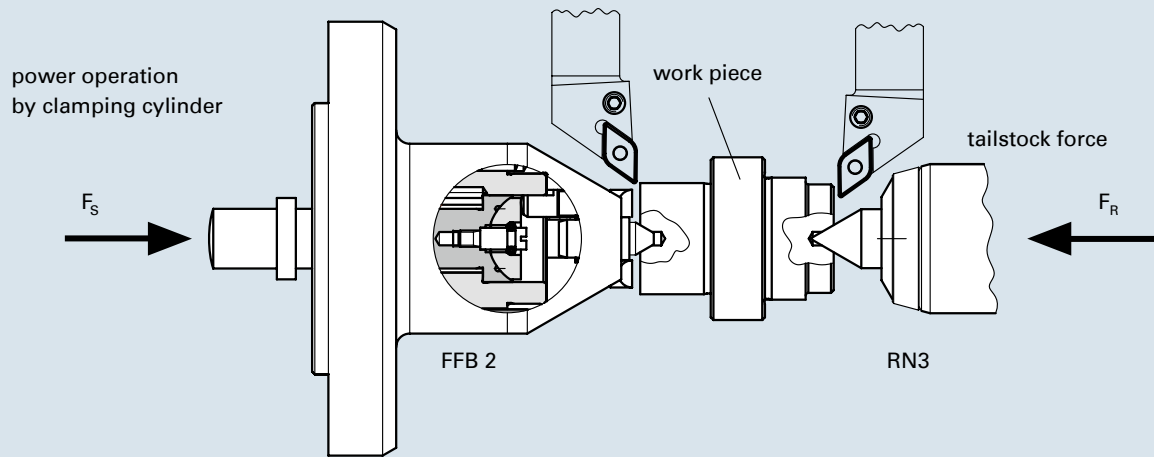


Type FFBH is mounted onto machine spindle nose using flange-adapter adjustable for true run-out.

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 center of workpiece ensures constant measures of length
- true run-out accuracy up to 0.005 mm maximum
- extended service life of drive pins and cutting tools due to vibration-free running
- fixed clamping location
- compensating driving devices/ideal clamping of work piece
- easy handling

Type FFB/FFBH with flange-mount



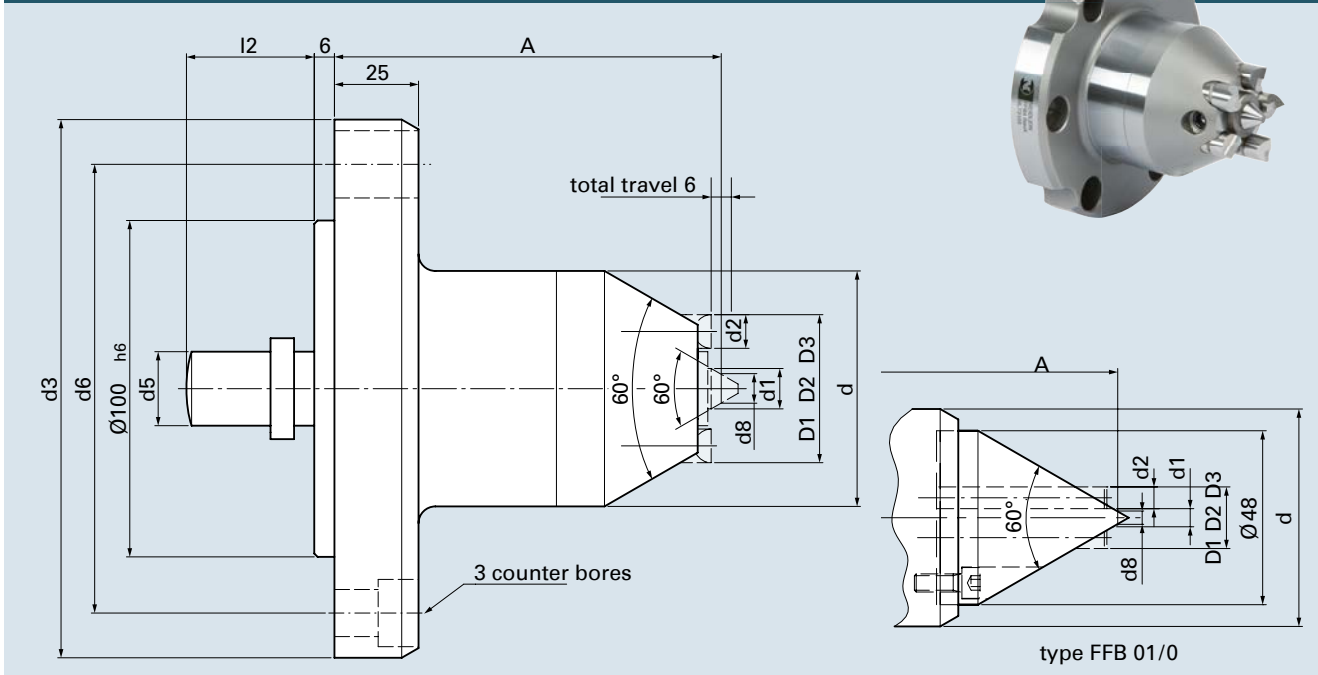
Clamping principle

The center pin located on the side of the tailstock pushes the work piece against the fixed center pin of the face driver. The motion of the drive pins against the surface of the work piece 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 work pieces. The datum-point of work pieces on the machines is determined by the size of the center hole. The entire surface of work piece can now be tooled in one single clamping.

See page 12 and 13 with data for achievable removal of material and the thrust requested. The appropriate standard drive pins and center pins can be found on page 16 to 21.

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

Technical data – type FFB face driver



cat. no.	type	d	d1	center Ø	d2	d3	d5	d6	d8	l1	l2	drive pin	fastening screw type	pcs	clamping Ø		
73101	FFB 01	60	5	1 - 5	6	160	18	133.4	3.5	115	38	3	M12	3	8	11	17
73112	FFB 0	60	3	1 - 3	8	160	18	133.4	3	115	38	3	M12	3	6	11	19
73111	FFB 11	42	7.8	2 - 6.5	6	160	12	133.4	4.25	115	38	3	M12	3	11	14	20
73102	FFB 1	48	9.8	4 - 8.5	8	160	18	133.4	6.25	115	38	3	M12	3	13	18	26
73103	FFB 2	70	10	4 - 9	10	160	22	133.4	6.5	115	38	3	M12	3	26	31	36
73104	FFB 3	70	12	6 - 11	10	160	22	133.4	8.5	115	38	3	M12	3	34	39	44
73113	FFB 35	80	10	4 - 9	15	160	22	133.4	6.5	115	38	3	M12	3	29	39	49
73105	FFB 4	90	16	10 - 15	15	160	25	133.4	12.5	115	38	5	M12	3	39	49	59
73106	FFB 45	100	16	10 - 15	15	160	25	133.4	12.5	115	54	5	M12	3	49	59	69
73107	FFB 5	132	16	10 - 15	20	160	25	133.4	12.5	115	54	5	M12	3	69	84	99
73108	FFB 55	182	16	10 - 15	20	220	40	171.4	12.5	155	54	5	M16	3	110	125	140
73109	FFB 6	220	16	10 - 15	20	250	40	210	12.5	171	54	5	M20	3	140	155	170

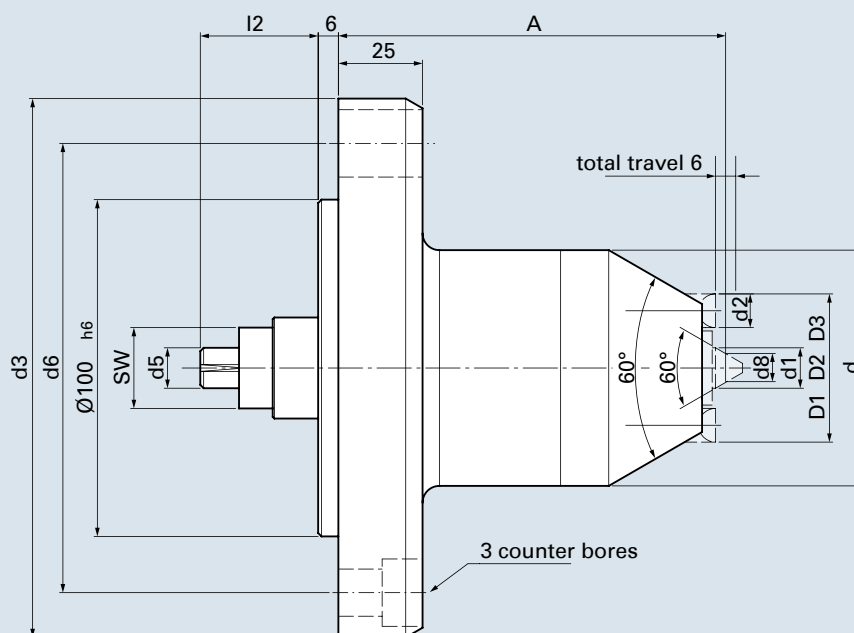
- All face drivers are supplied without drive pins. (Drive pins see page 16-20)
- Types FFB 01/0 are supplied with center body, all other types without center pin. (Center pin see page 21)
- The diameter d8 refers to the standard center pins (see page 21).
- Retaining elements for face drivers see brochure 2.0

It is the purpose of an adjustable flange-adapter to provide stable junction to the spindle machine. We supply these flange adapters for various sizes of spindle noses in standard size (DIN 55028) or for spindle noses specific to machine-tool manufacturer. Thus face drivers of range 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 work pieces.

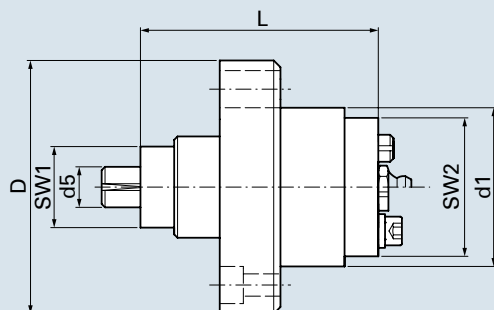
Technical data – type FFBH face driver



cat. no.	type	d	d1	center Ø	d2	d3	SW	d5	d6	d8	A	l2	drive pin	fastening type	screw pcs	clamping Ø		
63102	FFBH 1	70	9.8	4 - 8.5	8	160	24	12	133.4	6.25	115	35	3	M12	3	13	18	26
63103	FFBH 2	70	10	4 - 9	10	160	24	12	133.4	6.5	115	35	3	M12	3	26	31	36
63104	FFBH 3	70	12	6 - 11	10	160	24	12	133.4	8.5	115	35	3	M12	3	34	39	44
63106	FFBH 4	90	16	10 - 15	15	160	34	12	133.4	12.5	132	35	5	M12	3	39	49	59
63107	FFBH 45	100	16	10 - 15	15	160	34	12	133.4	12.5	132	35	5	M12	3	49	59	69
63108	FFBH 5	132	16	10 - 15	20	160	34	12	133.4	12.5	149	35	5	M12	3	69	84	99

- All face drivers are supplied without drive pins and without center pins. (Changeable parts see page 16-20)
- The diameter d8 refers to the standard center pins (see page 21).
- Retaining elements for face drivers see brochure 2.0

Technical data – type FFBH hydraulic unit



cat. no.	type	SW1	d5	L	d1	SW2	D
63102HE	FFBH 1	24	12	70.5	47	41	75
63102HE	FFBH 2	24	12	70.5	47	41	75
63102HE	FFBH 3	24	12	70.5	47	41	75
63106HE	FFBH 4	34	12	70.5	65	59	93
63106HE	FFBH 45	34	12	70.5	65	59	93
63108HE	FFBH 5	34	12	70.5	87	81	131

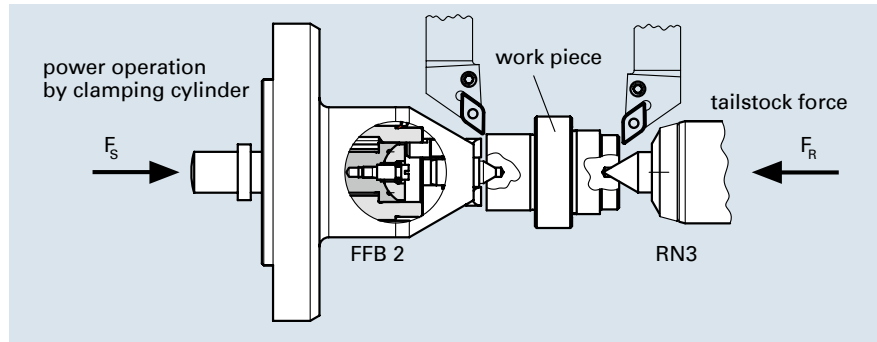
The general explanatory notes for this face driver FFBH can be obtained from the sheet "technical data – type FFB".
 For safe and smooth operation of face driver we recommend exchange of hydraulic unit after 1500 operating hours.

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 work piece 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_S	[N]	force of clamping cylinder
q_{\max}	[mm ²]	maximum of chip cross section
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. 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:

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

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

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

$$\text{chisel load} = \frac{6300N}{3 \times 7mm} = 300 \frac{N}{mm}$$

Calculation example for type FFB/FFBH

Specific data of machine and work piece:

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

Selection of face driver:

Face driver FFB 4/clamping diameter
Ø59 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.

$$BS = \frac{F_s}{n \times s} \longrightarrow F_s = 300 \frac{N}{mm} \times 5 \times 7,5mm = 11250 N$$

Calculation 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 OD-Ø) is calculated
as follows:

$$q_{\max} = \frac{\frac{11250N}{1,2} - 1300}{1100 \times \frac{120mm}{59mm}} = 3,61mm^2$$

Explanatory notes:

The calculated clamping
diameter refers to the extreme
outer tooling diameter. In case of
further tooling toward pivot of

work piece, even larger chip
cross sections can be achieved
(► formula), commensurate with
turning diameter.

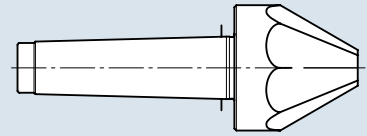
Pipe Drivers NDG /AND

Clamping tools for tooling between center pins

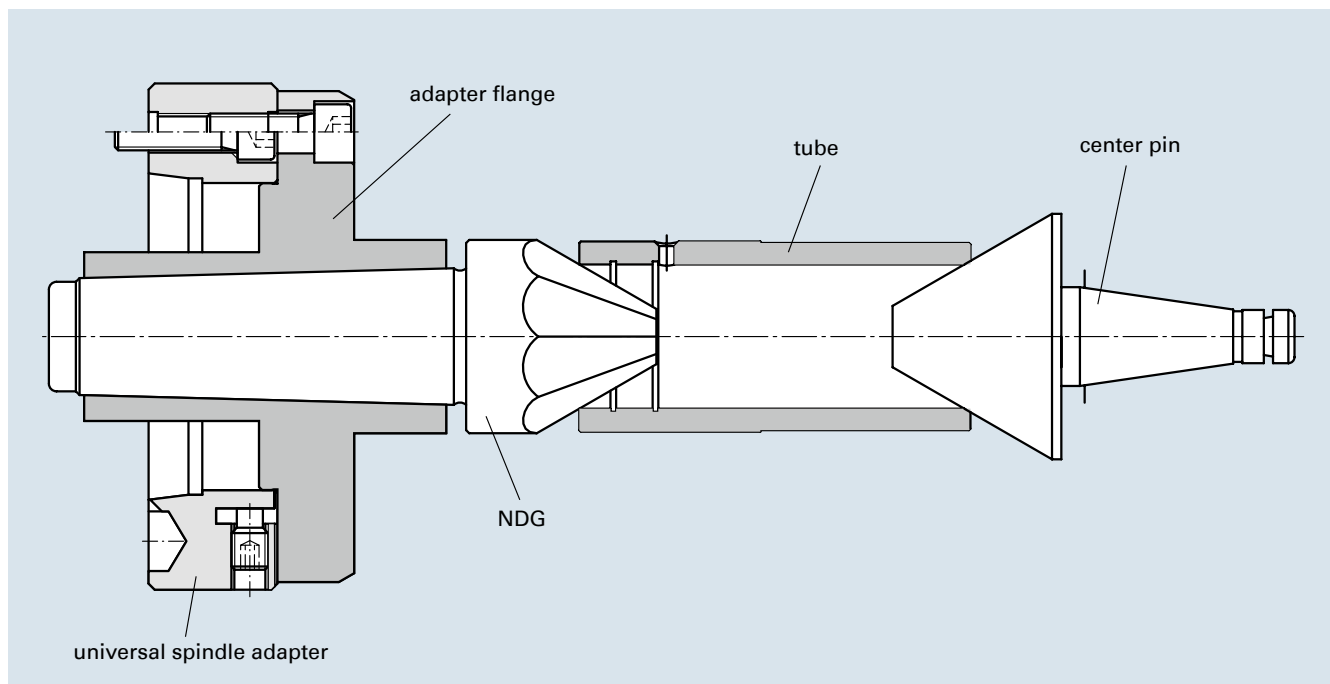
The entire outside surface of a tubular work piece can be tooled with one single clamping and high torque transmission.

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

Type NDG pipe driver



Clamping principle

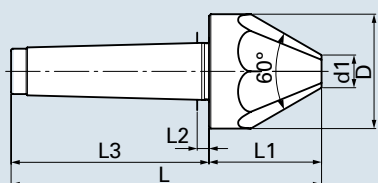


NEIDLEIN pipe driver NDG and AND ensure:

- 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
- large clamping area of tubular work pieces
2-155 mm bore-diameter

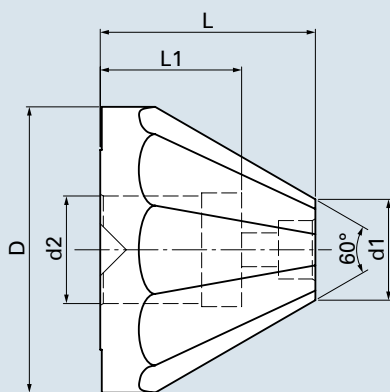


Technical data – type NDG pipe driver



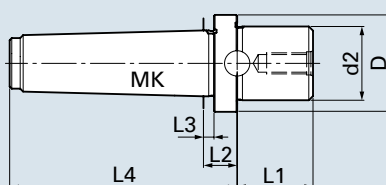
cat. no.	type	morse taper	D	d1	L	L1	L2	L3	a	chisel pcs	for bore-Ø	
											from	to
75001	NDG 0/15	2	18	0	100	32	4	68	60°	6	2	17
75002	NDG 0/30	3	31	0	135	50	5	85	60°	6	2	30
75003	NDG 10/40	3	45	8	145	60	5	85	60°	6	9	43
75004	NDG 20/60	3	63	18	147	62	5	85	60°	8	19	60
75005	NDG 10/40	4	45	8	168	60	6	108	60°	6	9	43
75006	NDG 20/60	4	63	18	170	62	6	108	60°	8	19	60

Technical data – type NDG drive cone exchangeable



cat. no.	type	D	d1	d2	L	L1	a	chisel pcs	for bore-Ø	
									from	to
75101	NDG 35/90	93	32.8	35	70	46	60°	10	33	90
75102	NDG 90/155	158	88	35	75	46	60°	10	88	155

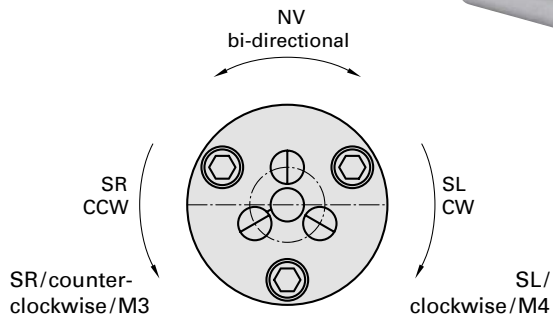
Technical data – type AND arbor



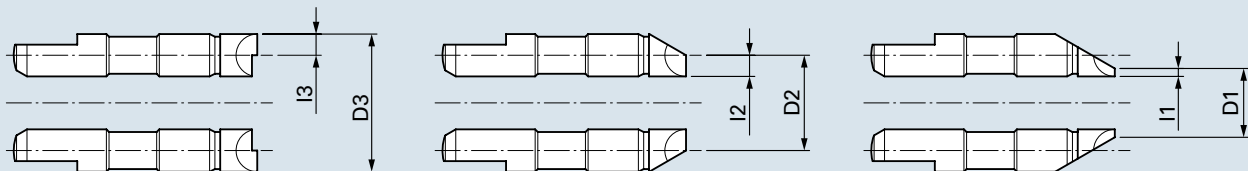
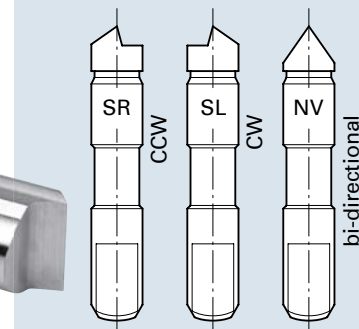
cat. no.	type	morse taper	D	d2	L1	L2	L3	L4
75201	AND 35/4	4	46	35	M10	36	16	108
75202	AND 35/5	5	44.5	35	M10	36	16	130
75203	AND 35/6	6	64	35	M10	36	16	144

Drive Pins Chise SL/SR/NV

Drive pin for torque transmission
onto work piece for
soft / green tooling



Type SB/FSB/FFB chisel SL/SR/NV



types 01 and 11 with chisel SL and SR are double chiselled

Drive pins with chisel SL for tooling direction M4

cat. no.	clamping Ø			chisel length			for type
	D1	D2	D3	I1	I2	I3	
736104	8			1.5			SB 01
736105		11			3		FSB 01
736106			17			6	FFB 01
73604	6			1.5			SB 0
73605		11			4		FSB 0
73606			19			8	FFB 0
73613	13			1.5			SB 1
73614		18			4		FSB 1
73615			26			8	FFB 1
73676	11			1.5			SB 11
73677		14			3		FSB 11
73678			20			6	FFB 11
73622	26			5			SB 2
73623		31			7.5		FSB 2
73624			36			10	FFB 2
73631	34			5			SB 3
73632		39			7.5		FSB 3
73633			44			10	FFB 3
73685	29			5			FSB 35
73686		39			5		FFB 35
73687			49			5	
73640	39			5			SB 4
73641		49			7.5		FSB 4
73642			59			7.5	FFB 4

cat. no.	clamping Ø			chisel length			for type
	D1	D2	D3	I1	I2	I3	
73694	49			5			FSB 45 FFB 45
73695		59			7.5		
73696			69			7.5	
73649	69			5			SB 5
73650		84			10		FSB 5
73651			99			10	FFB 5
73658	110			5			SB 55
73659		125			10		FSB 55
73660			140			10	FFB 55
73667	140			5			SB 6
73668		155			10		FSB 6
73669			170			10	FFB 6
736114	180			5			FSB 7
736115		195			15		
736116			210			20	
736344	230			5			FSB 75
736345		245			15		
736346			260			20	
736373	270			10			FSB 8
736374		290			20		
736375			310			30	
736364	320			10			FSB 85
736365		340			20		
736366			360			30	



Drive pins with chisel SR for tooling direction M3

cat. no.	clamping Ø			chisel length			for type
	D1	D2	D3	l1	l2	l3	
736101	8			1.5			SB 01
736102		11			3		FSB 01
736103			17			6	FFB 01
73601	6			1.5			SB 0
73602		11			4		FSB 0
73603			19			8	FFB 0
73610	13			1.5			SB 1
73611		18			4		FSB 1
73612			26			8	FFB 1
73673	11			1.5			SB 11
73674		14			3		FSB 11
73675			20			6	FFB 11
73619	26			5			SB 2
73620		31			7.5		FSB 2
73621			36			10	FFB 2
73628	34			5			SB 3
73629		39			7.5		FSB 3
73630			44			10	FFB 3
73682	29			5			FSB 35 FFB 35
73683		39			5		
73684			49			5	
73637	39			5			SB 4
73638		49			7.5		FSB 4
73639			59			7.5	FFB 4

cat. no.	clamping Ø			chisel length			for type
	D1	D2	D3	l1	l2	l3	
73691	49			5			FSB 45 FFB 45
73692		59			7.5		
73693			69			7.5	
73646	69			5			SB 5
73647		84			10		FSB 5
73648			99			10	FFB 5
73655	110			5			SB 55
73656		125			10		FSB 55
73657			140			10	FFB 55
73664	140			5			SB 6
73665		155			10		FSB 6
73666			170			10	FFB 6
736111	180			5			FSB 7
736112		195			15		
736113			210			20	
736341	230			5			FSB 75
736342		245			15		
736343			260			20	
736370	270			10			FSB 8
736371		290			20		
736372			310			30	
736361	320			10			FSB 85
736362		340			20		
736363			360			30	

Drive pins with chisel NV for rotating direction M4 and M3

cat. no.	clamping Ø			chisel length			for type
	D1	D2	D3	l1	l2	l3	
736107	8			1.5			SB 01
736108		11			3		FSB 01
736109			17			6	FFB 01
73607	6			1.5			SB 0
73608		11			4		FSB 0
73609			19			8	FFB 0
73616	13			1.5			SB 1
73617		18			4		FSB 1
73618			26			8	FFB 1
73679	11			1.5			SB 11
73680		14			3		FSB 11
73681			20			6	FFB 11
73625	26			5			SB 2
73626		31			7.5		FSB 2
73627			36			10	FFB 2
73634	34			5			SB 3
73635		39			7.5		FSB 3
73636			44			10	FFB 3
73688	29			5			FSB 35 FFB 35
73689		39			5		
73690			49			5	
73643	39			5			SB 4
73644		49			7.5		FSB 4
73645			59			7.5	FFB 4

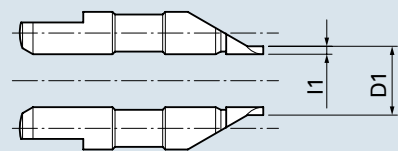
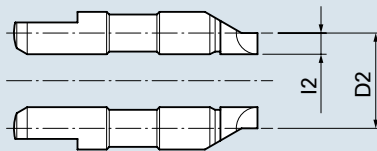
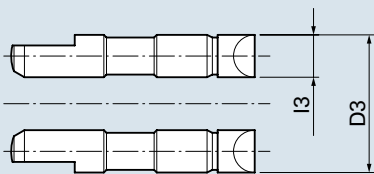
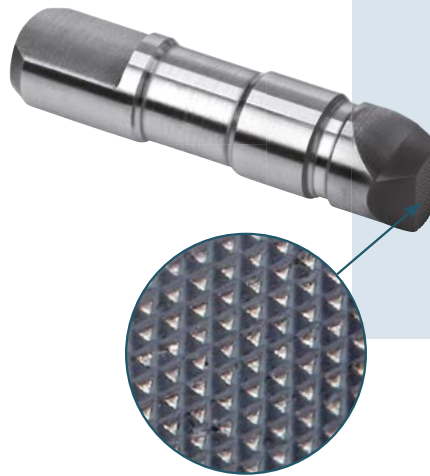
cat. no.	clamping Ø			chisel length			for type
	D1	D2	D3	l1	l2	l3	
73697	49			5			FSB 45 FFB 45
73698		59			7.5		
73699			69			7.5	
73652	69			5			SB 5
73653		84			10		FSB 5
73654			99			10	FFB 5
73661	110			5			SB 55
73662		125			10		FSB 55
73663			140			10	FFB 55
73670	140			5			SB 6
73671		155			10		FSB 6
73672			170			10	FFB 6
736117	180			5			FSB 7
736118		195			15		
736119			210			20	
736347	230			5			FSB 75
736348		245			15		
736349			260			20	
736376	270			10			FSB 8
736377		290			20		
736378			310			30	
736367	320			10			FSB 85
736368		340			20		
736369			360			30	

Drive Pins KV-HS

cross-serrated and coated
for hard turning operation

Drive pin for torque transmission
onto work piece for hard tooling

Type SB/FSB/FFB KV-HS



cat. no.	clamping Ø			chisel length			for type
	D1	D2	D3	I1	I2	I3	
736200	8			1.5			SB 01
736201		11			3		FSB 01
736202			17			6	FFB 01
736203	6			1.5			SB 0
736204		11			4		FSB 0
736205			19			8	FFB 0
736209	13			1.5			SB 1
736210		18			4		FSB 1
736211			26			8	FFB 1
736206	11			1.5			SB 11
736207		14			3		FSB 11
736208			20			6	FFB 11
736212	26			5			SB 2
736213		31			7.5		FSB 2
736214			36			10	FFB 2
736215	34			5			SB 3
736216		39			7.5		FSB 3
736217			44			10	FFB 3

cat. no.	clamping Ø			chisel length			for type
	D1	D2	D3	I1	I2	I3	
736218	29			5			FSB 35 FFB 35
736219		39			10		
736220			49			15	
736221	39			5			SB 4
736222		49			10		FSB 4
736223			59			15	FFB 4
736224	49			5			FSB 45 FFB 45
736225		59			10		
736226			69			15	
736227	69			5			SB 5
736228		84			12.5		FSB 5
736229			99			20	FFB 5
736230	110			5			SB 55
736231		125			12.5		FSB 55
736232			140			20	FFB 55
736233	140			5			SB 6
736234		155			12.5		FSB 6
736235			170			20	FFB 6



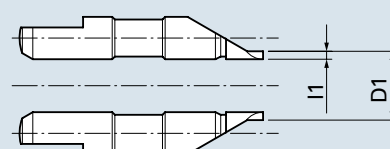
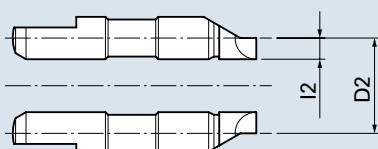
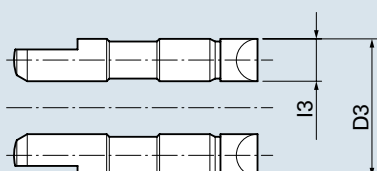
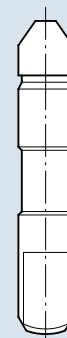
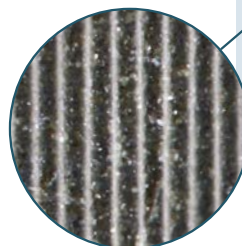
Drive Pins FV Diamond

serrated and diamond embedded

Drive pin for torque transmission onto work piece for hard tooling

- for higher friction coefficient and higher tool life of drive pin

Type SB/FSB/FFB FV diamond



cat. no.	clamping Ø			chisel length			for type
	D1	D2	D3	I1	I2	I3	
736400	8			1.5			SB 01
736401		11			3		FSB 01
736402			17			6	FFB 01
736403	6			1.5			SB 0
736404		11			4		FSB 0
736405			19			8	FFB 0
736409	13			1.5			SB 1
736410		18			4		FSB 1
736411			26			8	FFB 1
736406	11			1.5			SB 11
736407		14			3		FSB 11
736408			20			6	FFB 11
736412	26			5			SB 2
736413		31			7.5		FSB 2
736414			36			10	FFB 2
736415	34			5			SB 3
736416		39			7.5		FSB 3
736417			44			10	FFB 3

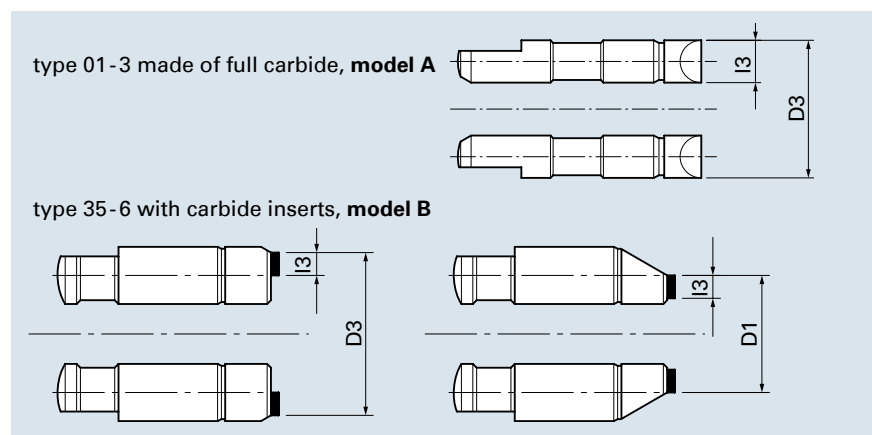
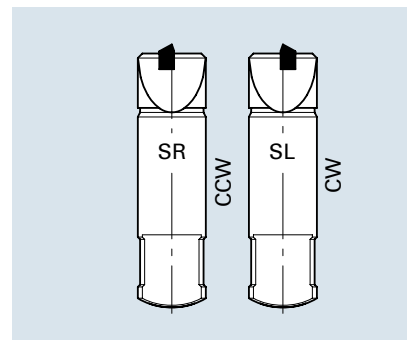
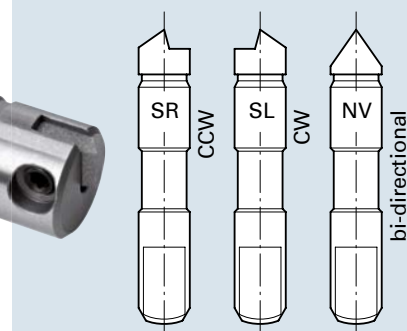
cat. no.	clamping Ø			chisel length			for type
	D1	D2	D3	I1	I2	I3	
736418	29			5			FSB 35 FFB 35
736419		39			10		
736420			49			15	
736421	39			5			SB 4
736422		49			10		FSB 4
736423			59			15	FFB 4
736424	49			5			FSB 45 FFB 45
736425		59			10		
736426			69			15	
736427	69			5			SB 5
736428		84			12.5		FSB 5
736429			99			20	FFB 5
736430	110			5			SB 55
736431		125			12.5		FSB 55
736432			140			20	FFB 55
736433	140			5			SB 6
736434		155			12.5		FSB 6
736435			170			20	FFB 6

Drive Pins Chisel Carbide

full carbide / carbide inserts

Drive pin for torque transmission
onto work piece for tooling
of high-tensile-strength materials

Typ SB/FSB/FFB chisel carbide



Drive pins with chisel carbide SL for tooling direction M4

cat. no.	clamping Ø		length l3	for type
	D1	D3		
model A				
736500		17	6	01
736501		19	8	0
736502		26	8	1
736503		20	6	11
736504		36	10	2
736505		44	10	3
model B				
736506	34		6	35
736507		46	6	35
736508	44		6	4
736509		56	6	4
736510	54		6	45
736511		66	6	45
736512	75		6	5
736513		95	6	5
736514	116		6	55
736515		136	6	55
736516	146		6	6
736517		166	6	6

Drive pins with chisel carbide SR for tooling direction M3

cat. no.	clamping Ø		length l3	for type
	D1	D3		
model A				
736518		17	6	01
736519		19	8	0
736520		26	8	1
736521		20	6	11
736522		36	10	2
736523		44	10	3
model B				
736524	34		6	35
736525		46	6	35
736526	44		6	4
736527		56	6	4
736528	54		6	45
736529		66	6	45
736530	75		6	5
736531		95	6	5
736532	116		6	55
736533		136	6	55
736534	146		6	6
736535		166	6	6

Drive pins with chisel carbide NV for tooling direction M3/M4

cat. no.	clamping Ø		length l3	for type
	D1	D3		
model A				
736536		17	6	01
736537		19	8	0
736538		26	8	1
736539		20	6	11
736540		36	10	2
736541		44	10	3

Changeable inserts for type 35-6, model B

cat. no.	changeable parts
736550	carbide insert
736551	set screw for fastening of carbide insert

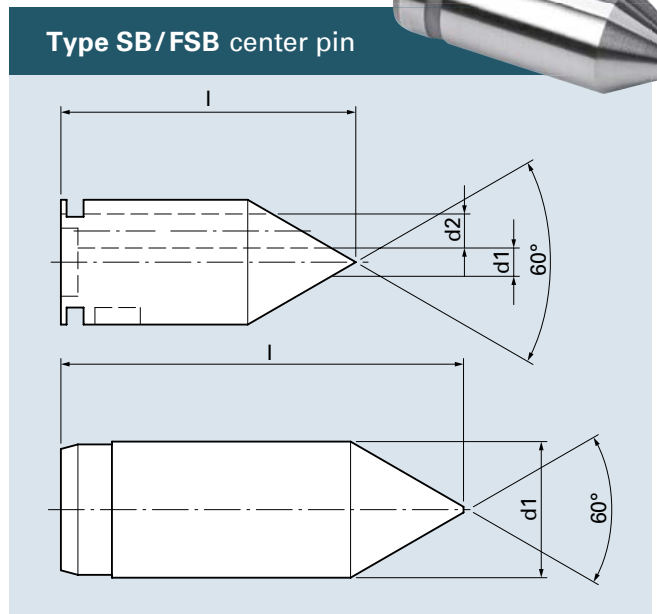
- Drive Pins are supplied with carbide inserts.
- Further clamping-Ø of drive pins upon request.



Center Pins SB/FSB

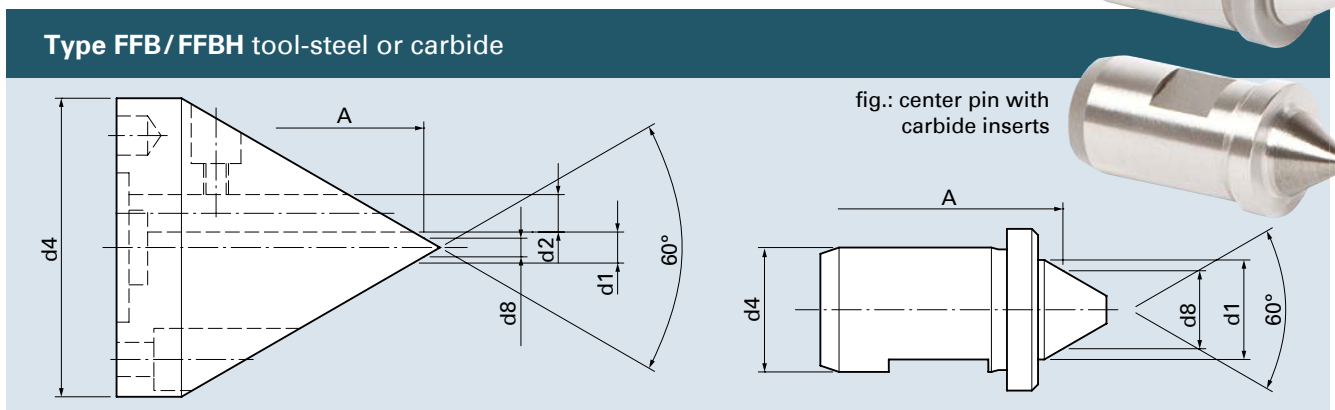
for face driver SB/FSB with movable center pin

cat. no.	type	d1	center Ø	d2	l
735101	SB/FSB 01	5	0 - 5	6	52
73501	SB/FSB 0	3	0 - 3	8	52
73511	SB/FSB 11	6	0 - 6	-	53
73502	SB/FSB 1	8	0 - 8	-	53
73503	SB/FSB 2	14	2 - 14	-	47
73504	SB/FSB 3	18	2 - 18	-	51
73509	SB/FSB 35	14	2 - 14	-	47
73505	SB/FSB 4	24	3 - 24	-	70
73510	SB/FSB 45	28	3 - 28	-	74
73506	SB/FSB 5	35	6 - 35	-	96
73508	SB/FSB 55	35	6 - 35	-	96
73507	SB/FSB 6	35	6 - 35	-	96
735301	FSB 7	50	25 - 48	-	100
735401	FSB 75	50	25 - 48	-	100
735601	FSB 8	80	30 - 76	-	135
735501	FSB 85	80	30 - 76	-	135



Center Pins FFB/FFBH

for face drivers FFB/FFBH with fixed center



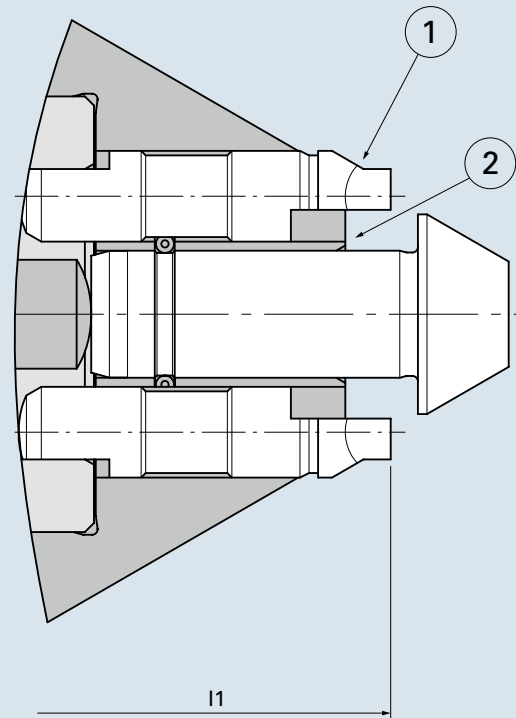
cat. no. tool-steel	cat. no. carbide	type	d1	d2	d4	center Ø	d8
73401	73443	FFB 01	5	6	48	1 - 5	3.5
734101	73444	FFB 0	3	8	48	1 - 3	3
73411	73433	FFB 11	7.8	-	6	2 - 6.5	4.25
73402	73434	FFB 1	9.8	-	8	4 - 8.5	6.25
73403	73435	FFB 2	10	-	14	4 - 9	6.5
73404	73436	FFB 3	12	-	18	6 - 11	8.5
73412	73437	FFB 35	10	-	14	4 - 9	6.5
73405	73438	FFB 4	16	-	20	10 - 15	12.5
73406	73439	FFB 45	16	-	28	10 - 15	12.5
73407	73440	FFB 5	16	-	35	10 - 15	12.5
73408	73441	FFB 55	16	-	35	10 - 15	12.5
73409	73442	FFB 6	16	-	35	10 - 15	12.5

Drive Pins and Center Pins of Special Design

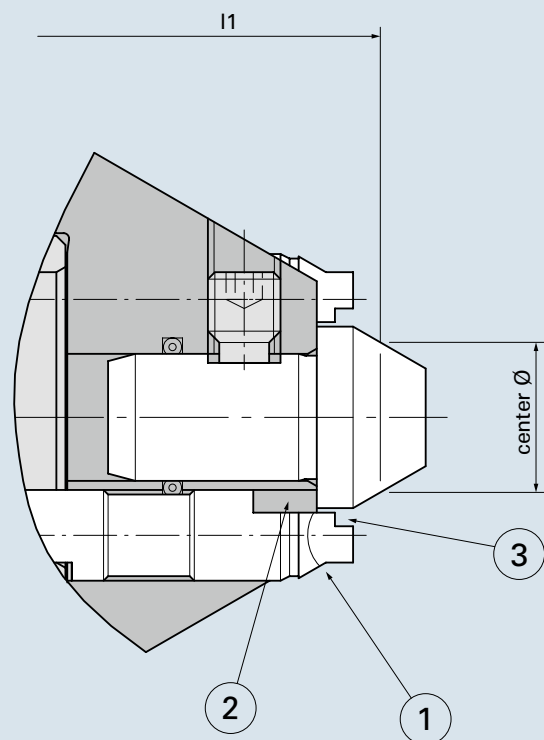
for various work piece surfaces and clamping conditions we design and manufacture a variety of drive pins and center pins of special design

- cylindrically set-down tooling clearance for cutting tools
- inside set-down: clearance for center pin
- shortened length of chisel: ideal load of chisel

Sample of special design type SB/FSB



Sample of special design type FFB





Data Sheet for Requesting an Offer:

name of company: _____

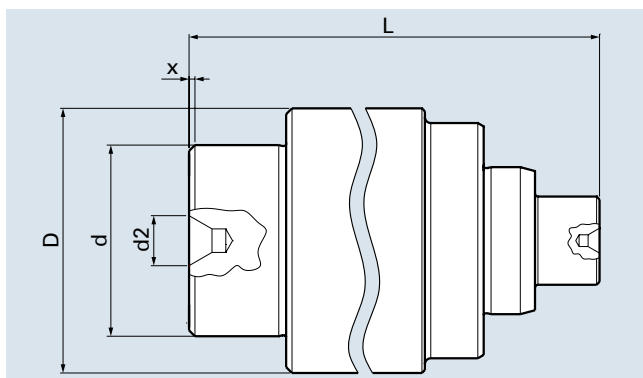
Mr. / Ms.: _____

phone: _____

fax: _____

e-mail: _____

data of work piece:



● material

= _____

● work piece soft – carbide

= _____

● largest tooling-Ø D and length L

= _____

● tooling-Ø d and chamfer x

= _____

● size of center-Ø d2 [mm] and shape

= _____

● drawing of work piece enclosed

☐ yes ☐ no

data of machine:

● size of spindle

= _____

● possibly size of taper in spindle

= _____

● maximum force of clamping cylinder F_s [N]

= _____

● tooling direction of spindle M3

☐

● tooling direction of spindle M4

☐

● size of taper in tailstock

= _____

● maximum tailstock force F_R [N]

= _____

● tailstock center sleeve live

☐

● tailstock center sleeve fixed

☐

face drivers/drive pins:

face driver types:

● SB/FSB – movable center pin
datum-point surface workpiece

☐

● FFB – fixed center pin
datum-point center size

☐

● tooling direction SR (M3)

☐

● tooling direction SL (M4)

☐

● bi-directional NV

☐

● diamond tipped

☐

● FV diamond embedded

☐

● KV hard coated

☐

live centers:

● type RN/RNC/RNA/RNW

= _____

dead center:

● type FN/FNC/FNA/FNW

= _____



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Face Drivers for Soft Turning with Drive Disks

- FSP
- FSPB
- Changeable Parts



Face Drivers FSP/FSPB

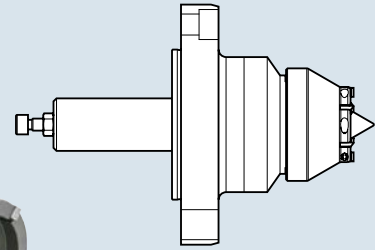
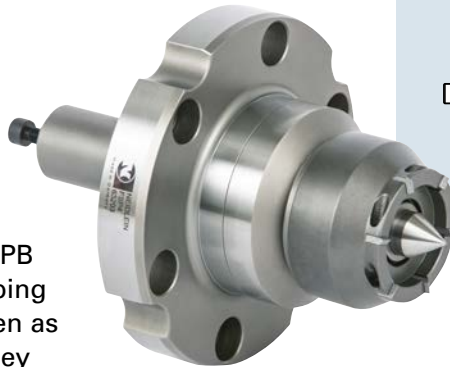
Clamping tools for machining between centers

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

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

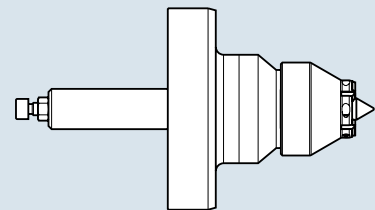
These face drivers are power-operated by the thrust of the tailstock. Work pieces are clamped centrally using a movable center pin. This way different centerings can be adjusted, thus ensuring a constant datum-point at the face end of the work piece.

Type FSP with flange retainer for screw connection



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

Type FSPB with flange retainer for jaw clamping

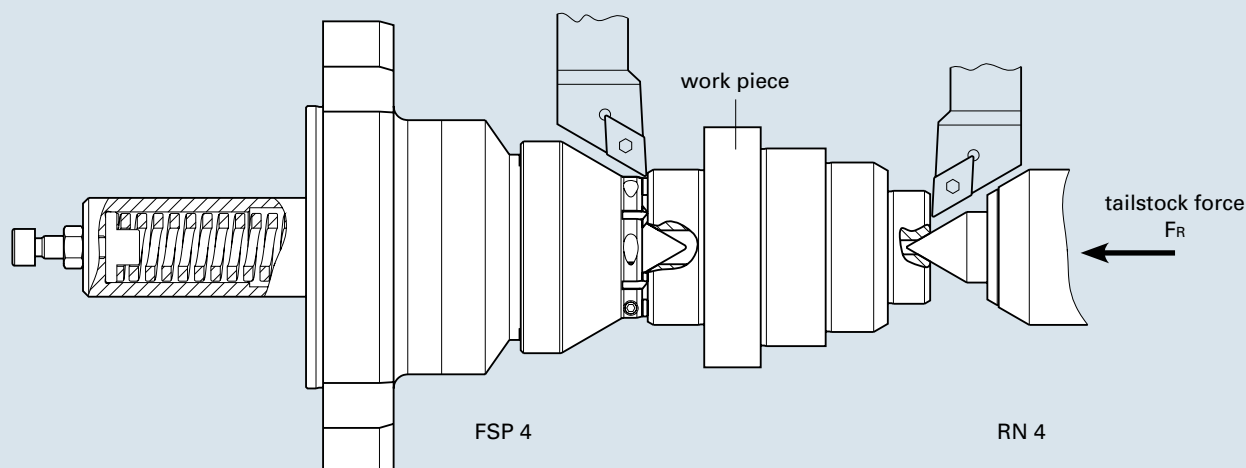


Type FSBP is directly clamped with the chuck using soft jaws.

NEIDLEIN face drivers FSP/FSPB ensure:

- a maximum of torque transmission, thus achieving high metal removing rates
- datum-point at the face end of work piece, stable datum-point in case of different centerings
- compensating drive disk
- high flexibility in the application, wide range of clamping diameters
- fixed center pin in clamped condition
→ fixed clamping point
- maximum deviation of true run-out accuracy 0.01-0.02 mm
- adjustable spring force (depending on weight of work piece)
- low setup costs due to fast change of drive disks and center pins
- cost efficient exchange of parts that are in contact with work piece (changeable carbide inserts)

Type FSP with flange retainer



Clamping principle

The center pin located on the side of the tailstock pushes the work piece against the movable center pin of the face driver. The center pin will draw back until the surface of the work piece 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 work piece.

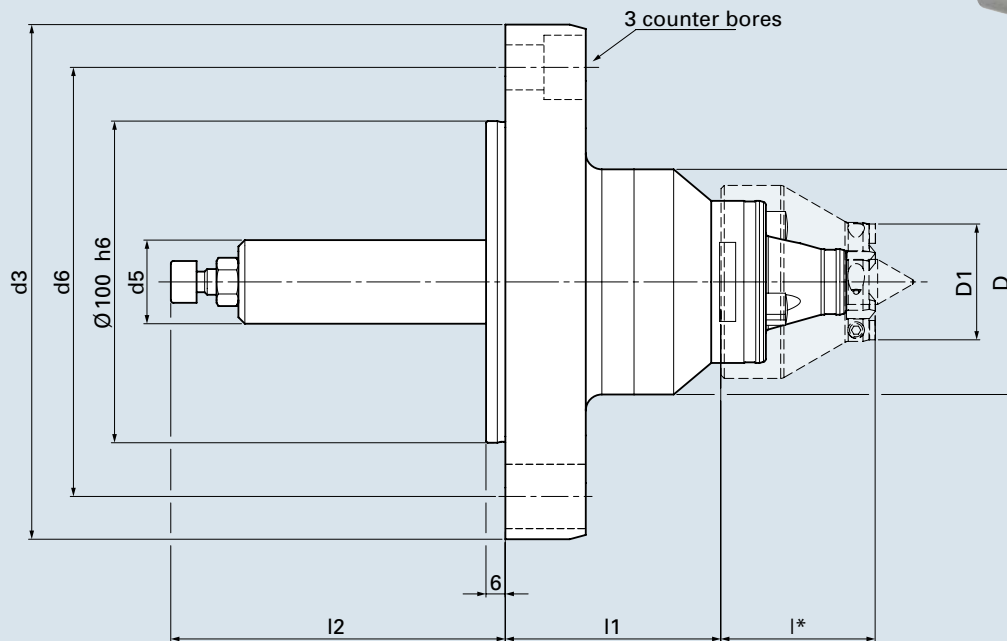
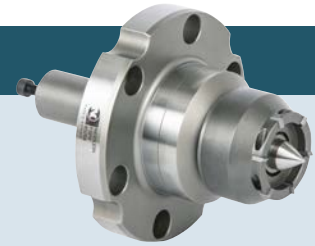
The entire surface of the work piece can now be tooled in one single clamping. See brochure 1.1 page 6 and 7 for data of achievable removal of material and the tailstock thrust requested.

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 work pieces.

Technical data – type FSP face driver

For screw connection



l* lengths of drive disk see page 6+7

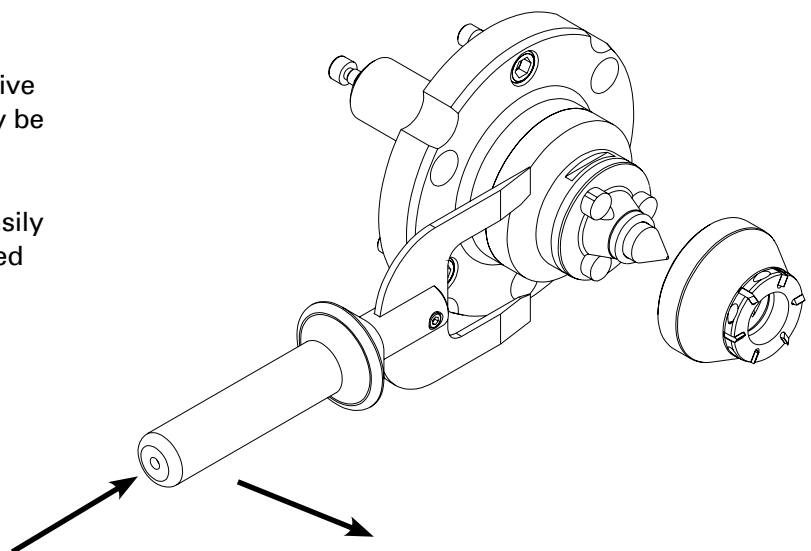
cat. no.	type	D	D1	d3	d5	d6	l1	l2	fixing screws	
									type	pcs
63201	FSP 3	70	9 - 59	160	26	133.4	67	104	M12	3
63203	FSP 4	90	31 - 125	160	35	133.4	70	110	M12	3
63205	FSP 55	182	84 - 290	220	45	171.4	76	170	M16	3

- Face drivers for turning and milling upon request.
- All face drivers are provided without drive disk and without center pin. (changeable parts see page 6-8)
- Mounting elements for face drivers see brochure 2.0

Removal of drive disks

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

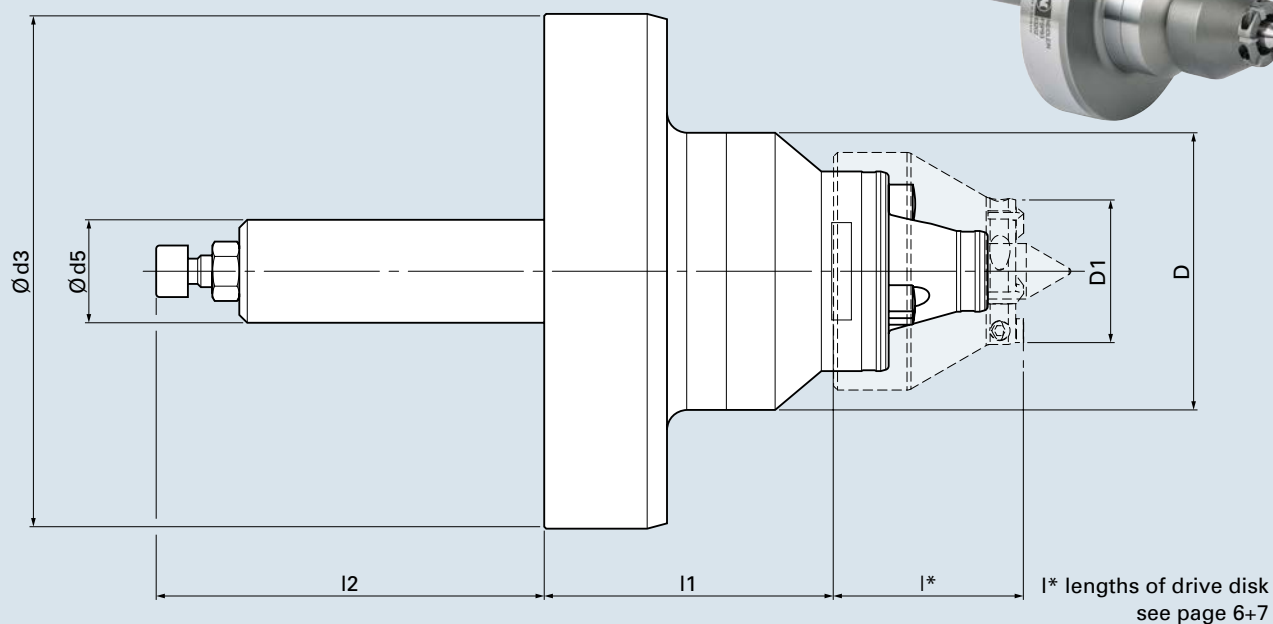
The removal lever is placed laterally and easily inserted. Thus the drive disk can be loosened through a tilting movement.





Technical data – type FSPB face driver

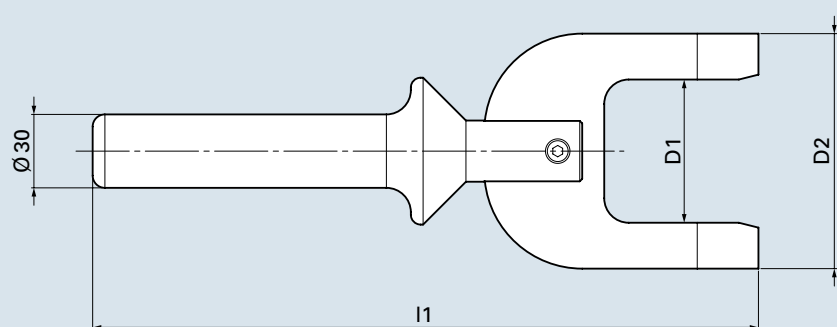
For jaw clamping



cat. no.	type	D	D1	d3	d5	l1	l2
63202	FSPB 3	70	9 - 59	130	26	73	98
63204	FSPB 4	90	31 - 125	130	35	76	104

- Face drivers for turning and milling upon request.
- All face drivers are provided without drive disk and without center pin. (changeable parts see page 6-8)

Technical data – removal lever for drive disks

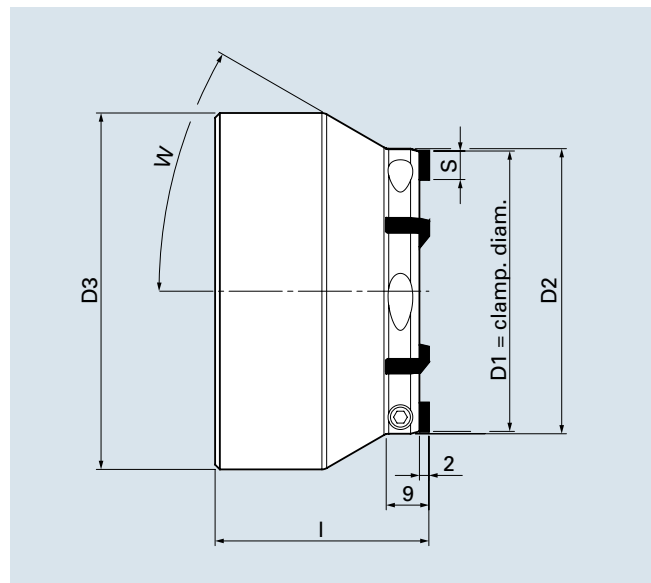
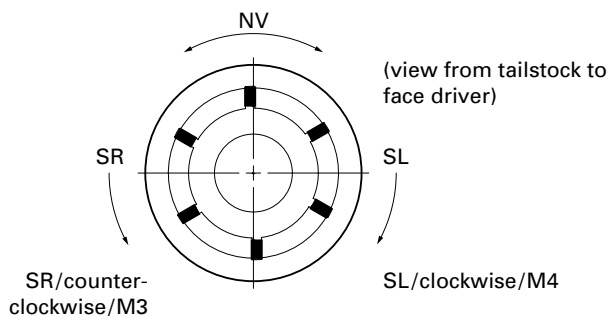
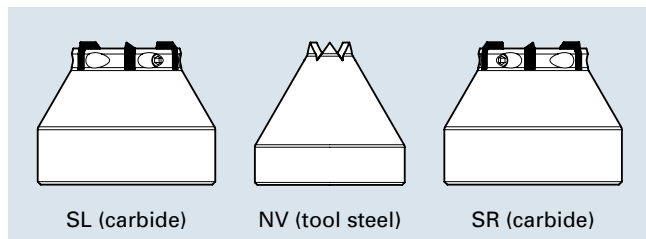


cat. no.	type	D1	D2	l1
63220	FSP / FSPB 3	44.5	80	262
63221	FSP / FSPB 4	58.5	96	272
63222	FSP 55	130.5	190	310

Drive Disks Chisel NV/SL/SR

Drive disks with changeable carbide inserts or made of tool steel for torque transmission onto the work piece for the purpose of soft/green tooling.

Type FSP/FSPB chisel NV/SL/SR



Drive disks FSP/FSPB 3

cat. no.		D1	D2	D3	I	W	number of chisels	S	FR (N)
NV									
73800		9	9	60	57	45°	6 (tool steel)	1.5	2700
73801		11	11	60	57	40°	6 (tool steel)	2.0	3600
73802		14	14	60	57	35°	6 (tool steel)	2.5	4500
73803		18	18	60	57	30°	6 (tool steel)	3.0	5400
SL	SR								
73804	73824	22	24	60	57	30°	5 (carbide)	4	6000
73805	73825	26	28	60	53	30°	5 (carbide)	4	6000
73806	73826	31	33	60	48	30°	6 (carbide)	4	7200
73807	73827	36	37	60	48	30°	5 (carbide)	6	9000
73808	73828	39	40	60	48	30°	5 (carbide)	6	9000
73809	73829	44	45	60	48	30°	6 (carbide)	6	10800
73810	73830	49	50	60	48	30°	6 (carbide)	6	10800
73811	73831	59	60	60	48		6 (carbide)	6	10800

- All drive disks of carbide version will be provided with the respective carbide inserts.
- Drive disks for turning and milling upon request.
- Additional clamping diameters of drive disks upon request.



Drive disks FSP/FSPB 4

cat. no.		D1	D2	D3	I	W	Number of chisels	S	FR (N)
SL	SR								
73840	73860	31	33	75	50	45°	6 (carbide)	4	7200
73841	73861	36	38	75	50	38°	6 (carbide)	4	7200
73842	73862	39	41	75	45	45°	6 (carbide)	4	7200
73843	73863	44	45	75	45	38°	6 (carbide)	6	10800
73844	73864	49	50	75	45	30°	6 (carbide)	6	10800
73845	73865	59	60	75	45	30°	6 (carbide)	6	10800
73846	73866	69	70	75	45	30°	6 (carbide)	6	10800
73847	73867	84	85	75	45		6 (carbide)	6	10800
73848	73868	99	100	75	45		6 (carbide)	6	10800
73849	73869	110	111	75	45		7 (carbide)	6	12600
73850	73870	125	126	75	45		7 (carbide)	6	12600

- All drive disks are provided with the respective carbide inserts.
- Drive disks for turning and milling upon request.
- Additional clamping diameters of drive disks upon request.

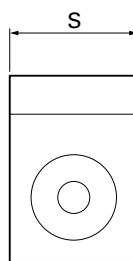
Drive disks FSP 55

cat. no.		D1	D2	D3	I	W	Number of chisels	S	FR (N)
SL	SR								
73880	73900	84	85	160	69	45°	6 (carbide)	6	10800
73881	73901	99	100	160	69	38°	6 (carbide)	6	10800
73882	73902	110	111	160	69	30°	7 (carbide)	6	12600
73883	73903	125	126	160	69	30°	7 (carbide)	6	12600
73884	73904	140	141	160	69	30°	8 (carbide)	6	14400
73885	73905	155	156	160	69	30°	8 (carbide)	6	14400
73886	73906	170	171	160	69		8 (carbide)	6	14400
73887	73907	195	196	160	69		8 (carbide)	6	14400
73888	73908	230	231	160	69		7 (carbide)	10	21000
73889	73909	260	261	160	69		8 (carbide)	10	24000
73890	73910	290	291	160	69		8 (carbide)	10	24000

Changeable inserts for drive disks FSP/FSPB

Carbide inserts

cat. no.	machining direction	for type	S
736548	SL / SR	FSP / FSPB 3, 4	4
736550	SL / SR	FSP / FSPB 3, 4, 55	6
736552	SL / SR	FSP 55	10



Set screw for fixing carbide inserts

cat. no.	thread	for carbide inserts with S =
736549	M4	4
736551	M5	6/10

Information for changing the drive disks

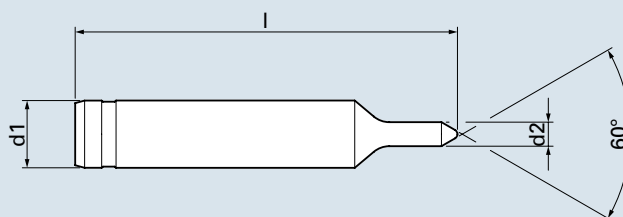
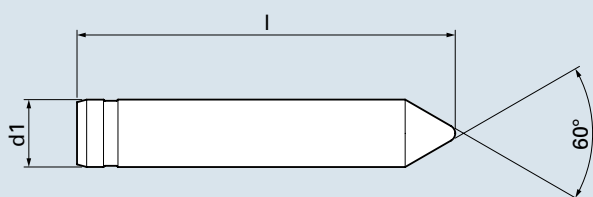
In order to exclude the risk of injury, we recommend to use suitable gloves for changing drive disks. We can provide a mounting aid upon request.

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 (page 5).

Center Pins FSP/FSPB

for face drivers FSP/FSPB
with movable center pin

Type FSP/FSPB center pin



cat. no.	type	d1	center Ø	for clamp. Ø	d2	l
73550	FSP/FSPB 3	14	3 - 5	9	5	79.5
73551	FSP/FSPB 3	14	3 - 6	11	6	80.5
73552	FSP/FSPB 3	14	3 - 7	14	7	81.5
73553	FSP/FSPB 3	14	3 - 10	18	10	84.5
73554	FSP/FSPB 3	14	3 - 11	22	11	85.5
73555	FSP/FSPB 3	14	3 - 10	26		81
73556	FSP/FSPB 3	14	3 - 10	31 - 59		76
73557	FSP/FSPB 3	14	7 - 14	31 - 59		78.5
73570	FSP/FSPB 4	20	3 - 13	31 - 36		80.5
73571	FSP/FSPB 4	20	3 - 13	39 - 125		75.5
73572	FSP/FSPB 4	20	10 - 20	39 - 125		80
73580	FSP 55	35	10 - 20	84 - 290		113
73581	FSP 55	35	18 - 28	84 - 290		118
73582	FSP 55	35	25 - 35	84 - 290		123



Face Drivers for Grinding

- **FFBR**
with Flange Retainer
- **FBSR**
with Taper Shank Retainer
- **FFB/FFBH**
- **Changeable Parts**
- **Special Face Drivers**
FBSR PN / FFPR / FBS



Face Drivers FFBR

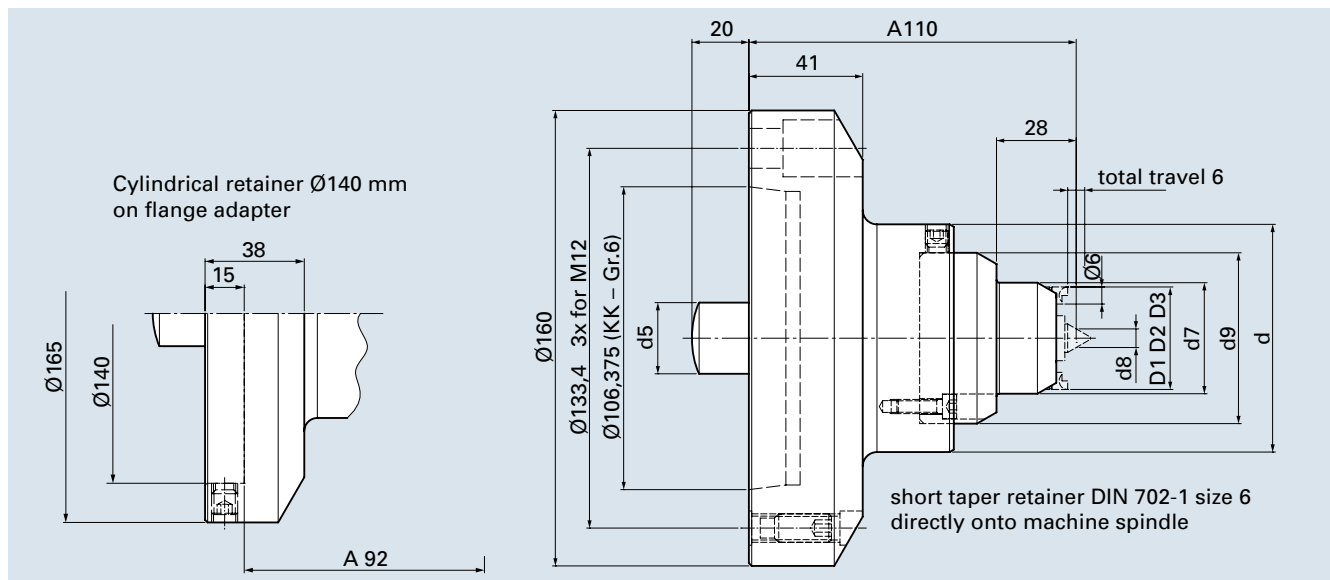
Type FFBR with flange retainer

Clamping tools for grinding between centers

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

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

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)



- Face drivers without changeable parts (types 0/01 include center body). Center pins, center bodies and drive pins see page 4 and 5.
- All face drivers for grinding are designed for 3 drive pins only.

cat. no. zyl. Ø 140	cat. no. KK Gr. 6	type	d	center Ø	d5	d7	d8	d9	clamping diameter-Ø D1 D2 D3		
72631	72601	FFBR 0	65	1 - 3	18	16	1.5	48	6	9	15
72632	72602	FFBR 01	65	1 - 5	18	18	3	48	8	11	17
72633	72603	FFBR 11	65	2 - 6.5	18	21	4.25	48	11	14	20
72634	72604	FFBR 1	65	4 - 8.5	18	25	6.25	48	15	18	24
72635	72605	FFBR 2	77	4 - 9	25	38	6.5	60	27	30	36
72636	72606	FFBR 3	85	6 - 11	25	46	8.5	68	35	38	44
72637	72607	FFBR 4	110	10 - 15	25	62	12.5	85	50	53	59

NEIDLEIN face drivers FFBR / FBSR ensure:

- datum-point located in center of work piece
- maximum deviation from run-out 0.002-0.003mm
- compensating drive components
- retracting of drive pins in case of on- or off-loading
- adjustment true at face drivers for highest run-out requirements



Face Drivers FBSR

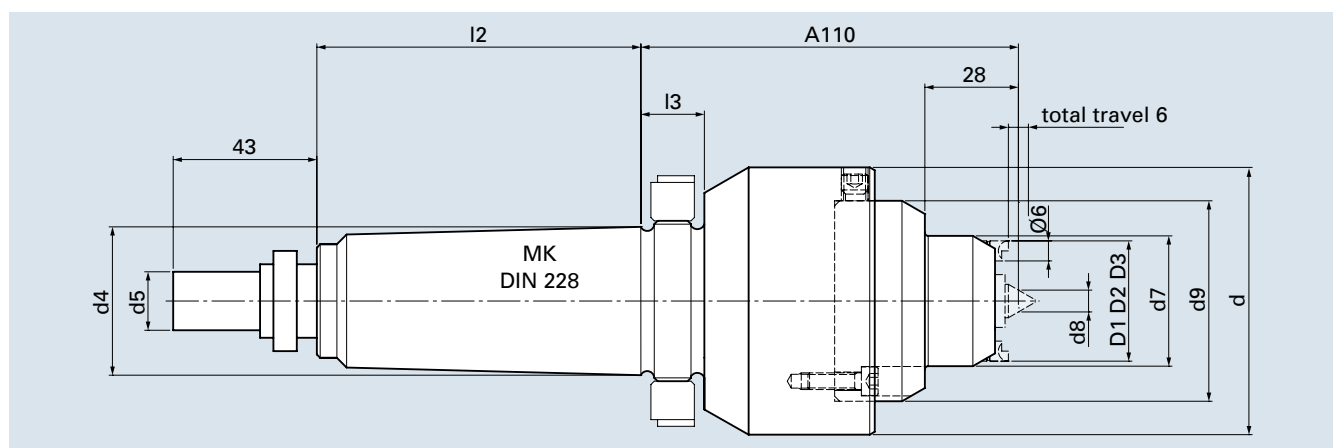
Clamping tools for grinding between centers

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.

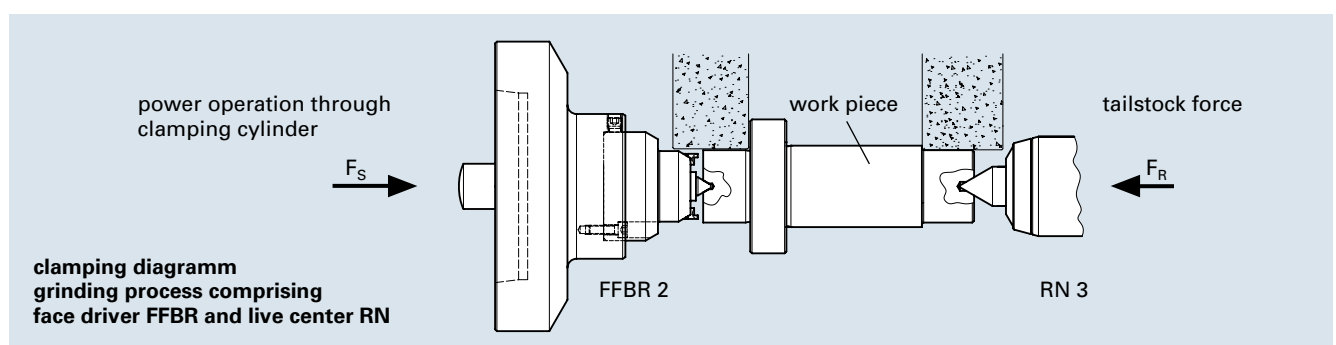
Matching changeable parts for grinding soft or hardened work pieces can be found on pages 4 and 5.

Type FBSR with morse taper retainer



- Face drivers without changeable parts (types 0/01 include center head). center pins, center heads and drive pins see pages 4 and 5.
- All face drivers for grinding are designed for 3 drive pins only.

cat. no.	type	MK	d	center Ø	d5	d7	d8	d9	L	I2	I3	clamping diameter-Ø		
												D1	D2	D3
72651	FBSR 0	4	65	1 - 3	11.5	16	1.5	48	183	73	16	6	9	15
72652	FBSR 01	4	65	1 - 5	11.5	18	3	48	183	73	16	8	11	17
72653	FBSR 11	4	65	2 - 6.5	11.5	21	4.25	48	183	73	16	11	14	20
72654	FBSR 1	4	65	4 - 8.5	11.5	25	6.25	48	183	73	16	15	18	24
72655	FBSR 1	5	65	4 - 8.5	17.5	25	6.25	48	207	97	19	15	18	24
72656	FBSR 2	4	77	4 - 9	11.5	38	6.5	60	183	73	16	27	30	36
72657	FBSR 2	5	77	4 - 9	17.5	38	6.5	60	207	97	19	27	30	36
72658	FBSR 3	4	85	6 - 11	11.5	46	8.5	68	183	73	16	35	38	44
72659	FBSR 3	5	85	6 - 11	17.5	46	8.5	68	207	97	19	35	38	44
72660	FBSR 4	4	110	10 - 15	11.5	62	12.5	85	183	73	16	50	53	59
72661	FBSR 4	5	110	10 - 15	17.5	62	12.5	85	207	97	19	50	53	59



Center Pins/Center Heads FFBR/FBSR

for face drivers FFBR/FBSR
with dead center

Type FFBR/FBSR tool steel or carbide metal

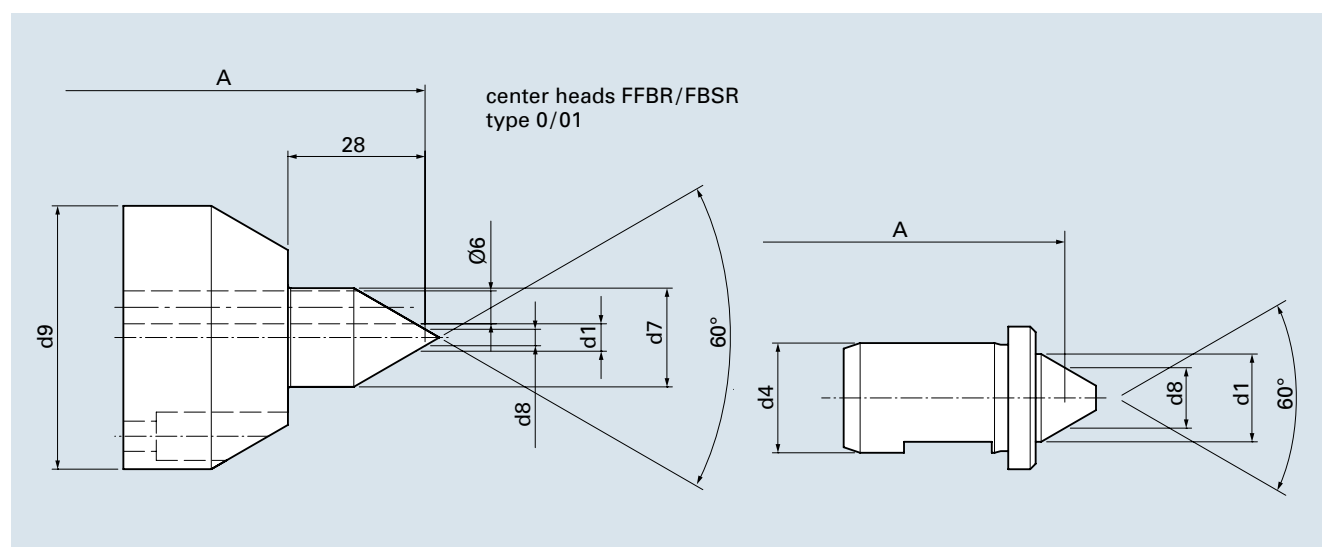
For **maximum stability and run-out requirements** the center pins are produced with narrow tolerances and are fixed safely via set screw and **plane surface** inside the face driver.

For a large batch of hardened work pieces 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**.



fig. center pin with carbide insert



cat. no tool-steel	cat. no carbide	type	d1	d4	for center Ø	d7	d8	d9
73415	73431	FFBR 0	3	-	1 - 3	18	1.5	48
73416	73432	FFBR 01	5	-	1 - 5	18	3	48
73411	73433	FFBR 11	7.8	6	2 - 6.5	-	4.25	-
73402	73434	FFBR 1	9.8	8	4 - 8.5	-	6.25	-
73403	73435	FFBR 2	10	14	4 - 9	-	6.5	-
73404	73436	FFBR 3	12	18	6 - 11	-	8.5	-
73405	73438	FFBR 4	16	20	10 - 15	-	12.5	-

Further dimensions upon request.

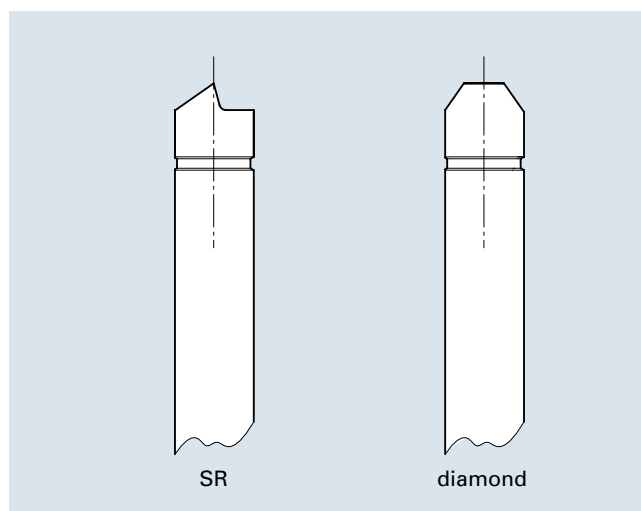
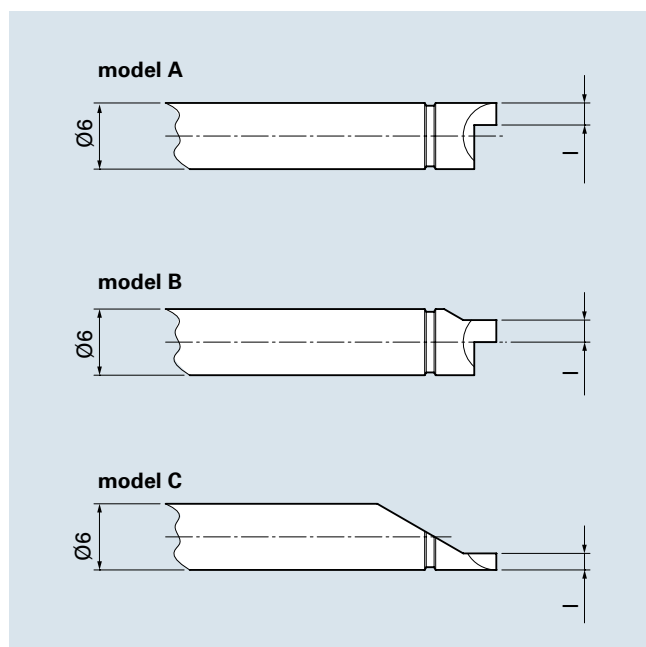
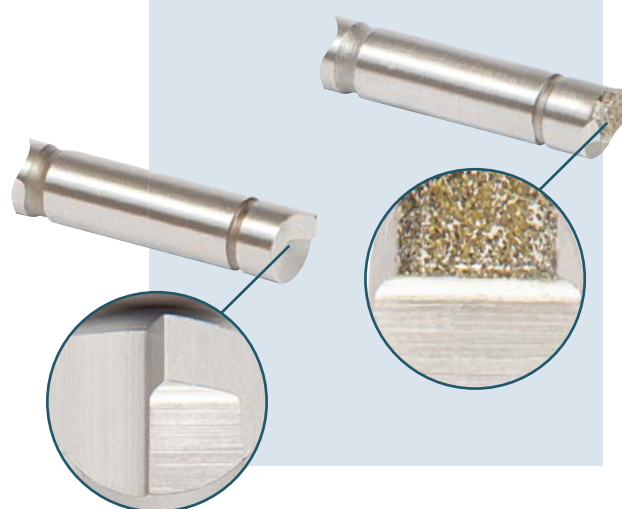
Drive Pins FFBR / FBSR

Drive pins for torque transmission onto the work piece by grinding soft and hardened work pieces.

For soft work pieces 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 work pieces we apply drive pins that are diamond coated. They are characterized by a high friction-coefficient.

Type FFBR / FBSR
 chisel or diamond coating



cat. no.	type	for clamping diameter	l	model
736651	SR	D1	1.5	C
736652	SR	D2	2	B
736653	SR	D3	2	A
736654	diamond	D1	1.5	C
736655	diamond	D2	3	B
736656	diamond	D3	3	A

● Clamping diameter D1, D2, D3 see pages 2-3.

Further dimensions upon request.

Face Drivers FFB/FFBH

Clamping tools for machining between center pins

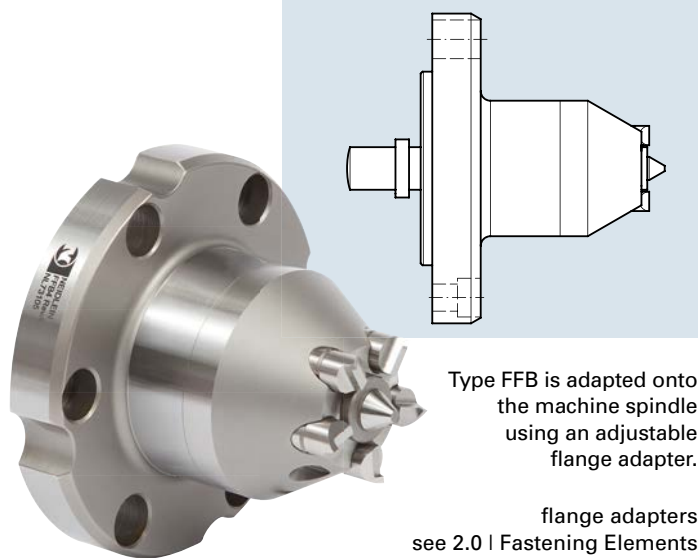
The entire surface of the work piece can be finished with one single clamping and with a maximum of torque transmission. NEIDLEIN face drivers are clamping systems, which are equally suitable for soft and hard work pieces.

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 **FFB/FFBH**, especially when machining large-size work pieces.

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

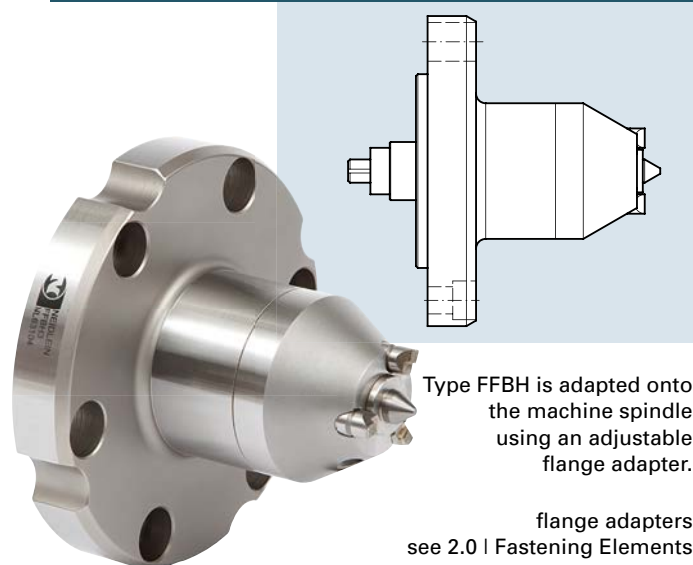
Type FFB with flange retainer



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

flange adapters
see 2.0 | Fastening Elements

Type FFBH with flange retainer



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

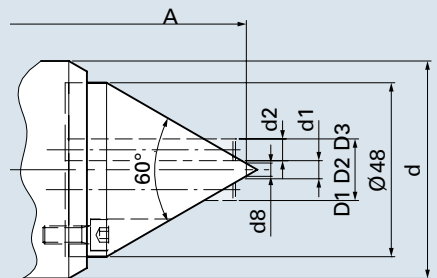
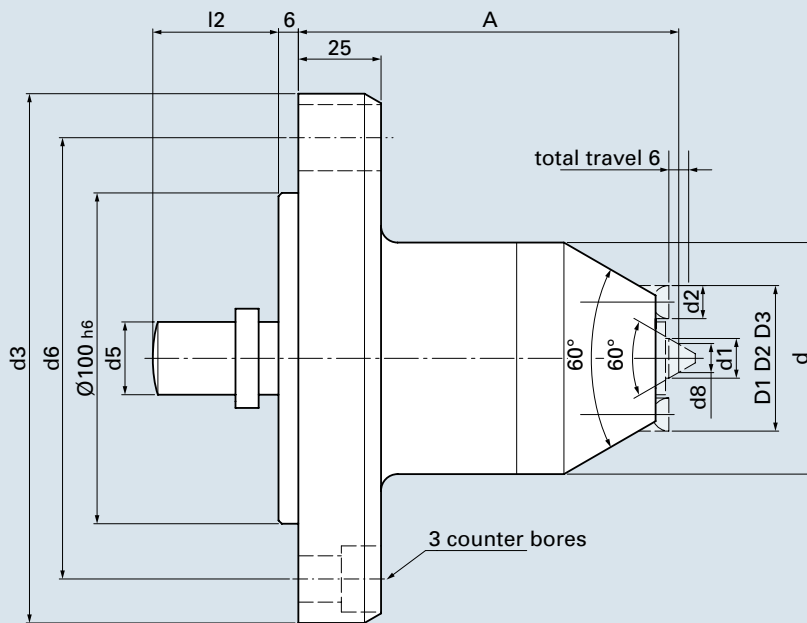
flange adapters
see 2.0 | Fastening Elements

NEIDLEIN face drivers FFB/FFBH ensure:

- datum-point located in center of work piece
- maximum deviation from run-out 0.002 - 0.003 mm
- adjustment true via adjustable flange adapter for highest run-out requirements
- compensating drive components/optimal clamping of work piece
- easy handling
- face driver type FFBH comprises a hydraulic unit which is exchangeable as a complete package



Specifications – type FFB face driver



type FFB 01/0

cat. no.	type	d	d1	center Ø	d2	d3	d5	d6	d8	A	l2	drive pins	clamping type	screws pieces	clamping diam.-Ø		
73101	FFB 01	60	5	1 - 5	6	160	18	133.4	3.5	115	38	3	M12	3	8	11	17
73112	FFB 0	60	3	1 - 3	8	160	18	133.4	3	115	38	3	M12	3	6	11	19
73111	FFB 11	42	7.8	2 - 6.5	6	160	12	133.4	4.25	115	38	3	M12	3	11	14	20
73102	FFB 1	48	9.8	4 - 8.5	8	160	18	133.4	6.25	115	38	3	M12	3	13	18	26
73103	FFB 2	70	10	4 - 9	10	160	22	133.4	6.5	115	38	3	M12	3	26	31	36
73104	FFB 3	70	12	6 - 11	10	160	22	133.4	8.5	115	38	3	M12	3	34	39	44
73113	FFB 35	80	10	4 - 9	15	160	22	133.4	6.5	115	38	3	M12	3	29	39	49
73105	FFB 4	90	16	10 - 15	15	160	25	133.4	12.5	115	38	5	M12	3	39	49	59
73106	FFB 45	100	16	10 - 15	15	160	25	133.4	12.5	115	54	5	M12	3	49	59	69
73107	FFB 5	132	16	10 - 15	20	160	25	133.4	12.5	115	54	5	M12	3	69	84	99
73108	FFB 55	182	16	10 - 15	20	220	40	171.4	12.5	155	54	5	M16	3	110	125	140
73109	FFB 6	220	16	10 - 15	20	250	40	210	12.5	171	54	5	M20	3	140	155	170

- All face drivers are supplied without drive pins. (Drive pins see page 10 - 11)
- Types FFB 01/0 are supplied with center body, all other types without center pin. (Center pin see page 9)
- The diameter d8 refers to the standard center pins (see page 9).
- Retaining elements for face drivers see brochure 2.0

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 702-1) or for vendor-specific spindle heads in particular.

Thus face drivers of range FFB can be assembled universally on various machines.

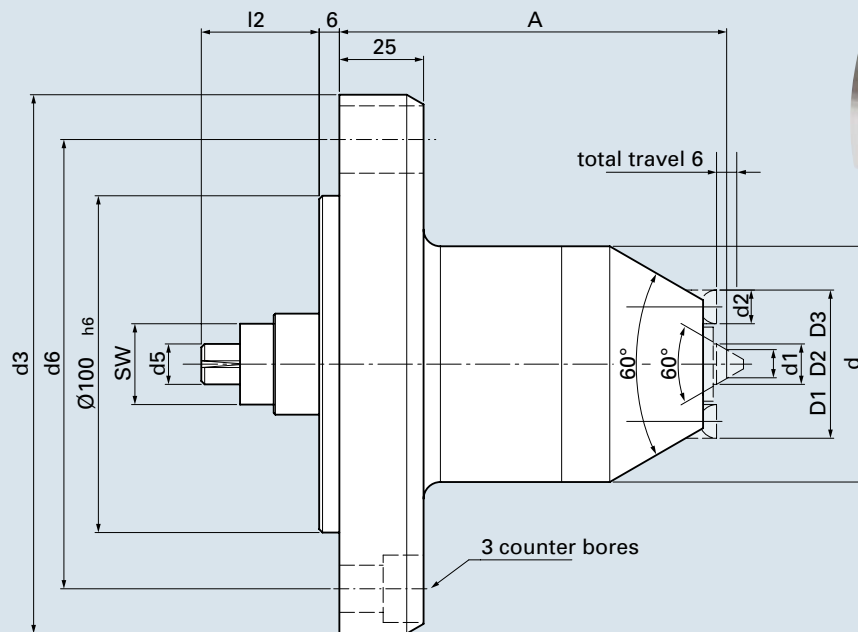
Driving components and center pin are easily exchanged from the front part of the machine.

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

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.

Specifications – type FFBH face driver

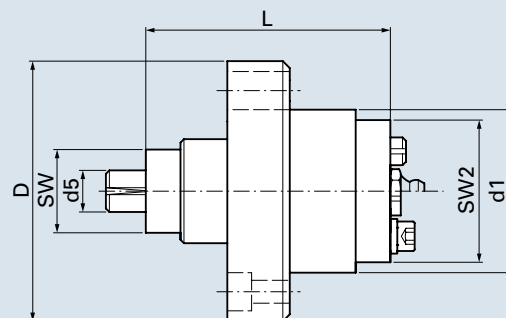


cat. no.	type	d	d1	center \varnothing	d2	d3	SW	d5	d6	d8	A	l2	drive pins	clamping screws		clamping diam.- \varnothing		
														type	pieces	D1	D2	D3
63102	FFBH 1	70	9.8	4 - 8.5	8	160	24	12	133.4	6.25	115	35	3	M12	3	13	18	26
63103	FFBH 2	70	10	4 - 9	10	160	24	12	133.4	6.5	115	35	3	M12	3	26	31	36
63104	FFBH 3	70	12	6 - 11	10	160	24	12	133.4	8.5	115	35	3	M12	3	34	39	44
63106	FFBH 4	90	16	10 - 15	15	160	34	12	133.4	12.5	132	35	5	M12	3	39	49	59
63107	FFBH 45	100	16	10 - 15	15	160	34	12	133.4	12.5	132	35	5	M12	3	49	59	69
63108	FFBH 5	132	16	10 - 15	20	160	34	12	133.4	12.5	149	35	5	M12	3	69	84	99

- All face drivers are supplied without drive pins and without center pins. (Changeable parts see page 9-11)
- The diameter $d8$ refers to the standard center pins (see page 9).
- Retaining elements for face drivers see brochure 2.0

cat. no.	type	SW	d5	L	d1	SW2	D
63102HE	FFBH 1	24	12	70.5	47	41	75
63102HE	FFBH 2	24	12	70.5	47	41	75
63102HE	FFBH 3	24	12	70.5	47	41	75
63106HE	FFBH 4	34	12	70.5	65	59	93
63106HE	FFBH 45	34	12	70.5	65	59	93
63108HE	FFBH 5	34	12	70.5	87	81	131

Specifications – type FFBH hydraulic unit



General notes on face driver FFBH can be found on page 7 "specifications – type FFB".

In order to ensure a safe production process, we recommend exchanging the hydraulic unit after 1500 operating hours.

We can provide full rebuild and restoration to these units on our works.



Center Pins/Center Heads FFB/FFBH

for face drivers FFB/FFBH with dead 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 **flat** inside the face driver.

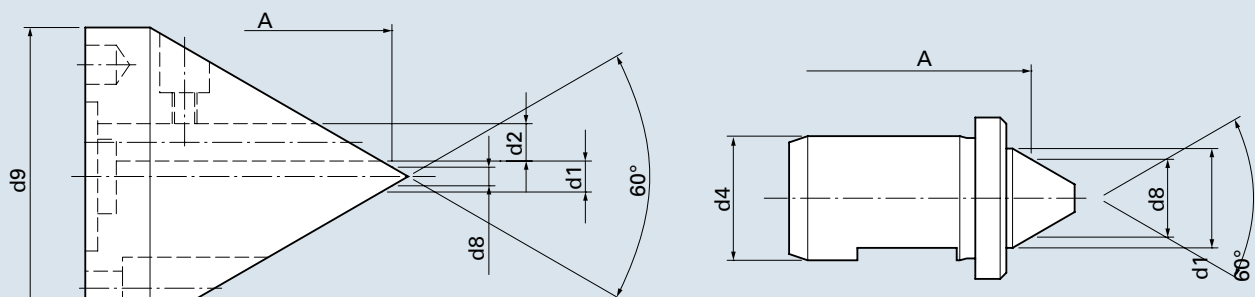
For a large batch of hardened work pieces we recommend the construction comprising **carbide insert**. Center heads of type 0/01 consist of 60°-taper tip that are carbide coated.

Due to the **accurate assembly** between center pin and head of face driver we ensure **replacements** which are of the highest accuracy.

Type FFB/FFBH tool steel or carbide metal



fig. center pin with carbide insert



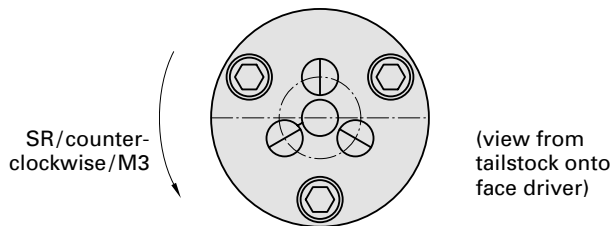
cat. no. tool-steel	cat. no. carbide	type	d1	d2	d4	for center Ø	d8
73401	73443	FFB 01	5	6	48	1 - 5	3.5
734101	73444	FFB 0	3	8	48	1 - 3	3
73411	73433	FFB 11	7.8	-	6	2 - 6.5	4.25
73402	73434	FFB 1	9.8	-	8	4 - 8.5	6.25
73403	73435	FFB 2	10	-	14	4 - 9	6.5
73404	73436	FFB 3	12	-	18	6 - 11	8.5
73412	73437	FFB 35	10	-	14	4 - 9	6.5
73405	73438	FFB 4	16	-	20	10 - 15	12.5
73406	73439	FFB 45	16	-	28	10 - 15	12.5
73407	73440	FFB 5	16	-	35	10 - 15	12.5
73408	73441	FFB 55	16	-	35	10 - 15	12.5
73409	73442	FFB 6	16	-	35	10 - 15	12.5

Further dimensions upon request.

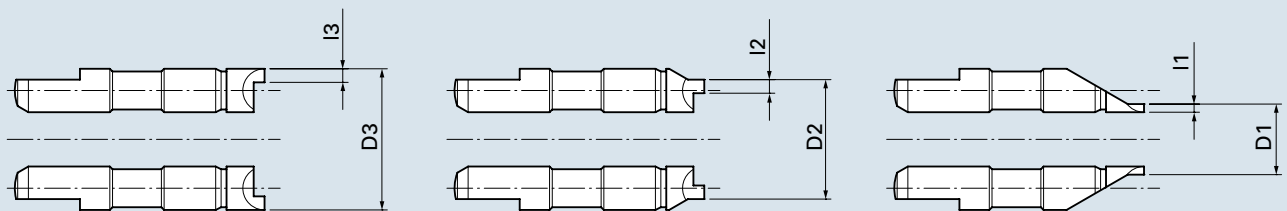
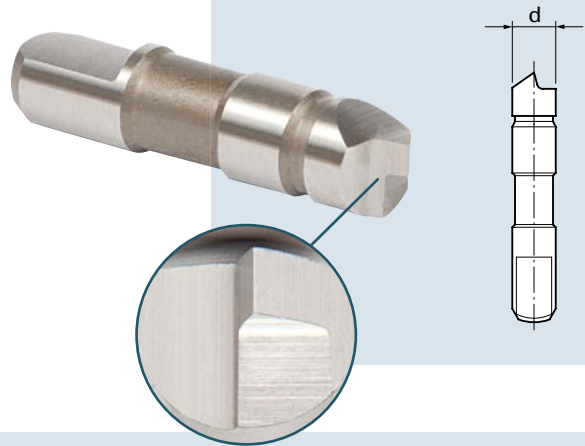
Drive Pins FFB/FFBH – chisel SR

Drive pins for torque transmission onto work piece when machining soft work pieces

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



Type FFB / FFBH chisel SR



cat. no.	clamping diam.-Ø			chisel length			for type
	D1	D2	D3	l1	l2	l3	
736600	8			1.5			FFB 01 d=6
736601		11			2		
736602			17			2	
736603	6			1.5			FFB 0 d=8
736604		11			2		
736605			19			2	
736606	11			1.5			FFB 11 d=6
736607		14			2		
736608			20			2	
736609	13			1.5			FFB 1 d=8
736610		18			2		
736611			26			2	
736612	26			3			FFB 2 d=10
736613		31			3		
736614			36			3	
736615	34			3			FFB 3 d=10
736616		39			3		
736617			44			3	

cat. no.	clamping diam.-Ø			chisel length			for type
	D1	D2	D3	l1	l2	l3	
736618	29			3			FFB 35 d=15
736619		39			3		
736620			49			3	
736621	39			3			FFB 4 d=15
736622		49			3		
736623			59			3	
736624	49			3			FFB 45 d=15
736625		59			3		
736626			69			3	
736627	69			4			FFB 5 d=20
736628		84			4		
736629			99			4	
736630	110			4			FFB 55 d=20
736631		125			4		
736632			140			4	
736633	140			4			FFB 6 d=20
736634		155			4		
736635			170			4	

Further dimensions upon request.

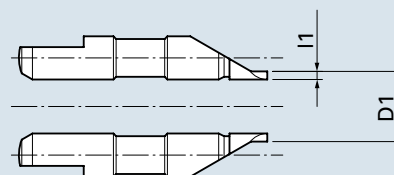
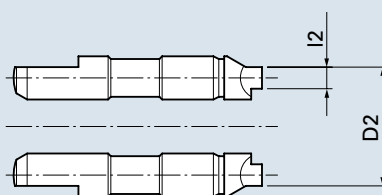
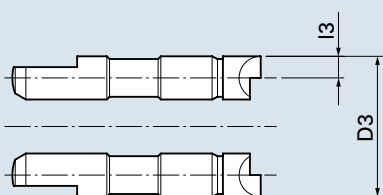
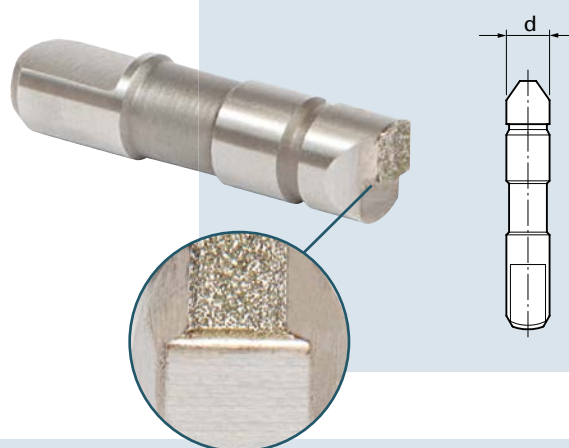


Drive Pins FFB/ FFBH – Diamond

Drive pins for torque transmission onto work piece when machining hardened work pieces

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

Type SB / FSB / FFB / FFBH diamond



cat. no.	clamping diam.-Ø			surface length			for type
	D1	D2	D3	l1	l2	l3	
736300	8			1.5			FFB 01 d=6
736301		11			3		
736302			17			3	
736303	6			1.5			FFB 0 d=8
736304		11			4		
736305			19			4	
736306	11			1.5			FFB 11 d=6
736307		14			3		
736308			20			3	
736309	13			1.5			FFB 1 d=8
736310		18			4		
736311			26			4	
736312	26			5			FFB 2 d=10
736313		31			5		
736314			36			5	
736315	34			5			FFB 3 d=10
736316		39			5		
736317			44			5	

cat. no.	clamping diam.-Ø			surface length			for type
	D1	D2	D3	l1	l2	l3	
736318	29			5			FFB 35 d=15
736319		39			5		
736320			49			5	
736321	39			5			FFB 4 d=15
736322		49			5		
736323			59			5	
736324	49			5			FFB 45 d=15
736325		59			5		
736326			69			5	
736327	69			5			FFB 5 d=20
736328		84			7.5		
736329			99			7.5	
736330	110			5			FFB 55 d=20
736331		125			7.5		
736332			140			7.5	
736333	140			5			FFB 6 d=20
736334		155			7.5		
736335			170			7.5	

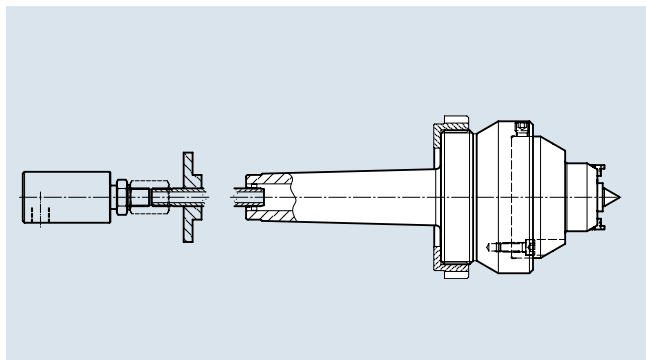


Special Face Drivers for Grinding

Clamping tools for clamping onto machine tools

Made to measure

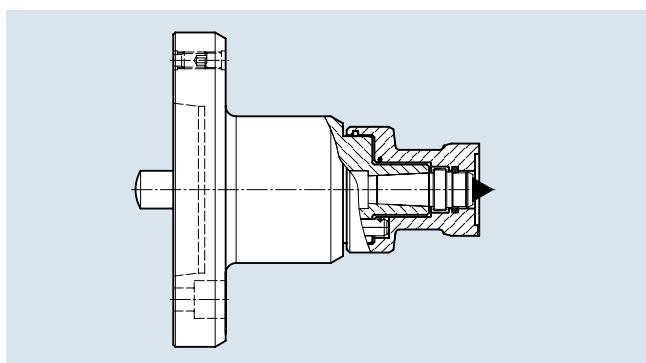
In order to meet the complex requirements of our customers and to cover the various spindle mounting options of machine tools, we develop and produce a variety of special face drivers for clamping work pieces.



Type FBSR-PN special 4532-00



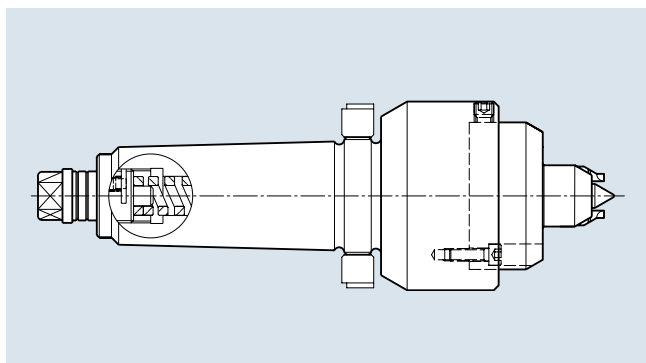
Similar to type FBSR but with **pneumatic power** operation of drive pins. A clamping cylinder therefore is not needed.



Type FFPR special 4462-00



In this case the torque transmission is ensured by using a diamond coated and retractable **drive disk**. The advantages are large frictional surfaces as well as a high degree of flexibility.



Type FBS special 4077-00



Face drivers with **spring loaded** drive pins and dead centers. A clamping cylinder is not needed. Work pieces have to be pre-centered using an auxiliary loading device.



Face Drivers for Milling

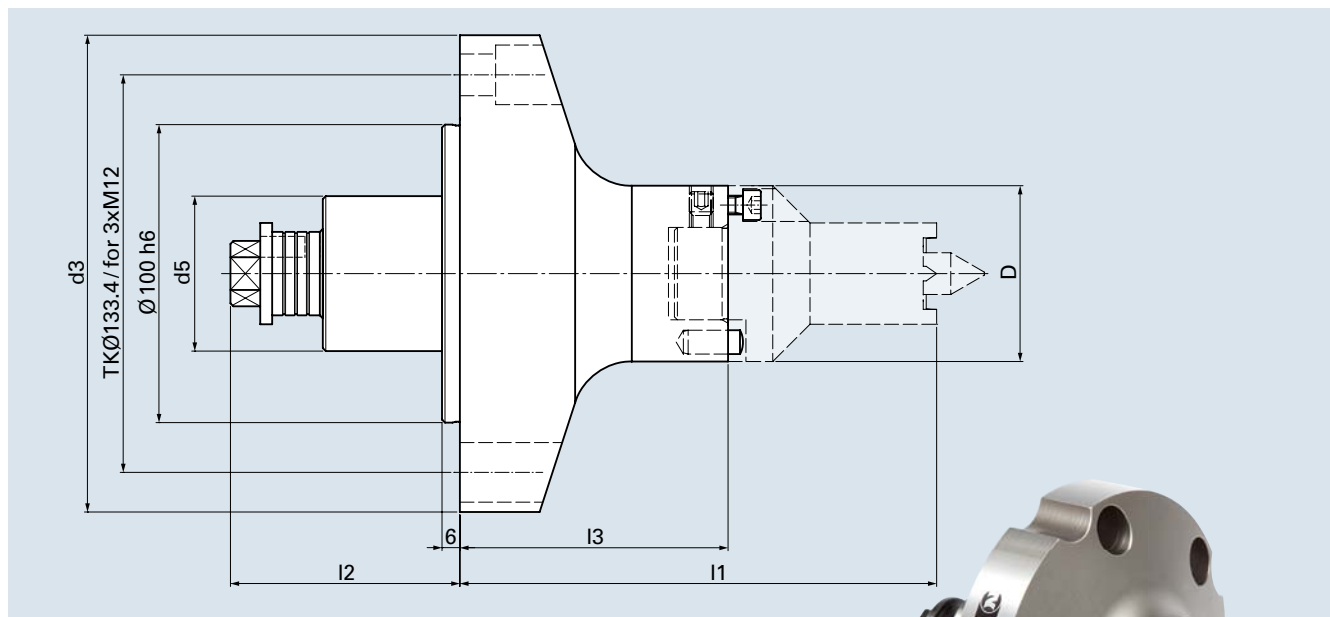
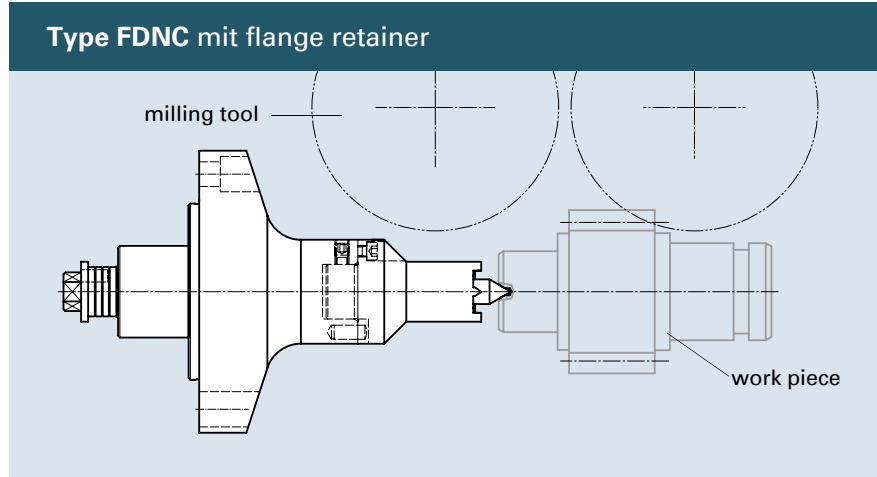
- FDNC
Standard with Flange
Retainer
- FDNC
Changeable Parts
- FDNC
Special Face Drivers



Face Drivers FDNC

Clamping tools for milling between center pins

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



FDNC basic body without changeable parts

cat. no.	type	D	d3	d5	l1	l2	l3
73201	FDNC 11-4	59	160	52	160	77	90



fig. face driver complete with changeable parts

NEIDLEIN face drivers type FDNC ensure:

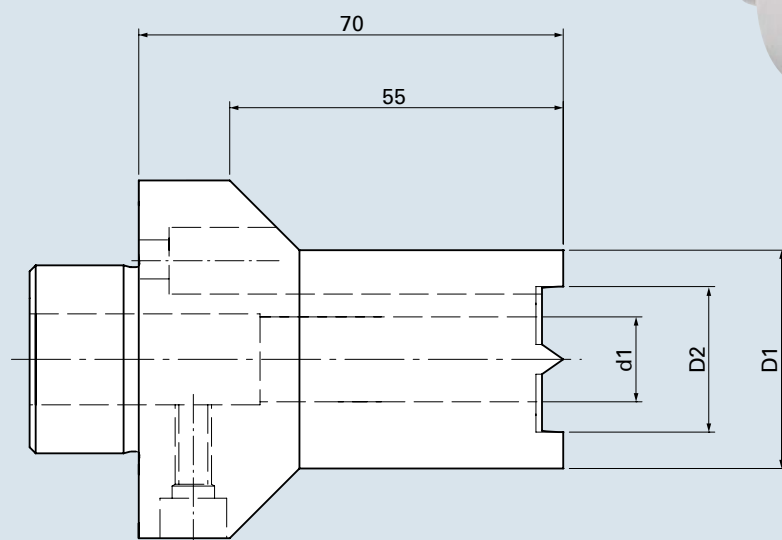
- machining free from backlash due to fixed driving elements
- stability and retaining of high transverse thrust using adjustable, spring-loaded center pins
- constant datum point on end face of work piece
- adjustment of dissimilar bore holes
- adjustment true at drive cone for high true running accuracy
- tapered construction for optimum tool path



Drive Heads FDNC

Changeable drive heads for
basic body type FDNC

Type FDNC drive head



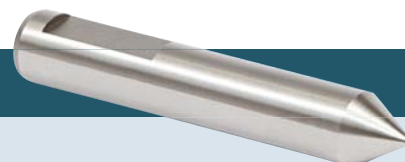
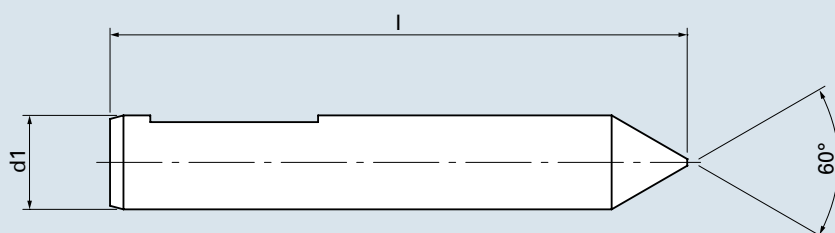
cat. no.	type	D1	D2	d1
73701	11.11	11	7	6
73702	11.14	14	9	6
73703	11.18	18	12	6
73704	1.22	22	14	8
73705	1.26	26	18	8
73706	2.30	30	20	14

cat. no.	type	D1	D2	d1
73707	2.36	36	24	14
73708	3.39	39	29	18
73709	3.44	44	34	18
73710	4.49	49	39	24
73711	4.59	59	49	24

Center Pin FDNC

Changeable center pins for basic body
and drive heads type FDNC

Type FDNC center pin



cat. no.	type	d1	l	center Ø
73301	11	6	78	1 - 6
73302	1	8	80	1 - 8
73303	2	14	86	1 - 14

cat. no.	type	d1	l	center Ø
73304	3	18	89	3 - 18
73305	4.1	24	89	3 - 18
73306	4.2	24	96	16 - 24

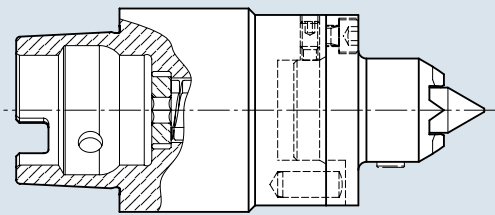


Special Face Drivers FDNC

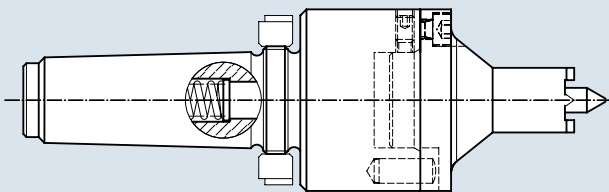
Clamping tools for milling between centers

Made to measure

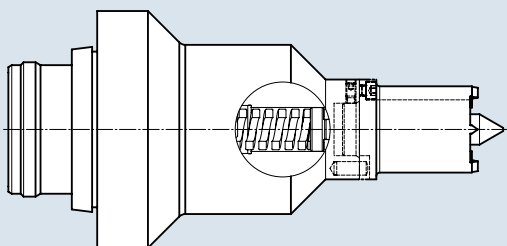
In order to meet the complex requirements of our customers and to cover the various spindle mounting options of machine tools, we develop and produce FDNC special face drivers for clamping work pieces.



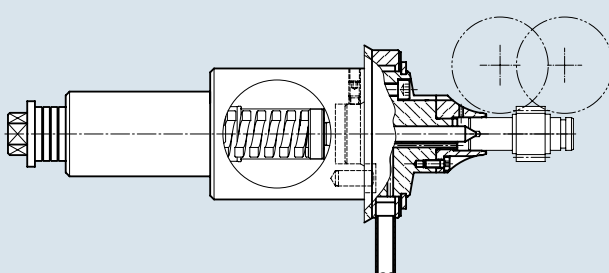
Type FDNC with taper shank retainer HSK



Type FDNC with taper shank retainer MK



Type FDNC with special short taper



Type FDNC special with centering gauge and flush fluid

