

Face Drivers

Standard Face Drivers for Soft / Green and Hard Tooling

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



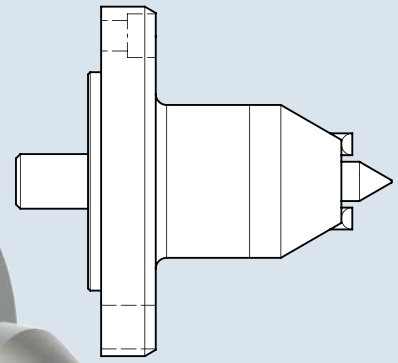
Face Drivers FSB / SB

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.

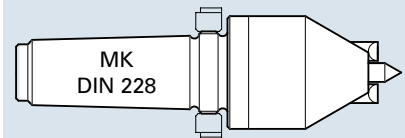
Face drivers of type FSB/SB are power-operated by the thrust of the tailstock. Work pieces are clamped centrally using a movable center pin. This way different centerings can be adjusted, thus ensuring a constant datum-point at the end face of work piece.

Type FSB with flange-retainer



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

Type SB with MK- or cylindrical retainer

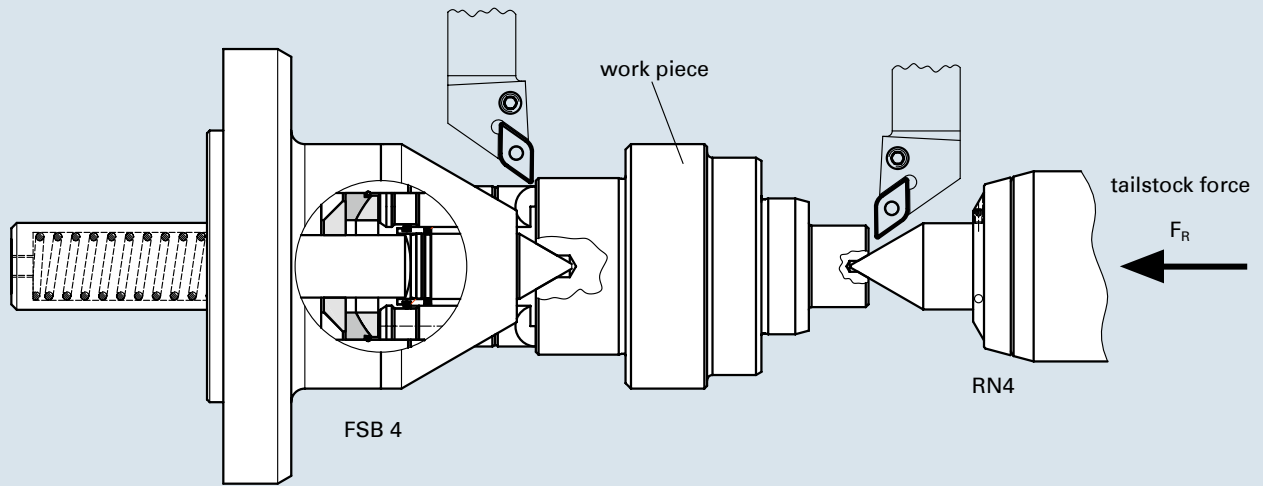


Type SB with taper shank and extracting nut for fast mounting into machine spindle.

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



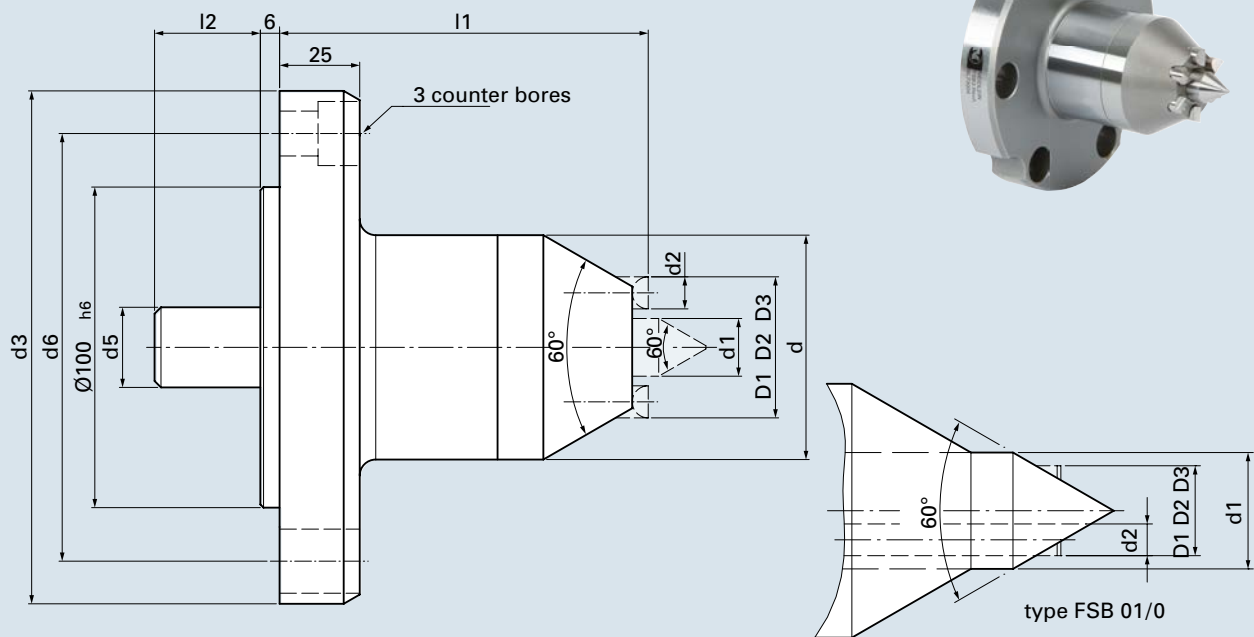
Clamping principle

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

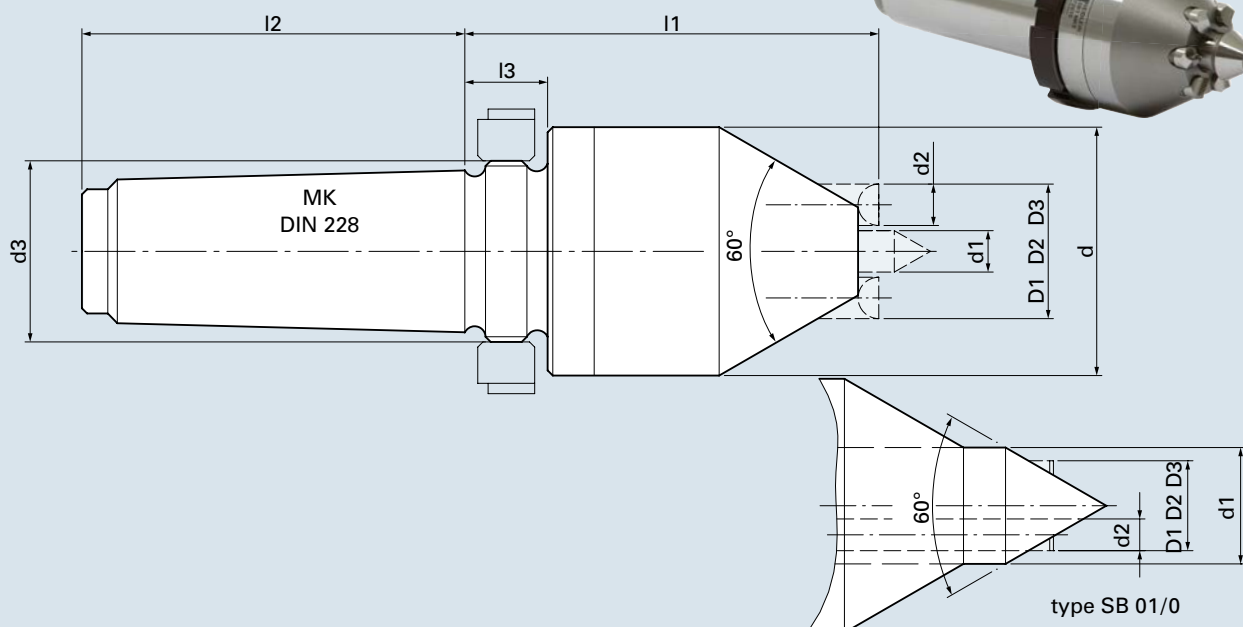
It is the purpose of a flange-adapter to provide stable junction to the spindle machine. We supply these flange adapters for various sizes of spindle noses either in standard size (DIN 55028) or for spindle noses specific to manufacturer of machine-tools. Thus face drivers of range FSB can be used on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

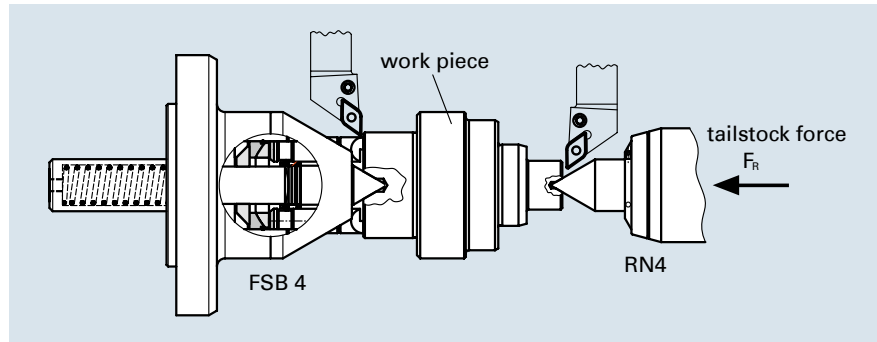
for clockwise tooling (SL/tooling direction M4) or for both tooling directions (NV = bi-directional).

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.

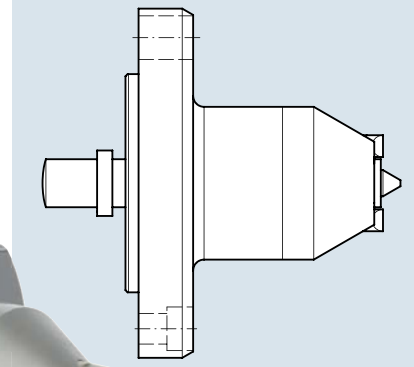
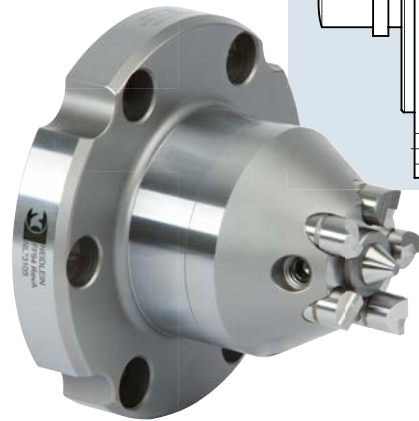
Face Drivers FFB / FFBH

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.

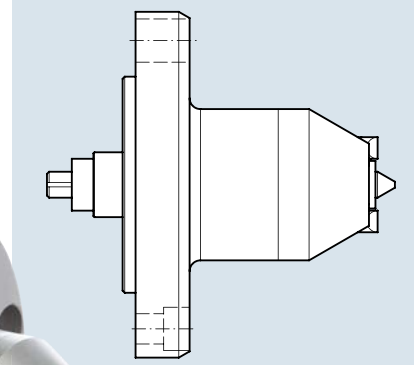
Type FFB with flange-mount



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

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

Typ FFBH with flange-mount

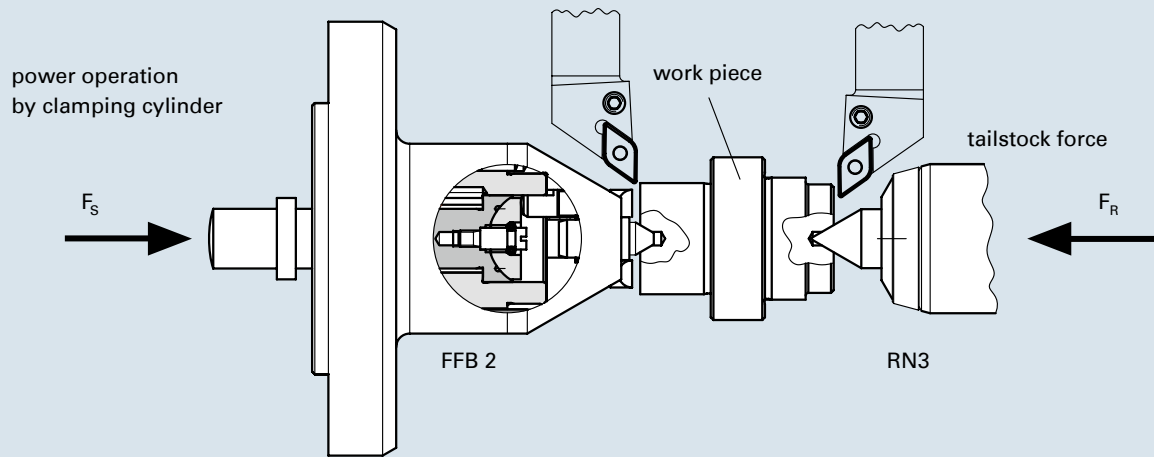


Type FFBH is mounted onto machine spindle nose using flange-adapter adjustable for true run-out.

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



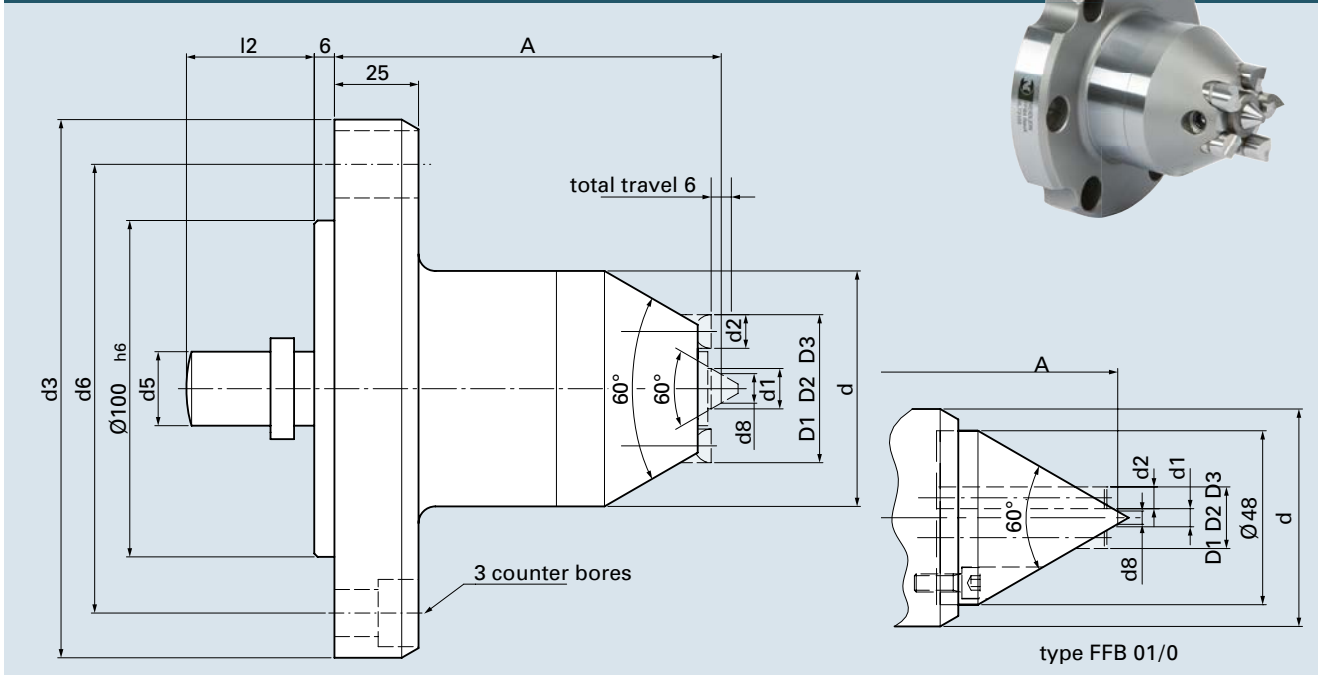
Clamping principle

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

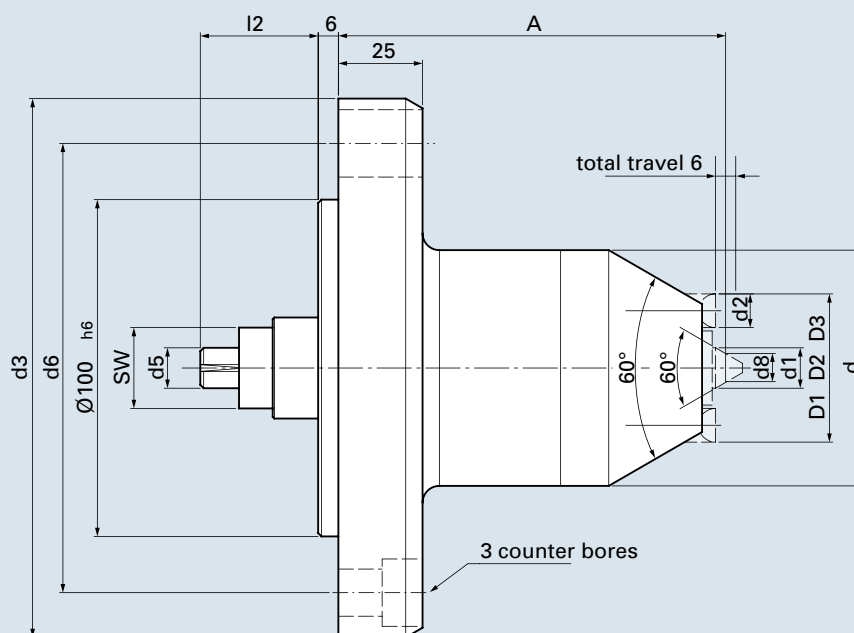
- All face drivers are supplied without drive pins. (Drive pins see page 16-20)
- Types FFB 01/0 are supplied with center body, all other types without center pin. (Center pin see page 21)
- The diameter d8 refers to the standard center pins (see page 21).
- Retaining elements for face drivers see brochure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

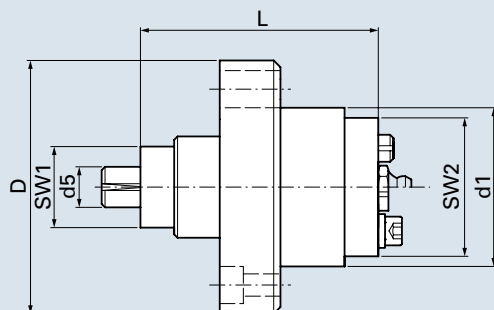
Technical data – type FFBH face driver



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

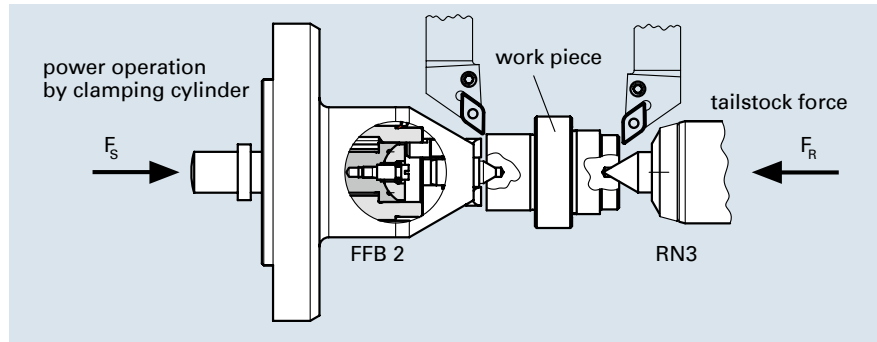
The general explanatory notes for this face driver FFBH can be obtained from the sheet "technical data – type FFB".
 For safe and smooth operation of face driver we recommend exchange of hydraulic unit after 1500 operating hours.

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
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.

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

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.

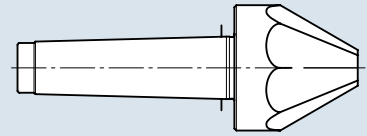
Pipe Drivers NDG /AND

Clamping tools for tooling between center pins

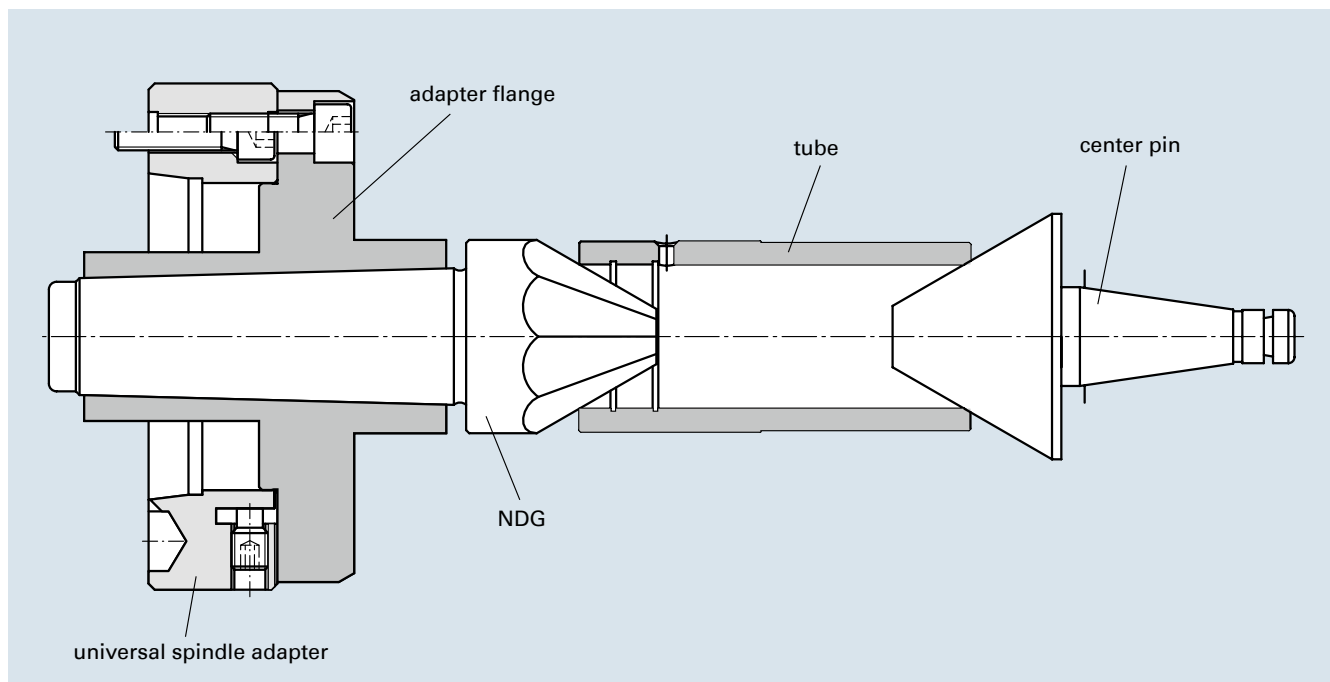
The entire outside surface of a tubular work piece can be tooled with one single clamping and high torque transmission.

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

Type NDG pipe driver



Clamping principle

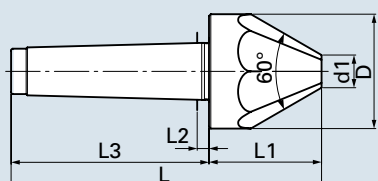


NEIDLEIN pipe driver NDG and AND ensure:

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

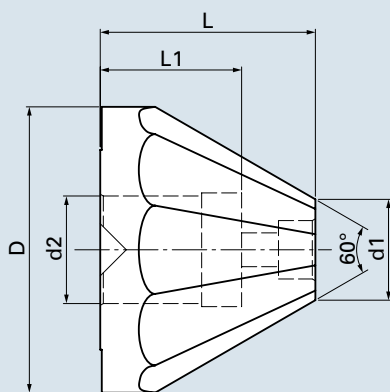


Technical data – type NDG pipe driver



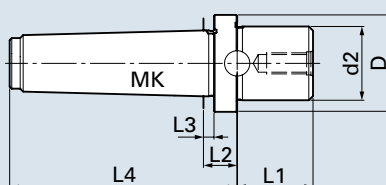
cat. no.	type	morse taper	D	d1	L	L1	L2	L3	a	chisel pcs	for bore-Ø	
											from	to
75001	NDG 0/15	2	18	0	100	32	4	68	60°	6	2	17
75002	NDG 0/30	3	31	0	135	50	5	85	60°	6	2	30
75003	NDG 10/40	3	45	8	145	60	5	85	60°	6	9	43
75004	NDG 20/60	3	63	18	147	62	5	85	60°	8	19	60
75005	NDG 10/40	4	45	8	168	60	6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

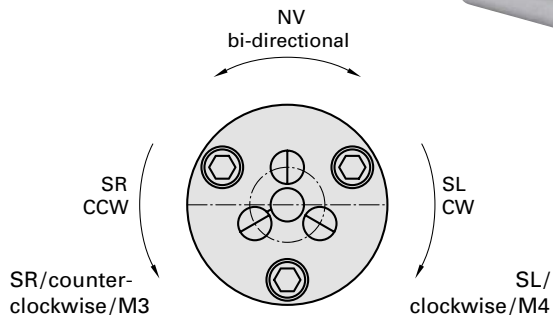
Technical data – type AND arbor



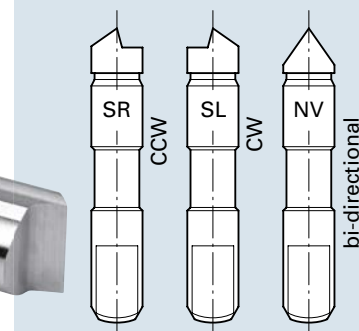
cat. no.	type	morse taper	D	d2	L1	L2	L3	L4
75201	AND 35/4	4	46	35	M10	36	16	108
75202	AND 35/5	5	44.5	35	M10	36	16	130
75203	AND 35/6	6	64	35	M10	36	16	144

Drive Pins Chise SL/SR/NV

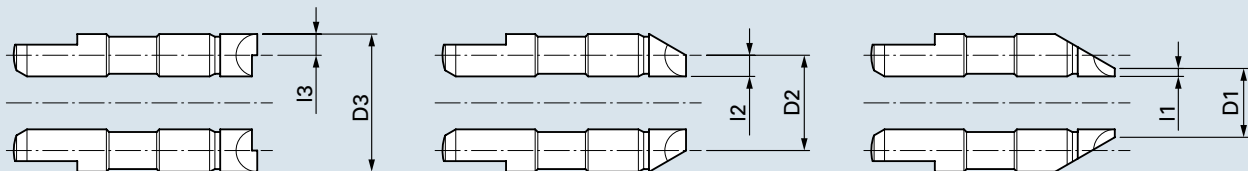
Drive pin for torque transmission
onto work piece for
soft / green tooling



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



(view from tailstock to face driver)



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	I1	I2	I3	
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	I1	I2	I3	
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	I1	I2	I3	
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

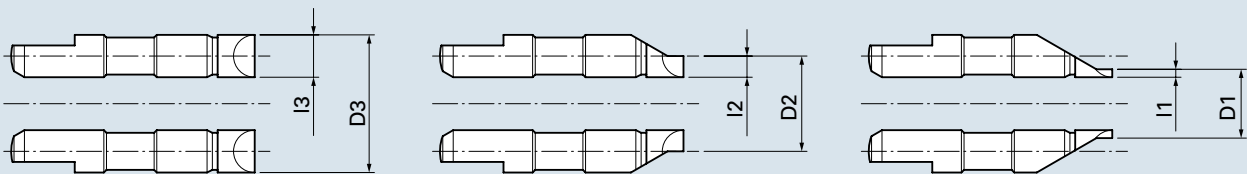
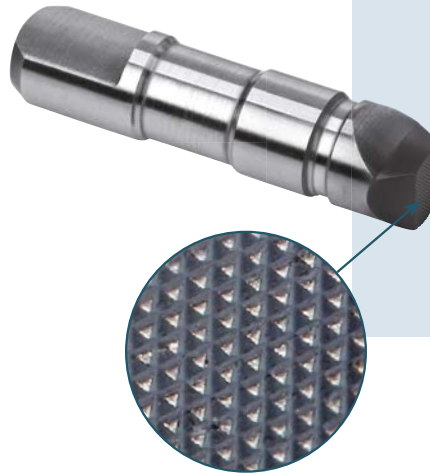
cat. no.	clamping Ø			chisel length			for type
	D1	D2	D3	I1	I2	I3	
73697	49			5			FSB 45 FFB 45
73698		59			7.5		
73699			69			7.5	
73652	69			5			SB 5
73653		84			10		FSB 5
73654			99			10	FFB 5
73661	110			5			SB 55
73662		125			10		FSB 55
73663			140			10	FFB 55
73670	140			5			SB 6
73671		155			10		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



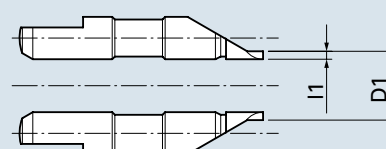
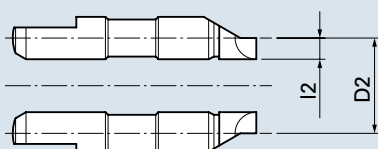
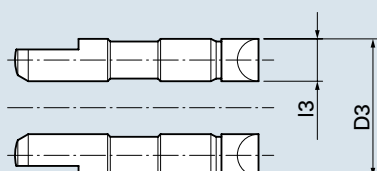
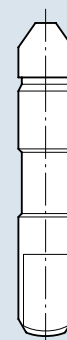
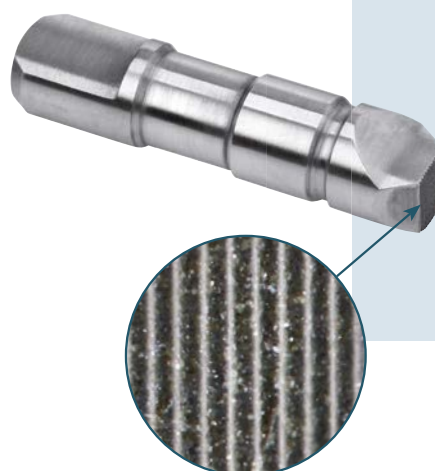
Drive Pins FV Diamond

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	l1	l2	l3	
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

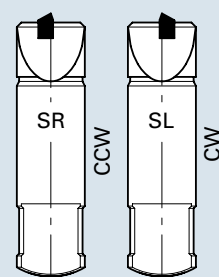
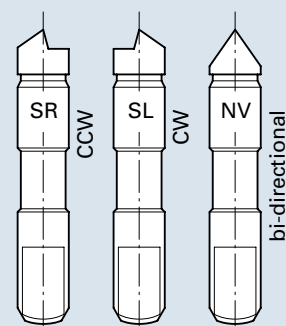
cat. no.	clamping Ø			chisel length			for type
	D1	D2	D3	l1	l2	l3	
736418	29			5			FSB 35 FFB 35
736419		39			10		
736420			49			15	
736421	39			5			SB 4 FSB 4 FFB 4
736422		49			10		
736423			59			15	
736424	49			5			FSB 45 FFB 45
736425		59			10		
736426			69			15	
736427	69			5			SB 5 FSB 5 FFB 5
736428		84			12.5		
736429			99			20	
736430	110			5			SB 55 FSB 55 FFB 55
736431		125			12.5		
736432			140			20	
736433	140			5			SB 6 FSB 6 FFB 6
736434		155			12.5		
736435			170			20	

Drive Pins Chisel Carbide

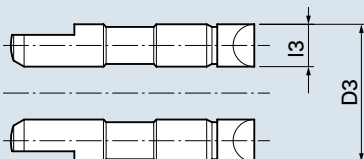
full carbide / carbide inserts

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

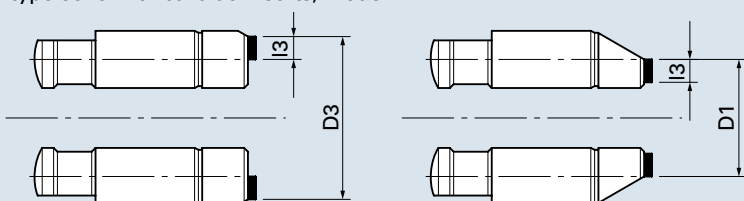
Typ SB/FSB/FFB chisel carbide



type 01-3 made of full carbide, **model A**



type 35-6 with carbide inserts, **model B**



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

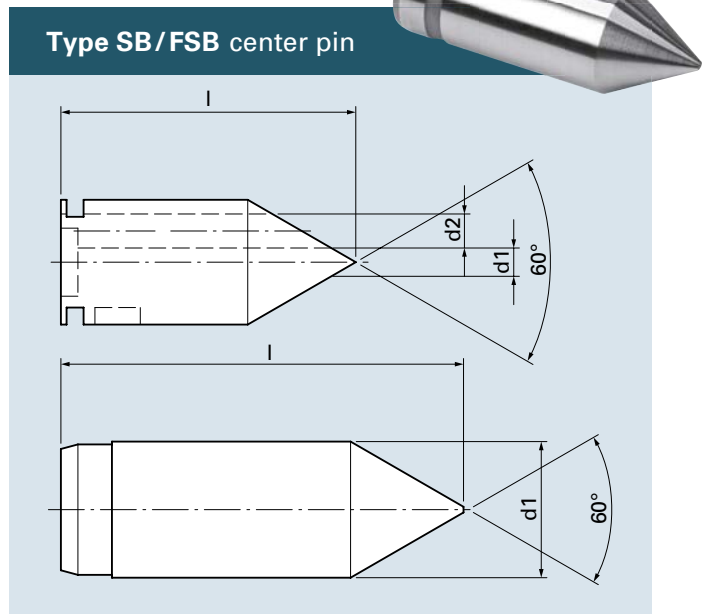
cat. no.	changeable parts
736550	carbide insert
736551	set screw for fastening of carbide insert

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

Center Pins SB/FSB

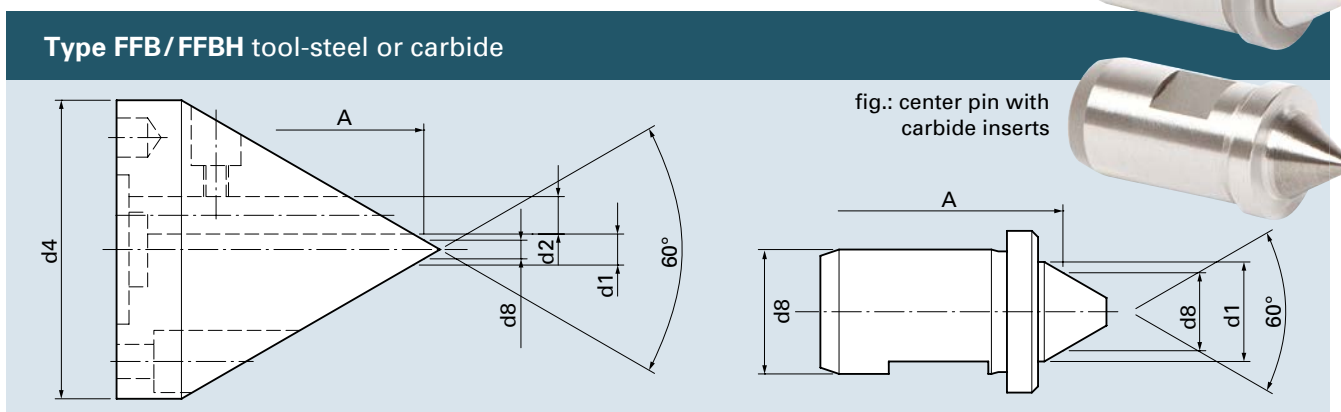
for face driver SB/FSB with movable center pin

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



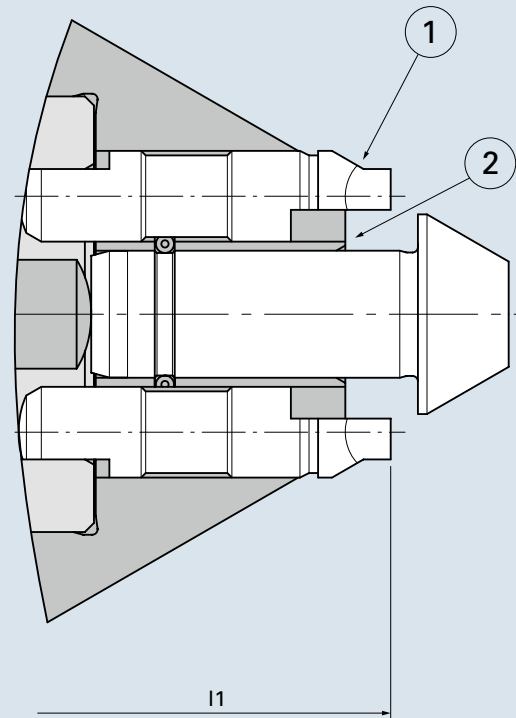
cat. no. tool-steel	cat. no. carbide	type	d1	d2	d4	center Ø	d8
73401	73443	FFB 01	5	6	48	1 - 5	3.5
734101	73444	FFB 0	3	8	48	1 - 3	3
73411	73433	FFB 11	7.8	-	6	2 - 6.5	4.25
73402	73434	FFB 1	9.8	-	8	4 - 8.5	6.25
73403	73435	FFB 2	10	-	14	4 - 9	6.5
73404	73436	FFB 3	12	-	18	6 - 11	8.5
73412	73437	FFB 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

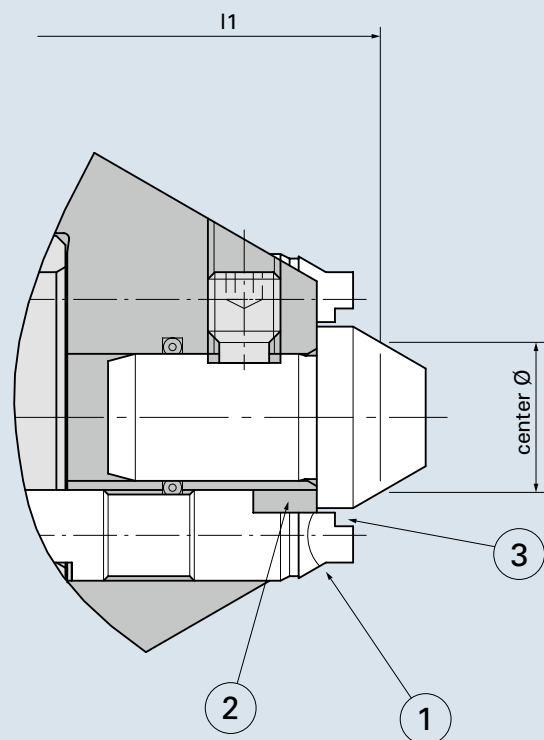
for various work piece surfaces and clamping conditions we design and manufacture a variety of drive pins and center pins of special design

- ① cylindrically set-down
tooling clearance for cutting tools
- ② inside set-down:
clearance for center pin
- ③ 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:

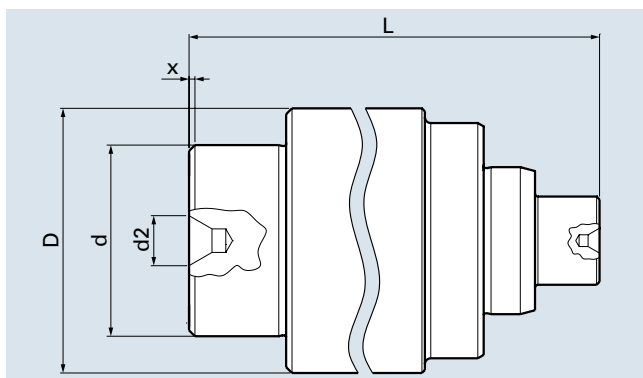
Mr. / Ms.:

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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