

Guide units

- For tool manufacturing, fixture construction and machine construction
- Guide elements according to DIN, ISO, VDI and Steinel standards or according to your specifications
- Guide columns
- Guide and column bearing
- Guide bushings made from hardened steel, bronze plated, for high stress situations
- Guide bushings made from solid bronze with solid lubricant inserts
- Ball guide bushings and ball cages for radial and axial movements
- Roller cages for axial movements
- Guide plates with solid lubricant inserts
- Mini-guide elements



Guide elements



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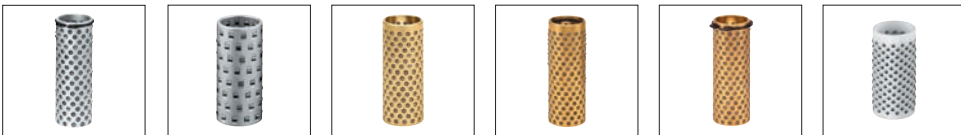
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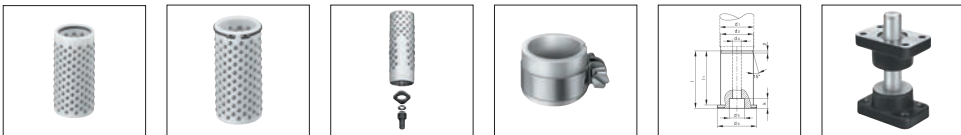
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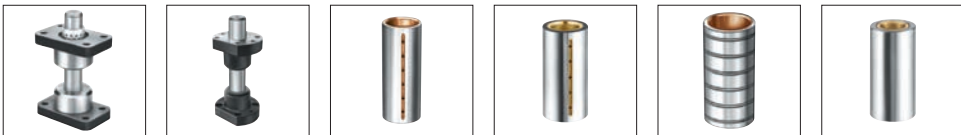
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Guide elements



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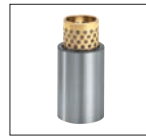
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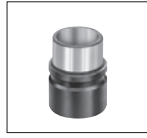
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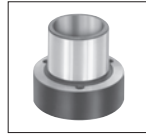
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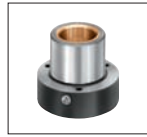
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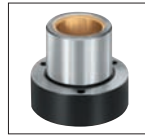
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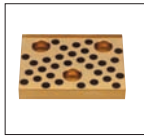
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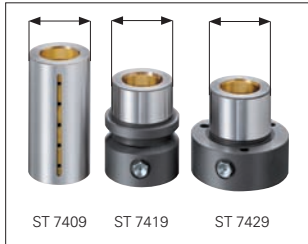
Guide bushings DIN 9831/ISO 9448

Standardized outside diameter

Advantage: Reciprocal interchangeability

STEINEL®
NORMALIEN

Steel sliding guide bronze plated



Interchangeability of all guide bushings

For each bore, you can use:

Two different inside diameters, for example 30/32

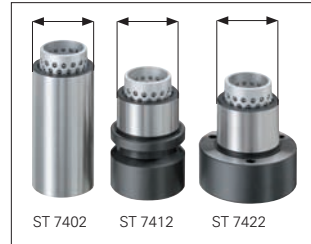
Seven different types of guidance, for example: three sliding guide and four ball guide types

Three different bushing types, for example: shoulder, flange or smooth bushings

Three different bushing lengths (for inside diameters from 19 to 80)

Therefore, it is possible to use $2 \times 7 \times 3 \times 3 = 126$ different guide bushings for each bore.

Ball guide aluminium



Sliding guide with solid lubricant



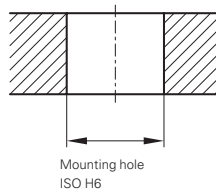
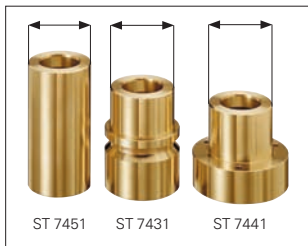
Mounting diameter ISO j6 or js4

Pillar diameter d1	Mounting diameter
10	22
12	
15	28
16	
19	32
20	
24	40
25	
30	48
32	
38	58
40	
48	70
50	
60	85
63	
80	105

Ball guide brass



Sliding guide with solid lubricant bands



Ball guide plastic



Roller guide



Fields of Application:

Steinel precision guide units can be utilized in the manufacture of tools, fixtures, machines, measuring instruments, medical devices and automobiles. They are characterized by their high load capacity and resistance to wear.

Advantages:

Due to the standardized outside diameter, all guide bushings are interchangeable. A die set with a sliding guide can be changed to using a ball or roller guide without any additional work, simply by exchanging the guide bushings.

Steinel precision sliding guides

steel bronze plated or with solid lubricant

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Steel sliding guide bronze plated



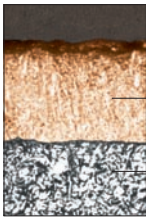
Fields of application

Steinel precision sliding guides "steel bronze plated" or with "solid lubricant" are used for longitudinal motion in the manufacture of tools, fixtures, machines, medical devices and automobiles. They are characterized by their high load capacity and resistance to wear.



Component arrangement

The Steinel precision sliding guide "steel bronze plated" or with "solid lubricant" is composed of a guide pillar and guide bushing with honed clearance.



Bronze layer

Steel sleeve

Bronze plating

The hardened steel sleeve absorbs strong lateral forces and prevents the guide bushing from deforming when it is being compressed strongly across its edges. The galvanized bronze plating is very hard, wear-resistant and honed to highest surface finish quality. In addition to its excellent long running wear factor it also has very good heat dissipation characteristics that ensures the rapid disbursement of excessive frictional heat.

Lubrication

All Steinel precision sliding guides "steel bronze plated" are supplied with an internal lubrication system, where the parallel lubrication fills across the grooves are connected with axial channels. As a result, an equal distance to all lubrication points is ensured. At the same time, the internal lubrication system guarantees a shielding effect against dirt. The internal lubrication system must be supplied with high-quality oil or high-quality grease several times a day, depending on sliding speed.

Sliding speed

The recommended sliding speed is 15 – 30 m/min.

Under ideal conditions of lubrication, guide clearance, stroke length, radial load and heat dissipation, very high stroke speeds of 600 – 800 strokes/min. can be achieved with the Steinel precision sliding guide "steel bronze plated".

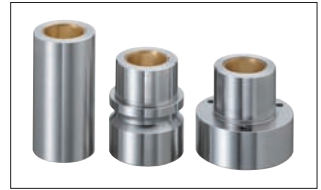
Guide clearance

The guide bushings are precision turned and honed. An additional compression of the sliding surface takes place at the tool start-up, resulting in better sliding characteristics. The clearance is 2 – 7 μ m.

If more clearance is required, please indicate it on the order as "honed for easy slide fit".

The guide bushings ST 7419 and ST 7429 have an M 8 x 1 threaded hole that enables them to be connected to a central lubrication system.

Sliding guide with solid lubricant



Maintenance-free guide bushings

As a result of the moving parts, the solid lubricant produces a tightly clinging, consistent lubrication film between the guiding elements. This film also adheres to the surfaces when the parts are not moving or when they first start moving, which prevents corrosion between the guide bushing and guide pillar. Our lubricant and maintenance free guide bushings are complex, highly wear-resistant slide elements of the highest precision. Even after long continual use, our guide bushings do not undergo any deformation due to the long-enduring strength of the fundamental materials.

Lubrication

The solid lubricant have a low shearing resistance in their crystalline structure. They are between two surfaces and take over the lubricating function.

Sliding speed

The maximum sliding speed is 30 m/min.

Under ideal conditions of guide clearance, stroke length, radial load and heat dissipation stroke speeds of 300 – 400 strokes/min. can be achieved with the Steinel precision sliding guide with solid lubricant.

Guide clearance

The clearance is 2 – 7 μ m. If more clearance is required, please indicate it on the order as "honed for easy slide fit".

Sliding guide with solid lubricant bands



Steinel precision guides

Ball guides

STEINEL
NORMALIEN

Special features of Steinel precision ball guides

- **Precision** due to the microfinished contact surfaces and uniformly selected precision steel balls.

- **Friction-free movement** due to the rolling motion of the balls.

Clearance-free guidance due to the optimal preloaded rolling motion of the balls between the guide pillar and guide bushing.

- **Long lifespan** due to the free-wheeling mounting and helical positioning of the balls, so that each ball has its own track.

- **High-load capacities, precision guidance and high stroke speeds** are achieved due to the highest precision of the uniformly selected precision steel balls, honed guide bushings and superfine ground guide pillars. The large number of balls in the cage as well as an even force distribution in the guidance system allow high stroke speeds of 30 – 40 m/min and more.

- **Interchangeability** is ensured due to the uniformly selected precision steel balls.

- **Special designs** can be manufactured according to your drawings.

Loading capacities

Guide pillar diameter d_1	Ball diameter dk	F (stat.) in N/cm carrying guide length
10/12	2	450
15/16	3	580
19/20	3	800
24/25	3	950
30/32	4	1350
38/40	4	1900
48/50	4	2400
60/63	5	3000
80	6	3300

Load capacities — preload

The radial load capacity of the ball guide grows with the increasing preload while simultaneously decreasing the friction-free movement. Extremely high preloading will overstrain the ball guide due to the excessive surface pressure on the balls.

The preload in a paired ball depends on the guide diameter:

- von $\varnothing 10 - 12 = 3 - 5 \mu\text{m}$
- von $\varnothing 15 - 20 = 4 - 6 \mu\text{m}$
- von $\varnothing 24 - 32 = 6 - 9 \mu\text{m}$
- von $\varnothing 38 - 50 = 9 - 12 \mu\text{m}$
- von $\varnothing 60 - 80 = 11 - 14 \mu\text{m}$

Ball cage with safety part and screw

Special characteristic: guide pillars mounted in the upper plate and the possibility for the ball cage to come completely out of the guide bushing.

Limiting sleeve

Special characteristic: Prevents the ball cage from shifting down.

Low maintenance is needed for the practically maintenance-free ball guides. Lubrication with a high-performance grease when mounting is sufficient for continuous operation.

Component arrangement and function

The Steinel precision ball guide is composed of a guide pillar, guide bushing and ball cage, which are tensionally paired by preloading.

Due to the tensional structure of the balls within the cage, the ball cage only travels at half the speed of the ball guide motion. The travel length of the ball cage is always half of the stroke of the guide bushing or the guide pillar.

Fields of application

Steinel precision ball guides are used for longitudinal and rotary motion in the manufacture of tools, fixtures, machines, measuring instruments, medical devices and automobiles.



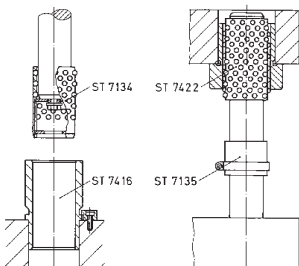
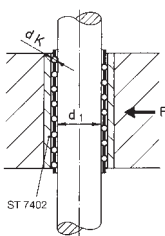
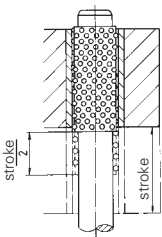
Aluminium ball cages are distinguished by having less mass than compared to brass. Since the only function of the cage is to act as a carrier, every bit of weight reduction means reduced energy loss with the same stability of the cage, especially at the return of the stroke.



Brass ball cages can be used universally. They have a high mechanical strength, superior sliding properties as well as a high wear resistance and stability. Due to their high-temperature strength, they are suitable for temperatures over 80 °C. Their sturdiness makes them ideal for use in machines and tools with high precision demands.



Plastic ball cages are distinguished by having less mass than compared to other materials. They are used where high stroke speeds are reached. The plastic is also suitable for use in aggressive surroundings.



Steinel precision guides

Roller guides

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Special features of the Steinel precision roller guides

Precision due to the microfinished contact surfaces and uniformly selected precision profile rollers.

Friction-free movement due to the rolling motion of the rollers.

Clearance free guidance due to the optimal preloaded rolling motion of the profile rollers between the guide pillar and guide bushing.

Long lifespan due to the free-wheeling mounting and helical positioning of the track rollers, so that each roller has its own track.

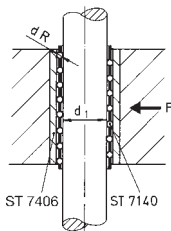
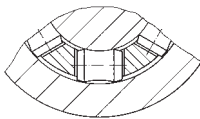
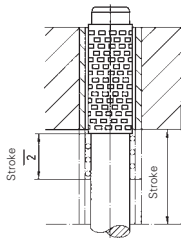
Fields of application

Steinel precision roller guides are used for longitudinal motion in the manufacture of tools, fixtures, machines, measuring instruments, medical devices and automobiles. Rotary motion is not possible!

Component arrangement and function

The Steinel precision roller guide is composed of a guide pillar, guide bushing and roller cage, which are tensionally paired by preloading.

Due to the tensional structure of the rollers within the cage, the roller cage only travels at half the speed of the roller guide motion. The travel length of the roller cage is always half of the stroke of the guide bushing or the guide pillar.



ST 7406 ST 7140

Load capacities — preload:

The radial load capability of the roller guide grows with the increasing preload while simultaneously decreasing the friction-free movement.

Extremely high preloading will overstrain the roller guide due to the excessive surface pressure on the rollers.

The preload in a paired roller guide depends on the guide pillar diameter:
from $\varnothing 19 - 20 = 2 - 4 \mu\text{m}$
from $\varnothing 24 - 32 = 4 - 5 \mu\text{m}$
from $\varnothing 38 - 50 = 5 - 7 \mu\text{m}$
from $\varnothing 60 - 80 = 7 - 9 \mu\text{m}$

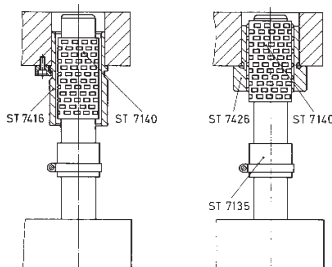
Limiting sleeve

Special characteristic:
Prevents the ball cage from shifting down

Stroke speeds

With optimal use, the stroke speeds can reach up to 40m/min and more.

Aluminium roller cages are distinguished by having less mass than compared to other materials. Since the only function of the cage is to act as a carrier, every bit of weight reduction means reduced energy loss with the same stability of the cage, especially at the return of the stroke.



Due to the large stroke movements, an unwanted slipping effect of the roller cage will be considerably reduced by the aluminium cage, thus extending the working life of the guide.

Low maintenance is needed for the practically maintenance-free roller guides. Lubrication with a high-performance grease when mounting is sufficient for continuous operation.

A profile roller can absorb six times the load of the same-sized ball before it will begin to deform.

The contact radii of the roller's saddle shape are manufactured in such a way that critical loadings on the edge area will be avoided, which results in an extended life of the roller cage.

The bending as a result of the load in the middle surface to the outer track will result in a deflection below $0.05 \mu\text{m}$, which can be neglected.

The relatively higher costs compared to the standard ball guide will be more than compensated by the superior performance achieved.

Loading capacities

Guide pillar diameter d_1	Roller diameter d_R	F (stat.) in N/cm per roller cage
19/20	3	1700
24/25	3	2250
30/32	4	3450
38/40	4	4700
48/50	4	4700
60/63	5	5900
80	6	8750

High-load capacities, precision guidance and high stroke speeds are achieved due to the highest precision of the uniformly selected profile rollers, honed guide bushings and superfine ground guide pillars. The large number of supporting rollers in the running surface as well as an even force distribution in the guidance system allow high stroke speeds.

Interchangeability is ensured due to the uniformly selected precision profile rollers.

Special designs can be manufactured according to your drawings.

Guide pillars ST 7190

Mini-series

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Material:

Ø d 3 – 6 mm steel 1.2379 hardened, hardness 60+3 HRC

from Ø d 8 mm steel, 1.7131 induction hardened, depth of hardening 0,8 – 1,2 mm, depends on Ø, hardness 60 – 64 HRC

Steinel-guide pillars are ground on all sides. The guide diameter is super-fine ground finish and lapped to tolerance ISO h3. Mount into mounting holes ISO P6.

Order example: Guide pillar **ST 7190**

$d_1 = 8, l = 80$ mm

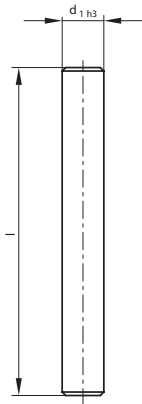
Add **08 x 080**

Order number **ST 7190.08 x 080**

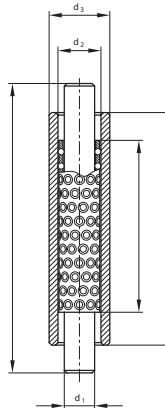
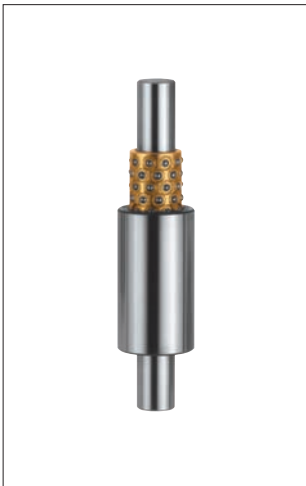
Add size to order number

Order no. **ST 7190.**

x



d_{1h3}	l	
3	30	03 x 030
	40	03 x 040
	60	03 x 060
	80	03 x 080
4	50	04 x 050
	60	04 x 060
	80	04 x 080
	100	04 x 100
5	50	05 x 050
	60	05 x 060
	80	05 x 080
	100	05 x 100
6	60	06 x 060
	80	06 x 080
	100	06 x 100
	125	06 x 125
8	80	08 x 080
	100	08 x 100
	125	08 x 125
	160	08 x 160
10	80	10 x 080
	100	10 x 100
	125	10 x 125
	160	10 x 160



Ball bearings – Mini series

Steinel ball-bearings are distinguished by exceptional precision and friction-free movement. There for they find a wide acceptance as a construction element for electrical and optical measuring instruments and measuring systems. They will be used successfully in machines, instruments and technical equipment of high precision.

Special features of Steinel precision ball guides

- **Friction-free movement** due to the roll motion.
- **Zero clearance guiding** is achieved due to the precision preloaded rolling motion on the balls between guide pillar and bush.
- **Interchangeability** will be achieved by uniformly selected steel balls.
- **Special designs** can be manufactured according to your drawing.

Guide bushes ST 7191

Mini-series

STEINEL
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Material:

steel 1.3505 (100 Cr 6) hardened,
hardness 61 – 63 HRC

Explanation:

Steinel-guide bushes are ground on all sides.
The guide diameter (bore) is super-fine honed
and will be matched with the pillar to ensure
an optimal preload.

Order example: Guide bush **ST 7191**

$d_1 = 8, l = 30$ mm

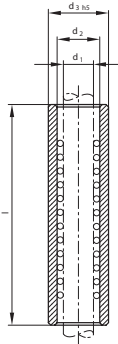
Add **08 x 030**

Order number **ST 7191.08 x 30**

Mounting instructions:

If possible avoid press fit. Fit in tensionfree
into the mounting bore hole ISO H6 and
secure it with glue.

Add
size to
order number



Order no. **ST 7191.**

d_{1h3}	d_2	d_{3h5}	l	
3	5	7	10	03 x 10
			20	03 x 20
			30	03 x 30
4	6	8	10	04 x 10
			20	04 x 20
			30	04 x 30
5	7	10	10	05 x 10
			20	05 x 20
			30	05 x 30
6	9	12	20	06 x 20
			30	06 x 30
			40	06 x 40
8	11	15	20	08 x 20
			30	08 x 30
			40	08 x 40
10	13	19	20	10 x 20
			30	10 x 30
			40	10 x 40

Ball cages ST 7192

Mini-series



Material: Ball cages made of brass,
balls of steel, hardened, grade 1, sorted.

Explanation:

The Steinel-ball cages will be assembled
absolutely tensionfree and are freely movable.
The careful production and control guarantee
an exceedingly friction-free axial and radial
movement.

Order example: Ball cage **ST 7192**

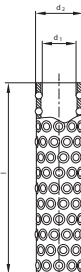
made of brass

$d_1 = 8, l = 30$ mm

Add **08 x 030**

Order number **ST 7192.08 x 30**

Add
size to
order number



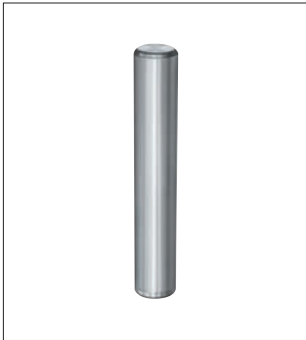
Order no. **ST 7192.**

d_1	d_2	l	
3	5	10	03 x 10
		20	03 x 20
		30	03 x 30
4	6	10	04 x 10
		20	04 x 20
		30	04 x 30
5	7	10	05 x 10
		20	05 x 20
		30	05 x 30
6	9	20	06 x 20
		30	06 x 30
		40	06 x 40
8	11	20	08 x 20
		30	08 x 30
		40	08 x 40
10	13	20	10 x 20
		30	10 x 30
		40	10 x 40

Guide pillars ST 7100

precision ground for press fitting

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DIN 9825, ISO 9182

Material:

Steel 1.11221 (Ck60) induction hardened, hardness 62-64 HRC

Guide diameter ISO h3 superfinish ground and microfinished mounting into mounting-holes ISO R6 Starting at sheet thickness 50 mm N6

Application: Due to the high precision of the guide pillars ST 7100 they are suitable to all Steinel guide bushes for sliding, ball and roller guides.

Upon request also available grooved for holding ring. Please add part number description "with groove and holding ring ST 7105" to your order.

Order example: Guide pillar ST 7100

$d_1 = 25, l = 180$ mm

Add **25 x 180**

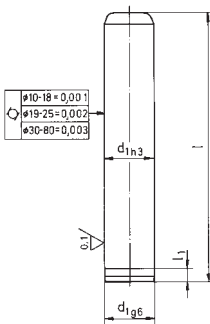
Order number **ST 7100.25 x 180**

Add size to order number

Add size to order number

Order no. **ST 7100.** x

Order no. **ST 7100.** x



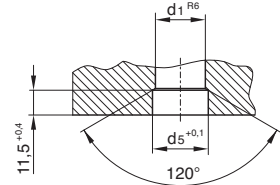
d_{1h3}	l	l_1	
10	90	4	10 x 090
	100		10 x 100
	112		10 x 112
	125		10 x 125
	140		10 x 140
12	90	4	12 x 090
	100		12 x 100
	112		12 x 112
	125		12 x 125
	140		12 x 140
15	90	5	15 x 090
	100		15 x 100
	112		15 x 112
	125		15 x 125
	140		15 x 140
	160		15 x 160
	180		15 x 180
	200		15 x 200
	224		15 x 224
	250		15 x 250
16	90	5	16 x 090
	100		16 x 100
	112		16 x 112
	125		16 x 125
	140		16 x 140
	160		16 x 160
	180		16 x 180
	200		16 x 200
	224		16 x 224
	250		16 x 250

d_{1h3}	l	l_1	
19	100	5	19 x 100
	112		19 x 112
	125		19 x 125
	140		19 x 140
	160		19 x 160
	180		19 x 180
	200		19 x 200
	224		19 x 224
	250		19 x 250
	280		19 x 280
20	100	5	20 x 100
	112		20 x 112
	125		20 x 125
	140		20 x 140
	160		20 x 160
	180		20 x 180
	200		20 x 200
	224		20 x 224
	250		20 x 250
	280		20 x 280
24	112	6	24 x 112
	125		24 x 125
	140		24 x 140
	160		24 x 160
	180		24 x 180
	200		24 x 200
	224		24 x 224
	250		24 x 250
	280		24 x 280
	315		24 x 315
	355		24 x 355
	400		24 x 400
25	112	6	25 x 112
	125		25 x 125
	140		25 x 140
	160		25 x 160
	180		25 x 180
	200		25 x 200
	224		25 x 224
	250		25 x 250
	280		25 x 280
	315		25 x 315
	355		25 x 355
	400		25 x 400

Special lengths: special lengths available upon request. Induction hardened, super-fine ground finish ISO h4, max. lengths according to table:

Diameter	10/12	15/16	19/20	24/25	30/32	38/40	48/50	60/63	80
Max.lengths	200	350	400	500	750	1000	1000	1200	1500

Design for guide pillars with holding ring ST 7105



Drawing for guide pillar holding plates

Add size to order number

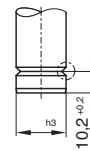
Order no. **ST 7100.** x

d_{1h3}	l	l_1	
30	125	7	30 x 125
	140		30 x 140
	160		30 x 160
	180		30 x 180
	200		30 x 200
	224		30 x 224
	250		30 x 250
	280		30 x 280
	315		30 x 315
	355		30 x 355
	400		30 x 400
32	125	7	32 x 125
	140		32 x 140
	160		32 x 160
	180		32 x 180
	200		32 x 200
	224		32 x 224
	250		32 x 250
	280		32 x 280
	315		32 x 315
	355		32 x 355
	400		32 x 400
38	160	7	38 x 160
	180		38 x 180
	200		38 x 200
	224		38 x 224
	250		38 x 250
	280		38 x 280
	315		38 x 315
	355		38 x 355
	400		38 x 400
40	160	7	40 x 160
	180		40 x 180
	200		40 x 200
	224		40 x 224
	250		40 x 250
	280		40 x 280
	315		40 x 315
	355		40 x 355
	400		40 x 400
	450		40 x 450

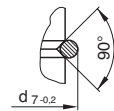
Add size to order number

Order no. **ST 7100.** x

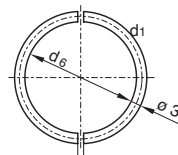
d_{1h3}	l	l_1	
48	180	7	48 x 180
	200		48 x 200
	224		48 x 224
	250		48 x 250
	280		48 x 280
	315		48 x 315
	355		48 x 355
	400		48 x 400
	450		48 x 450
	500		48 x 500
50	180	7	50 x 180
	200		50 x 200
	224		50 x 224
	250		50 x 250
	280		50 x 280
	315		50 x 315
	355		50 x 355
	400		50 x 400
	450		50 x 450
	500		50 x 500
60	224	8	60 x 224
	250		60 x 250
	280		60 x 280
	315		60 x 315
	355		60 x 355
	400		60 x 400
	450		60 x 450
	500		60 x 500
63	224	8	63 x 224
	250		63 x 250
	280		63 x 280
	315		63 x 315
	355		63 x 355
	400		63 x 400
	450		63 x 450
	500		63 x 500
80	280	8	80 x 280
	315		80 x 315
	355		80 x 355
	400		80 x 400
	450		80 x 450
	500		80 x 500



Drawing for guide pillars



Order example: ST 7105.25

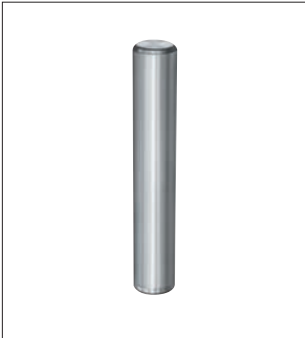


d_1	d_5	d_6	d_7
10	13	7	13
12	15	9	15
15	18	12	18
16	19	13	19
19	22	16	22
20	23	17	23
24	27	21	27
25	28	22	28
30	33	27	33
32	35	29	35
38	41	35	41
40	43	37	43
48	51	45	51
50	53	47	53
60	63	57	63
63	66	60	66
80	83	77	83

Guide pillars ST 7106

precision ground for press fitting with internal thread

STEINEL
NORMALIEN



Similar to DIN 9825/ISO 9182

Material:

Steel 1.11221 (Ck 60) induction hardened, hardness 62-64 HRC

Guide diameter ISO h3 superfinish ground and microfinished mounting into mounting-holes ISO R6

Starting at sheet thickness 50 mm N6

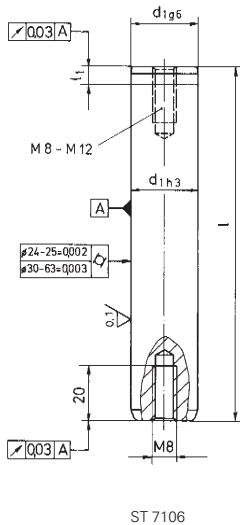
Application: Due to the high precision of the guide pillars ST 7106 they are suitable to all Steinel guide bushes for sliding, ball and roller guides. Especially in connection with ball cages ST 7134.

Order example: Guide pillar **ST 7106**

$d_1 = 25, l = 180$ mm

Add **25 x 180**

Order number **ST 7108.25 x 180**



ST 7106

Add size to order number

Add size to order number

Internal thread both sides Order no. **ST 7106.** x

Internal thread both sides Order no. **ST 7106.** x

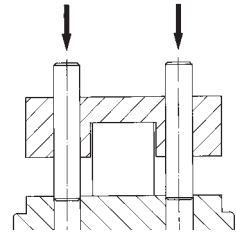
d_{1h3}	l	l_1	
19	100	5	19 x 100
	112		19 x 112
	125		19 x 125
	140		19 x 140
	160		19 x 160
	180		19 x 180
	200		19 x 200
	224		19 x 224
	250		19 x 250
	280		19 x 280
20	100	5	20 x 100
	112		20 x 112
	125		20 x 125
	140		20 x 140
	160		20 x 160
	180		20 x 180
	200		20 x 200
	224		20 x 224
	250		20 x 250
	280		20 x 280
24	112	6	24 x 112
	125		24 x 125
	140		24 x 140
	160		24 x 160
	180		24 x 180
	200		24 x 200
	224		24 x 224
	250		24 x 250
	280		24 x 280
	315		24 x 315
	355		24 x 355
	400		24 x 400
25	112	6	25 x 112
	125		25 x 125
	140		25 x 140
	160		25 x 160
	180		25 x 180
	200		25 x 200
	224		25 x 224
	250		25 x 250
	280		25 x 280
	315		25 x 315
	355		25 x 355
	400		25 x 400

d_{1h3}	l	l_1	
30	125	7	30 x 125
	140		30 x 140
	160		30 x 160
	180		30 x 180
	200		30 x 200
	224		30 x 224
	250		30 x 250
	280		30 x 280
	315		30 x 315
	355		30 x 355
	400		30 x 400
32	125	7	32 x 125
	140		32 x 140
	160		32 x 160
	180		32 x 180
	200		32 x 200
	224		32 x 224
	250		32 x 250
	280		32 x 280
	315		32 x 315
	355		32 x 355
	400		32 x 400
38	160	7	38 x 160
	180		38 x 180
	200		38 x 200
	224		38 x 224
	250		38 x 250
	280		38 x 280
	315		38 x 315
	355		38 x 355
	400		38 x 400
	450		38 x 450
40	160	7	40 x 160
	180		40 x 180
	200		40 x 200
	224		40 x 224
	250		40 x 250
	280		40 x 280
	315		40 x 315
	355		40 x 355
	400		40 x 400
	450		40 x 450

Special lengths: special lengths available upon request. Induction hardened, super-fine ground finish ISO h4, max. lengths according to table:

Diameter	19/20	24/25	19/20	30/32	38/40	48/50	60/63	80
Max. lengths	400	500	400	750	1000	1000	1200	1500

Mounting of the guide pillars



Before inserting the pillars into the upper plate, clean the holes thoroughly and oil lightly (no grease). Do the same with the holes in the lower plate. Put parallel bars between upper and lower plate. Drive the pillars about 3 mm into the lower plate (use rubber mallet). Complete the press fit of the pillars using a hydraulic or hand screw press (once pillar fit ISO h3 and hole fit ISO R6 is achieved the press fit is guaranteed).

Internal thread
both sides Order no. **ST 7106.** x

Add
size to
order number

d_{1h3}	l	l_1	
48	180	7	48 x 180
	200		48 x 200
	224		48 x 224
	250		48 x 250
	280		48 x 280
	315		48 x 315
	355		48 x 355
	400		48 x 400
	450		48 x 450
	500		48 x 500
50	180	7	50 x 180
	200		50 x 200
	224		50 x 224
	250		50 x 250
	280		50 x 280
	315		50 x 315
	355		50 x 355
	400		50 x 400
	450		50 x 450
	500		50 x 500

Internal thread
both sides Order no. **ST 7106.** x

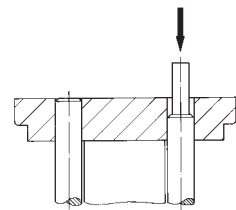
Add
size to
order number

d_{1h3}	l	l_1	
60	224	8	60 x 224
	250		60 x 250
	280		60 x 280
	315		60 x 315
	355		60 x 355
	400		60 x 400
	450		60 x 450
	500		60 x 500
63	224	8	63 x 224
	250		63 x 250
	280		63 x 280
	315		63 x 315
	355		63 x 355
	400		63 x 400
	450		63 x 450
	500		63 x 500
80	280	8	80 x 280
	315		80 x 315
	355		80 x 355
	400		80 x 400
	450		80 x 450
	500		80 x 500

Thread mold side

- Ø 19 – 32 = M 8
- Ø 38 – 50 = M 10
- Ø 60 – 80 = M 12

Disassembly of the guide pillars

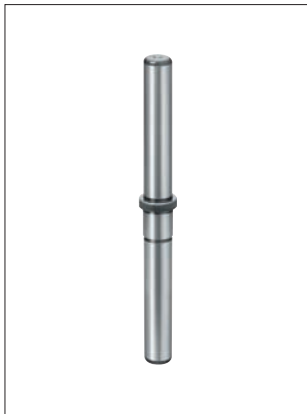


Always press out towards the top of the lower plate, never press out towards the bottom, because the high surface quality could then be destroyed.

Guide pillars ST 7118

with small middle mount shoulder

STEINEL
NORMALIEN



Material:

steel 1.1221 (Ck 60) induction hardened,
hardness 62 – 64 HRC

Guide diameter ISO h3
super-fine ground finish
Mounting diameter ISO js4
Mount into mounting hole ISO H6

Guide pillars with small middle mount
Shoulder are secured with three holding
clamps ST 7367 (included).

Order example: Guide pillar ST 7118

with middle mount shoulder
d1 = 25, l₁ = 110 mm, l₂ = 90 mm
Add **25 x 110 x 090**

Order number **ST 7118.25 x 110 x 090**

Application:

Guide pillars with middle mount shoulder are
matchable to all Steinel guide bushes for slid-
ing and ball guides.

The pillars with middle mount shoulder improve
the side load capacity of tools using guide
plate.

Beginning with column diameter 32, columns
will have a hollow bore hole to reduce the
weight of the guide plate to which the columns
are fastened. This reduces the weight of the
mass put in motion.

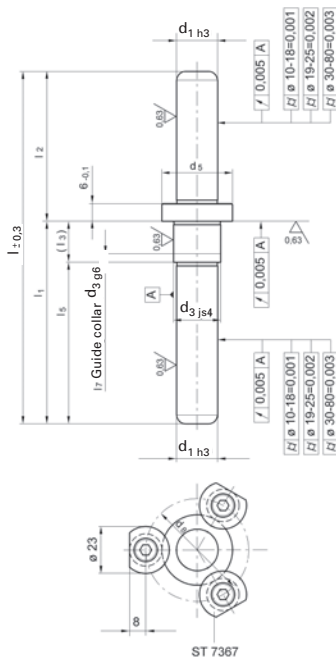
Add

size to

order number

Order no. **ST 7118.**

x x



d _{1h3}	d _{3js4}	d ₅	d ₈	l	l ₁	l ₂	l ₃	l ₅	l ₇	
12	13	18	35	90	50	40	12	38	4	12 x 050 x 040
				100	60	40		48		12 x 060 x 040
				110	60	50		48		12 x 060 x 050
				120	70	50		58		12 x 070 x 050
				130	70	60		58		12 x 070 x 060
				140	70	70		58		12 x 070 x 070
				200	100	100		88		12 x 100 x 100
16	17	22	39	140	80	60	16	64	5	16 x 080 x 060
				150	90	60		74		16 x 090 x 060
				160	90	70		74		16 x 090 x 070
				170	100	70		84		16 x 100 x 070
				180	100	80		84		16 x 100 x 080
				190	100	90		84		16 x 100 x 090
				270	140	130		124		16 x 140 x 130
19	20	25	42	160	90	70	20	70	5	19 x 090 x 070
				170	100	70		80		19 x 100 x 070
				180	100	80		80		19 x 100 x 080
				190	110	80		90		19 x 110 x 080
				200	110	90		90		19 x 110 x 090
				210	110	100		90		19 x 110 x 100
				310	160	150		140		19 x 160 x 150
25	26	32	49	180	100	80	22	78	6	25 x 100 x 080
				190	110	80		88		25 x 110 x 080
				200	110	90		88		25 x 110 x 090
				210	120	90		98		25 x 120 x 090
				220	120	100		98		25 x 120 x 100
				230	120	110		98		25 x 120 x 110
				330	170	160		148		25 x 170 x 160
32	33	40	57	180	100	80	25	75	7	32 x 100 x 080
				190	110	80		85		32 x 110 x 080
				200	110	90		85		32 x 110 x 090
				210	120	90		95		32 x 120 x 090
				220	120	100		95		32 x 120 x 100
				230	130	100		105		32 x 130 x 100
				240	130	110		105		32 x 130 x 110
				250	140	110		115		32 x 140 x 110
				350	190	160		165		32 x 190 x 160
40	41	50	67	200	110	90	27	83	7	40 x 110 x 090
				210	120	90		93		40 x 120 x 090
				220	120	100		93		40 x 120 x 100
				230	130	100		103		40 x 130 x 100
				240	130	110		103		40 x 130 x 110
				250	140	110		113		40 x 140 x 110
				260	140	120		113		40 x 140 x 120
				380	200	180		173		40 x 200 x 180
50	51	63	80	260	150	110	37	113	7	50 x 150 x 110
				280	160	120		123		50 x 160 x 120
				300	170	130		133		50 x 170 x 130
				320	180	140		143		50 x 180 x 140
				360	200	160		163		50 x 200 x 160
				400	220	180		183		50 x 220 x 180
				520	280	240		243		50 x 280 x 240

Guide pillars ST 7120, ST 7126 with shoulder

STEINEL
NORMALIEN



ST 7120



ST 7126

DIN 9825/ISO 9182

Made of solid material

Material:

Steel 1.11221 (Ck 60) induction hardened,
hardness 62-64 HRC

Guide diameter ISO h3
super-fine ground finish
Mounting diameter ISO js4
Mounting into mounting holes ISO H6

Guide pillars with shoulder enable an easy and quick assembly and disassembly of the pillars, as for example in the case where you wish to sharpen cutting tools with a surface grinder.

Guide pillars with shoulder are secured with three holding clamps ST 7367 (included).

(Fig. 1)

Alternative the guide pillars can be fixed with the holding disc (Fig. 2) ST 7387 (order separately).

Application: Guide pillars with shoulder are suitable to all Steinel guide bushes for sliding, ball and roller guides.

Order example: Guide pillar ST 7120

with shoulder

$d_1 = 19$, $l_3 = 140$ mm, $l = 163$ mm

Add **19 x 140 x 163**

Order number **ST 7120.19 x 140 x 163**

Order example: Guide pillar ST 7126

with shoulder and 2 internal threads

$d_1 = 24$, $l_3 = 200$ mm, $l = 227$ mm

Add **24 x 200 x 227**

Order number **ST 7126.24 x 200 x 227**

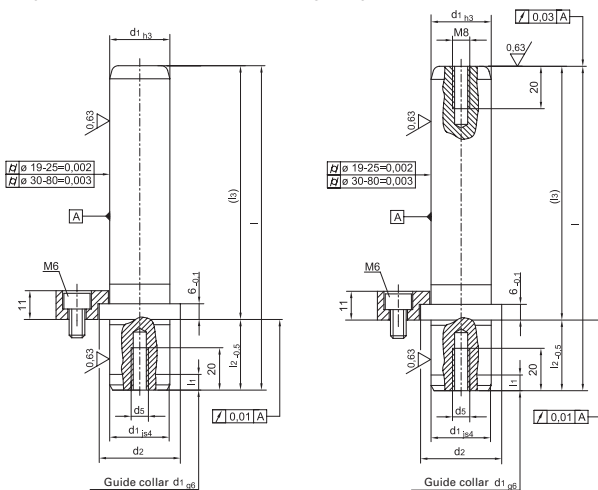
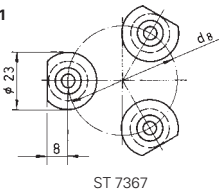
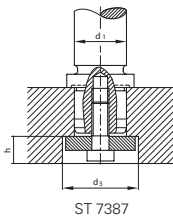


Fig. 1

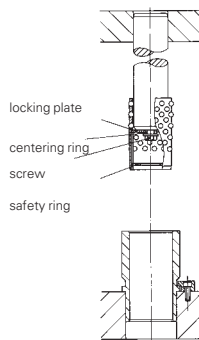


ST 7367

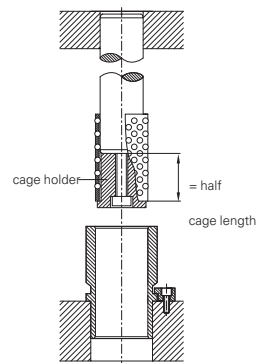
Fig. 2



ST 7387



Example of application for guide pillars ST 7126 with thread on the guide side 24 mm to 63 mm.



Example of application for all guide pillars

Add size to
order number

Add size to
order number

ST 7120. x x
ST 7126. x x

ST 7120. x x
ST 7126. x x

d _{1h3} *)	d ₂	d ₅	d ₈	l	l ₁	l _{2-0,5}	l ₃₋₁	
15	21	M8	38	110	5	20	90	15 x 090 x 110
				120			100	15 x 100 x 120
				132			112	15 x 112 x 132
				145			125	15 x 125 x 145
				160			140	15 x 140 x 160
				180			160	15 x 160 x 180
				200			180	15 x 180 x 200
				220			200	15 x 200 x 220
16	21	M8	38	110	5	20	90	16 x 090 x 110
				120			100	16 x 100 x 120
				132			112	16 x 112 x 132
				145			125	16 x 125 x 145
				160			140	16 x 140 x 160
				180			160	16 x 160 x 180
				200			180	16 x 180 x 200
				220			200	16 x 200 x 220
19	25	M8	42	123	5	23	100	19 x 100 x 123
				135			112	19 x 112 x 135
				148			125	19 x 125 x 148
				163			140	19 x 140 x 163
				183			160	19 x 160 x 183
				203			180	19 x 180 x 203
				223			200	19 x 200 x 223
				247			224	19 x 224 x 247
				273			250	19 x 250 x 273
20	25	M8	42	123	5	23	100	20 x 100 x 123
				135			112	20 x 112 x 135
				148			125	20 x 125 x 148
				163			140	20 x 140 x 163
				183			160	20 x 160 x 183
				203			180	20 x 180 x 203
				223			200	20 x 200 x 223
				247			224	20 x 224 x 247
				273			250	20 x 250 x 273
24	32	M8	49	127	6	27	100	24 x 100 x 127
				139			112	24 x 112 x 139
				152			125	24 x 125 x 152
				167			140	24 x 140 x 167
				187			160	24 x 160 x 187
				207			180	24 x 180 x 207
				227			200	24 x 200 x 227
				251			224	24 x 224 x 251
				277			250	24 x 250 x 277
				307			280	24 x 280 x 307
				342			315	24 x 315 x 342
25	32	M8	49	127	6	27	100	25 x 100 x 127
				139			112	25 x 112 x 139
				152			125	25 x 125 x 152
				167			140	25 x 140 x 167
				187			160	25 x 160 x 187
				207			180	25 x 180 x 207
				227			200	25 x 200 x 227
				251			224	25 x 224 x 251
				277			250	25 x 250 x 277
				307			280	25 x 280 x 307
				342			315	25 x 315 x 342
30	40	M8	57	149	7	37	112	30 x 112 x 149
				162			125	30 x 125 x 162
				177			140	30 x 140 x 177
				197			160	30 x 160 x 197
				217			180	30 x 180 x 217
				237			200	30 x 200 x 237
				261			224	30 x 224 x 261
				287			250	30 x 250 x 287
				317			280	30 x 280 x 317
				352			315	30 x 315 x 352
				392			355	30 x 355 x 392
32	40	M8	57	149	7	37	112	32 x 112 x 149
				162			125	32 x 125 x 162
				177			140	32 x 140 x 177
				197			160	32 x 160 x 197
				217			180	32 x 180 x 217
				237			200	32 x 200 x 237
				261			224	32 x 224 x 261
				287			250	32 x 250 x 287
				317			280	32 x 280 x 317
				352			315	32 x 315 x 352
				392			355	32 x 355 x 392

d _{1h3} *)	d ₂	d ₅	d ₈	l	l ₁	l _{2-0,5}	l ₃₋₁	
38	50	M10	67	162	7	37	125	38 x 125 x 162
				177			140	38 x 140 x 177
				197			160	38 x 160 x 197
				217			180	38 x 180 x 217
				237			200	38 x 200 x 237
				261			224	38 x 224 x 261
				287			250	38 x 250 x 287
				317			280	38 x 280 x 317
				352			315	38 x 315 x 352
				392			355	38 x 355 x 392
				437			400	38 x 400 x 437
40	50	M10	67	162	7	37	125	40 x 125 x 162
				177			140	40 x 140 x 177
				197			160	40 x 160 x 197
				217			180	40 x 180 x 217
				237			200	40 x 200 x 237
				261			224	40 x 224 x 261
				287			250	40 x 250 x 287
				317			280	40 x 280 x 317
				352			315	40 x 315 x 352
				392			355	40 x 355 x 392
				437			400	40 x 400 x 437
48	63	M10	80	187	7	47	140	48 x 140 x 187
				207			160	48 x 160 x 207
				227			180	48 x 180 x 227
				247			200	48 x 200 x 247
				271			224	48 x 224 x 271
				297			250	48 x 250 x 297
				327			280	48 x 280 x 327
				362			315	48 x 315 x 362
				402			355	48 x 355 x 402
				447			400	48 x 400 x 447
				497			450	48 x 450 x 497
50	63	M10	80	187	7	47	140	50 x 140 x 187
				207			160	50 x 160 x 207
				227			180	50 x 180 x 227
				247			200	50 x 200 x 247
				271			224	50 x 224 x 271
				297			250	50 x 250 x 297
				327			280	50 x 280 x 327
				362			315	50 x 315 x 362
				402			355	50 x 355 x 402
				447			400	50 x 400 x 447
				497			450	50 x 450 x 497
60	80	M12	97	247	8	47	200	60 x 200 x 247
				271			224	60 x 224 x 271
				297			250	60 x 250 x 297
				327			280	60 x 280 x 327
				362			315	60 x 315 x 362
				402			355	60 x 355 x 402
				447			400	60 x 400 x 447
				497			450	60 x 450 x 497
63	80	M12	97	247	8	47	200	63 x 200 x 247
				271			224	63 x 224 x 271
				297			250	63 x 250 x 297
				327			280	63 x 280 x 327
				362			315	63 x 315 x 362
				402			355	63 x 355 x 402
				447			400	63 x 400 x 447
				497			450	63 x 450 x 497
80	95	M12	112	310	8	60	250	80 x 250 x 310
				340			280	80 x 280 x 340
				375			315	80 x 315 x 375
				415			355	80 x 355 x 415
				460			400	80 x 400 x 460
				510			450	80 x 450 x 510
				560			500	80 x 500 x 560

*) guide diameter d_{1h3}
mounting diameter d_{1s4}

Quick-change guide pillars ST 7181

with disc and screw

STEINEL
NORMALIEN



DIN 9825/ISO 9182

Material: steel 1.1221 (Ck 60)
induction hardened, hardness 62 – 64 HRC

Guide diameter ISO h3 super-fine ground finish, taper shank ground, complete with disc SZ 7368 and cylindrical screw with hexagonal recessed hole SZ 8512.

Application: Quick-change guide pillars with taper shank enable a quick exchange of pillars. Where the pillars often have to be removed in order to sharpen the die, the working time of the tool make is drastically reduced by the use of quick-change guide pillars.

The hardened and precision ground taper of the guide pillar guarantees the perfect re-mounting into the same position. Mismatch and angle error are not occurring.

The light taper in connection with disc and screw ensure the absolutely fixe chucking of the pillars.

Quick-change guide pillars are suitable to all Steinel guide bushes for slide, ball and roller guide. Upon request all Steinel die-sets can be furnished with quick-change guide pillars and holding bushings.

Matching holding bushes: ST 7182

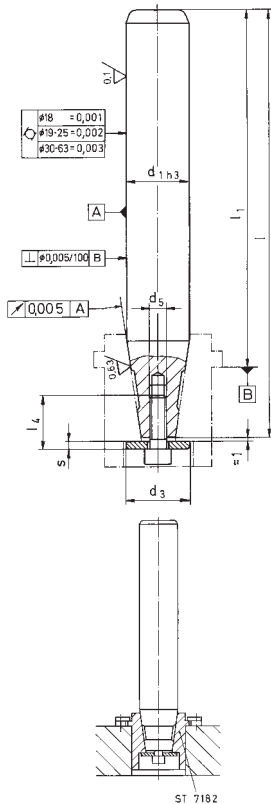
Order example:

quick change guide pillar **ST 7181**

$d_1 = 30$, $l_1 = 200$ mm, $l = 226$ mm

Add **30 x 200 x 226**

Order number **ST 7181.30 x 200 x 226**



Mounting example

Add size to order number

Order no. ST 7181.										<input type="checkbox"/> x <input type="checkbox"/> x <input type="checkbox"/>		
d_{h3}	d_3	d_5	s	l ₁	l ₄							
19	18	M5	4	130.4	112	16	19 x 112 x 130					
				143.4	125		19 x 125 x 143					
				158.4	140		19 x 140 x 158					
				178.4	160		19 x 160 x 178					
				198.4	180		19 x 180 x 198					
20	18	M5	4	130.4	112	16	20 x 112 x 130					
				143.4	125		20 x 125 x 143					
				158.4	140		20 x 140 x 158					
				178.4	160		20 x 160 x 178					
				198.4	180		20 x 180 x 198					
24	24	M6	5	151.4	125	20	24 x 125 x 151					
				166.4	140		24 x 140 x 166					
				186.4	160		24 x 160 x 186					
				206.4	180		24 x 180 x 206					
				226.4	200		24 x 200 x 226					
				250.4	224		24 x 224 x 250					
				276.4	250		24 x 250 x 276					
25	24	M6	5	151.4	125	20	25 x 125 x 151					
				166.4	140		25 x 140 x 166					
				186.4	160		25 x 160 x 186					
				206.4	180		25 x 180 x 206					
				226.4	200		25 x 200 x 226					
				250.4	224		25 x 224 x 250					
				276.4	250		25 x 250 x 276					
30	30	M6	5	151.4	125	20	30 x 125 x 151					
				166.4	140		30 x 140 x 166					
				186.4	160		30 x 160 x 186					
				206.4	180		30 x 180 x 206					
				226.4	200		30 x 200 x 226					
				250.4	224		30 x 224 x 250					
				276.4	250		30 x 250 x 276					
				306.4	280		30 x 280 x 306					
32	30	M6	5	151.4	125	20	32 x 125 x 151					
				166.4	140		32 x 140 x 166					
				186.4	160		32 x 160 x 186					
				206.4	180		32 x 180 x 206					
				226.4	200		32 x 200 x 226					
				250.4	224		32 x 224 x 250					
				276.4	250		32 x 250 x 276					
				306.4	280		32 x 280 x 306					

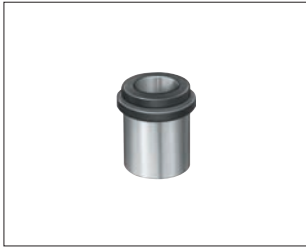
Add size to order number

Order no. ST 7181.										<input type="checkbox"/> x <input type="checkbox"/> x <input type="checkbox"/>		
d_{h3}	d_3	d_5	s	l ₁	l ₄							
38	40	M8	6	174.4	140	25	38 x 140 x 174					
				194.4	160		38 x 160 x 194					
				214.4	180		38 x 180 x 214					
				234.4	200		38 x 200 x 234					
				258.4	224		38 x 224 x 258					
				284.4	250		38 x 250 x 284					
				314.4	280		38 x 280 x 314					
40	40	M8	6	174.4	140	25	40 x 140 x 174					
				194.4	160		40 x 160 x 194					
				214.4	180		40 x 180 x 214					
				234.4	200		40 x 200 x 234					
				258.4	224		40 x 224 x 258					
				284.4	250		40 x 250 x 284					
				314.4	280		40 x 280 x 314					
48	50	M10	6	192.3	160	30	48 x 160 x 192					
				212.3	180		48 x 180 x 212					
				232.3	200		48 x 200 x 232					
				256.3	224		48 x 224 x 256					
				282.3	250		48 x 250 x 282					
				312.3	280		48 x 280 x 312					
				347.3	315		48 x 315 x 347					
50	50	M10	6	192.3	160	30	50 x 160 x 192					
				212.3	180		50 x 180 x 212					
				232.3	200		50 x 200 x 232					
				256.3	224		50 x 224 x 256					
				282.3	250		50 x 250 x 282					
				312.3	280		50 x 280 x 312					
				347.3	315		50 x 315 x 347					
60	56	M12	6	229.8	180	30	60 x 180 x 230					
				249.8	200		60 x 200 x 250					
				273.8	224		60 x 224 x 274					
				299.8	250		60 x 250 x 300					
				329.8	280		60 x 280 x 330					
				364.8	315		60 x 315 x 365					
				404.8	355		60 x 355 x 405					
63	56	M12	6	229.8	180	30	63 x 180 x 230					
				249.8	200		63 x 200 x 250					
				273.8	224		63 x 224 x 274					
				299.8	250		63 x 250 x 300					
				329.8	280		63 x 280 x 330					
				364.8	315		63 x 315 x 365					
				404.8	355		63 x 355 x 405					

Pillar holding bushes ST 7182

with holding clamps

STEINEL
NORMALIEN



DIN 9825/ISO 9182

Material:

steel 1.7131 (16 Mn Cr 5) case hardened,
hardness 58 – 60 HRC
inside taper ground
mounting diameter ISO j6, ground
Suitable to quick-change guide pillars ST 7181

Mounting instructions:

Mount into mounting hole ISO H6, secured
with 3 holding clamps ST 7367 (included).
Mounting diameter d_3 corresponds with
diameter of guide bushes with flange ST 742,
and with shoulder ST 741.
Advantage: same mounting holes in all plates.

Holding clamps:

when reordering the holding clamps,
please indicate 1 set = 3 pieces
Order number **ST 7367**

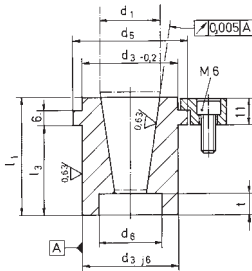
Order example: Pillar holding bushes
ST 7182

$d_1 = 24$ bzw. 25 , $l_3 = 37$ mm

Add **25 x 37**

Order number **ST 7182.25 x 37**

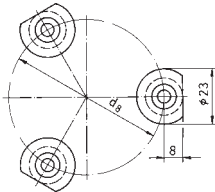
Add
size to
order number



Order no. **ST 7182.**

x

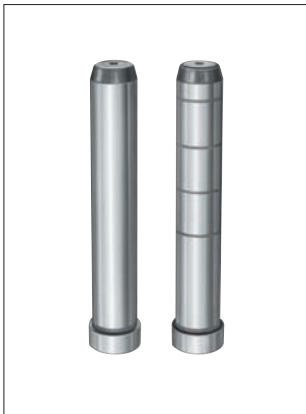
d_{1h3}	d_{3j6}	d_5	d_6	d_8	l_1	l_3	t	
19 and 20	32	40	20	59	39	27	7.5	20 x 27
					49	37	17.5	20 x 37
24 and 25	40	48	26	65	49	37	9	25 x 37
					59	47	19	25 x 47
30 and 32	48	56	32	73	52	37	9	32 x 37
					62	47	19	32 x 47
38 and 40	58	66	42	83	62	47	11	40 x 47
					72	57	21	40 x 57
48 and 50	70	80	52	97	65	47	13	50 x 47
					75	57	23	50 x 57
60 and 63	85	95	58	112	85	67	15	63 x 67
					95	77	25	63 x 77



Guide pillars ST 7111, ST 7112

with head, with or without oil grooves

STEINEL®
NORMALIEN



ST 7111, ST 7112

Similar to ISO 9182

Material:

steel 1.1221 (Ck 60) induction hardened,
hardness 62 – 64 HRC

Guide diameter ISO h6, super-fine ground
finish, mounting on mounting hole ISO N7
(press fit) or ISO H7, if pillars are secured
against glide out.

Matching Guide bushes:

ST 7366, ST 7360

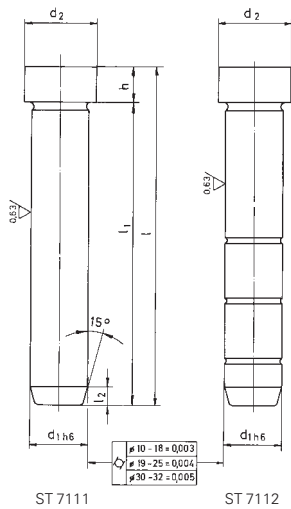
Order example: Guide pillar **ST 7112**

with head and oil grooves,

$d_1 = 15$, $l_1 = 100$ mm

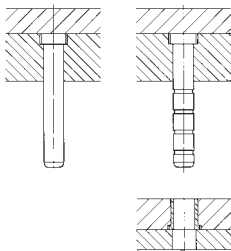
Add **15 x 100**

Order number **ST 7112.15 x 100**



ST 7111

ST 7112



Mounting example

Add
size to
order number

Add
size to
order number

without oil grooves **ST 7111.** x
with oil grooves **ST 7112.** x

without oil grooves **ST 7111.** x
with oil grooves **ST 7112.** x

d_{1h6}	$d_{2-0,5}$	l	l_1	l_2	$h_{0,3}$	
10	14	66	60	5	6	10 x 060
		86	80			10 x 080
		106	100			10 x 100
		131	125			10 x 125
12	16	66	60	5	6	12 x 060
		86	80			12 x 080
		106	100			12 x 100
		131	125			12 x 125
		166	160			12 x 160
15	20	88	80	7	8	15 x 080
		108	100			15 x 100
		133	125			15 x 125
		168	160			15 x 160
		208	200			15 x 200
16	20	88	80	8	8	16 x 080
		108	100			16 x 100
		133	125			16 x 125
		168	160			16 x 160
		208	200			16 x 200
19	24	88	80	8	8	19 x 080
		108	100			19 x 100
		133	125			19 x 125
		168	160			19 x 160
		188	180			19 x 180
		228	220			19 x 220

d_{1h6}	$d_{2-0,5}$	l	l_1	l_2	$h_{0,3}$	
20	24	88	80	8	8	20 x 080
		108	100			20 x 100
		133	125			20 x 125
		168	160			20 x 160
		188	180			20 x 180
		228	220			20 x 220
24	30	115	100	8	15	24 x 100
		140	125			24 x 125
		175	160			24 x 160
		215	200			24 x 200
		255	240			24 x 240
25	30	115	100	8	15	25 x 100
		140	125			25 x 125
		175	160			25 x 160
		215	200			25 x 200
		255	240			25 x 240
30	36	155	140	9	15	30 x 140
		195	180			30 x 180
		235	220			30 x 220
		275	260			30 x 260
32	36	155	140	9	15	32 x 140
		195	180			32 x 180
		235	220			32 x 220
		275	260			32 x 260

Guide bushes ST 7366, ST 7360 with collar

STEINEL
NORMALIEN



ST 7366

Similar to DIN 16716/ISO 8018

Steel sliding guide ST 7366

Material:

steel 1.7131 (16 Mn Cr 5) case hardened,
hardness 60 – 62 HRC

Guide diameter ISO H7, ground
Mounting diameter ISO k6, ground
Mount into mounting hole ISO H7

Sliding Guide solid bronze ST 7360

Material:

solid bronze

Order example: Guide bush **ST 7366**

with shoulder, steel sliding guide
 $d_2 = 16$, $d_1 = 10$, $l = 12$ mm

Add **16.10 x 012**

Order number **ST 7366.16.10 x 012**

Matching Guide pillars:

ST 7111, ST 7112

Order example: Guide bush **ST 7360**

with shoulder, sliding guide solid bronze
 $d_2 = 16$, $d_1 = 10$, $l = 12$ mm

Add **16.10 x 012**

Order number **ST 7360.16.10 x 012**



ST 7360

Steel sliding
guide

Add
size to
order number

Order no. **ST 7366.** x

Steel sliding
guide

Add
size to
order number

Order no. **ST 7366.** x

Sliding guide
solid bronze

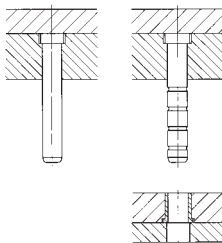
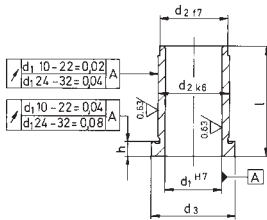
Add
size to
order number

Order no. **ST 7360.** x

Sliding guide
solid bronze

Add
size to
order number

Order no. **ST 7360.** x



Mounting example

d_1^{H7}	d_{2k6}	$d_{3-0.5}$	$h_{-0.1}$	l	
10	16	20	3.5	12	16.10 x 012
				17	16.10 x 017
				22	16.10 x 022
				27	16.10 x 027
				36	16.10 x 036
12	16	20	3.5	12	16.12 x 012
				17	16.12 x 017
				22	16.12 x 022
				27	16.12 x 027
				36	16.12 x 036
15	20	25	6	17	20.15 x 017
				22	20.15 x 022
				27	20.15 x 027
				36	20.15 x 036
				46	20.15 x 046
16	20	25	6	17	20.16 x 017
				22	20.16 x 022
				27	20.16 x 027
				36	20.16 x 036
				46	20.16 x 046
19	26	31	6	22	26.19 x 022
				27	26.19 x 027
				36	26.19 x 036
				46	26.19 x 046

d_1^{H7}	d_{2k6}	$d_{3-0.5}$	$h_{-0.1}$	l	
20	26	31	6	22	26.20 x 022
				27	26.20 x 027
				36	26.20 x 036
				46	26.20 x 046
24	30	35	6	27	30.24 x 027
				36	30.24 x 036
				46	30.24 x 046
				56	30.24 x 056
25	30	35	6	27	30.25 x 027
				36	30.25 x 036
				46	30.25 x 046
				56	30.25 x 056
30	40	46	6	36	40.30 x 036
				46	40.30 x 046
				56	40.30 x 056
32	40	46	6	36	40.32 x 036
				46	40.32 x 046
				56	40.32 x 056

Guide bush ST 7361

solid bronze

STEINEL®
NORMALIEN



Solid bronze slideway

Material: Solid bronze

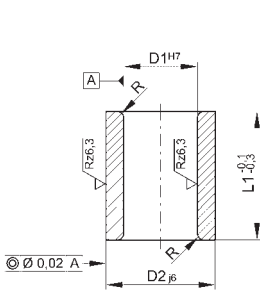
Guide diameter ISO H7, precision turned
Housing diameter ISO j6, precision turned

Fitting information:

Glue into location hole ISO G6
Avoid pressing in if possible, this constricts the internal diameter

Ordering example: ST 7361 guide bush

$D_1 = 16$, $L_1 = 37$ mm
Supplement **16 x 037**
Order number **ST 7361.16 x 037**



Add size to order number

Add size to order number

Order No. **ST 7361.**

x

D_{1H7}	D_{2j6}	L_1	R	
8	12	10	0,5	08 x 010
		15		08 x 015
		20		08 x 020
10	16	10	0,5	10 x 010
		15		10 x 015
		23		10 x 023
		30		10 x 030
12	18	10	0,5	12 x 010
		15		12 x 015
		23		12 x 023
		30		12 x 030
15	21	15	0,75	15 x 015
		23		15 x 023
		30		15 x 030
		37		15 x 037
16	22	15	0,75	16 x 015
		23		16 x 023
		30		16 x 030
		37		16 x 037
		47		16 x 047
19	26	23	0,75	19 x 023
		30		19 x 030
		37		19 x 037
		47		19 x 047
		60		19 x 220
20	28	23	0,75	20 x 023
		30		20 x 030
		37		20 x 037
		47		20 x 047
		60		20 x 060

Order No. **ST 7361.**

x

D_{1H7}	D_{2j6}	L_1	R	
24	32	23	0,75	24 x 023
		30		24 x 030
		37		24 x 037
		47		24 x 047
25	33	23	0,75	25 x 023
		30		25 x 030
		37		25 x 037
		47		25 x 047
30	38	23	1	30 x 023
		30		30 x 030
		37		30 x 037
		47		30 x 047
32	40	23	1	32 x 023
		30		32 x 030
		37		32 x 037
		47		32 x 047
38	48	30	1	38 x 030
		37		38 x 037
		47		38 x 047
40	50	30	1	40 x 030
		37		40 x 037
		47		40 x 047
		60		40 x 060
		77		40 x 077

Guide pillars ST 7160

for large tools

STEINEL
NORMALIEN



DIN 9833/ISO 9182

Material:
steel 1.7139 (16 Mn CrS 5)
or 1.1221 (Ck 60)
hardness 62 – 64 HRC

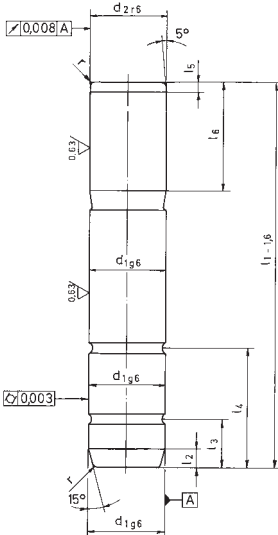
Guide diameter ISO g6,
super-fine ground finish
Mounting diameter ISO r6
Mount into mounting hole ISO H7

Matching guide bushes to ST 7160:
ST 7460 and ST 7469

Order example: Guide pillar **ST 7160**
 $d_1 = 32$, $l_1 = 200$ mm
Add **032 x 200**
Order number **ST 7160.032 x 200**

Add
size to
order number

with oil grooves Order no. **ST 7160.** x



d_{1g6}	d_{2r6}	$l_{1-1.6}$	l_2	l_3	l_4	l_5	l_6	r	
25	25	125	8	20	45	4	40	2	025 x 125
		140							025 x 140
		160							025 x 160
		180							025 x 180
		200							025 x 200
		224							025 x 224
32	32	140	8	20	50	4	45	2	032 x 140
		160							032 x 160
		180							032 x 180
		200							032 x 200
		224							032 x 224
		250							032 x 250
40	40	160	8	20	50	4	56	2	040 x 160
		180							040 x 180
		200							040 x 200
		224							040 x 224
		250							040 x 250
		280							040 x 280
50	50	180	10	25	65	4	70	2.5	050 x 180
		200							050 x 200
		224							050 x 224
		250							050 x 250
		280							050 x 280
		315							050 x 315
63	63	200	10	32	72	4	80	2.5	063 x 200
		224							063 x 224
		250							063 x 250
		280							063 x 280
		315							063 x 315
		355							063 x 355
80	80	224	10	32	82	4	100	3	080 x 224
		250							080 x 250
		280							080 x 280
		315							080 x 315
		355							080 x 355
		400							080 x 400
100	100	250	10	32	82	4	125	3	100 x 250
		280							100 x 280
		315							100 x 315
		355							100 x 355
		400							100 x 400
		450							100 x 450

Guide bushes ST 746.

sliding guide, for large tools



DIN 9834/ISO 9448

Technical description:

Guide diameter ISO H7 precision turned
Mounting diameter ISO h6 ground

ST 7460 solid bronze:

for usual load, good lubrication is necessary

ST 7469 steel, bronze plated:

steel 1.7131 (16 Mn Cr 5)
induction hardened, hardness 61-63 HRC
sliding surface bronze plated
Due to the galvanic bronze plating on the hardened steel jacket this bush qualifies especially for high sliding speeds and extreme lateral forces. Good lubrication is necessary.

Mounting instructions:

Adjust in mounting bore hole ISO H7.
Fix with 2 holding clamps ST 7377 (not included in delivery). The shoulder surface, right-angled ground to the guide bore, will be squeezed onto the plate by the holding clamps and guarantees an absolutely rigid clamping of the guide bush.

Matching guide pillars:

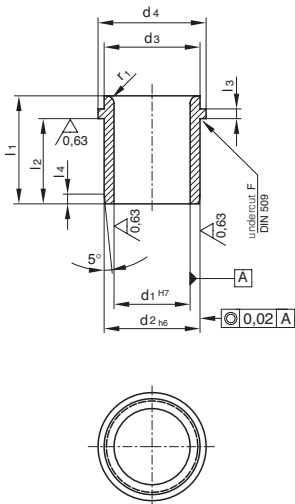
ST 7160

Order example: Guide bush **ST 7469**

d₁ = 32 mm

Add **032**

Order number **ST 7469.032**



Sliding guide:

solid bronze
for usual load,
external lubrication



Sliding guide:

Steel hardened
bronze plated
for extreme load
external lubrication

Add
size to
order number

Order no. **ST 7460.**

Order no. **ST 7469.**

d ₁ H7	d ₂ h6	d ₃ 0 3 -0,25	d ₄ 0 4 -0,8	l ₁ 0 1 -1,6	l ₂ -2 2 -3	l ₃ +0,1 3 -0,1	l ₄ +1 4 -1	r ₁	
25	32	32	40	40	30	6.3	3.0	3	025
32	40	40	50	50	40	6.3	4.0	3	032
40	50	50	63	63	50	6.3	5.0	3	040
50	63	63	71	71	56	6.3	6.3	5	050
63	80	80	90	80	63	10.0	8.0	6	063
80	100	100	112	100	80	10.0	10.0	8	080
100	125	125	140	125	106	10.0	12.5	10	100

Holding clamps ST 7377



DIN 9832

Material: steel

Attachment:

Suitable hexagon socket screws DIN 912
order number SZ 8510

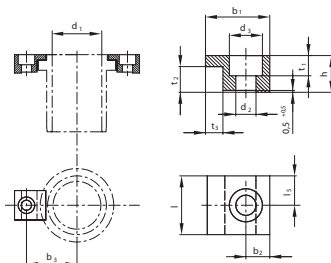
Order example: holding clamp **ST 7377**

d₁ = 32 mm

Add **032**

order number **ST 7377.032**

Add
size to
order number



Order no. **ST 7377.**

d ₁	d ₂	d ₃	b ₁	b ₂	b ₃	h	l	l ₅	t ₁	t ₂	t ₃	Schraube	
25	7	11	20	7.5	29	10	20	10	7	6.3	5	M6 x 16	01
32					33								01
40					39.5								01
50					44.5								01
63	11.5	17.5	32	11	61.5	16	32	16	11.5	10	10	M10 x 25	02
80					71.5								02
100					84								02
125					101.5								02
160					121.5								02

Guide pillars ST 9833

STEINEL®
NORMALIEN



DIN 9833

Material: Steel 1.7139 (16 Mn CrS 5)
or 1.1221 (Ck 60)
hardness 62-64 HRC

Guide diameter ISO g6
super-fine ground finish
Mounting diameter ISO r6
Mount into mounting hole ISO H7

Note:

The transport-hole in the solid pillar $d_1 = 80$ mm and $d_1 = 100$ mm has the measurement of a) = M 12, 24 mm deep.

Order example: Guide pillar **ST 9833**

$d_1 = 32$, $l_1 = 200$ mm

Add **032 x 200**

Order number **ST 9833.032 x 200**

Guide pillars with $d_1 = 80$ mm and $d_1 = 100$ mm can also be delivered as a solid pillar with a transport-hole (T). Please note this when placing order.

Add T to order number (for example):

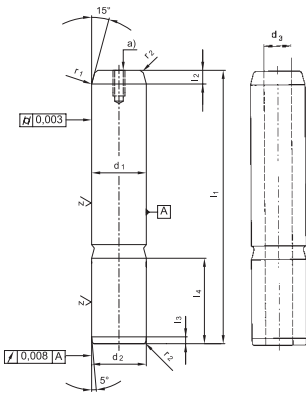
Guide pillar ST 9833.100 x 400 T.

Add size to
order number

Order no. **ST 9833.**

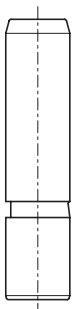
x

d_{1f6}	d_{2r6}	d_{3z2}	l_{1-1}^0	$l_2^{+0,8}_0$	$l_3^{+0,8}_0$	$l_4^{+0,8}_0$	r_1	r_2	
25	25	-	125	8	4	40	3	2	025 x 125
			140						025 x 140
			160						025 x 160
			180						025 x 180
			200						025 x 200
			224						025 x 224
32	32	-	140	8	4	45	3	2	032 x 140
			160						032 x 160
			180						032 x 180
			200						032 x 200
			224						032 x 224
			250						032 x 250
40	40	-	140	8	4	56	3	2	040 x 140
			160						040 x 160
			180						040 x 180
			200						040 x 200
			224						040 x 224
			250						040 x 250
			280						040 x 280
50	50	-	160	10	4	70	5	2.5	050 x 160
			180						050 x 180
			200						050 x 200
			224						050 x 224
			250						050 x 250
			280						050 x 280
			315						050 x 315
			355						050 x 355
63	63	-	180	10	4	80	6	2.5	063 x 180
			200						063 x 200
			224						063 x 224
			250						063 x 250
			280						063 x 280
			315						063 x 315
			355						063 x 355
			400						063 x 400
80	80	40	200	10	4	100	8	3	080 x 200
			224						080 x 224
			250						080 x 250
			280						080 x 280
			315						080 x 315
			355						080 x 355
			400						080 x 400
			450						080 x 450
100	100	50	224	10	4	125	10	3	100 x 224
			250						100 x 250
			280						100 x 280
			315						100 x 315
			355						100 x 355
			400						100 x 400
			450						100 x 450
125	125	65	315	12	5	140	12	4	125 x 315
			355						125 x 355
			400						125 x 400
			450						125 x 450
			500						125 x 500
160	160	95	400	12	5	180	18	4	160 x 400
			450						160 x 450
			500						160 x 500
			560						160 x 560



Guide pillar with groove

Price and time of delivery upon request



Guide bushes ST 9834



DIN 9834

Material:

solid bronze with solid lubricant

Due to the internal solid lubricant inserts this sliding guide is self-lubricating and suitable for higher loads.

Technical description:

Guide diameter ISO H7 precision turned
Mounting diameter ISO h6 ground

Mounting instructions:

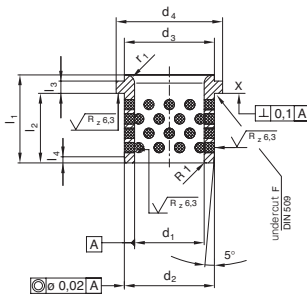
Fit in mounting bore hole ISO H7
Fix with 2 holding clamps ST 7377
(not included in delivery).

Order example: Guide bush **ST 9834**

d1 = 32 mm

Add **032**

Order number **ST 9834.032**



Add size to order number

Order no. **ST 9834.**

d_1^{H7}	d_{2h6}	$d_3^0_{-0,25}$	$d_4^0_{-0,8}$	$l_1^0_{-1,6}$	$l_2^{-2}_{-3}$	$l_3^{+0,1}_{-0,1}$	$l_4^{+1}_{-1}$	r_1	
25	32	32	40	40	30	6.3	3.0	3	025
32	40	40	50	50	40	6.3	4.0	3	032
40	50	50	63	63	50	6.3	5.0	3	040
50	63	63	71	71	56	6.3	6.3	5	050
63	80	80	90	80	63	10.0	8.0	6	063
80	100	100	112	100	80	10.0	10.0	8	080
100	125	125	140	125	106	10.0	12.5	10	100
125	160	160	180	160	132	10.0	16.0	12	125
160	200	200	220	200	170	10.0	16.0	18	160

Holding clamps ST 7377



DIN 9832

Material: steel

Attachement:

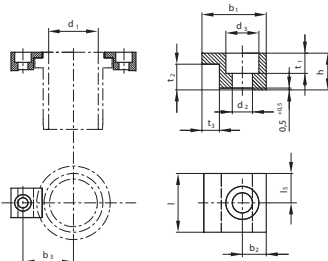
Suitable hexagon socket screws DIN 912
order number SZ 8510

Order example: holding clamp **ST 7377**

nominal diameter $d_1 = 32$ mm

Add **01**

order number **ST 7377.01**



Add size to order number

Order no. **ST 7377.**

d_1	d_2	d_3	b_1	b_2	b_3	h	l	l_5	t_1	t_2	t_3	Screw	
25	7	11	20	7.5	29	10	20	10	7	6.3	5	M6 x 16	01
32					33								01
40					39.5								01
50					44.5								01
63	11.5	17.5	32	11	61.5	16	32	16	11.5	10	10	M10 x 25	02
80					71.5								02
100					84								02
125					101.5								02
160					121.5								02

Guide pillars ST 9825

with shoulder (guide tolerance g6)

STEINEL
NORMALIEN



Material: steel 1.1221 (Ck 60)
Induction hardened, hardness 62-64 HRC

Guide diameter ISO g6,
super-fine ground finish
Mounting diameter ISO r6
Mount into mounting bore holes ISO H7

Guide pillars with diameters of 80 and
100 mm come with an M12 x 18 tapped hole.
It is used for handling with deep-freezing

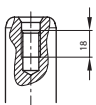
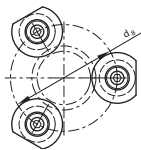
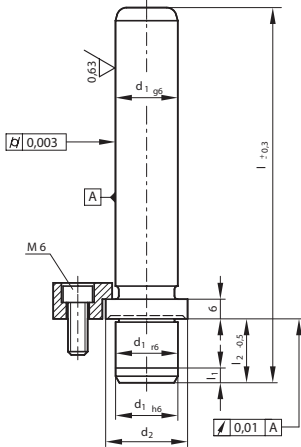
Guide pillars with shoulder are fastened with
3 clamps ST 7367 (included in delivery).

Order example: Guide pillar **ST 9825**
with shoulder
 $d_1 = 32, l = 200$ mm
Add **032 x 200**
Order number **ST 9825.032 x 200**

Add
size to
order number

Order no. **ST 9825.**

x



Ø 80 and 100

d_{1g6}	l	d_2	d_8	l_1	l_2	
25	125	32	49	6	40	025 x 125
	140					025 x 140
	160					025 x 160
	180					025 x 180
	200					025 x 200
	224					025 x 224
32	140	40	57	7	45	032 x 140
	160					032 x 160
	180					032 x 180
	200					032 x 200
	224					032 x 224
	250					032 x 250
40	160	50	67	7	56	040 x 160
	180					040 x 180
	200					040 x 200
	224					040 x 224
	250					040 x 250
	280					040 x 280
50	180	63	80	7	70	050 x 180
	200					050 x 200
	224					050 x 224
	250					050 x 250
	280					050 x 280
	315					050 x 315
63	200	80	97	8	80	063 x 200
	224					063 x 224
	250					063 x 250
	280					063 x 280
	315					063 x 315
	355					063 x 355
80	224	100	117	8	100	080 x 224
	250					080 x 250
	280					080 x 280
	315					080 x 315
	355					080 x 355
	400					080 x 400
100	280	125	142	8	125	100 x 280
	315					100 x 315
	355					100 x 355
	400					100 x 400

Mounting dimension l_2 can be shortened upon request.

Guide bushes ST 9831

smooth, sliding guide with solid lubricant

STEINEL[®]
NORMALIEN



Material:

Solid bronze with solid lubricant

Due to the solid lubricant inserts, the sliding guide is self-lubricating and suitable for higher loads.

Guide diameter ISO H6, precision turned
Mounting diameter ISO j6, precision turned

Matching guide pillars: ST 7100,
ST 7106, ST 7107, ST 7108, ST 7117,
ST 7118, ST 7120, ST 7126, ST 7127,
ST 7128, ST 7181/82 and ST 9825

Mounting instructions:

1. Glue into the mounting bore hole ISO H6 (see to conc. page for bonding agent)

2. If possible, avoid press fit, because the internal diameter will decrease.

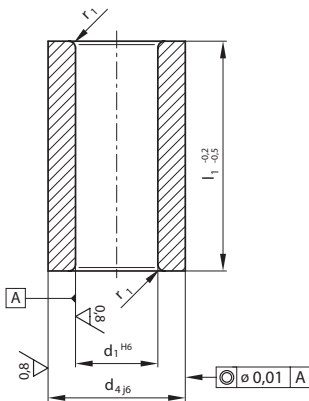
Order example: Guide bush **ST 9831**

$d_1 = 25, l_1 = 37$ mm

Add **25 x 037**

Order number **ST 9831.25 x 037**

Add
size to
order number



Order no. **ST 9831.**

x

d_1^{H6}	d_{4j6}	r_1	l_1	
25	40	3	23	25 x 023
			30	25 x 030
			37	25 x 037
			47	25 x 047
			60	25 x 060
			77	25 x 077
32	48	3	30	32 x 030
			37	32 x 037
			47	32 x 047
			60	32 x 060
			77	32 x 077
			95	32 x 095
40	58	3	30	40 x 030
			37	40 x 037
			47	40 x 047
			60	40 x 060
			77	40 x 077
			95	40 x 095
50	70	5	120	40 x 120
			37	50 x 037
			47	50 x 047
			60	50 x 060
			77	50 x 077
			95	50 x 095
63	85	6	120	50 x 120
			60	63 x 060
			77	63 x 077
			95	63 x 095
			120	63 x 120
			135	63 x 135
80	105	8	120	80 x 120
			135	80 x 135

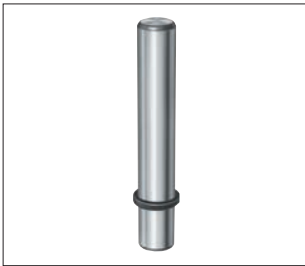
Guide pillars ST 9827

with shoulder (Guide tolerance g6)

STEINEL
NORMALIEN

Add size to
order number

Add size to
order number



Made of solid material

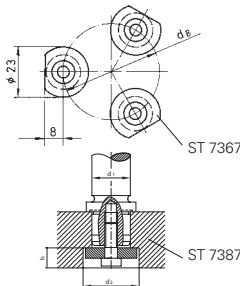
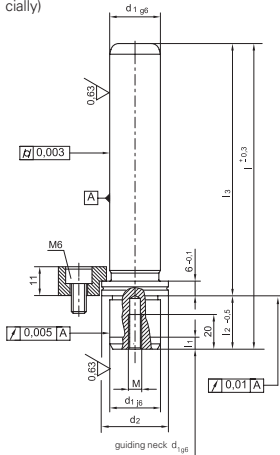
Material:

Steel 1.1221 (Ck 60) induction hardened,
hardness 62 – 64 HRC

Guide diameter ISO g6
super-fine ground finish
Mounting diameter ISO j6
Mounting into mounting holes ISO H6

Guide pillars with shoulder are secured with
three holding clamps ST 7367
(in delivery included).

Alternative this pillar can be fixed with the
holding washer ST 7387. (please order specially)



Order no. **ST 9827**. x

d _{g6} *)	d ₂	d ₈	l	l ₁	l _{2-0.5}	l ₃	
15	21	38	115	5	20	95	15 x 115
			125			105	15 x 125
			140			120	15 x 140
			160			140	15 x 160
			180			160	15 x 180
			200			180	15 x 200
			224			204	15 x 224
16	21	38	115	5	20	95	16 x 115
			125			105	16 x 125
			140			120	16 x 140
			160			140	16 x 160
			180			160	16 x 180
			200			180	16 x 200
			224			204	16 x 224
19	25	42	115	5	23	92	19 x 115
			125			102	19 x 125
			140			117	19 x 140
			160			137	19 x 160
			180			157	19 x 180
			200			177	19 x 200
			224			201	19 x 224
			250			227	19 x 250
20	25	42	115	5	23	92	20 x 115
			125			102	20 x 125
			140			117	20 x 140
			160			137	20 x 160
			180			157	20 x 180
			200			177	20 x 200
			224			201	20 x 224
			250			227	20 x 250
24	32	49	125	6	27	98	24 x 125
			140			113	24 x 140
			160			133	24 x 160
			180			153	24 x 180
			200			173	24 x 200
			224			197	24 x 224
			250			223	24 x 250
			280			253	24 x 280
			315			288	24 x 315
25	32	49	125	6	27	98	25 x 125
			140			113	25 x 140
			160			133	25 x 160
			180			153	25 x 180
			200			173	25 x 200
			224			197	25 x 224
			250			223	25 x 250
			280			253	25 x 280
			315			288	25 x 315
30	40	57	140	7	37	103	30 x 140
			160			123	30 x 160
			180			143	30 x 180
			200			163	30 x 200
			224			187	30 x 224
			250			213	30 x 250
			280			243	30 x 280
			315			278	30 x 315
			355			318	30 x 355
32	40	57	140	7	37	103	32 x 140
			160			123	32 x 160
			180			143	32 x 180
			200			163	32 x 200
			224			187	32 x 224
			250			213	32 x 250
			280			243	32 x 280
			315			278	32 x 315
			355			318	32 x 355

Order no. **ST 9827**. x

d _{g6} *)	d ₂	d ₈	l	l ₁	l _{2-0.5}	l ₃	
38	50	67	160	7	37	123	38 x 160
			180			143	38 x 180
			200			163	38 x 200
			224			187	38 x 224
			250			213	38 x 250
			280			243	38 x 280
			315			278	38 x 315
			355			318	38 x 355
			400			363	38 x 400
40	50	67	160	7	37	123	40 x 160
			180			143	40 x 180
			200			163	40 x 200
			224			187	40 x 224
			250			213	40 x 250
			280			243	40 x 280
			315			278	40 x 315
			355			318	40 x 355
			400			363	40 x 400
48	63	80	180	7	47	133	48 x 180
			200			153	48 x 200
			224			177	48 x 224
			250			203	48 x 250
			280			233	48 x 280
			315			268	48 x 315
			355			308	48 x 355
			400			353	48 x 400
			450			403	48 x 450
50	63	80	180	7	47	133	50 x 180
			200			153	50 x 200
			224			177	50 x 224
			250			203	50 x 250
			280			233	50 x 280
			315			268	50 x 315
			355			308	50 x 355
			400			353	50 x 400
			450			403	50 x 450
60	80	97	224	8	47	177	60 x 224
			250			203	60 x 250
			280			233	60 x 280
			315			268	60 x 315
			355			308	60 x 355
			400			353	60 x 400
			450			403	60 x 450
63	80	97	224	8	47	177	63 x 224
			250			203	63 x 250
			280			233	63 x 280
			315			268	63 x 315
			355			308	63 x 355
			400			353	63 x 400
			450			403	63 x 450
80	95	112	280	8	60	220	80 x 280
			315			255	80 x 315
			355			295	80 x 355
			400			340	80 x 400
			450			390	80 x 450
			500			440	80 x 500
			560			500	80 x 560

*) guide diameter d_{1g6}
mounting diameter d_{1j6}

thread press-in side M =

- Ø 15–32 = M 8
- Ø 38–50 = M 10
- Ø 60–80 = M 12

Order example: Guide pillar ST 9827

with shoulder
d₁ = 19, l = 160 mm, Add **19 x 160**
Order number **ST 9827.19 x 160**

Please note:
These guide pillars can only be used
with sliding guide bushes.

Ball cages ST 7130

made of aluminium

STEINEL[®]
NORMALIEN



Material: ball cage made of aluminium balls of steel, hardened, grade 1, sorted.

The balls in the cage holes are free-wheeling wedges. They are helically arranged in the axial direction, so that each ball has its own race.

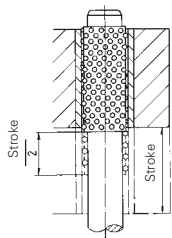
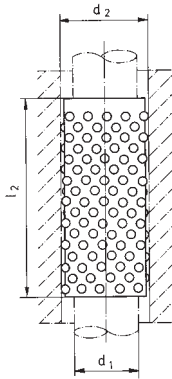
Order example: Ball cage **ST 7130**

made of aluminium

$d_1 = 16$, $l_2 = 54$ mm

Add **16 x 054**

Order number **ST 7130.16 x 054**



Cage travel = 1/2 length of stroke

Matching guide pillars ST 7100, ST 7106, ST 7107, ST 7108, ST 7117, ST 7118, ST 7120, ST 7126, ST 7127, ST 7128, ST 7181/82 and to all ball guide bushes.

Technical description: see page 3.04

Other lengths available upon request.

Add size to order number

Order no. ST 7130.			<input type="checkbox"/> x <input type="checkbox"/>
d_1	d_2	l_2	
10	14	30	10 x 030
		38	10 x 038
		43	10 x 043
12	16	30	12 x 030
		38	12 x 038
		43	12 x 043
15	21	30	15 x 030
		38	15 x 038
		43	15 x 043
		54	15 x 054
		63	15 x 063
16	22	30	16 x 030
		38	16 x 038
		43	16 x 043
		54	16 x 054
		63	16 x 063
19	25	30	19 x 030
		38	19 x 038
		43	19 x 043
		54	19 x 054
		63	19 x 063
		74	19 x 074
20	26	30	20 x 030
		38	20 x 038
		43	20 x 043
		54	20 x 054
		63	20 x 063
		74	20 x 074
24	30	30	24 x 030
		38	24 x 038
		43	24 x 043
		54	24 x 054
		63	24 x 063
		74	24 x 074
		83	24 x 083
		90	24 x 090
25	31	30	25 x 030
		38	25 x 038
		43	25 x 043
		54	25 x 054
		63	25 x 063
		74	25 x 074
		83	25 x 083
		90	25 x 090
30	38	38	30 x 038
		43	30 x 043
		54	30 x 054
		58	30 x 058
		68	30 x 068
		74	30 x 074
		83	30 x 083
		88	30 x 088
		103	30 x 103
		108	30 x 108

Add size to order number

Order no. ST 7130.			<input type="checkbox"/> x <input type="checkbox"/>
d_1	d_2	l_2	
32	40	38	32 x 038
		43	32 x 043
		54	32 x 054
		58	32 x 058
		68	32 x 068
		74	32 x 074
		83	32 x 083
		88	32 x 088
		103	32 x 103
		108	32 x 108
38	46	38	38 x 038
		43	38 x 043
		58	38 x 058
		68	38 x 068
		88	38 x 088
		94	38 x 094
		108	38 x 108
		128	38 x 128
40	48	38	40 x 038
		43	40 x 043
		58	40 x 058
		68	40 x 068
		88	40 x 088
		94	40 x 094
		108	40 x 108
		128	40 x 128
48	56	43	48 x 043
		58	48 x 058
		68	48 x 068
		74	48 x 074
		88	48 x 088
		108	48 x 108
		128	48 x 128
50	58	43	50 x 043
		58	50 x 058
		68	50 x 068
		74	50 x 074
		88	50 x 088
		108	50 x 108
		128	50 x 128
60	70	75	60 x 075
		94	60 x 094
		113	60 x 113
		128	60 x 128
		139	60 x 139
		154	60 x 154
63	73	75	63 x 075
		94	63 x 094
		113	63 x 113
		128	63 x 128
		139	63 x 139
		154	63 x 154
80	92	113	80 x 113
		138	80 x 138
		156	80 x 156

Ball cages ST 7170

made of aluminium, with installation assistance



Material: ball cage made of aluminium balls of steel, hardened, grade 1, sorted

The balls in the cage holes are free-wheeling wedges. They are helically arranged in the axial direction, so that each ball has its own race.

The installation assistance in the ball cage makes the assembly of the die sets within multiple guiding units simpler.

Aluminium ball cages are universally utilizable. They have a high mechanical endurance, as well as excellent sliding characteristics, a high resistance to abrasion and great stability. Due to their optimum heat stability, they are suitable for use in temperatures of over 80 °C.

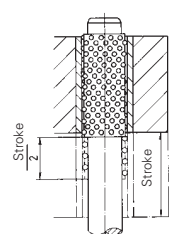
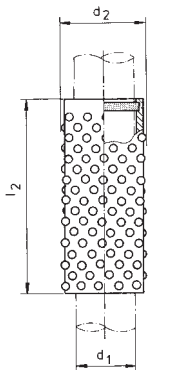
Extremely robust construction, utilizable in machines and tools with extremely high precision demands.

Add size to order number

Add size to order number

Order no. ST 7170. <input type="checkbox"/> x <input type="checkbox"/>			
d ₁	d ₂	l ₂	
15	21	30	15 x 030
		38	15 x 038
		43	15 x 043
		54	15 x 054
		63	15 x 063
16	22	30	16 x 030
		38	16 x 038
		43	16 x 043
		54	16 x 054
		63	16 x 063
19	25	30	19 x 030
		38	19 x 038
		43	19 x 043
		54	19 x 054
		63	19 x 063
20	26	30	20 x 030
		38	20 x 038
		43	20 x 043
		54	20 x 054
		63	20 x 063
24	30	30	24 x 030
		38	24 x 038
		43	24 x 043
		54	24 x 054
		63	24 x 063
25	31	30	25 x 030
		38	25 x 038
		43	25 x 043
		54	25 x 054
		63	25 x 063
30	38	38	30 x 038
		43	30 x 043
		54	30 x 054
		58	30 x 058
		68	30 x 068
30	38	74	30 x 074
		83	30 x 083
		88	30 x 088
		103	30 x 103
		108	30 x 108

Order no. ST 7170. <input type="checkbox"/> x <input type="checkbox"/>					
d ₁	d ₂	l ₂			
32	40	38	32 x 038		
		43	32 x 043		
		54	32 x 054		
		58	32 x 058		
		68	32 x 068		
32	40	74	32 x 074		
		83	32 x 083		
		88	32 x 088		
		103	32 x 103		
		108	32 x 108		
38	46	38	38 x 038		
		43	38 x 043		
		58	38 x 058		
		68	38 x 068		
		88	38 x 088		
38	46	94	38 x 094		
		108	38 x 108		
		128	38 x 128		
		40	48	38	40 x 038
				43	40 x 043
58	40 x 058				
68	40 x 068				
88	40 x 088				
40	48	94	40 x 094		
		108	40 x 108		
		128	40 x 128		
		48	56	43	48 x 043
				58	48 x 058
68	48 x 068				
74	48 x 074				
88	48 x 088				
48	56	108	48 x 108		
		128	48 x 128		
		50	58	43	50 x 043
				58	50 x 058
				68	50 x 068
74	50 x 074				
88	50 x 088				
50	58	108	50 x 108		
		128	50 x 128		
		60	70	75	60 x 075
				94	60 x 094
				113	60 x 113
128	60 x 128				
139	60 x 139				
60	70	154	60 x 154		
		63	73	75	63 x 075
				94	63 x 094
				113	63 x 113
				128	63 x 128
139	63 x 139				
63	73	154	63 x 154		
		80	92	113	80 x 113
				138	80 x 138
				156	80 x 156



Cage travel = 1/2 length of stroke

Matching guide pillars ST 7100, ST 7106, ST 7107, ST 7108, ST 7117, ST 7118, ST 7120, ST 7126, ST 7127, ST 7128, ST 7181/82 and to all ball guide bushes.

Technical description: see page 3.04

Other lengths available upon request.

Order example: Ball cage **ST 7170**

made of aluminium

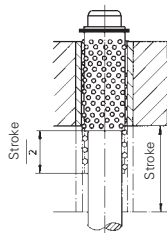
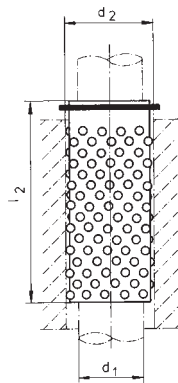
d₁ = 16, l₂ = 54 mm

Add **16 x 054**

Order number **ST 7170.16 x 054**

Ball cages ST 7171

made of aluminium, with safety ring



Cage travel = 1/2 length of stroke

Matching guide pillars ST 7100, ST 7106, ST 7107, ST 7108, ST 7117, ST 7118, ST 7120, ST 7126, ST 7127, ST 7128, ST 7181/82 and to all ball guide bushes.

Technical description: see page 3.04

Other lengths available upon request.

Material: ball cage made of aluminium balls of steel, hardened, grade 1, sorted

The balls in the cage holes are free-wheeling wedges. They are helically arranged in the axial direction, so that each ball has its own race.

The ball cages are constructed with a safety ring according to DIN 471.

Aluminium ball cages are universally utilizable. They have a high mechanical endurance, as well as excellent sliding characteristics, a high resistance to abrasion and great stability.

Due to their optimum heat stability, they are suitable for use in temperatures of over 80 °C.

Extremely robust construction, utilizable in machines and tools with extremely high precision demands.

Order no. **ST 7171.** x Add size to order number

d ₁	d ₂	l ₂	
15	21	30	15 x 030
		38	15 x 038
		43	15 x 043
		54	15 x 054
		63	15 x 063
16	22	30	16 x 030
		38	16 x 038
		43	16 x 043
		54	16 x 054
		63	16 x 063
19	25	30	19 x 030
		38	19 x 038
		43	19 x 043
		54	19 x 054
		63	19 x 063
		74	19 x 074
20	26	30	20 x 030
		38	20 x 038
		43	20 x 043
		54	20 x 054
		63	20 x 063
		74	20 x 074
24	30	30	24 x 030
		38	24 x 038
		43	24 x 043
		54	24 x 054
		63	24 x 063
		74	24 x 074
		83	24 x 083
		90	24 x 090
25	31	30	25 x 030
		38	25 x 038
		43	25 x 043
		54	25 x 054
		63	25 x 063
		74	25 x 074
		83	25 x 083
		90	25 x 090
30	38	38	30 x 038
		43	30 x 043
		54	30 x 054
		58	30 x 058
		68	30 x 068
		74	30 x 074
		83	30 x 083
		88	30 x 088
		103	30 x 103
		108	30 x 108

Order example: Ball cage **ST 7171** made of aluminium
d₁ = 16, l₂ = 54 mm
Add **16 x 054**
Order number **ST 7171.16 x 054**

Order no. **ST 7171.** x Add size to order number

d ₁	d ₂	l ₂	
32	40	38	32 x 038
		43	32 x 043
		54	32 x 054
		58	32 x 058
		68	32 x 068
		74	32 x 074
		83	32 x 083
		88	32 x 088
		103	32 x 103
		108	32 x 108
38	46	38	38 x 038
		43	38 x 043
		58	38 x 058
		68	38 x 068
		88	38 x 088
		94	38 x 094
		108	38 x 108
		128	38 x 128
40	48	38	40 x 038
		43	40 x 043
		58	40 x 058
		68	40 x 068
		88	40 x 088
		94	40 x 094
		108	40 x 108
		128	40 x 128
48	56	43	48 x 043
		58	48 x 058
		68	48 x 068
		74	48 x 074
		88	48 x 088
		108	48 x 108
		128	48 x 128
50	58	43	50 x 043
		58	50 x 058
		68	50 x 068
		74	50 x 074
		88	50 x 088
		108	50 x 108
		128	50 x 128
60	70	75	60 x 075
		94	60 x 094
		113	60 x 113
		128	60 x 128
		139	60 x 139
		154	60 x 154
63	73	75	63 x 075
		94	63 x 094
		113	63 x 113
		128	63 x 128
		139	63 x 139
		154	63 x 154
80	92	113	80 x 113
		138	80 x 138
		156	80 x 156

Roller cages ST 7140

made of aluminium

STEINEL®
NORMALIEN



Material: Roller cage made of aluminium, profile rollers of steel, hardened, grade 1, sorted.

The profile rollers in the cage holes are free-wheeling wedged. Thus a protection against torsion is guaranteed. The rollers are helically arranged in the axial direction, so that each roller has its own race.

Extremely robust construction, universally adaptable.

Guide pillars and bushes:

Roller cage matching to guide pillars ST 7100, ST 7106, ST 7107, ST 7108, ST 7117, ST 7118, ST 7120, ST 7126, ST 7127, ST 7128 and to all ball guide bushes.

Additional guide diameters and lengths according to the ball cages ST 7130 are available upon request.

Technical description: see page 3.05

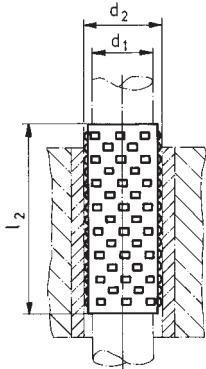
Order example: roller cage ST 7140

made of aluminium
 $d_1 = 32$, $l_2 = 54$ mm
Add **32 x 054**

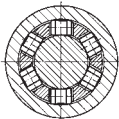
Order number **ST 7140.32 x 054**

Roller cages can be delivered also with installation assistance or safety ring

Price and delivery time upon request



Cage travel = 1/2 length of stroke



Add size to order number

Add size to order number

Order no. ST 7140.							<input type="checkbox"/> x <input type="checkbox"/>
d_1	d_2	l_2	m_1	m_2	dR		
19	25	43	8	5	3		
							19 x 043
							19 x 054
							19 x 063
							19 x 074
20	26	43	8	5	3		
							20 x 043
							20 x 054
							20 x 063
							20 x 074
24	30	43	8	5	3		
							24 x 043
							24 x 063
							24 x 074
							24 x 090
25	31	43	8	5	3		
							25 x 043
							25 x 063
							25 x 074
							25 x 090
30	38	54	12	5	4		
							30 x 054
							30 x 074
							30 x 083
							30 x 103
32	40	54	12	5	4		
							32 x 054
							32 x 074
							32 x 083
							32 x 103
38	46	58	12	6	4		
							38 x 058
							38 x 088
							38 x 094
							38 x 128

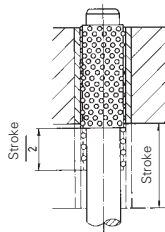
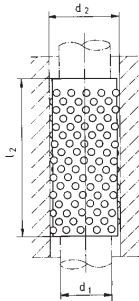
Order no. ST 7140.							<input type="checkbox"/> x <input type="checkbox"/>
d_1	d_2	l_2	m_1	m_2	dR		
40	48	58	12	6	4		
							40 x 058
							40 x 088
							40 x 094
							40 x 128
48	56	74	15	8	4		
							48 x 074
							48 x 108
							48 x 128
50	58	74	15	8	4		
							50 x 074
							50 x 108
60	70	113	15	9	5		
							60 x 113
							60 x 128
63	73	113	15	9	5		
							63 x 113
							63 x 128
							63 x 139
80	92	113	16	9	6		
							80 x 113
							80 x 138
							80 x 156

m_1 = rollers per roller ring
 m_2 = quantity of roller rings
 dR = roller diameter

Ball cages ST 7150

made of brass

STEINEL®
NORMALIEN



Cage travel = 1/2 length of stroke

Sturdy workmanship, universally adaptable.

Matching guide pillars ST 7100, ST 7106, ST 7107, ST 7108, ST 7117, ST 7118, ST 7120, ST 7126, ST 7127, ST 7128, ST 7181/82 and to all ball guide bushes.

Technical description: see page 3.04

Order example: Ball cage **ST 7150**

made of brass
d₁ = 16, l₂ = 54 mm
Add **16 x 054**

Order number **ST 7150.16 x 054**

Other lengths available upon request.

Material: ball cage made of brass, balls of steel, hardened, grade 1, sorted

The balls in the cage holes are free-wheeling wedges. They are helically arranged in the axial direction, so that each ball has its own race.

Ball cages made of brass are universally utilizable. They have a high mechanical strength, best antifriction properties as well as high abrasive resistance and stability.

Due to their optimum heat resistance they are suited for temperatures over 80 °C.

Sturdy workmanship usable in machines and tools with high precision demands.

Add size to
order number

Order no. ST 7150.				<input type="checkbox"/> x <input type="checkbox"/>
d ₁	d ₂	l ₂		
10	14	30	10 x 030	
		38	10 x 038	
		43	10 x 043	
12	16	30	12 x 030	
		38	12 x 038	
		43	12 x 043	
15	21	30	15 x 030	
		38	15 x 038	
		43	15 x 043	
		54	15 x 054	
		63	15 x 063	
		74	15 x 074	
16	22	30	16 x 030	
		38	16 x 038	
		43	16 x 043	
		54	16 x 054	
		63	16 x 063	
		74	16 x 074	
19	25	30	19 x 030	
		38	19 x 038	
		43	19 x 043	
		54	19 x 054	
		63	19 x 063	
		74	19 x 074	
20	26	30	20 x 030	
		38	20 x 038	
		43	20 x 043	
		54	20 x 054	
		63	20 x 063	
		74	20 x 074	
24	30	30	24 x 030	
		38	24 x 038	
		43	24 x 043	
		54	24 x 054	
		63	24 x 063	
		74	24 x 074	
25	31	30	25 x 030	
		38	25 x 038	
		43	25 x 043	
		54	25 x 054	
		63	25 x 063	
		74	25 x 074	
30	38	38	30 x 038	
		43	30 x 043	
		54	30 x 054	
		58	30 x 058	
		68	30 x 068	
		74	30 x 074	
32	40	38	32 x 038	
		43	32 x 043	
		54	32 x 054	
		58	32 x 058	
		68	32 x 068	
		74	32 x 074	
38	46	38	38 x 038	
		43	38 x 043	
		58	38 x 058	
		68	38 x 068	
		88	38 x 088	
		108	38 x 108	
40	48	38	40 x 038	
		43	40 x 043	
		58	40 x 058	
		68	40 x 068	
		88	40 x 088	
		108	40 x 108	
48	56	43	48 x 043	
		58	48 x 058	
		68	48 x 068	
		74	48 x 074	
		88	48 x 088	
		128	48 x 128	
50	58	43	50 x 043	
		58	50 x 058	
		68	50 x 068	
		74	50 x 074	
		88	50 x 088	
		108	50 x 108	
60	70	75	60 x 075	
		94	60 x 094	
		113	60 x 113	
		128	60 x 128	
		139	60 x 139	
		154	60 x 154	
63	73	75	63 x 075	
		94	63 x 094	
		113	63 x 113	
		128	63 x 128	
		139	63 x 139	
		154	63 x 154	
80	92	113	80 x 113	
		138	80 x 138	
		156	80 x 156	

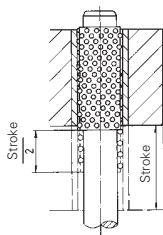
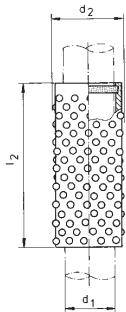
Add size to
order number

Order no. ST 7150.				<input type="checkbox"/> x <input type="checkbox"/>
d ₁	d ₂	l ₂		
32	40	38	32 x 038	
		43	32 x 043	
		54	32 x 054	
		58	32 x 058	
		68	32 x 068	
		74	32 x 074	
		83	32 x 083	
		88	32 x 088	
		103	32 x 103	
		108	32 x 108	
		38	38 x 038	
		43	38 x 043	
		58	38 x 058	
		68	38 x 068	
		88	38 x 088	
		94	38 x 094	
		108	38 x 108	
		128	38 x 128	
40	48	38	40 x 038	
		43	40 x 043	
		58	40 x 058	
		68	40 x 068	
		88	40 x 088	
		108	40 x 108	
48	56	43	48 x 043	
		58	48 x 058	
		68	48 x 068	
		74	48 x 074	
		88	48 x 088	
		128	48 x 128	
50	58	43	50 x 043	
		58	50 x 058	
		68	50 x 068	
		74	50 x 074	
		88	50 x 088	
		108	50 x 108	
60	70	75	60 x 075	
		94	60 x 094	
		113	60 x 113	
		128	60 x 128	
		139	60 x 139	
		154	60 x 154	
63	73	75	63 x 075	
		94	63 x 094	
		113	63 x 113	
		128	63 x 128	
		139	63 x 139	
		154	63 x 154	
80	92	113	80 x 113	
		138	80 x 138	
		156	80 x 156	

Ball cages ST 7151

made of brass, with installation assistance

STEINEL
NORMALIEN



Cage travel = 1/2 length of stroke

Matching guide pillars ST 7100, ST 7106, ST 7107, ST 7108, ST 7117, ST 7118, ST 7120, ST 7126, ST 7127, ST 7128, ST 7181/82 as well as to all guide bushes.

Technical description: see page 3.04

Order example: Ball cage **ST 7151**

made of brass
 $d_1 = 16$, $l_2 = 54$ mm
Add **16 x 054**

Order number **ST 7151.16 x 054**

Other lengths available upon request.

Material: ball cage made of brass, balls of steel, hardened, grade 1, sorted

The balls in the cage holes are free-wheeling wedges. They are helically arranged in the axial direction, so that each ball has its own race.

The installation assistance in the ball cage makes the assembly of the die sets with multiple guiding units simpler.

Ball cages made of brass are universally utilizable. They have a high mechanical strength, best antifriction properties as well as high abrasive resistance and stability.

Due to their optimum heat resistance they are suited for temperatures over 80 °C.

Sturdy workmanship usable in machines and tools with high precision demands.

Add size to order number

Order no. ST 7151.				<input type="checkbox"/> x <input type="checkbox"/>
d_1	d_2	l_2		
15	21	30	15 x 030	
		38	15 x 038	
		43	15 x 043	
		54	15 x 054	
16	22	30	16 x 030	
		38	16 x 038	
		43	16 x 043	
		54	16 x 054	
19	25	30	19 x 030	
		38	19 x 038	
		43	19 x 043	
		54	19 x 054	
20	26	30	20 x 030	
		38	20 x 038	
		43	20 x 043	
		54	20 x 054	
24	30	30	24 x 030	
		38	24 x 038	
		43	24 x 043	
		54	24 x 054	
25	31	30	25 x 030	
		38	25 x 038	
		43	25 x 043	
		54	25 x 054	
30	38	38	30 x 038	
		43	30 x 043	
		54	30 x 054	
		63	30 x 063	
30	38	58	30 x 058	
		68	30 x 068	
		74	30 x 074	
		83	30 x 083	
30	38	88	30 x 088	
		103	30 x 103	
		108	30 x 108	

Add size to order number

Order no. ST 7151.				<input type="checkbox"/> x <input type="checkbox"/>
d_1	d_2	l_2		
32	40	38	32 x 038	
		43	32 x 043	
		54	32 x 054	
		58	32 x 058	
32	40	68	32 x 068	
		74	32 x 074	
		83	32 x 083	
		88	32 x 088	
32	40	103	32 x 103	
		108	32 x 108	
		38	38 x 038	
		43	38 x 043	
38	46	58	38 x 058	
		68	38 x 068	
		88	38 x 088	
		94	38 x 094	
38	46	108	38 x 108	
		128	38 x 128	
		40	40 x 038	
		43	40 x 043	
40	48	58	40 x 058	
		68	40 x 068	
		88	40 x 088	
		94	40 x 094	
40	48	108	40 x 108	
		128	40 x 128	
		48	48 x 043	
		58	48 x 058	
48	56	68	48 x 068	
		74	48 x 074	
		88	48 x 088	
		108	48 x 108	
48	56	128	48 x 128	
		50	50 x 043	
		58	50 x 058	
		68	50 x 068	
50	58	74	50 x 074	
		88	50 x 088	
		108	50 x 108	
		128	50 x 128	
60	70	75	60 x 075	
		94	60 x 094	
		113	60 x 113	
		128	60 x 128	
60	70	139	60 x 139	
		154	60 x 154	
		63	63 x 075	
		94	63 x 094	
63	73	113	63 x 113	
		128	63 x 128	
		139	63 x 139	
		154	63 x 154	
80	92	113	80 x 113	
		138	80 x 138	
		156	80 x 156	

Ball cages ST 7152

made of brass, with safety ring

STEINEL®
NORMALIEN



Material: ball cage made of brass, balls of steel, hardened, grade 1, sorted

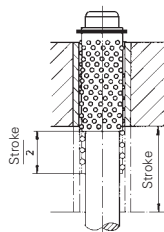
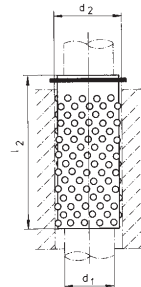
The balls in the cage holes are free-wheeling wedges. They are helically arranged in the axial direction, so that each ball has its own race.

The ball cages are constructed with a safety ring according to DIN 471.

Ball cages made of brass are universally utilizable. They have a high mechanical strength, best antifriction properties as well as high abrasive resistance and stability.

Due to their optimum heat resistance they are suited for temperatures over 80°C.

Sturdy workmanship, usable in machines and tools with high precision demands.



Cage travel = 1/2 length of stroke

Matching guide pillars ST 7100, ST 7106, ST 7107, ST 7108, ST 7117, ST 7118, ST 7120, ST 7126, ST 7127, ST 7128, ST 7181/82 as well as to all ball guide bushes.

Technical description: see page 3.04

Order example: Ball cage **ST 7152**

made of brass
d₁ = 16, l₂ = 54 mm

Add **16 x 054**

Order number **ST 7152.16 x 054**

Other lengths available upon request.

Add size to
order number

Order no. ST 7152.				<input type="checkbox"/> x <input type="checkbox"/>
d ₁	d ₂	l ₂		
15	21	30	15 x 030	
		38	15 x 038	
		43	15 x 043	
		54	15 x 054	
		63	15 x 063	
16	22	30	16 x 030	
		38	16 x 038	
		43	16 x 043	
		54	16 x 054	
		63	16 x 063	
19	25	30	19 x 030	
		38	19 x 038	
		43	19 x 043	
		54	19 x 054	
		63	19 x 063	
20	26	30	20 x 030	
		38	20 x 038	
		43	20 x 043	
		54	20 x 054	
		63	20 x 063	
24	30	30	24 x 030	
		38	24 x 038	
		43	24 x 043	
		54	24 x 054	
		63	24 x 063	
25	31	30	25 x 030	
		38	25 x 038	
		43	25 x 043	
		54	25 x 054	
		63	25 x 063	
30	38	38	30 x 038	
		43	30 x 043	
		54	30 x 054	
		58	30 x 058	
		68	30 x 068	
30	38	74	30 x 074	
		83	30 x 083	
		88	30 x 088	
		103	30 x 103	
		108	30 x 108	

Add size to
order number

Order no. ST 7152.				<input type="checkbox"/> x <input type="checkbox"/>
d ₁	d ₂	l ₂		
32	40	38	32 x 038	
		43	32 x 043	
		54	32 x 054	
		58	32 x 058	
		68	32 x 068	
38	46	74	32 x 074	
		83	32 x 083	
		88	32 x 088	
		103	32 x 103	
		108	32 x 108	
40	48	38	40 x 038	
		43	40 x 043	
		58	40 x 058	
		68	40 x 068	
		88	40 x 088	
48	56	43	48 x 043	
		58	48 x 058	
		68	48 x 068	
		74	48 x 074	
		88	48 x 088	
50	58	88	48 x 108	
		128	48 x 128	
		43	50 x 043	
		58	50 x 058	
		68	50 x 068	
60	70	75	60 x 075	
		94	60 x 094	
		113	60 x 113	
		128	60 x 128	
		139	60 x 139	
63	73	154	60 x 154	
		75	63 x 075	
		94	63 x 094	
		113	63 x 113	
		128	63 x 128	
80	92	139	63 x 139	
		154	63 x 154	
		113	80 x 113	
		138	80 x 138	
		156	80 x 156	

Ball cages ST 7133

made of plastic

STEINEL
NORMALIEN



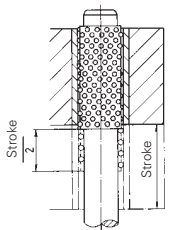
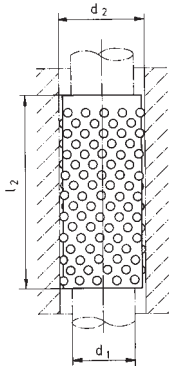
Material: ball cage made of plastic, balls made of steel, hardened, grade 1, sorted.

The balls in the cage holes are free-wheeling wedged. They are helically arranged in the axial direction, so that each ball has its own race.

Order example: Ball cage ST 7133

made of plastic
 $d_1 = 16, l_2 = 54$ mm
 Add **16 x 054**

Order number **ST 7133.16 x 054**



Cage travel = 1/2 length of stroke

Matching guide pillars ST 7100, ST 7106, ST 7107, ST 7108, ST 7117, ST 7118, ST 7120, ST 7126, ST 7127, ST 7128, ST 7181/82 as well as to all guide bushes using ball cages.

Add size to order number

Add size to order number

Order no. ST 7133.				<input type="checkbox"/> x <input type="checkbox"/>
d_1	d_2	l_2		
10	14	30	10 x 030	
		38	10 x 038	
		43	10 x 043	
12	16	30	12 x 030	
		38	12 x 038	
		43	12 x 043	
15	21	30	15 x 030	
		38	15 x 038	
		43	15 x 043	
		54	15 x 054	
		63	15 x 063	
16	22	30	16 x 030	
		38	16 x 038	
		43	16 x 043	
		54	16 x 054	
		63	16 x 063	
19	25	30	19 x 030	
		38	19 x 038	
		43	19 x 043	
		54	19 x 054	
		63	19 x 063	
		74	19 x 074	
20	26	30	20 x 030	
		38	20 x 038	
		43	20 x 043	
		54	20 x 054	
		63	20 x 063	
		74	20 x 074	
24	30	30	24 x 030	
		38	24 x 038	
		43	24 x 043	
		54	24 x 054	
		63	24 x 063	
		74	24 x 074	
		83	24 x 083	
		90	24 x 090	
25	31	30	25 x 030	
		38	25 x 038	
		43	25 x 043	
		54	25 x 054	
		63	25 x 063	
		74	25 x 074	
		83	25 x 083	
		90	25 x 090	
30	38	38	30 x 038	
		43	30 x 043	
		54	30 x 054	
		58	30 x 058	
		68	30 x 068	
		74	30 x 074	
		83	30 x 083	
		88	30 x 088	
		103	30 x 103	
		108	30 x 108	

Order no. ST 7133.				<input type="checkbox"/> x <input type="checkbox"/>
d_1	d_2	l_2		
32	40	38	32 x 038	
		43	32 x 043	
		54	32 x 054	
		58	32 x 058	
		68	32 x 068	
		74	32 x 074	
		83	32 x 083	
		88	32 x 088	
		103	32 x 103	
		108	32 x 108	
38	46	38	38 x 038	
		43	38 x 043	
		58	38 x 058	
		68	38 x 068	
		88	38 x 088	
		94	38 x 094	
		108	38 x 108	
		128	38 x 128	
40	48	38	40 x 038	
		43	40 x 043	
		58	40 x 058	
		68	40 x 068	
		88	40 x 088	
		94	40 x 094	
		108	40 x 108	
		128	40 x 128	
48	56	43	48 x 043	
		58	48 x 058	
		68	48 x 068	
		74	48 x 074	
		88	48 x 088	
		108	48 x 108	
		128	48 x 128	
50	58	43	50 x 043	
		58	50 x 058	
		68	50 x 068	
		74	50 x 074	
		88	50 x 088	
		108	50 x 108	
		128	50 x 128	

Ball cages ST 7173

made of plastic with installation assistance

STEINEL
NORMALIEN

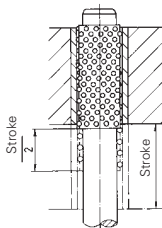
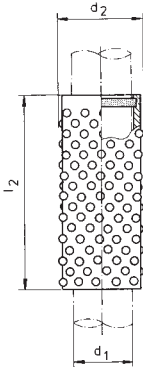


Material: Ball cage made of plastic, balls made of steel, hardened, grade 1, sorted.

The balls in the cage holes are free-wheeling wedged. They are helically arranged in the axial direction, so that each ball has its own race.

The installation assistance in the ball cage makes it easier to assemble the die set with multiple guide units.

Order example: Ball cage **ST 7173** made of plastic with installation assistance $d_1 = 16$, $l_2 = 54$ mm
Add **16 x 054**
Order number **ST 7173.16 x 054**



Cage travel = $\frac{1}{2}$ length of stroke

Matching guide pillars ST 7100, ST 7106, ST 7107, ST 7108, ST 7117, ST 7118, ST 7120, ST 7126, ST 7127, ST 7128, ST 7181/82 as well as to all bushes using ball cages.

Add size to order number

Order no. **ST 7173.** x

d_1	d_2	l_2	
15	21	30	15 x 030
		38	15 x 038
		43	15 x 043
		54	15 x 054
		63	15 x 063
16	22	30	16 x 030
		38	16 x 038
		43	16 x 043
		54	16 x 054
		63	16 x 063
19	25	30	19 x 030
		38	19 x 038
		43	19 x 043
		54	19 x 054
		63	19 x 063
		74	19 x 074
20	26	30	20 x 030
		38	20 x 038
		43	20 x 043
		54	20 x 054
		63	20 x 063
		74	20 x 074
24	30	30	24 x 030
		38	24 x 038
		43	24 x 043
		54	24 x 054
		63	24 x 063
		74	24 x 074
		83	24 x 083
		90	24 x 090
25	31	30	25 x 030
		38	25 x 038
		43	25 x 043
		54	25 x 054
		63	25 x 063
		74	25 x 074
		83	25 x 083
		90	25 x 090
30	38	38	30 x 038
		43	30 x 043
		54	30 x 054
		58	30 x 058
		68	30 x 068
		74	30 x 074
		83	30 x 083
		88	30 x 088
		103	30 x 103
		108	30 x 108

Add size to order number

Order no. **ST 7173.** x

d_1	d_2	l_2	
32	40	38	32 x 038
		43	32 x 043
		54	32 x 054
		58	32 x 058
		68	32 x 068
		74	32 x 074
		83	32 x 083
		88	32 x 088
		103	32 x 103
		108	32 x 108
38	46	38	38 x 038
		43	38 x 043
		58	38 x 058
		68	38 x 068
		88	38 x 088
		94	38 x 094
		108	38 x 108
		128	38 x 128
40	48	38	40 x 038
		43	40 x 043
		58	40 x 058
		68	40 x 068
		88	40 x 088
		94	40 x 094
		108	40 x 108
		128	40 x 128
48	56	43	48 x 043
		58	48 x 058
		68	48 x 068
		74	48 x 074
		88	48 x 088
		108	48 x 108
		128	48 x 128
50	58	43	50 x 043
		58	50 x 058
		68	50 x 068
		74	50 x 074
		88	50 x 088
		108	50 x 108
		128	50 x 128

Ball cages ST 7174

made of plastic with safety ring



Material: Ball cage made of plastic, balls made of steel, hardened, grade 1, sorted.

The balls in the cage holes are free-wheeling wedged. They are helically arranged in the axial direction, so that each ball has its own race.

The ball cages with a safety ring are made in accordance to DIN 471.

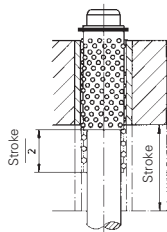
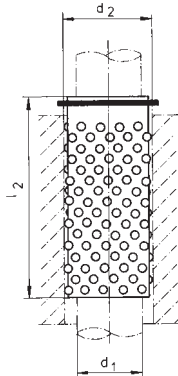
Order example: Ball cage **ST 7174**

made of plastic with safety ring

$d_1 = 16, l_2 = 54$ mm

Add **16 x 054**

Order number **ST 7174.16 x 054**



Add size to order number

Add size to order number

Order no. **ST 7174.** x

d_1	d_2	l_2	
15	21	30	15 x 030
		38	15 x 038
		43	15 x 043
		54	15 x 054
		63	15 x 063
16	22	30	16 x 030
		38	16 x 038
		43	16 x 043
		54	16 x 054
		63	16 x 063
19	25	30	19 x 030
		38	19 x 038
		43	19 x 043
		54	19 x 054
		63	19 x 063
		74	19 x 074
20	26	30	20 x 030
		38	20 x 038
		43	20 x 043
		54	20 x 054
		63	20 x 063
		74	20 x 074
24	30	30	24 x 030
		38	24 x 038
		43	24 x 043
		54	24 x 054
		63	24 x 063
		74	24 x 074
		83	24 x 083
		90	24 x 090
25	31	30	25 x 030
		38	25 x 038
		43	25 x 043
		54	25 x 054
		63	25 x 063
		74	25 x 074
		83	25 x 083
		90	25 x 090
30	38	38	30 x 038
		43	30 x 043
		54	30 x 054
		58	30 x 058
		68	30 x 068
		74	30 x 074
		83	30 x 083
		88	30 x 088
		103	30 x 103
		108	30 x 108

Order no. **ST 7174.** x

d_1	d_2	l_2	
32	40	38	32 x 038
		43	32 x 043
		54	32 x 054
		58	32 x 058
		68	32 x 068
		74	32 x 074
		83	32 x 083
		88	32 x 088
		103	32 x 103
		108	32 x 108
38	46	38	38 x 038
		43	38 x 043
		58	38 x 058
		68	38 x 068
		88	38 x 088
		94	38 x 094
		108	38 x 108
		128	38 x 128
40	48	38	40 x 038
		43	40 x 043
		58	40 x 058
		68	40 x 068
		88	40 x 088
		94	40 x 094
		108	40 x 108
		128	40 x 128
48	56	43	48 x 043
		58	48 x 058
		68	48 x 068
		74	48 x 074
		88	48 x 088
		108	48 x 108
		128	48 x 128
50	58	43	50 x 043
		58	50 x 058
		68	50 x 068
		74	50 x 074
		88	50 x 088
		108	50 x 108
		128	50 x 128

Matching guide pillars ST 7100, ST 7106, ST 7107, ST 7108, ST 7117, ST 7118, ST 7120, ST 7126, ST 7127, ST 7128, ST 7181/82 as well as to all guide bushes using ball cages.

Ball cages ST 7134

made of aluminium



Ball cage complete with holding safety device

Material: ball cage made of aluminium, balls of steel, hardened, grade 1, sorted

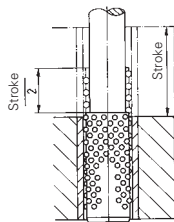
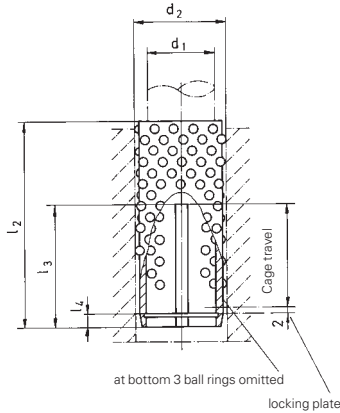
The balls in the cage holes are free-wheeling wedges. They are helically arranged in the axial direction, so that each ball has its own race. In the area of both longitudinal grooves as well as in the area of safety grooves the balls are eliminated. Sturdy workmanship, universally utilizable.

Application: In all die-sets where the guide pillars are fastened into the upper plate. The locking plate holds the ball cage and allows a complete retraction from the guide bush. Suitable especially to the guide pillars ST 7106 and ST 7108 and to all ball guide bushes.

Technical description: see page 3.04

Order example: Ball cage ST 7134

made of aluminium
 $d_1 = 32, l_2 = 74$ mm
 Add **32 x 074**
 Order number **ST 7134.32 x 074**



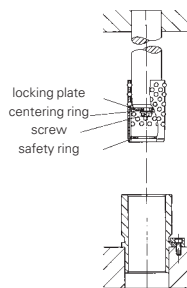
Cage travel = 1/2 length of stroke

Order no. **ST 7134.** x

d ₁	d ₂	l ₂	l ₃	l ₄	
24	30	63	34	4.5	24 x 063
		74	44		24 x 074
		83	46		24 x 083
25	31	63	34	4.5	25 x 063
		74	44		25 x 074
		83	46		25 x 083
30	38	68	38	4.5	30 x 068
		74	44		30 x 074
		83	46		30 x 083
		88	47		30 x 088
		98	53		30 x 098
		108	58		30 x 108
32	40	68	38	4.5	32 x 068
		74	44		32 x 074
		83	46		32 x 083
		88	47		32 x 088
		98	53		32 x 098
		108	58		32 x 108
38	46	68	38	6	38 x 068
		88	47		38 x 088
		108	58		38 x 108
		128	78		38 x 128

Order no. **ST 7134.** x

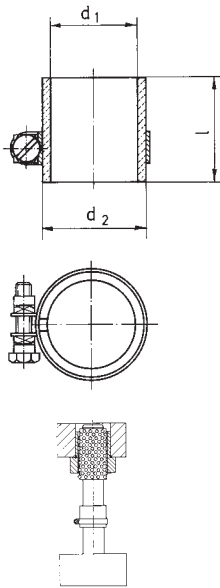
d ₁	d ₂	l ₂	l ₃	l ₄	
40	48	68	38	6	40 x 068
		88	47		40 x 088
		108	58		40 x 108
		128	78		40 x 128
48	56	88	47	7	48 x 088
		108	58		48 x 108
		128	78		48 x 128
50	58	88	47	7	50 x 088
		108	58		50 x 108
		128	78		50 x 128
60	70	113	65	7	60 x 113
		128	78		60 x 128
		139	86		60 x 139
63	73	113	65	7	63 x 113
		128	78		63 x 128
		139	86		63 x 139



Example of application

Limiting sleeves ST 7135

STEINEL
NORMALIEN



Limiting sleeves

Material: Durethan

Limiting sleeves will be slipped over the guide pillars and clamped on. They prevent the shifting of the ball cage thereby facilitating the proper positioning of the ball cage during the assembly of the upper die block.

Add size to order number

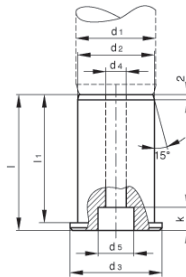
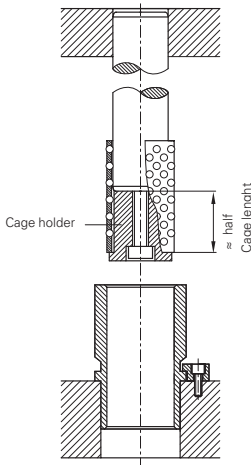
Order no. **ST 7135.**

d ₁	d ₂	l	
15	20	20	15
16			16
19	25	20	19
20			20
24	30	30	24
25			25
30	40	30	30
32			32
38	50	40	38
40			40
48	60	40	48
50			50
60	70	40	60
63			63
80	90	45	80

Order example: Limiting sleeves **ST 7135**
d₁ = 30 mm
Add **30**
Order number **ST 7135.30**

Matching Guide pillars: ST 7100,
ST 7106, ST 7107, ST 7108, ST 7120,
ST 7126, ST 7127, ST 7128, ST 7181

Cage holder ST 7132



Material: Steel

The cage holder can be used for all ball and roller cages. The lengths of the cage holder should be half the lengths of the cage in use. (If necessary please machine down.)

Application: In all die sets in which the guide posts are fastened in the upper part. The cage holder supports the ball cage and permits a complete removal from the guide bush.

Add size to order number

Cage holder Order no. **ST 7132.**

d ₁	d ₂	d ₃	d ₄	d ₅	l	l ₁	k	
15	14.5	20.5	8.1	13.5	34	31	9	15
16	15.5	21.5	8.1	13.5	34	31	9	16
19	18.5	24.5	8.1	15	40	37	9	19
20	19.5	25.5	8.1	15	40	37	9	20
24	23.5	29.5	8.1	15	48	45	9	24
25	24.5	30.5	8.1	15	48	45	9	25
30	29.5	37	8.1	15	58	54	9	30
32	31.5	39	8.1	15	58	54	9	32
38	37.5	45	8.1	15	68	64	9	38
40	39.5	47	8.1	15	68	64	9	40
48	47.5	55	8.1	15	68	64	9	48
50	49.5	57	8.1	15	68	64	9	50
60	59.5	69	8.1	15	80	75	9	60
63	62.5	72	8.1	15	80	75	9	63
80	79.0	91	8.1	15	80	75	9	80

Order example: Cage holder **ST 7132**
d₁ = 30 mm
Add **30**
Order number **ST 7132.30**

Matching guide pillars:
ST 7106, ST 7108, ST 7126, ST 7128

Guide and pillar bearings ST 720.

with rectangular flange



ISO 11903

Guide bearings ST 720.

Material: basic body special grey cast iron GG 25 as one chooses with pressed in guide bush (see below.)
Guide diameter ISO H5, honed.
If sliding guide lubrication by funnel grease nipple at the flange.

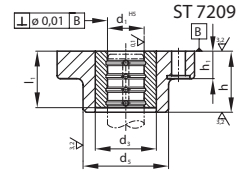
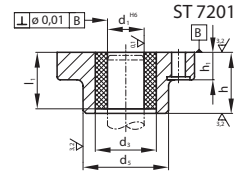
Pillar bearings ST 7200

Material: special grey cast iron GG 25
mounting holes ISO R6 precision turned.
Both flange surfaces machined, with mounting holes.

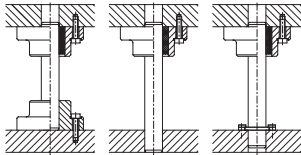
Indication:

please order matchable guide pillars ST 7100 separately.

Upon request centering by standing over guide pillars respectively guide bushes. Guide bearings can be supplied as well with roller cages.



Order example: guide bearing **ST 7202** with ball guide
 $d_1 = 19$ mm
Add **19**
Order number **ST 7202.19**



Mounting examples



Sliding guide
with solid lubricant



Sliding guide
hardened steel bush
bronze plated

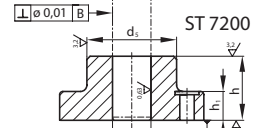
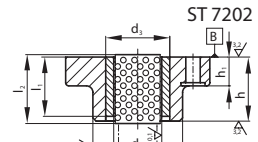


Ball guide
with Ball cage
Cage travel = 1/2 length of stroke



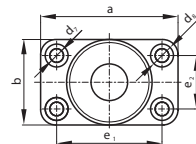
Ball guide
without Ball cage

Add size to order number



ST 7201.	ST 7209.	ST 7202.	ST 7206.	<input type="checkbox"/>
Pillar bearing ST 7200				<input type="checkbox"/>

d_1	a	b	e_1	e_2	d_2	d_3	d_5	d_7	d_8	h	h_1	l_1	l_2
15	71	40	53	22	21	28	37	6.6	11	25	16	23	30 15
16	71	40	53	22	22	28	40	6.6	11	25	16	23	30 16
19	80	45	60	25	25	32	45	9	15	32	18	30	38 19
20	80	45	60	25	26	32	45	9	15	32	18	30	38 20
24	90	56	69	35	30	40	56	9	15	40	18	37	43 24
25	90	56	69	35	31	40	56	9	15	40	18	37	43 25
30	112	71	86	45	38	48	71	11	18	50	20	47	58 30
32	112	71	86	45	40	48	71	11	18	50	20	47	58 32
38	132	85	102	55	46	58	85	14	20	63	25	60	68 38
40	132	85	102	55	48	58	85	14	20	63	25	60	68 40
48	160	112	126	78	56	70	112	18	26	80	28	77	88 48
50	160	112	126	78	58	70	112	18	26	80	28	77	88 50
60	200	132	154	86	70	85	132	18	26	100	36	95	113 60
63	200	132	154	86	73	85	132	18	26	100	36	95	113 63
80	224	140	172	88	92	105	140	22	33	125	40	120	138 80



Guide and pillar bearings ST 721.

with rectangular flange (machined execution)



Guide bearings ST 721.

Material: basic body special grey cast iron GG 25 as one chooses with pressed in guide bush (see below.)

Guide diameter ISO H5, honed.
If sliding guide lubrication by funnel grease nipple at the flange. Both flange surfaced machined, with mounting holes.

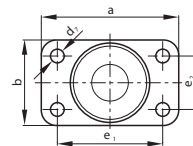
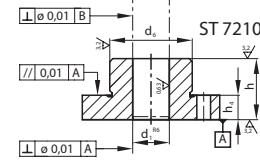
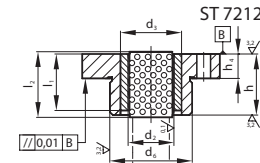
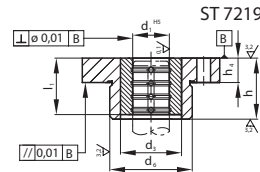
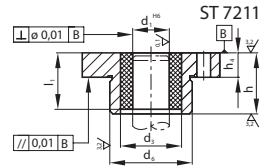
Pillar bearings ST 7210.

Material: special grey cast iron GG 25 mounting holes ISO R6 precision turned. Both flange surfaces machined, with mounting holes.

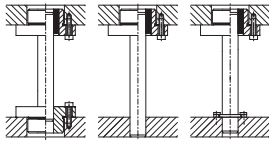
Indication:

please order matchable guide pillars ST 7100 separately.

Upon request centering by standing over guide pillars respectively guide bushes. Guide bearings can be supplied as well with roller cages.



Order example: guide bearing **ST 7212**
with ball guide
 $d_1 = 19$ mm
Add **19**
Order number **ST 7212.19**



Mounting examples



Sliding guide
with solid lubricant



Sliding guide
hardened steel bush
bronze plated



Ball guide
with Ball cage
Cage travel = 1/2 length of stroke



Ball guide
without Ball cage

Add size to order number

ST 7211.	ST 7219.	ST 7212.	ST 7216.	<input type="checkbox"/>
Pillar bearing ST 7210.				<input type="checkbox"/>

d_1	a	b	e_1	e_2	d_2	d_3	d_6	d_7	h	h_4	l_1	l_2	
15	71	40	53	22	21	28	37	6.6	25	14	23	30	15
16	71	40	53	22	22	28	37	6.6	25	14	23	30	16
19	80	45	60	25	25	32	42	9	32	16	30	38	19
20	80	45	60	25	26	32	42	9	32	16	30	38	20
24	90	56	69	35	30	40	52	9	40	16	37	43	24
25	90	56	69	35	31	40	52	9	40	16	37	43	25
30	112	71	86	45	38	48	65	11	50	17.5	47	58	30
32	112	71	86	45	40	48	65	11	50	17.5	47	58	32
38	132	85	102	55	46	58	80	14	63	22.5	60	68	38
40	132	85	102	55	48	58	80	14	63	22.5	60	68	40
48	160	112	126	78	56	70	107	18	80	25	77	88	48
50	160	112	126	78	58	70	107	18	80	25	77	88	50
60	200	132	154	86	70	85	125	18	100	33	95	113	60
63	200	132	154	86	73	85	125	18	100	33	95	113	63
80	224	140	172	88	92	105	130	22	125	36.5	120	138	80

Guide and pillar bearings ST 72..

with small, round flange (space saving version)

STEINEL
NORMALIEN



Guide bearings ST 7250

Material:

basic body special grey cast iron GG 25
Guide diameter ISO H5 honed.
Lubrication by funnel grease nipple at the flange.
One flange surface is machined, with mounting holes.

Pillar bearings ST 7260

Material: special grey cast iron GG 25
mounting holes ISO R6, precision turned, one flange surface is machined, with mounting holes (without mounting holes available upon request).

Note: please order matchable guide pillars ST 7100 separately.

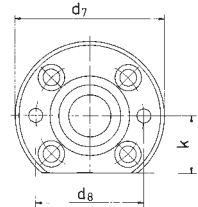
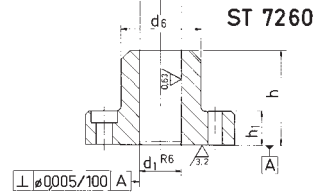
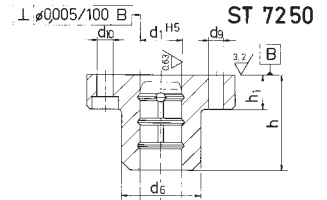
Technical description: see page 2.02

Order example: Pillar bearing **ST 7260**

$d_1 = 30$ mm

Add **30**

Order number **ST 7260.30**



Sliding guide

Guide bore directly in grey cast iron basic body

Add size to order number

Guide bearing		Order no. ST 7250.								<input type="checkbox"/>
Pillar bearing		Order no. ST 7260.								
d_1	d_6	d_7	d_8	d_9	d_{10}	h	h_1	k		
19	36	78	54	7.8	9	50	18	30	19	
20	36	78	54	7.8	9	50	18	30	20	
24	46	86	64	7.8	9	55	20	33	24	
25	46	86	64	7.8	9	55	20	33	25	
30	56	106	80	9.8	11	63	22	41	30	
32	56	106	80	9.8	11	63	22	41	32	
38	66	116	90	9.8	11	72	26	45	38	
40	66	116	90	9.8	11	72	26	45	40	
48	80	140	108	11.8	13.5	80	30	54	48	
50	80	140	108	11.8	13.5	80	30	54	50	
48	160	112	126	78	56	70	77	88	48	
50	160	112	126	78	58	70	77	88	50	

Guide bushes ST 7319

smooth, sliding guide steel bronze plated

STEINEL®
NORMALIEN



Material: steel 1.3505 (100 Cr6) hardened, hardness 61-63 HRC sliding surface bronze plated

Guide diameter ISO H5, honed mounting diameter ISO p6, ground

Important: Due to the galvanically applied bronze plating onto the hardened steel jacket, this bush is suitable especially for high sliding speeds and strong lateral forces.

Matching guide pillars: ST 7100, ST 7106, ST 7107, ST 7108, ST 7117, ST 7118, ST 7120, ST 7126, ST 7127, ST 7128, ST 7181/82

Mounting instructions:

1. To glue into the mounting bore hole ISO E6 (Bonding agent see to corresponding page) When gluing ensure that the oil distribution groove remains clear at the mounting diameter.
2. If possible avoid press fit, because the internal diameter will decrease.
3. Do not pour in because the oil distribution groove in the mounting diameter will be clogged.

Technical description: see page 3.04

Order example: Guide bush **ST 7319**

$d_1 = 16, l_1 = 37$ mm

Add **16 x 037**

Order number **ST 7319.16 x 037**

Add size to order number

Add size to order number

Order no. **ST 7319.**

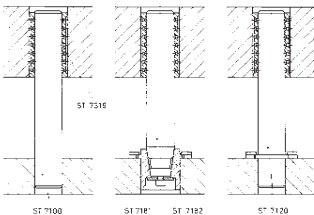
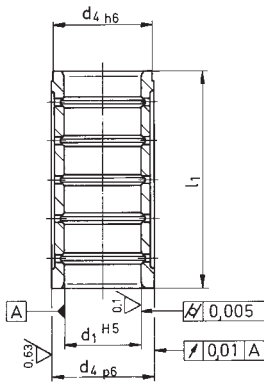
x

d_1^{H5}	d_{4p6}	l_1	
10	16	23	10 x 023
		30	10 x 030
		37	10 x 037
12	18	23	12 x 023
		30	12 x 030
		37	12 x 037
15	21	23	15 x 023
		30	15 x 030
		37	15 x 037
16	22	23	16 x 023
		30	16 x 030
		37	16 x 037
19	26	30	19 x 030
		37	19 x 037
		47	19 x 047
20	28	30	20 x 030
		37	20 x 037
		47	20 x 047
24	32	30	24 x 030
		37	24 x 037
		47	24 x 047
		60	24 x 060
		77	24 x 077

Order no. **ST 7319.**

x

d_1^{H5}	d_{4p6}	l_1	
25	33	30	25 x 030
		37	25 x 037
		47	25 x 047
		60	25 x 060
		77	25 x 077
		30	38
47	30 x 047		
60	30 x 060		
		77	30 x 077
		95	30 x 095
		32	40
47	32 x 047		
60	32 x 060		
		77	32 x 077
		95	32 x 095
		38	48
60	38 x 060		
77	38 x 077		
		95	38 x 095
		120	38 x 120
		40	50
60	40 x 060		
77	40 x 077		
		95	40 x 095
		120	40 x 120



Matching possibilities

Guide bushes ST 7409

smooth, sliding guide steel bronze plated

STEINEL[®]
NORMALIEN



DIN 9831/ISO 9448

Material: steel 1.3505 (100 Cr6) hardened, hardness 61-63 HRC sliding surface bronze plated.

Guide diameter ISO H5, honed mounting diameter ISO j6, ground

Important: Due to the galvanically applied bronze plating onto the hardened steel jacket, this bush is suitable especially for high sliding speeds and strong lateral forces.

Matching guide pillars: ST 7100, ST 7106, ST 7107, ST 7108, ST 7117, ST 7118, ST 7120, ST 7126, ST 7127, ST 7128, ST 7181/82

Mounting instructions:

- To glue into the mounting bore hole ISO G6 (Bonding agent see to corresponding page) When gluing ensure that the oil distribution groove remains clear at the mounting diameter.
- If possible avoid press fit, because the internal diameter will decrease.
- Do not pour in because the oil distribution groove at the mounting diameter will be clogged.
Guide bushes for pour in see ST 7411.

Technical description: see page 3.04

Order example: Guide bush **ST 7409**

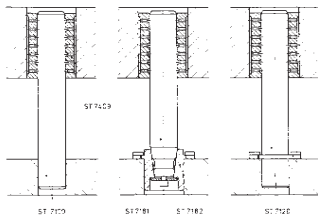
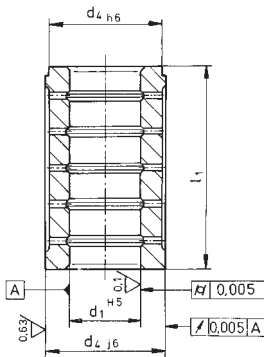
$d_1 = 16, l_1 = 37$ mm

Add **16 x 037**

Order number **ST 7409.16 x 037**

Add size to order number

Add size to order number



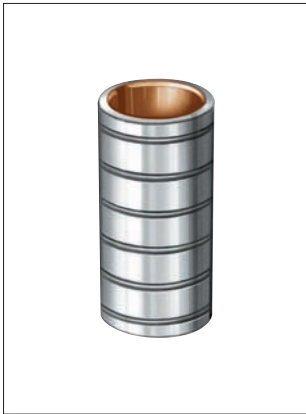
Matching possibilities

Order no. ST 7409.				<input type="checkbox"/> x <input type="checkbox"/>
d_1^{H5}	d_{4j6}	l_1		
10	22	23	10 x 023	
		30	10 x 030	
		37	10 x 037	
12	22	23	12 x 023	
		30	12 x 030	
		37	12 x 037	
15	28	23	15 x 023	
		30	15 x 030	
		37	15 x 037	
		47	15 x 047	
		60	15 x 060	
16	28	23	16 x 023	
		30	16 x 030	
		37	16 x 037	
		47	16 x 047	
		60	16 x 060	
19	32	23	19 x 023	
		30	19 x 030	
		37	19 x 037	
		47	19 x 047	
		60	19 x 060	
		77	19 x 077	
20	32	23	20 x 023	
		30	20 x 030	
		37	20 x 037	
		47	20 x 047	
		60	20 x 060	
		77	20 x 077	
24	40	23	24 x 023	
		30	24 x 030	
		37	24 x 037	
		47	24 x 047	
		60	24 x 060	
		77	24 x 077	
25	40	23	25 x 023	
		30	25 x 030	
		37	25 x 037	
		47	25 x 047	
		60	25 x 060	
		77	25 x 077	
30	48	30	30 x 030	
		37	30 x 037	
		47	30 x 047	

Order no. ST 7409.				<input type="checkbox"/> x <input type="checkbox"/>
d_1^{H5}	d_{4j6}	l_1		
30	48	60	30 x 060	
		77	30 x 077	
		95	30 x 095	
32	48	30	32 x 030	
		37	32 x 037	
		47	32 x 047	
		60	32 x 060	
		77	32 x 077	
		95	32 x 095	
38	58	30	38 x 030	
		37	38 x 037	
		47	38 x 047	
		60	38 x 060	
		77	38 x 077	
		95	38 x 095	
		120	38 x 120	
40	58	30	40 x 030	
		37	40 x 037	
		47	40 x 047	
		60	40 x 060	
		77	40 x 077	
		95	40 x 095	
		120	40 x 120	
48	70	37	48 x 037	
		47	48 x 047	
		60	48 x 060	
		77	48 x 077	
		95	48 x 095	
		120	48 x 120	
50	70	37	50 x 037	
		47	50 x 047	
		60	50 x 060	
		77	50 x 077	
		95	50 x 095	
		120	50 x 120	
60	85	60	60 x 060	
		77	60 x 077	
		95	60 x 095	
		120	60 x 120	
63	85	60	63 x 060	
		77	63 x 077	
		95	63 x 095	
		120	63 x 120	
80	105	120	80 x 120	
		135	80 x 135	

Guide bushes ST 7411

smooth, to pour in, sliding guide steel bronze plated



DIN 9831/ISO 9448

Material: steel 1.3505 (100 Cr6) hardened, hardness 61-63 HRC sliding surface bronze plated

Guide diameter ISO H5, honed.
Mounting diameter machined with grooves for casting resin

Important: Due to the galvanically applied bronze plating onto the hardened steel jacket, this bush is suitable especially for high sliding speeds and strong lateral forces.

Matching Guide pillars: ST 7100, ST 7106, ST 7107, ST 7108, ST 7117, ST 7118, ST 7120, ST 7126, ST 7127, ST 7128, ST 7181/82

Mounting instructions: For lubricating reasons assemble guide bush ST 7411 vertically with the air groove upwards.

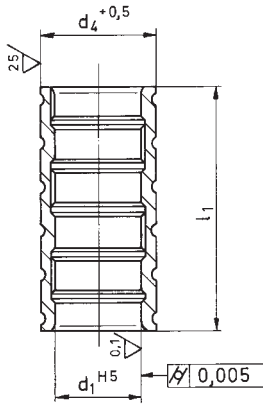
Mounting bore hole:
Provide $d_4 +1$ to $+4$ mm as casting gap.

Technical description: see page 3.04

Order example: Guide bush **ST 7411**
 $d_1 = 16$, $l_1 = 37$ mm
Add **16 x 037**
Order number **ST 7411.16 x 037**

Add size to order number

Add size to order number

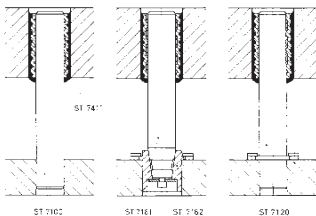


Order no. **ST 7411.** x

d_1^{H5}	$d_4^{+0,5}$	l_1	
10	22	23	10 x 023
		30	10 x 030
		37	10 x 037
12	22	23	12 x 023
		30	12 x 030
		37	12 x 037
15	28	23	15 x 023
		30	15 x 030
		37	15 x 037
		47	15 x 047
		60	15 x 060
16	28	23	16 x 023
		30	16 x 030
		37	16 x 037
		47	16 x 047
		60	16 x 060
19	32	23	19 x 023
		30	19 x 030
		37	19 x 037
		47	19 x 047
		60	19 x 060
		77	19 x 077
20	32	23	20 x 023
		30	20 x 030
		37	20 x 037
		47	20 x 047
		60	20 x 060
		77	20 x 077
24	40	23	24 x 023
		30	24 x 030
		37	24 x 037
		47	24 x 047
		60	24 x 060
		77	24 x 077
25	40	23	25 x 023
		30	25 x 030
		37	25 x 037
		47	25 x 047
		60	25 x 060
		77	25 x 077
30	48	30	30 x 030
		37	30 x 037
		47	30 x 047

Order no. **ST 7411.** x

d_1^{H5}	$d_4^{+0,5}$	l_1	
30	48	60	30 x 060
		77	30 x 077
		95	30 x 095
32	48	30	32 x 030
		37	32 x 037
		47	32 x 047
		60	32 x 060
		77	32 x 077
		95	32 x 095
38	58	30	38 x 030
		37	38 x 037
		47	38 x 047
		60	38 x 060
		77	38 x 077
		95	38 x 095
		120	38 x 120
40	58	30	40 x 030
		37	40 x 037
		47	40 x 047
		60	40 x 060
		77	40 x 077
		95	40 x 095
		120	40 x 120
48	70	37	48 x 037
		47	48 x 047
		60	48 x 060
		77	48 x 077
		95	48 x 095
		120	48 x 120
50	70	37	50 x 037
		47	50 x 047
		60	50 x 060
		77	50 x 077
		95	50 x 095
		120	50 x 120
60	85	60	60 x 060
		77	60 x 077
		95	60 x 095
		120	60 x 120
63	85	60	63 x 060
		77	63 x 077
		95	63 x 095
		120	63 x 120
80	105	120	80 x 120
		135	80 x 135



Matching possibilities

Guide bushes ST 7491

smooth, sliding guide with solid lubricant

STEINEL
NORMALIEN



**Dimensions according to
DIN 9831/ISO 9448**

Material:

Steel with insert of solid lubricant.
Due to the insert solid lubricant, this sliding
guide is self-lubricating and is suited for
higher loads.

Outside diameter ISO H6, precision turned
mounting diameter ISO j6, precision turned

Matching Guide pillars: ST 7100,
ST 7106, ST 7107, ST 7108, ST 7117,
ST 7118, ST 7120, ST 7126, ST 7127,
ST 7128, ST 7181/82

Mounting instructions:

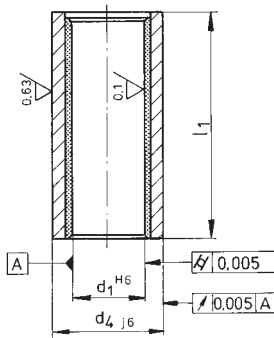
1. Glue into the mounting bore hole ISO G6.
(Bonding agent see to corresponding page)
2. If possible avoid press fit, because the
internal diameter will decrease.

Order example: Guide bush **ST 7491**

$d_1 = 16, l_1 = 37$ mm
Add **16 x 037**
Order number **ST 7491.16 x 037**

Add
size to
order number

Add
size to
order number

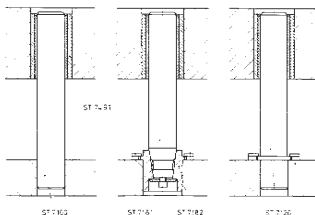


Order no. **ST 7491.** x

d_1^{H6}	d_{4j6}	l_1	
15	28	23	15 x 023
		30	15 x 030
		37	15 x 037
		47	15 x 047
		60	15 x 060
16	28	23	16 x 023
		30	16 x 030
		37	16 x 037
		47	16 x 047
		60	16 x 060
19	32	23	19 x 023
		30	19 x 030
		37	19 x 037
		47	19 x 047
		60	19 x 060
20	32	23	20 x 023
		30	20 x 030
		37	20 x 037
		47	20 x 047
		60	20 x 060
		77	20 x 077
24	40	23	24 x 023
		30	24 x 030
		37	24 x 037
		47	24 x 047
		60	24 x 060
		77	24 x 077
25	40	23	25 x 023
		30	25 x 030
		37	25 x 037
		47	25 x 047
		60	25 x 060
		77	25 x 077
30	48	30	30 x 030
		37	30 x 037
		47	30 x 047
		60	30 x 060
		77	30 x 077
		95	30 x 095
32	48	30	32 x 030
		37	32 x 037
		47	32 x 047
		60	32 x 060
		77	32 x 077
		95	32 x 095

Order no. **ST 7491.** x

d_1^{H6}	d_{4j6}	l_1	
38	58	30	38 x 030
		37	38 x 037
		47	38 x 047
		60	38 x 060
		77	38 x 077
		95	38 x 095
		120	38 x 120
40	58	30	40 x 030
		37	40 x 037
		47	40 x 047
		60	40 x 060
		77	40 x 077
		95	40 x 095
		120	40 x 120
48	70	37	48 x 037
		47	48 x 047
		60	48 x 060
		77	48 x 077
		95	48 x 095
		120	48 x 120
50	70	37	50 x 037
		47	50 x 047
		60	50 x 060
		77	50 x 077
		95	50 x 095
		120	50 x 120
60	85	60	60 x 060
		77	60 x 077
		95	60 x 095
		120	60 x 120
63	85	60	63 x 060
		77	63 x 077
		95	63 x 095
		120	63 x 120
80	105	120	80 x 120
		135	80 x 135



Matching possibilities

Guide bushes ST 7451

smooth, sliding guide with solid lubricant



Material:

Bronze with solid lubricant bands
Due to the solid lubricant bands, the sliding guide is self-lubricating and suitable for higher loads.

Guide diameter ISO H6, precision-turned
Mounting diameter ISO j6, precision-turned

Matching guide pillars: ST 7100,
ST 7106, ST 7107, ST 7108, ST 7117,
ST 7118, ST 7120, ST 7126, ST 7127,
ST 7128 und ST 7181/82

Mounting instructions:

1. Glue into the mounting bore hole ISO G6
(Bonding agents under section 6)

2. If possible, avoid press fit, because the internal diameter will decrease.

Order example: Guide bush ST 7451

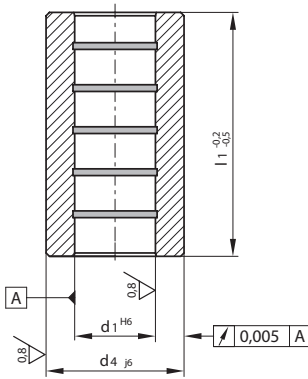
$d_1 = 16, l_1 = 37$ mm

Add **16 x 037**

Order number **ST 7451.16 x 037**

Add size to order number

Add size to order number

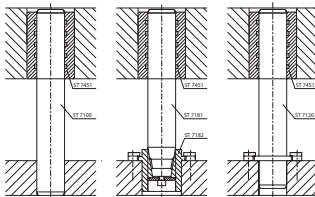


Order no. **ST 7451.** x

d_1^{H6}	d_{4j6}	l_1	
15	28	23	15 x 023
		30	15 x 030
		37	15 x 037
		47	15 x 047
		60	15 x 060
16	28	23	16 x 023
		30	16 x 030
		37	16 x 037
		47	16 x 047
		60	16 x 060
19	32	23	19 x 023
		30	19 x 030
		37	19 x 037
		47	19 x 047
		60	19 x 060
		77	19 x 077
20	32	23	20 x 023
		30	20 x 030
		37	20 x 037
		47	20 x 047
		60	20 x 060
		77	20 x 077
24	40	23	24 x 023
		30	24 x 030
		37	24 x 037
		47	24 x 047
		60	24 x 060
		77	24 x 077
25	40	23	25 x 023
		30	25 x 030
		37	25 x 037
		47	25 x 047
		60	25 x 060
		77	25 x 077
30	48	30	30 x 030
		37	30 x 037
		47	30 x 047
		60	30 x 060
		77	30 x 077
		95	30 x 095
32	48	30	32 x 030
		37	32 x 037
		47	32 x 047
		60	32 x 060
		77	32 x 077
		95	32 x 095

Order no. **ST 7451.** x

d_1^{H6}	d_{4j6}	l_1	
38	58	30	38 x 030
		37	38 x 037
		47	38 x 047
		60	38 x 060
		77	38 x 077
		95	38 x 095
		120	38 x 120
40	58	30	40 x 030
		37	40 x 037
		47	40 x 047
		60	40 x 060
		77	40 x 077
		95	40 x 095
		120	40 x 120
48	70	37	48 x 037
		47	48 x 047
		60	48 x 060
		77	48 x 077
		95	48 x 095
		120	48 x 120
50	70	37	50 x 037
		47	50 x 047
		60	50 x 060
		77	50 x 077
		95	50 x 095
		120	50 x 120
60	85	60	60 x 060
		77	60 x 077
		95	60 x 095
		120	60 x 120
63	85	60	63 x 060
		77	63 x 077
		95	63 x 095
		120	63 x 120
80	105	120	80 x 120
		135	80 x 135



Matching possibilities

Guide bushes ST 7402, ST 7406

smooth, ball guide aluminium

STEINEL
NORMALIEN



DIN 9831/ISO 9448

Material: Guide bushes made of steel 1.3505 (100 Cr6) hardened, hardness 61-63 HRC
Ball cage made of aluminium, balls made of steel, hardened, grade 1, sorted

Guide diameter d_2 honed, suitable to ball cage and guide pillar.
Mounting diameter ISO j6, ground

Important: If possible order the complete ball guide, so that it can be matched with the correct fit.

Matching Guide pillars: ST 7100, ST 7106, ST 7107, ST 7108, ST 7117, ST 7118, ST 7120, ST 7126, ST 7127, ST 7128, ST 7181/82

Mounting instructions:

- To glue into the mounting bore hole ISO G6 (Bonding agent see to corresponding page)
- If possible avoid press fit, because the internal diameter will decrease.

Guide bush without ball cage ST 7406.
Ball cage only ST 7130.

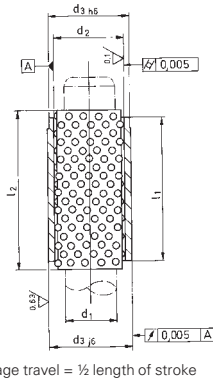
Technical description: see page 3.04

Order example: Guide bush **ST 7402**

with ball cage
 $d_1 = 30, l_1 = 47, l_2 = 58$ mm
Add **30 x 047 x 058**
Order number **ST 7402.30 x 047 x 058**

Add size to order number

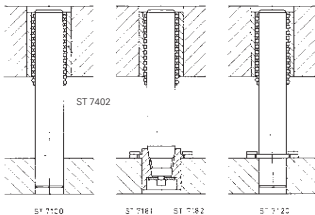
Add size to order number



Guide bush, smooth without ball cage



Guide bush, smooth with ball cage



Matching possibilities

without ball cage	ST 7406.	<input type="checkbox"/> x <input type="checkbox"/> x <input type="checkbox"/>	with ball cage	ST 7402.	<input type="checkbox"/> x <input type="checkbox"/> x <input type="checkbox"/>
d_{1h3}	d_2	d_3	l_1	l_2	
10	14	22	23	30	10 x 023 x 030
			30	38	10 x 030 x 038
			37	43	10 x 037 x 043
12	16	22	23	30	12 x 023 x 030
			30	38	12 x 030 x 038
			37	43	12 x 037 x 043
15	21	28	23	30	15 x 023 x 030
			30	38	15 x 030 x 038
			37	43	15 x 037 x 043
			47	54	15 x 047 x 054
			60	63	15 x 060 x 063
16	22	28	23	30	16 x 023 x 030
			30	38	16 x 030 x 038
			37	43	16 x 037 x 043
			47	54	16 x 047 x 054
			60	63	16 x 060 x 063
19	25	32	23	30	19 x 023 x 030
			30	38	19 x 030 x 038
			37	43	19 x 037 x 043
			47	54	19 x 047 x 054
			60	63	19 x 060 x 063
20	26	32	23	30	20 x 023 x 030
			30	38	20 x 030 x 038
			37	43	20 x 037 x 043
			47	54	20 x 047 x 054
			60	63	20 x 060 x 063
24	30	40	23	30	24 x 023 x 030
			30	38	24 x 030 x 038
			37	43	24 x 037 x 043
			47	54	24 x 047 x 054
			60	63	24 x 060 x 063
			77	83	24 x 077 x 083
25	31	40	23	30	25 x 023 x 030
			30	38	25 x 030 x 038
			37	43	25 x 037 x 043
			47	54	25 x 047 x 054
			60	63	25 x 060 x 063
			77	83	25 x 077 x 083
30	38	48	30	38	30 x 030 x 038
			37	43	30 x 037 x 043
			47	58	30 x 047 x 058
			60	68	30 x 060 x 068
			77	88	30 x 077 x 088
			95	108	30 x 095 x 108

without ball cage	ST 7406.	<input type="checkbox"/> x <input type="checkbox"/> x <input type="checkbox"/>	with ball cage	ST 7402.	<input type="checkbox"/> x <input type="checkbox"/> x <input type="checkbox"/>
d_{1h3}	d_2	d_3	l_1	l_2	
32	40	48	30	38	32 x 030 x 038
			37	43	32 x 037 x 043
			47	58	32 x 047 x 058
			60	68	32 x 060 x 068
			77	88	32 x 077 x 088
			95	108	32 x 095 x 108
38	46	58	30	38	38 x 030 x 038
			37	43	38 x 037 x 043
			47	58	38 x 047 x 058
			60	68	38 x 060 x 068
			77	88	38 x 077 x 088
			95	108	38 x 095 x 108
40	48	58	30	38	40 x 030 x 038
			37	43	40 x 037 x 043
			47	58	40 x 047 x 058
			60	68	40 x 060 x 068
			77	88	40 x 077 x 088
			95	108	40 x 095 x 108
			120	128	40 x 120 x 128
48	56	70	37	43	48 x 037 x 043
			47	58	48 x 047 x 058
			60	68	48 x 060 x 068
			77	88	48 x 077 x 088
			95	108	48 x 095 x 108
			120	128	48 x 120 x 128
50	58	70	37	43	50 x 037 x 043
			47	58	50 x 047 x 058
			60	68	50 x 060 x 068
			77	88	50 x 077 x 088
			95	108	50 x 095 x 108
			120	128	50 x 120 x 128
60	70	85	60	75	60 x 060 x 075
			77	94	60 x 077 x 094
			95	113	60 x 095 x 113
			120	139	60 x 120 x 139
63	73	85	60	75	63 x 060 x 075
			77	94	63 x 077 x 094
			95	113	63 x 095 x 113
			120	139	63 x 120 x 139
80	92	105	120	138	80 x 120 x 138
			135	156	80 x 135 x 156

Guide bushes ST 7403

smooth, roller guide



DIN 9831/ISO 9448

Material:

Guide bushes made of steel 1.3505 (100 Cr 6) hardened, hardness 61-63 HRC
roller cage made of aluminium, profile rollers made of steel, hardened, grade 1, sorted

Guide diameter d_3 , honed, suitable to roller cage and guide pillar.
Mounting diameter ISO j6, ground.

Important: If possible order the complete roller guide, so that it can be matched with the correct fit.

Matching Guide pillars: ST 7100, ST 7106, ST 7107, ST 7108, ST 7117, ST 7118, ST 7120, ST 7126, ST 7127, ST 7128, ST 7181/82

Mounting instructions:

1. To glue into the mounting bore hole ISO G6 (Bonding agent see to corresponding page)

2. If possible, avoid press fit, because the internal diameter will decrease.

Guide bushes without roller cage ST 7406
Roller cage only ST 7140

Technical description: see page 3.04

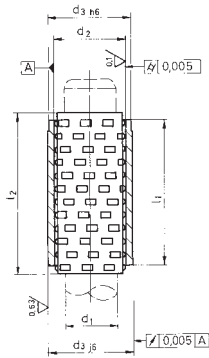
Order example: Guide bush **ST 7403**

with roller cage
 $d_1 = 30, l_1 = 47, l_2 = 54$ mm

Add **30 x 047 x 054**

Order number **ST 7403.30 x 047 x 054**

Add size to order number



Cage travel = 1/2 length of stroke



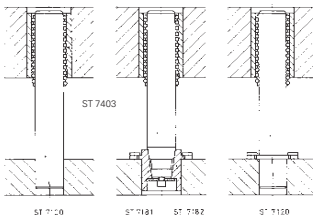
ST 7406

Guide bush, smooth without roller cage



ST 7403

Guide bush, smooth with roller cage



Matching possibilities

without roller cage		ST 7406.		<input type="checkbox"/> x <input type="checkbox"/> x <input type="checkbox"/>				
with roller cage		ST 7403.		<input type="checkbox"/> x <input type="checkbox"/> x <input type="checkbox"/>				
d_{1h3}	d_2	d_3	l_1	l_2				
19	25	32	37	43	19 x 037 x 043			
			47	54	19 x 047 x 054			
			60	63	19 x 060 x 063			
20	26	32	37	43	20 x 037 x 043			
			47	54	20 x 047 x 054			
			60	63	20 x 060 x 063			
24	30	40	37	43	24 x 037 x 043			
			47	63	24 x 047 x 063			
			60	74	24 x 060 x 074			
25	31	40	77	90	24 x 077 x 090			
			37	43	25 x 037 x 043			
			47	63	25 x 047 x 063			
			60	74	25 x 060 x 074			
			77	90	25 x 077 x 090			
			30	38	48	47	54	30 x 047 x 054
			60	74	30 x 060 x 074			
			77	83	30 x 077 x 083			
			95	103	30 x 095 x 103			
32	40	48	47	54	32 x 047 x 054			
			60	74	32 x 060 x 074			
			77	83	32 x 077 x 083			
			95	103	32 x 095 x 103			
			38	46	58	60	58	38 x 060 x 058
			77	88	38 x 077 x 088			
			95	94	38 x 095 x 094			
			120	128	38 x 120 x 128			
			40	48	58	60	58	40 x 060 x 058
			77	88	40 x 077 x 088			
			95	94	40 x 095 x 094			
			120	128	40 x 120 x 128			
48	56	70	77	74	48 x 077 x 074			
			95	108	48 x 095 x 108			
			120	128	48 x 120 x 128			
50	58	70	77	74	50 x 077 x 074			
			95	108	50 x 095 x 108			
			120	128	50 x 120 x 128			
60	70	85	77	113	60 x 077 x 113			
			95	128	60 x 095 x 128			
			120	139	60 x 120 x 139			
63	73	85	77	113	63 x 077 x 113			
			95	128	63 x 095 x 128			
			120	139	63 x 120 x 139			
80	92	105	120	138	80 x 120 x 138			
			135	156	80 x 135 x 156			

Guide bushes ST 7404

smooth, ball guide brass

STEINEL
NORMALIEN



DIN 9831/ISO 9448

Material:

Guide bushes made of steel 1.3505 (100 Cr6) hardened, hardness 61-63 HRC
Ball cage made of brass, balls made of steel, hardened, grade 1, sorted

Guide diameter d_2 honed, suitable to ball cage and guide pillar.
Mounting diameter ISO j6, ground.

Important: If possible, order the complete ball guide, so that it can be matched with the correct fit.

Matching Guide pillars: ST 7100, ST 7106, ST 7107, ST 7108, ST 7117, ST 7118, ST 7120, ST 7126, ST 7127, ST 7128, ST 7181/82

Mounting instructions:

- To glue into the mounting bore hole ISO G6 (Bonding agent see to corresponding page)
- If possible, avoid press fit, because the internal diameter will decrease.

Guide bushes without ball cage ST 7406.
Ball cage only ST 7150.

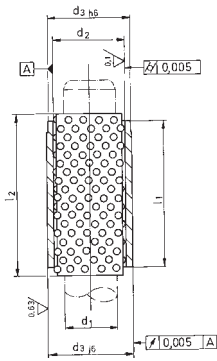
Technical description: see page 3.04

Order example: Guide bush **ST 7404**

with ball cage
 $d_1 = 30, l_1 = 47, l_2 = 58$ mm
Add **30 x 047 x 058**
Order number **ST 7404.30 x 047 x 058**

Add size to order number

Add size to order number



Cage travel = 1/2 length of stroke



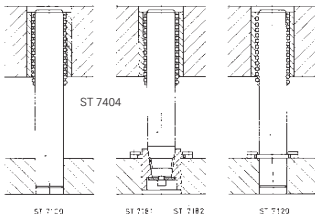
ST 7406

Guide bush, smooth without ball cage



ST 7404

Guide bush, smooth with ball cage



Matching possibilities

without ball cage	ST 7406.	<input type="checkbox"/> x <input type="checkbox"/> x <input type="checkbox"/>
with ball cage	ST 7404.	<input type="checkbox"/> x <input type="checkbox"/> x <input type="checkbox"/>

d_{1h3}	d_2	d_3	l_1	l_2	
10	14	22	23	30	10 x 023 x 030
			30	38	10 x 030 x 038
			37	43	10 x 037 x 043
12	16	22	23	30	12 x 023 x 030
			30	38	12 x 030 x 038
			37	43	12 x 037 x 043
15	21	28	23	30	15 x 023 x 030
			30	38	15 x 030 x 038
			37	43	15 x 037 x 043
			47	54	15 x 047 x 054
			60	63	15 x 060 x 063
16	22	28	23	30	16 x 023 x 030
			30	38	16 x 030 x 038
			37	43	16 x 037 x 043
			47	54	16 x 047 x 054
			60	63	16 x 060 x 063
19	25	32	23	30	19 x 023 x 030
			30	38	19 x 030 x 038
			37	43	19 x 037 x 043
			47	54	19 x 047 x 054
			60	63	19 x 060 x 063
20	26	32	23	30	20 x 023 x 030
			30	38	20 x 030 x 038
			37	43	20 x 037 x 043
			47	54	20 x 047 x 054
			60	63	20 x 060 x 063
24	30	40	23	30	24 x 023 x 030
			30	38	24 x 030 x 038
			37	43	24 x 037 x 043
			47	54	24 x 047 x 054
			60	63	24 x 060 x 063
			77	83	24 x 077 x 083
25	31	40	23	30	25 x 023 x 030
			30	38	25 x 030 x 038
			37	43	25 x 037 x 043
			47	54	25 x 047 x 054
			60	63	25 x 060 x 063
			77	83	25 x 077 x 083
30	38	48	30	38	30 x 030 x 038
			37	43	30 x 037 x 043
			47	58	30 x 047 x 058
			60	68	30 x 060 x 068
			77	88	30 x 077 x 088
			95	108	30 x 095 x 108

without ball cage	ST 7406.	<input type="checkbox"/> x <input type="checkbox"/> x <input type="checkbox"/>
with ball cage	ST 7402.	<input type="checkbox"/> x <input type="checkbox"/> x <input type="checkbox"/>

d_{1h3}	d_2	d_3	l_1	l_2	
32	40	48	30	38	32 x 030 x 038
			37	43	32 x 037 x 043
			47	58	32 x 047 x 058
			60	68	32 x 060 x 068
			77	88	32 x 077 x 088
			95	108	32 x 095 x 108
38	46	58	30	38	38 x 030 x 038
			37	43	38 x 037 x 043
			47	58	38 x 047 x 058
			60	68	38 x 060 x 068
			77	88	38 x 077 x 088
			120	128	38 x 120 x 128
40	48	58	30	38	40 x 030 x 038
			37	43	40 x 037 x 043
			47	58	40 x 047 x 058
			60	68	40 x 060 x 068
			77	88	40 x 077 x 088
			95	108	40 x 095 x 108
			120	128	40 x 120 x 128
48	56	70	37	43	48 x 037 x 043
			47	58	48 x 047 x 058
			60	68	48 x 060 x 068
			77	88	48 x 077 x 088
			95	108	48 x 095 x 108
			120	128	48 x 120 x 128
50	58	70	37	43	50 x 037 x 043
			47	58	50 x 047 x 058
			60	68	50 x 060 x 068
			77	88	50 x 077 x 088
			95	108	50 x 095 x 108
			120	128	50 x 120 x 128
60	70	85	60	75	60 x 060 x 075
			77	94	60 x 077 x 094
			95	113	60 x 095 x 113
			120	139	60 x 120 x 139
63	73	85	60	75	63 x 060 x 075
			77	94	63 x 077 x 094
			95	113	63 x 095 x 113
			120	139	63 x 120 x 139
80	92	105	120	138	80 x 120 x 138
			135	156	80 x 135 x 156

Guide bushes ST 7405

smooth, ball guide plastic



DIN 9831/ISO 9448

Material:

Guide bushes made of steel 1.3505 (100 Cr 6) hardened, hardness 61- 63 HRC
Ball cage made of plastic, balls made of steel, hardened, grade 1, sorted

Guide diameter d_2 honed, matched to ball cage and guide pillar.
Mounting diameter ground to ISO j6.

Important: If possible, order the complete ball guide so that it can be matched with the correct preload.

Matching guide pillars: ST 7100, ST 7106, ST 7107, ST 7108, ST 7117, ST 7118, ST 7120, ST 7126, ST 7127, ST 7128 und ST 7181/82.

Mounting instructions:

1. Glue into the bore hole ISO G6.
(Bonding agents under section 6)
2. If possible, avoid press fit, because the internal diameter will decrease.

Guide bushes without ball cage ST 7406
Ball cage only ST 7133

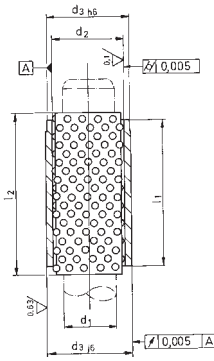
Technical description: see page 3.04

Order example: Guide bush **ST 7405** with ball cage

$d_1 = 30, l_1 = 47 \text{ mm}, l_2 = 58 \text{ mm}$

Add **30 x 047 x 058**

Order number **ST 7405.30 x 047 x 058**



Cage travel = 1/2 length of stroke



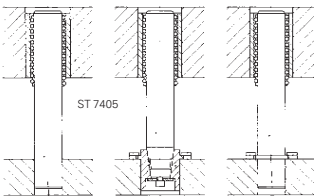
ST 7406

Guide bush, smooth without ball cage



ST 7405

Guide bush, smooth with ball cage



Matching possibilities

Add size to order number

Add size to order number

without ball cage	ST 7406.	<input type="checkbox"/> x <input type="checkbox"/> x <input type="checkbox"/>
with ball cage	ST 7405.	<input type="checkbox"/> x <input type="checkbox"/> x <input type="checkbox"/>

d_{1h3}	d_2	d_3	l_1	l_2
10	14	22	23	30
			30	38
			37	43
			30	38
			37	43
			30	38
			37	43
			30	38
			37	43
			47	54
			60	63
16	22	28	23	30
			30	38
			37	43
			47	54
			60	63
19	25	32	23	30
			30	38
			37	43
			47	54
			60	63
20	26	32	23	30
			30	38
			37	43
			47	54
			60	63
24	30	40	23	30
			30	38
			37	43
			47	54
			60	63
			77	83
25	31	40	23	30
			30	38
			37	43
			47	54
			60	63
			77	83

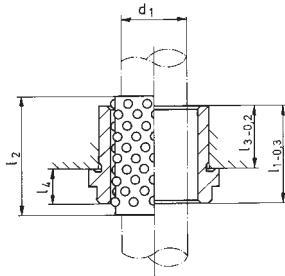
without ball cage	ST 7406.	<input type="checkbox"/> x <input type="checkbox"/> x <input type="checkbox"/>
with ball cage	ST 7405.	<input type="checkbox"/> x <input type="checkbox"/> x <input type="checkbox"/>

d_{1h3}	d_2	d_3	l_1	l_2
30	38	48	30	38
			37	43
			47	58
			60	68
			77	88
			95	108
32	40	48	30	38
			37	43
			47	58
			60	68
			77	88
			95	108
38	46	58	30	38
			37	43
			47	58
			60	68
			77	88
			95	108
			120	128
40	48	58	30	38
			37	43
			47	58
			60	68
			77	88
			95	108
			120	128
48	56	70	37	43
			47	58
			60	68
			77	88
			95	108
			120	128
50	58	70	37	43
			47	58
			60	68
			77	88
			95	108
			120	128

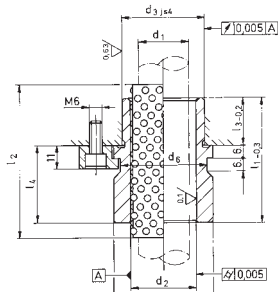
Guide bushes ST 7412, ST 7416

with shoulder, ball guide aluminium

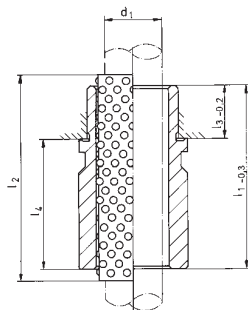
STEINEL
NORMALIEN



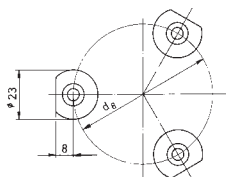
Short version



Mid-length version



Long version
Cage travel = 1/2 length of stroke



Arrangement possibilities of the holding clamps



DIN 9831/ISO 9448

Material:

Guide bushes made of steel 1.3505
(16 MnCr5), case hardened,
hardness 61-63 HRC
Ball cage made of aluminium
balls made of steel, hardened, grade 1, sorted

Guide diameter honed, suitable to ball cage
and guide pillar.
Mounting diameter ISO js4, ground.

Important:

If possible, order the complete ball
guide, so that it can be matched with the
correct fit.



Matching Guide pillars:

ST 7100, ST 7106, ST 7107, ST 7108,
ST 7120, ST 7126, ST 7127, ST 7128 und
ST 7181/82

Mounting instructions:

Fit in mounting bore hole ISO H6.
Fix with 3 holding clamps
(included in delivery).
The shoulder surface, right-angled ground
to the guide bore, will be squeezed onto the
plate by the holding clamps and guarantees an
absolutely rigid clamping of the guide bush.

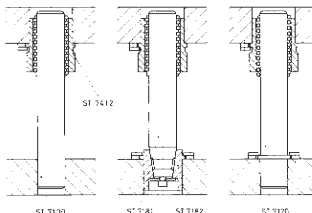
Holding clamps:

When reordering the holding clamps please
order: 1 set = 3 pieces, order number ST 7367



Guide bush without ball cage ST 7416.
Ball cage only ST 7130.

Technical description: see page 3.04



Matching possibilities

Order example:

Guide bush **ST 7416**

without ball cage

$d_1 = 30, l_1 = 93 \text{ mm}$

Add **30 x 093**

Order number **ST 7416. 30 x 093**



Add
size to
order number

without ball cage

Order no. **ST 7416.**

x x

Order example:

Guide bush **ST 7412**

with ball cage

$d_1 = 40, l_1 = 82, l_2 = 94 \text{ mm}$

Add **40 x 082 x 094**

Order number **ST 7412. 40 x 082 x 094**



Add
size to
order number

with ball cage

Order no. **ST 7412.**

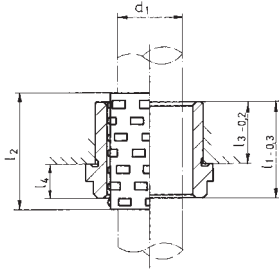
x x

d_{1h3}	d_2	d_{3js4}	d_5	d_6	d_8	$l_{1-0,3}$	l_2	$l_{3-0,2}$	l_4	
19	25	32	40	32	59	35	43	23	12	19 x 035 x 043
						43	54		20	19 x 043 x 054
						59	74		36	19 x 059 x 074
20	26	32	40	32	59	35	43	23	12	20 x 035 x 043
						43	54		20	20 x 043 x 054
						59	74		36	20 x 059 x 074
24	30	40	48	40	65	35	43	23	12	24 x 035 x 043
						60	74		37	24 x 060 x 074
						80	90		57	24 x 080 x 090
25	31	40	48	40	65	35	43	23	12	25 x 035 x 043
						60	74		37	25 x 060 x 074
						80	90		57	25 x 080 x 090
30	38	48	56	48	73	42	54	30	12	30 x 042 x 054
						75	83		45	30 x 075 x 083
						93	103		63	30 x 093 x 103
32	40	48	56	48	73	42	54	30	12	32 x 042 x 054
						75	83		45	32 x 075 x 083
						93	103		63	32 x 093 x 103
38	46	58	66	58	83	52	58	37	15	38 x 052 x 058
						82	94		45	38 x 082 x 094
						107	128		70	38 x 107 x 128
40	48	58	66	58	83	52	58	37	15	40 x 052 x 058
						82	94		45	40 x 082 x 094
						107	128		70	40 x 107 x 128
48	56	70	80	70	97	65	74	47	18	48 x 065 x 074
						97	108		50	48 x 097 x 108
						127	128		80	48 x 127 x 128
50	58	70	80	70	97	65	74	47	18	50 x 065 x 074
						97	108		50	50 x 097 x 108
						127	128		80	50 x 127 x 128
60	70	85	95	85	112	80	113	60	20	60 x 080 x 113
						115	128		55	60 x 115 x 128
						150	154		90	60 x 150 x 154
63	73	85	95	85	112	80	113	60	20	63 x 080 x 113
						115	128		55	63 x 115 x 128
						150	154		90	63 x 150 x 154
80	92	105	118	105	135	80	113	60	20	80 x 080 x 113
						120	138		60	80 x 120 x 138
						150	156		90	80 x 150 x 156

Guide bushes ST 7413

with shoulder, roller guide

STEINEL
NORMALIEN



Short version



DIN 9831/ISO 9448

Material:

Guide bushes made of steel 1.7131 (16 MnCr5), case hardened, hardness 61-63 HRC
roller cage made of aluminium
profile rollers made of steel, hardened, grade 1, sorted

Guide diameter honed, suitable to roller cage and guide pillar.
Mounting diameter ISO js4, ground.

Important: If possible, order the complete roller guide, so that it can be matched with the correct fit.

Matching Guide pillars:

ST 7100, ST 7106, ST 7107, ST 7108, ST 7120, ST 7126, ST 7127, ST 7128 und ST 7181/82

Mounting instructions:

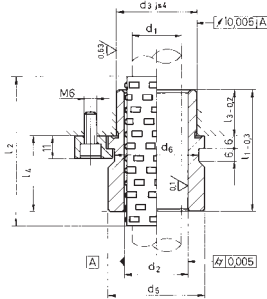
Fit in mounting bore hole ISO H6.
Fix with 3 holding clamps ST 7367 (included in delivery).
The shoulder surface, right-angled ground to the guide bore, will be squeezed onto the plate by the holding clamps and guarantees an absolutely rigid clamping of the guide bush.

Holding clamps:

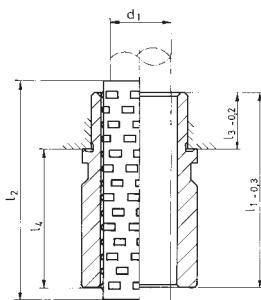
When reordering the holding clamps please order: 1 set = 3 pieces, order number ST 7367

Guide bush without roller cage ST 7416.
Roller cage only ST 7140.

Technical description: see page 3.04

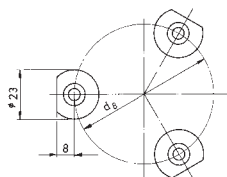


Mid-length version

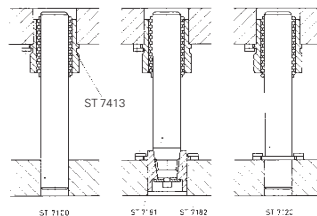


Long version

Cage travel = 1/2 length of stroke



Arrangement possibilities of the holding clamps



Matching possibilities

Order example:

Guide bush **ST 7416**

without roller cage

$d_1 = 30, l_1 = 82, l_2 = 94$ mm

Add **30 x 093**

Order number **ST 7416. 30 x 093**



Add
size to
order number

without roller cage

Order no. **ST 7416.**

x x

Order example:

Guide bush **ST 7413**

with roller cage

$d_1 = 40, l_1 = 82, l_2 = 94$ mm

Add **40 x 082 x 094**

Order number **ST 7413. 40 x 082 x 094**



Add
size to
order number

with roller cage

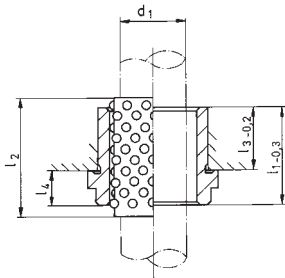
Order no. **ST 7413.**

x x

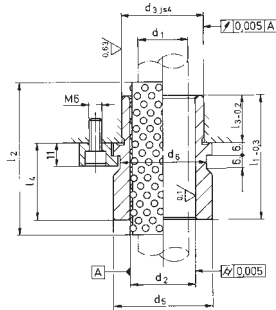
d_{1h3}	d_2	d_{3js4}	d_5	d_6	d_8	$l_{1-0,3}$	l_2	$l_{3-0,2}$	l_4	
19	25	32	40	32	59	35	43	23	12	19 x 035 x 043
						43	54		20	19 x 043 x 054
						59	74		36	19 x 059 x 074
20	26	32	40	32	59	35	43	23	12	20 x 035 x 043
						43	54		20	20 x 043 x 054
						59	74		36	20 x 059 x 074
24	30	40	48	40	65	35	43	23	12	24 x 035 x 043
						60	74		37	24 x 060 x 074
						80	90		57	24 x 080 x 090
25	31	40	48	40	65	35	43	23	12	25 x 035 x 043
						60	74		37	25 x 060 x 074
						80	90		57	25 x 080 x 090
30	38	48	56	48	73	42	54	30	12	30 x 042 x 054
						75	83		45	30 x 075 x 083
						93	103		63	30 x 093 x 103
32	40	48	56	48	73	42	54	30	12	32 x 042 x 054
						75	83		45	32 x 075 x 083
						93	103		63	32 x 093 x 103
38	46	58	66	58	83	52	58	37	15	38 x 052 x 058
						82	94		45	38 x 082 x 094
						107	128		70	38 x 107 x 128
40	48	58	66	58	83	52	58	37	15	40 x 052 x 058
						82	94		45	40 x 082 x 094
						107	128		70	40 x 107 x 128
48	56	70	80	70	97	65	74	47	18	48 x 065 x 074
						97	108		50	48 x 097 x 108
						127	128		80	48 x 127 x 128
50	58	70	80	70	97	65	74	47	18	50 x 065 x 074
						97	108		50	50 x 097 x 108
						127	128		80	50 x 127 x 128
60	70	85	95	85	112	80	113	60	20	60 x 080 x 113
						115	128		55	60 x 115 x 128
						150	139		90	60 x 150 x 139
63	73	85	95	85	112	80	113	60	20	63 x 080 x 113
						115	128		55	63 x 115 x 128
						150	139		90	63 x 150 x 139
80	92	105	118	105	135	80	113	60	20	80 x 080 x 113
						120	138		60	80 x 120 x 138
						150	156		90	80 x 150 x 156

Guide bushes ST 7414

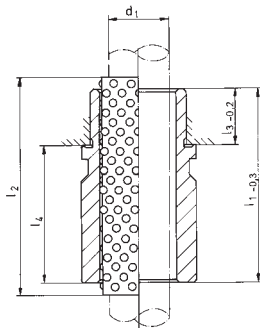
with shoulder, ball guide brass



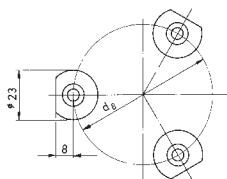
Short version



Mid-length version



Long version
Cage travel = 1/2 length of stroke



Arrangement possibilities of the holding clamps



DIN 9831/ISO 9448

Material:

Guide bush made of steel 1.7131 (16 MnCr5) case hardened, hardness 61-63 HRC

Ball cage made of brass
balls made of steel, hardened, grade 1, sorted

Guide diameter honed, suitable to Ball cage and Guide pillar.
Mounting diameter ISO js4, ground.

Important: If possible, order the complete ball guide, so that it can be matched with the correct fit.



Matching Guide pillars:

ST 7100, ST 7106, ST 7107, ST 7108, ST 7120, ST 7126, ST 7127, ST 7128 und ST 7181/82

Mounting instructions:

Fit in mounting bore hole ISO H6.
Fix with 3 holding clamps ST 7367 (included in delivery).
The shoulder surface, right-angled ground to the guide bore, will be squeezed onto the plate by the holding clamps and guarantees an absolutely rigid clamping of the guide bush.

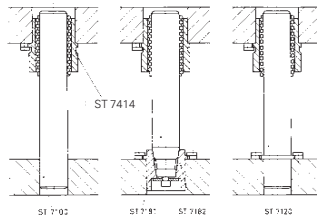
Holding clamps:

When reordering the holding clamps please order: 1 set = 3 pieces, order number ST 7367



Guide bush without roller cage ST 7416
Ball cage brass only ST 7150

Technical description: see page 3.04



Matching possibilities

Order example:

Guide bush **ST 7416.**

without ball cage

$d_1 = 30, l_1 = 93 \text{ mm}$

Add **30 x 093**

Order number **ST 7416. 30 x 093**



Add
size to
order number

without ball cage

Order no. **ST 7416.**

x x

Order example:

Guide bush **ST 7414.**

with ball cage, brass

$d_1 = 40, l_1 = 82, l_2 = 94 \text{ mm}$

Add **40 x 082 x 094**

Order number **ST 7414. 40 x 082 x 094**



Add
size to
order number

with ball cage

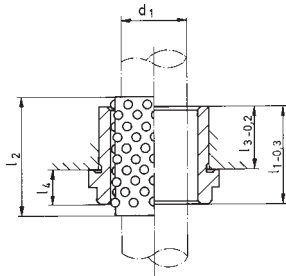
Order no. **ST 7414.**

x x

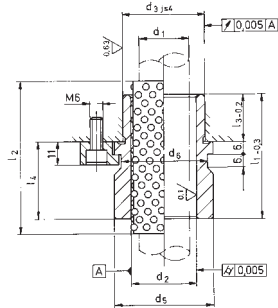
d_{1h3}	d_2	d_{3js4}	d_5	d_6	d_8	$l_{1-0,3}$	l_2	$l_{3-0,2}$	l_4	
19	25	32	40	32	59	35	43	23	12	19 x 035 x 043
						43	54		20	19 x 043 x 054
						59	74		36	19 x 059 x 074
20	26	32	40	32	59	35	43	23	12	20 x 035 x 043
						43	54		20	20 x 043 x 054
						59	74		36	20 x 059 x 074
24	30	40	48	40	65	35	43	23	12	24 x 035 x 043
						60	74		37	24 x 060 x 074
						80	90		57	24 x 080 x 090
25	31	40	48	40	65	35	43	23	12	25 x 035 x 043
						60	74		37	25 x 060 x 074
						80	90		57	25 x 080 x 090
30	38	48	56	48	73	42	54	30	12	30 x 042 x 054
						75	83		45	30 x 075 x 083
						93	103		63	30 x 093 x 103
32	40	48	56	48	73	42	54	30	12	32 x 042 x 054
						75	83		45	32 x 075 x 083
						93	103		63	32 x 093 x 103
38	46	58	66	58	83	52	58	37	15	38 x 052 x 058
						82	94		45	38 x 082 x 094
						107	128		70	38 x 107 x 128
40	48	58	66	58	83	52	58	37	15	40 x 052 x 058
						82	94		45	40 x 082 x 094
						107	128		70	40 x 107 x 128
48	56	70	80	70	97	65	74	47	18	48 x 065 x 074
						97	108		50	48 x 097 x 108
						127	128		80	48 x 127 x 128
50	58	70	80	70	97	65	74	47	18	50 x 065 x 074
						97	108		50	50 x 097 x 108
						127	128		80	50 x 127 x 128
60	70	85	95	85	112	80	113	60	20	60 x 080 x 113
						115	128		55	60 x 115 x 128
						150	154		90	60 x 150 x 154
63	73	85	95	85	112	80	113	60	20	63 x 080 x 113
						115	128		55	63 x 115 x 128
						150	154		90	63 x 150 x 154
80	92	105	118	105	135	80	113	60	20	80 x 080 x 113
						120	138		60	80 x 120 x 138
						150	156		90	80 x 150 x 156

Guide bushes ST 7415

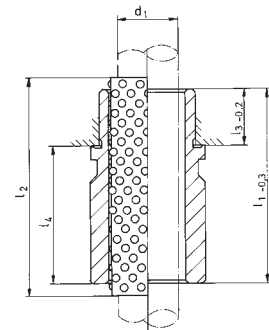
with shoulder, ball guide plastic



Short version

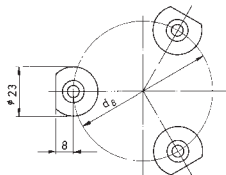


Mid-length version



Long version

Cage travel = 1/2 length of stroke



Arrangement possibilities of the holding clamps



DIN 9831/ISO 9448

Material:

Guide bushes made of steel 1.7131 (16MnCr5), case hardened, hardness 61-63 HRC.
Ball cage made of plastic.
Balls made of steel, hardened, grade 1, sorted.

Guide diameter honed, matched to ball cage and guide pillar.
Mounting diameter ground ISO js4.

Important:

If possible, order the complete ball guide so that it can be matched with the correct preload.

Matching guide pillars: ST 7100, ST 7106, ST 7107, ST 7108, ST 7120, ST 7126, ST 7127, ST 7128 und ST 7181/82

Mounting instructions:

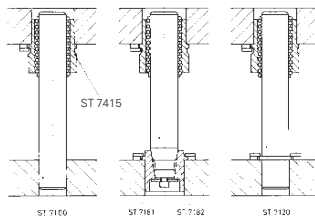
Fit in mounting bore hole to ISO H6.
Fasten with 3 clamps ST 7367, (included in delivery).
The shoulder surface is right-angled ground to the guide bore and pressed into the base plate. It is held by the clamps, which provide a rigid mounting of the guide bush.

Holding Clamps:

When reordering the Holding clamps, please order: 1 set = 3 pieces per guide bush, order number ST 7367

Guide bushes without ball cage ST 7416
Ball cage only ST 7133

Technical description: see page 3.04



Matching possibilities

Order example:

Guide bush **ST 7416**

without ball cage

$d_1 = 30, l_1 = 93$ mm

Add **30 x 093**

Order number **ST 7416. 30 x 093**



Add
size to
order number

without ball cage

Order no. **ST 7416.**

x x

Order example:

Guide bush **ST 7415**

with plastic ball cage

$d_1 = 40, l_1 = 82, l_2 = 94$ mm

Add **40 x 082 x 094**

Order number **ST 7415. 40 x 082 x 094**



Add
size to
order number

with ball cage

Order no. **ST 7415.**

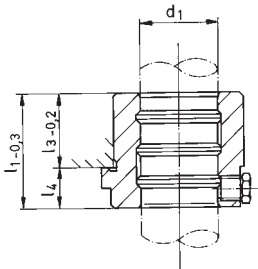
x x

d_{1h3}	d_2	d_{3h4}	d_5	d_6	d_8	$l_{1-0,3}$	l_2	$l_{3-0,2}$	l_4	
19	25	32	40	32	59	35	43	23	12	19 x 035 x 043
						43	54		20	19 x 043 x 054
						59	74		36	19 x 059 x 074
20	26	32	40	32	59	35	43	23	12	20 x 035 x 043
						43	54		20	20 x 043 x 054
						59	74		36	20 x 059 x 074
24	30	40	48	40	65	35	43	23	12	24 x 035 x 043
						60	74		37	24 x 060 x 074
						80	90		57	24 x 080 x 090
25	31	40	48	40	65	35	43	23	12	25 x 035 x 043
						60	74		37	25 x 060 x 074
						80	90		57	25 x 080 x 090
30	38	48	56	48	73	42	54	30	12	30 x 042 x 054
						75	83		45	30 x 075 x 083
						93	103		63	30 x 093 x 103
32	40	48	56	48	73	42	54	30	12	32 x 042 x 054
						75	83		45	32 x 075 x 083
						93	103		63	32 x 093 x 103
38	46	58	66	58	83	52	58	37	15	38 x 052 x 058
						82	94		45	38 x 082 x 094
						107	128		70	38 x 107 x 128
40	48	58	66	58	83	52	58	37	15	40 x 052 x 058
						82	94		45	40 x 082 x 094
						107	128		70	40 x 107 x 128
48	56	70	80	70	97	65	74	47	18	48 x 065 x 074
						97	108		50	48 x 097 x 108
						127	128		80	48 x 127 x 128
50	58	70	80	70	97	65	74	47	18	50 x 065 x 074
						97	108		50	50 x 097 x 108
						127	128		80	50 x 127 x 128

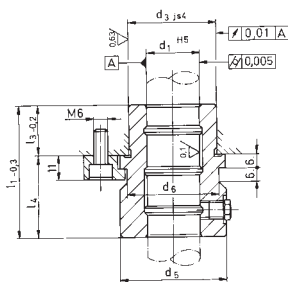
Guide bushes ST 7419

with shoulder, sliding guide steel bronze plated

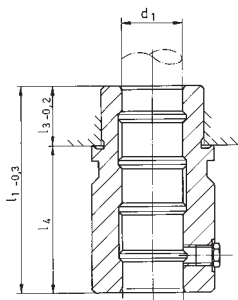
STEINEL
NORMALIEN



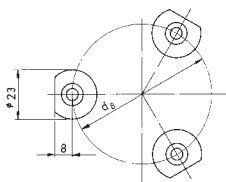
Short version



Mid-length version



Long version



Arrangement possibilities of the holding clamps



DIN 9831/ISO 9448

Material:

Guide bush made of steel 1.7131 (16 MnCr5), case hardened, hardness 61-63 HRC, sliding surface bronze plated.

Guide diameter ISO H5 honed.
Mounting diameter ISO js4, ground.

Important:

Due to the galvanically applied bronze plating onto the hardened steel jacket, this bush is suitable especially for high sliding speeds and strong lateral forces.

Lubrication:

Lubrication by funnel grease nipple, connection M 8 x 1 provided for central lubrication.

Matching Guide pillars:

ST 7100, ST 7106, ST 7107, ST 7108, ST 7120, ST 7126, ST 7127, ST 7128 and ST 7181/82

Mounting instructions:

Fit in mounting bore hole ISO H6.
Fix with 3 holding clamps ST 7367 (included in delivery).

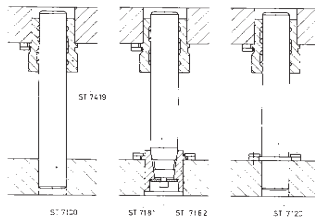
The shoulder surface, right-angled ground to the guide bore, will be squeezed onto the plate by the holding clamps and guarantees an absolutely rigid clamping of the guide bush.



Holding clamps:

When reordering the holding clamps please order: 1 set = 3 pieces, order number ST 7367

Technical description: see page 3.04



Matching possibilities

Order example:

Guide bush **ST 7419**.

$d_1 = 24$, $l_1 = 35$ mm

Add **24 x 035**

Order number **ST 7419. 24 x 035**



Add
size to
order number

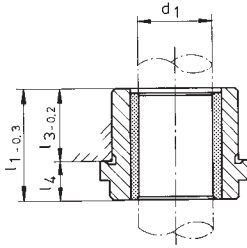
Order no. **ST 7419**.

x

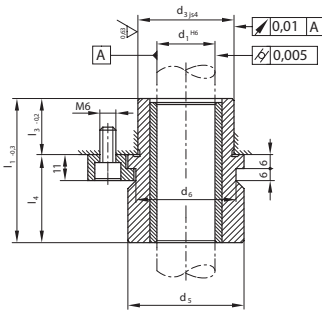
d_{1HS}	$d_{3j\pm 0.04}$	d_5	d_6	d_8	$l_{1-0.3}$	$l_{3-0.2}$	l_4	
19	32	40	32	59	35	23	12	19 x 035
					43		20	19 x 043
					59		36	19 x 059
20	32	40	32	59	35	23	12	20 x 035
					43		20	20 x 043
					59		36	20 x 059
24	40	48	40	65	35	23	12	24 x 035
					60		37	24 x 060
					80		57	24 x 080
25	40	48	40	65	35	23	12	25 x 035
					60		37	25 x 060
					80		57	25 x 080
30	48	56	48	73	42	30	12	30 x 042
					75		45	30 x 075
					93		63	30 x 093
32	48	56	48	73	42	30	12	32 x 042
					75		45	32 x 075
					93		63	32 x 093
38	58	66	58	83	52	37	15	38 x 052
					82		45	38 x 082
					107		70	38 x 107
40	58	66	58	83	52	37	15	40 x 052
					82		45	40 x 082
					107		70	40 x 107
48	70	80	70	97	65	47	18	48 x 065
					97		50	48 x 097
					127		80	48 x 127
50	70	80	70	97	65	47	18	50 x 065
					97		50	50 x 097
					127		80	50 x 127
60	85	95	85	112	80	60	20	60 x 080
					115		55	60 x 115
					150		90	60 x 150
63	85	95	85	112	80	60	20	63 x 080
					115		55	63 x 115
					150		90	63 x 150
80	105	118	105	135	80	60	20	80 x 080
					120		60	80 x 120
					150		90	80 x 150

Guide bushes ST 7471

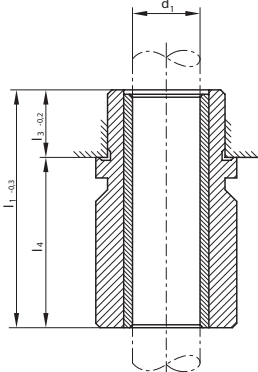
with shoulder, sliding guide with solid lubricant



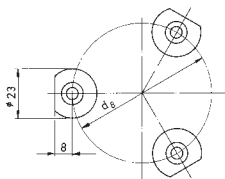
Short version



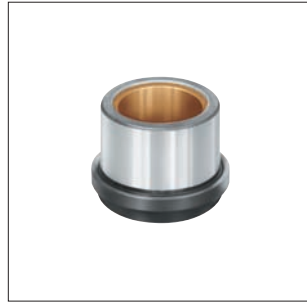
Mid-length version



Long version



Arrangement possibilities of the holding clamps



Dimensions according to DIN 9831/ISO 9448

Material:

Steel with insert of solid lubricant. Due to the solid lubricant inserts, the sliding guide is self-lubricating and is suited for higher loads.

Guide diameter ISO H6, precision turned. Mounting diameter ISO js4, precision turned.

Lubrication:

The solid lubricant greasing will be described as a lubricating status by which solid lubricant particles, which have a low shearing resistance within their crystal structure, are available between two surfaces and taking over the lubricating functions.

Matching Guide pillars:

ST 7100, ST 7106, ST 7107, ST 7108, ST 7120, ST 7126, ST 7127, ST 7128 and ST 7181/82

Mounting instructions:

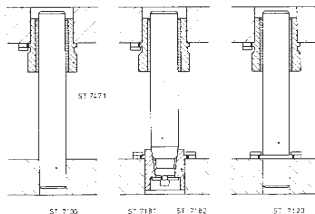
Fit in mounting bore hole ISO H6. Fix with 3 holding clamps ST 7367 (included in delivery). The shoulder surface, right-angled ground to the guide bore, will be squeezed onto the plate by the holding clamps and guarantees an absolutely rigid clamping of the guide bush.



Holding clamps:

When reordering the holding clamps please order: 1 set = 3 pieces, order number ST 7367

Technical description: see page 3.04



Matching possibilities

Order example:

Guide bush **ST 7471.**

$d_1 = 24$, $l_1 = 35$ mm

Add **24 x 035**

Order number **ST 7471. 24 x 035**



Add
size to
order number

Order no. **ST 7471.**

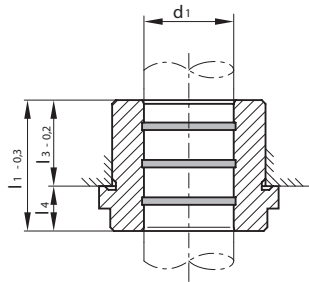
x

d_{1H6}	d_{3js4}	d_5	d_6	d_8	$l_{1-0.3}$	$l_{2-0.2}$	l_4	
19	32	40	32	59	35	23	12	19 x 035
					43		20	19 x 043
					59		36	19 x 059
20	32	40	32	59	35	23	12	20 x 035
					43		20	20 x 043
					59		36	20 x 059
24	40	48	40	65	35	23	12	24 x 035
					60		37	24 x 060
					80		57	24 x 080
25	40	48	40	65	35	23	12	25 x 035
					60		37	25 x 060
					80		57	25 x 080
30	48	56	48	73	42	30	12	30 x 042
					75		45	30 x 075
					93		63	30 x 093
32	48	56	48	73	42	30	12	32 x 042
					75		45	32 x 075
					93		63	32 x 093
38	58	66	58	83	52	37	15	38 x 052
					82		45	38 x 082
					107		70	38 x 107
40	58	66	58	83	52	37	15	40 x 052
					82		45	40 x 082
					107		70	40 x 107
48	70	80	70	97	65	47	18	48 x 065
					97		50	48 x 097
					127		80	48 x 127
50	70	80	70	97	65	47	18	50 x 065
					97		50	50 x 097
					127		80	50 x 127
60	85	95	85	112	80	60	20	60 x 080
					115		55	60 x 115
					150		90	60 x 150
63	85	95	85	112	80	60	20	63 x 080
					115		55	63 x 115
					150		90	63 x 150
80	105	118	105	135	80	60	20	80 x 080
					120		60	80 x 120
					150		90	80 x 150

Guide bushes ST 7431

with shoulder, sliding guide with solid lubricant

STEINEL
NORMALIEN



Short version



DIN 9831/ISO 9448

Material:

Bronze with solid lubricant bands.
Due to the solid lubricant bands, the sliding guide is self-lubricating and suitable for higher loads.

Guide diameter ISO H6, precision turned
Mounting diameter ISO j6, precision turned

Lubrication:

In the solid lubricant construction, the particles of the solid lubricant have a low shearing resistance in their crystalline structure. They are between two surfaces and take over the lubricating function.

Matching Guide pillars:

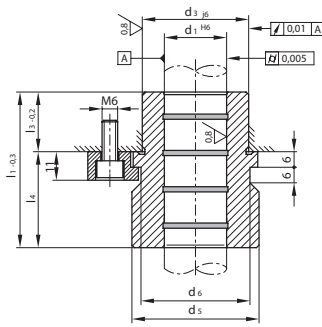
ST 7100, ST 7106, ST 7107, ST 7108,
ST 7120, ST 7126, ST 7127, ST 7128 and
ST 7181/82

Mounting instructions:

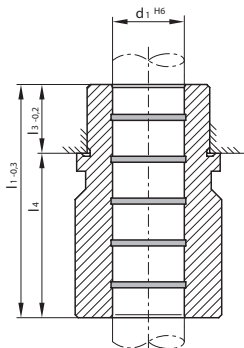
Fit in mounting bore hole to ISO H6.
Fasten with 3 clamps ST 7367, included in delivery. The shoulder surface is right-angled ground to the guide bore and pressed into the base plate. It is held by the clamps, which provide a rigid mounting of the guide bush.

Holding clamps:

When reordering the holding clamps, please order: 1 set = 3 pieces per guide bush, order number ST 7367



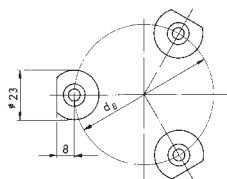
Mid-length version



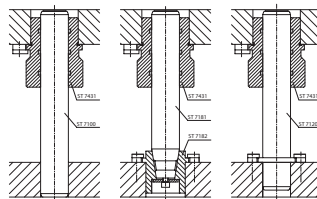
Long version



Technical description: see page 3.04



Arrangement possibilities of the holding clamps



Matching possibilities

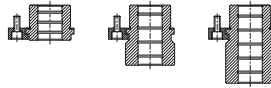
Order example:

Guide bush **ST 7431**.

d1 = 24, l₁ = 35 mm

Add **24 x 035**

Order number **ST 7431. 24 x 035**



Add
size to
order number

Order no. **ST 7431**.

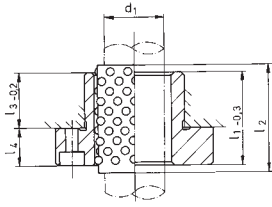
x

d ₁ ^{H6}	d _{3/6}	d ₅	d ₆	d ₈	l _{1-0,3}	l _{3-0,2}	l ₄	
19	32	40	32	59	35	23	12	19 x 035
					43		20	19 x 043
					59		36	19 x 059
20	32	40	32	59	35	23	12	20 x 035
					43		20	20 x 043
					59		36	20 x 059
24	40	48	40	65	35	23	12	24 x 035
					60		37	24 x 060
					80		57	24 x 080
25	40	48	40	65	35	23	12	25 x 035
					60		37	25 x 060
					80		57	25 x 080
30	48	56	48	73	42	30	12	30 x 042
					75		45	30 x 075
					93		63	30 x 093
32	48	56	48	73	42	30	12	32 x 042
					75		45	32 x 075
					93		63	32 x 093
38	58	66	58	83	52	37	15	38 x 052
					82		45	38 x 082
					107		70	38 x 107
40	58	66	58	83	52	37	15	40 x 052
					82		45	40 x 082
					107		70	40 x 107
48	70	80	70	97	65	47	18	48 x 065
					97		50	48 x 097
					127		80	48 x 127
50	70	80	70	97	65	47	18	50 x 065
					97		50	50 x 097
					127		80	50 x 127
60	85	95	85	112	80	60	20	60 x 080
					115		55	60 x 115
					150		90	60 x 150
63	85	95	85	112	80	60	20	63 x 080
					115		55	63 x 115
					150		90	63 x 150
80	105	118	105	135	80	60	20	80 x 080
					120		60	80 x 120
					150		90	80 x 150

Guide bushes ST 7422, ST 7426

with flange, ball guide aluminium

STEINEL
NORMALIEN



Short version



DIN 9831/ISO 9448

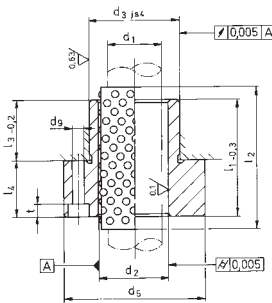
Material:

Guide bush made of steel 1.7131
(16 MnCr5) case hardened, hardness 61-63 HRC.
Ball cage made of aluminium, balls made of steel, hardened, grade 1, sorted.

Guide diameter d_2 honed, suitable to ball cage and guide pillar.
Mounting diameter ISO js4, ground.

Important:

If possible, order the complete ball guide, so that it can be matched with the correct fit



Mid-length version



Matching guide pillars:

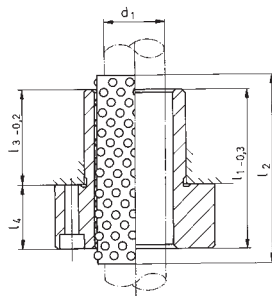
ST 7100, ST 7106, ST 7107, ST 7108,
ST 7120, ST 7126, ST 7127, ST 7128 and
ST 7181/82

Mounting instructions:

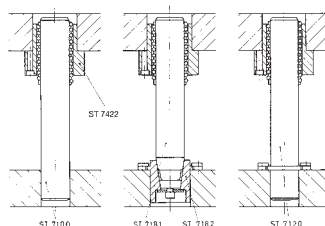
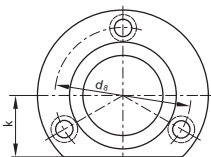
Fit in mounting bore hole ISO H6.
Fix with 3 cheese-head screws.
The flange surface, right-angled ground to the guide bore, will be squeezed onto the plate by the screws and guarantees an absolutely rigid clamping of the guide bush.

Guide bush without ball cage ST 7426
Ball cage only ST 7130

Technical description: see page 3.04



Long version
Cage travel = 1/2 length of stroke



Matching possibilities

Order example:

Guide bush **ST 7426**

without ball cage

$d_1 = 30, l_1 = 72$ mm

Add **30 x 072**

Order number **ST 7426. 30 x 072**



Add
size to
order number

without ball cage

Order no. **ST 7426.**

x x

Order example:

Guide bush **ST 7422**

with ball cage

$d_1 = 40, l_1 = 67, l_2 = 88$ mm

Add **40 x 067 x 088**

Order number **ST 7422. 40 x 067 x 088**



Add
size to
order number

with ball cage

Order no. **ST 7422.**

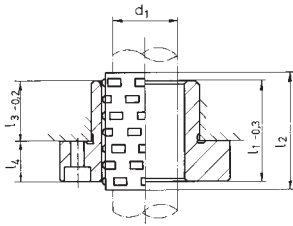
x x

d_{1h3}	d_2	d_{3js4}	d_5	d_8	d_9	k	t	$l_{1-0.3}$	$l_{2-0.2}$	l_3	l_4	
15	21	28	45	35	4.5	15	3.5	29	43	23	6	15 x 029 x 043
								36	43	30	6	15 x 036 x 043
16	22	28	45	35	4.5	15	3.5	29	43	23	6	16 x 029 x 043
								36	43	30	6	16 x 036 x 043
19	25	32	50	40	4.5	18	4.6	38	43	23	15	19 x 038 x 043
								45	54	30	15	19 x 045 x 054
								51	63	36	15	19 x 051 x 063
20	26	32	50	40	4.5	18	4.6	38	43	23	15	20 x 038 x 043
								45	54	30	15	20 x 045 x 054
								51	63	36	15	20 x 051 x 063
24	30	40	63	50	5.5	23	5.7	38	43	23	15	24 x 038 x 043
								55	63	30	25	24 x 055 x 063
								62	74	37	25	24 x 062 x 074
25	31	40	63	50	5.5	23	5.7	38	43	23	15	25 x 038 x 043
								55	63	30	25	25 x 055 x 063
								62	74	37	25	25 x 062 x 074
30	38	48	72	58	5.5	28	5.7	45	54	30	15	30 x 045 x 054
								62	74	37	25	30 x 062 x 074
								72	83	47	25	30 x 072 x 083
32	40	48	72	58	5.5	28	5.7	45	54	30	15	32 x 045 x 054
								62	74	37	25	32 x 062 x 074
								72	83	47	25	32 x 072 x 083
38	46	58	85	70	6.6	33	6.8	55	58	30	25	38 x 055 x 058
								67	88	37	30	38 x 067 x 088
								77	94	47	30	38 x 077 x 094
40	48	58	85	70	6.6	33	6.8	55	58	30	25	40 x 055 x 058
								67	88	37	30	40 x 067 x 088
								77	94	47	30	40 x 077 x 094
48	56	70	104	86	9	38	9	62	74	37	25	48 x 062 x 074
								89	108	47	42	48 x 089 x 108
								102	128	60	42	48 x 102 x 128
50	58	70	104	86	9	38	9	62	74	37	25	50 x 062 x 074
								89	108	47	42	50 x 089 x 108
								102	128	60	42	50 x 102 x 128
60	70	85	120	100	9	46	9	89	113	47	42	60 x 089 x 113
								102	128	60	42	60 x 102 x 128
63	73	85	120	100	9	46	9	89	113	47	42	63 x 089 x 113
								102	128	60	42	63 x 102 x 128
80	92	105	148	125	11	56	11	125	138	75	50	80 x 125 x 138

Guide bushes ST 7423, ST 7426

with flange, roller guide

STEINEL
NORMALIEN



Short version



DIN 9831/ISO 9448

Material:

Guide bush made of steel 1.7131
(16 Mn Cr5) case hardened,
hardness 61- 63 HRC.
roller cage made of aluminium,
profile rollers made of steel,
hardened, grade 1, sorted.

Guide diameter honed, suitable to roller cage
and guide pillar.
mounting diameter ISO js4, ground.

Important:

If possible, order the complete roller guide,
so that it can be matched with the correct fit.

Matching Guide pillars:

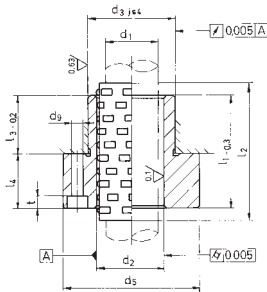
ST 7100, ST 7106, ST 7107, ST 7108,
ST 7120, ST 7126, ST 7127, ST 7128 and
ST 7181/82

Mounting instructions:

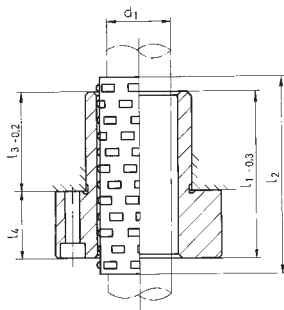
Fit in mounting bore hole ISO H6.
Fix with 3 cheese-head screws.
The flange surface, right-angled ground to the
guide bore, will be squeezed onto the plate by
the screws and guarantees an absolutely rigid
clamping of the guide bush.

Guide bush without roller cage ST 7426
Roller cage only ST 7140

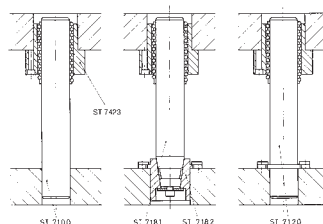
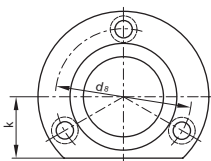
Technical description: see page 3.04



Mid-length version



Long version
Cage travel = 1/2 length of stroke



Matching possibilities

Order example:

Guide bush **ST 7426**

without roller cage

$d_1 = 30$, $l_1 = 72$ mm

Add **30 x 072**

Order number **ST 7426. 30 x 072**



Add
size to
order number

without roller cage

Order no. **ST 7426.**

x x

Order example:

Guide bush **ST 7423**

with roller cage

$d_1 = 40$, $l_1 = 55$, $l_2 = 58$ mm

Add **40 x 055 x 058**

Order number **ST 7423. 40 x 055 x 058**



Add
size to
order number

with roller cage

Order no. **ST 7423.**

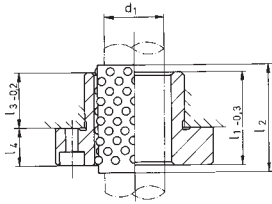
x x

d_{1h3}	d_2	$d_{3/4}$	d_5	d_8	d_9	k	t	$l_{1-0,3}$	$l_{2-0,2}$	l_3	l_4	
19	25	32	50	40	4.5	18	4.6	38	43	23	15	19 x 038 x 043
								45	54	30	15	19 x 045 x 054
								51	63	36	15	19 x 051 x 063
20	26	32	50	40	4.5	18	4.6	38	43	23	15	20 x 038 x 043
								45	54	30	15	20 x 045 x 054
								51	63	36	15	20 x 051 x 063
24	30	40	63	50	5.5	23	5.7	38	43	23	15	24 x 038 x 043
								55	63	30	25	24 x 055 x 063
								62	74	37	25	24 x 062 x 074
25	31	40	63	50	5.5	23	5.7	38	43	23	15	25 x 038 x 043
								55	63	30	25	25 x 055 x 063
								62	74	37	25	25 x 062 x 074
30	38	48	72	58	5.5	28	5.7	45	54	30	15	30 x 045 x 054
								62	74	37	25	30 x 062 x 074
								72	83	47	25	30 x 072 x 083
32	40	48	72	58	5.5	28	5.7	45	54	30	15	32 x 045 x 054
								62	74	37	25	32 x 062 x 074
								72	83	47	25	32 x 072 x 083
38	46	58	85	70	6.6	33	6.8	55	58	30	25	38 x 055 x 058
								67	88	37	30	38 x 067 x 088
								77	94	47	30	38 x 077 x 094
40	48	58	85	70	6.6	33	6.8	55	58	30	25	40 x 055 x 058
								67	88	37	30	40 x 067 x 088
								77	94	47	30	40 x 077 x 094
48	56	70	104	86	9	38	9	62	74	37	25	48 x 062 x 074
								89	108	47	42	48 x 089 x 108
								102	128	60	42	48 x 102 x 128
50	58	70	104	86	9	38	9	62	74	37	25	50 x 062 x 074
								89	108	47	42	50 x 089 x 108
								102	128	60	42	50 x 102 x 128
60	70	85	120	100	9	46	9	89	113	47	42	60 x 089 x 113
								102	128	60	42	60 x 102 x 128
								89	113	47	42	63 x 089 x 113
63	73	85	120	100	9	46	9	89	113	47	42	63 x 089 x 113
								102	128	60	42	63 x 102 x 128
80	92	105	148	125	11	56	11	125	138	75	50	80 x 125 x 138

Guide bushes ST 7424, ST 7426

with flange, ball guide brass

STEINEL
NORMALIEN



Short version



DIN 9831/ISO 9448

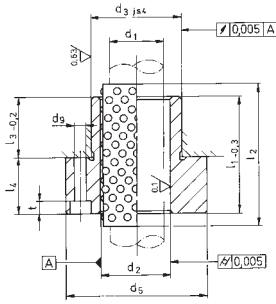
Material:

Guide bush made of steel 1.7131 (16 Mn Cr5) case hardened, hardness 61- 63 HRC.
Ball cage made of brass, balls made of steel, hardened, grade 1, sorted.

Guide diameter honed, suitable to ball cage and guide pillar.
Mounting diameter ISO js4, ground.

Important:

If possible, order the complete ball guide, so that it can be matched with the correct fit.



Mid-length version



Matching Guide pillars:

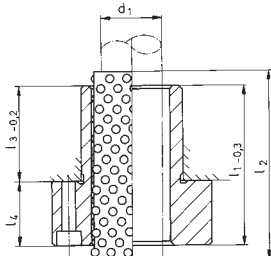
ST 7100, ST 7106, ST 7107, ST 7108, ST 7120, ST 7126, ST 7127, ST 7128 and ST 7181/82

Mounting instructions:

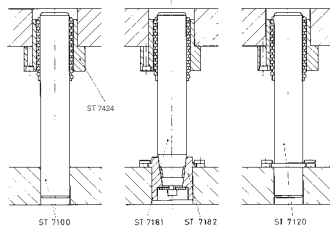
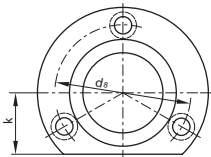
Fit in mounting bore hole ISO H6.
Fix with 3 cheese-head screws.
The flange surface, right-angled ground to the guide bore, will be squeezed onto the plate by the screws and guarantees an absolutely rigid clamping of the guide bush.

Guide bush without ball cage ST 7426
Ball cage brass only ST 7150

Technical description: see page 3.04



Long version
Cage travel = 1/2 length of stroke



Matching possibilities

Order example:

Guide bush **ST 7426**

without ball cage

$d_1 = 30, l_1 = 72$ mm

Add **30 x 072**

Order number **ST 7426. 30 x 072**



Add
size to
order number

without ball cage

Order no. **ST 7426.**

x x

Order example:

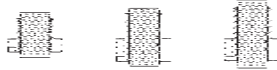
Guide bush **ST 7424**

with ball cage

$d_1 = 40, l_1 = 67, l_2 = 88$ mm

Add **40 x 067 x 088**

Order number **ST 7424. 40 x 067 x 088**



Add
size to
order number

with ball cage

Order no. **ST 7424.**

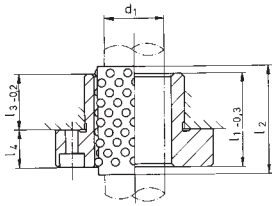
x x

d_{1h3}	d_2	d_{3j34}	d_5	d_8	d_9	k	t	$l_{1-0,3}$	$l_{2-0,2}$	l_3	l_4	
15	21	28	45	35	4.5	15	3.5	29	43	23	6	15 x 029 x 043
								36	43	30	6	15 x 036 x 043
16	22	28	45	35	4.5	15	3.5	29	43	23	6	16 x 029 x 043
								36	43	30	6	16 x 036 x 043
19	25	32	50	40	4.5	18	4.6	38	43	23	15	19 x 038 x 043
								45	54	30	15	19 x 045 x 054
								51	63	36	15	19 x 051 x 063
20	26	32	50	40	4.5	18	4.6	38	43	23	15	20 x 038 x 043
								45	54	30	15	20 x 045 x 054
								51	63	36	15	20 x 051 x 063
24	30	40	63	50	5.5	23	5.7	38	43	23	15	24 x 038 x 043
								55	63	30	25	24 x 055 x 063
								62	74	37	25	24 x 062 x 074
25	31	40	63	50	5.5	23	5.7	38	43	23	15	25 x 038 x 043
								55	63	30	25	25 x 055 x 063
								62	74	37	25	25 x 062 x 074
30	38	48	72	58	5.5	28	5.7	45	54	30	15	30 x 045 x 054
								62	74	37	25	30 x 062 x 074
								72	83	47	25	30 x 072 x 083
32	40	48	72	58	5.5	28	5.7	45	54	30	15	32 x 045 x 054
								62	74	37	25	32 x 062 x 074
								72	83	47	25	32 x 072 x 083
38	46	58	85	70	6.6	33	6.8	55	58	30	25	38 x 055 x 058
								67	88	37	30	38 x 067 x 088
								77	94	47	30	38 x 077 x 094
40	48	58	85	70	6.6	33	6.8	55	58	30	25	40 x 055 x 058
								67	88	37	30	40 x 067 x 088
								77	94	47	30	40 x 077 x 094
48	56	70	104	86	9	38	9	62	74	37	25	48 x 062 x 074
								89	108	47	42	48 x 089 x 108
								102	128	60	42	48 x 102 x 128
50	58	70	104	86	9	38	9	62	74	37	25	50 x 062 x 074
								89	108	47	42	50 x 089 x 108
								102	128	60	42	50 x 102 x 128
60	70	85	120	100	9	46	9	89	113	47	42	60 x 089 x 113
								102	128	60	42	60 x 102 x 128
63	73	85	120	100	9	46	9	89	113	47	42	63 x 089 x 113
								102	128	60	42	63 x 102 x 128
80	92	105	148	125	11	56	11	125	138	75	50	80 x 125 x 138

Guide bushes ST 7425, ST 7426

with flange, ball guide plastic

STEINEL
NORMALIEN



Short version



DIN 9831/ISO 9448

Material:

Guide bushes made of steel 1.7131 (16 Mn Cr5) case hardened, hardness 61- 63 HRC. Ball cage made of plastic, balls made of steel, hardened, grade 1, sorted.

Guide diameter honed, matched to ball cage and guide pillar. Mounting diameter ground to ISO js4.

Important:

If possible, order the complete ball guide so that it can be matched with the correct preload.

Matching guide pillars:

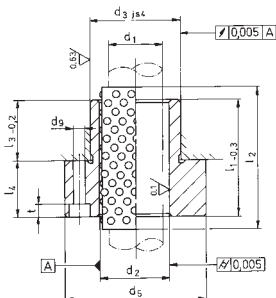
ST 7100, ST 7106, ST 7107, ST 7108, ST 7120, ST 7126, ST 7127, ST 7128 and ST 7181/82

Mounting instructions:

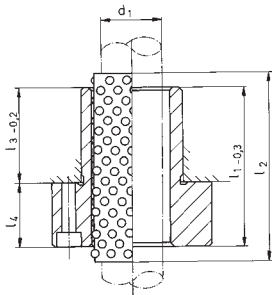
Fit in mounting bore hole to ISO H6. Fasten with 3 socket-head cap screws. The shoulder surface is right-angled ground to the guide bore and pressed into the base plate. It is held by the clamps, which provide a rigid mounting of the guide bush.

Guide bushes without ball cage ST 7426
Ball cage only ST 7133

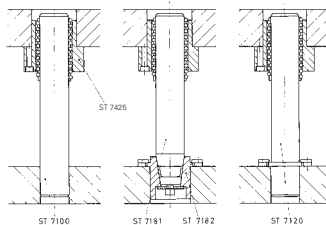
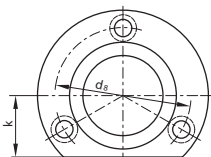
Technical description: see page 3.04



Mid-length version



Long version
Cage travel = 1/2 length of stroke



Matching possibilities

Order example:

Guide bush **ST 7426**

without ball cage

$d_1 = 30, l_1 = 72$ mm

Add **30 x 072**

Order number **ST 7426. 30 x 072**



Add
size to
order number

without ball cage

Order no. **ST 7426.**

x x

Order example:

Guide bush **ST 7425**

with plastic ball cage

$d_1 = 40, l_1 = 67, l_2 = 88$ mm

Add **40 x 067 x 088**

Order number **ST 7425. 40 x 067 x 088**



Add
size to
order number

with ball cage

Order no. **ST 7425.**

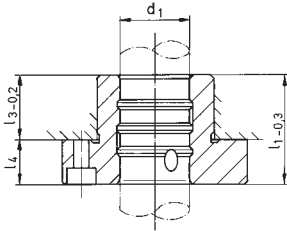
x x

d_{1h3}	d_2	d_{3js4}	d_5	d_6	d_9	k	t	$l_{1-0,3}$	$l_{2-0,2}$	l_3	l_4	
15	21	28	45	35	4.5	15	3.5	29	43	23	6	15 x 029 x 043
								36	43	30	6	15 x 036 x 043
16	22	28	45	35	4.5	15	3.5	29	43	23	6	16 x 029 x 043
								36	43	30	6	16 x 036 x 043
19	25	32	50	40	4.5	18	4.6	38	43	23	15	19 x 038 x 043
								45	54	30	15	19 x 045 x 054
								51	63	36	15	19 x 051 x 063
20	26	32	50	40	4.5	18	4.6	38	43	23	15	20 x 038 x 043
								45	54	30	15	20 x 045 x 054
								51	63	36	15	20 x 051 x 063
24	30	40	63	50	5.5	23	5.7	38	43	23	15	24 x 038 x 043
								55	63	30	25	24 x 055 x 063
								62	74	37	25	24 x 062 x 074
25	31	40	63	50	5.5	23	5.7	38	43	23	15	25 x 038 x 043
								55	63	30	25	25 x 055 x 063
								62	74	37	25	25 x 062 x 074
30	38	48	72	58	5.5	28	5.7	45	54	30	15	30 x 045 x 054
								62	74	37	25	30 x 062 x 074
								72	83	47	25	30 x 072 x 083
32	40	48	72	58	5.5	28	5.7	45	54	30	15	32 x 045 x 054
								62	74	37	25	32 x 062 x 074
								72	83	47	25	32 x 072 x 083
38	46	58	85	70	6.6	33	6.8	55	58	30	25	38 x 055 x 058
								67	88	37	30	38 x 067 x 088
								77	94	47	30	38 x 077 x 094
40	48	58	85	70	6.6	33	6.8	55	58	30	25	40 x 055 x 058
								67	88	37	30	40 x 067 x 088
								77	94	47	30	40 x 077 x 094
48	56	70	104	86	9	38	9	62	74	37	25	48 x 062 x 074
								89	108	47	42	48 x 089 x 108
								102	128	60	42	48 x 102 x 128
50	58	70	104	86	9	38	9	62	74	37	25	50 x 062 x 074
								89	108	47	42	50 x 089 x 108
								102	128	60	42	50 x 102 x 128

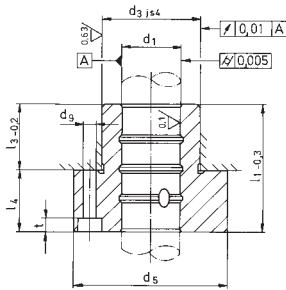
Guide bushes ST 7429

with flange, sliding guide steel bronze plated

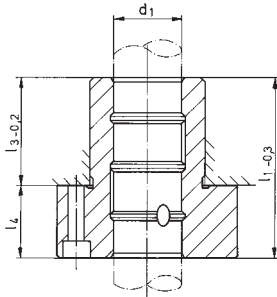
STEINEL
NORMALIEN



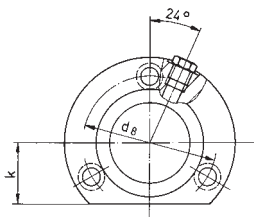
Short version



Mid-length version



Long version



DIN 9831/ISO 9448

Material: steel 1.7131 (16 Mn Cr5)
case hardened,
hardness 61-63 HRC
sliding surface bronze plated

Guide diameter ISO H5, honed
mounting diameter ISO js4, ground.

Important:

Due to the galvanically applied bronze plating onto the hardened steel jacket, this bush is suitable especially for high sliding speeds and strong lateral forces.

Lubrication:

Lubrication by funnel grease nipple
Connection M 8 x 1 provided for central lubrication.

Matching Guide pillars:

ST 7100, ST 7106, ST 7107, ST 7108,
ST 7120, ST 7126, ST 7127, ST 7128 and
ST 7181/82

Mounting instructions:

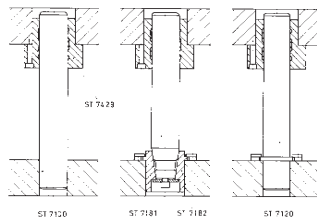
Fit in mounting bore hole ISO H6.
Fix with 3 cheese-head screws.
The flange surface, right-angled ground to the guide bore, will be squeezed onto the plate by the screws clamps and guarantees an absolutely rigid clamping of the guide bush.



At dia. 15 and 16 the bore hole for lubrication is at the shank d3.



Technical description: see page 3.03



Matching possibilities

Order example:

Guide bush **ST 7429**

$d_1 = 24$, $l_1 = 38$ mm

Add **24 x 038**

Order number **ST 7429. 24 x 038**



Add
size to
order number

Order no. **ST 7429.**

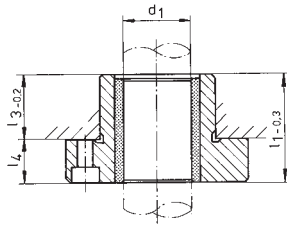
x

d_1^{H8}	$d_{3/54}$	d_5	d_8	d_9	k	t	$l_{1-0,3}$	$l_{3-0,2}$	l_4	
15	28	45	35	4.5	15	3.5	29	23	6	15 x 029
							36	30	6	15 x 036
							29	23	6	16 x 029
16	28	45	35	4.5	15	3.5	36	30	6	16 x 036
							38	23	15	19 x 038
							45	30	15	19 x 045
19	32	50	40	4.5	18	4.6	51	36	15	19 x 051
							38	23	15	20 x 038
							45	30	15	20 x 045
20	32	50	40	4.5	18	4.6	51	36	15	20 x 051
							38	23	15	24 x 038
							45	30	25	24 x 045
24	40	63	50	5.5	23	5.7	62	37	25	24 x 062
							38	23	15	24 x 038
							55	30	25	24 x 055
25	40	63	50	5.5	23	5.7	62	37	25	25 x 062
							38	23	15	25 x 038
							55	30	25	25 x 055
30	48	72	58	5.5	28	5.7	62	37	25	30 x 062
							45	30	15	30 x 045
							72	47	25	30 x 072
32	48	72	58	5.5	28	5.7	45	30	15	32 x 045
							62	37	25	32 x 062
							72	47	25	32 x 072
38	58	85	70	6.6	33	6.8	55	30	25	38 x 055
							67	37	30	38 x 067
							77	47	30	38 x 077
40	58	85	70	6.6	33	6.8	55	30	25	40 x 055
							67	37	30	40 x 067
							77	47	30	40 x 077
48	70	104	86	9	38	9	62	37	25	48 x 062
							89	47	42	48 x 089
							102	60	42	48 x 102
50	70	104	86	9	38	9	62	37	25	50 x 062
							89	47	42	50 x 089
							102	60	42	50 x 102
60	85	120	100	9	46	9	89	47	42	60 x 089
							102	60	42	60 x 102
							89	47	42	63 x 089
63	85	120	100	9	46	9	102	60	42	63 x 102
							89	47	42	80 x 089
							102	60	42	80 x 102
80	105	148	125	11	56	11	125	75	50	80 x 125
							89	47	42	
							102	60	42	

Guide bushes ST 7481

with flange, sliding guide with solid lubricant

STEINEL®
NORMALIEN



Short version



Dimensions according to
DIN 9831/ISO 9448

Material:

Steel with insert of solid lubricant.
Due to the solid lubricant inserts, the sliding guide is self-lubricating and is suited for higher loads.

Guide diameter ISO H6, precision turned.
Mounting diameter ISO js4, precision turned.

Lubrication:

The solid lubricant greasing will be described as a lubricating status by which solid lubricant particles, which have a low shearing resistance within their crystal structure, are available between two surfaces and taking over the lubricating functions.

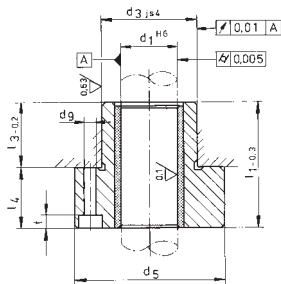
Matching Guide pillars:

ST 7100, ST 7106, ST 7107, ST 7108,
ST 7120, ST 7126, ST 7127, ST 7128 and
ST 7181/82

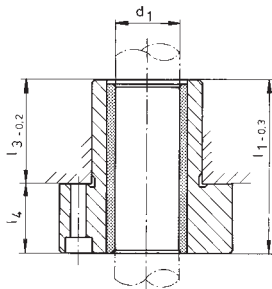
Mounting instructions:

Fit in mounting bore hole ISO H6.
Fix with 3 cheese-head screws.
The flange surface, right-angled ground to the guide bore, will be squeezed onto the plate by the screws clamps and guarantees an absolutely rigid clamping of the guide bush.

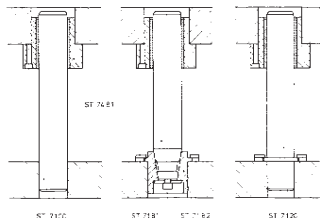
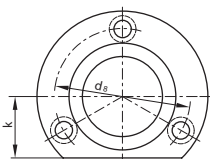
Technical description: see page 3.04



Mid-length version



Long version



Matching possibilities

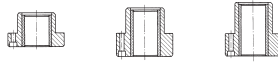
Order example:

Guide bush **ST 7481.**

$d_1 = 24$, $l_1 = 38$ mm

Add **24 x 038**

Order number **ST 7481. 24 x 038**



Add
size to
order number

Order no. **ST 7481.**

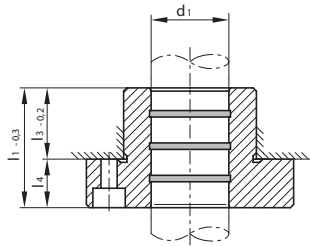
x

d_1^{H6}	$d_{3/54}$	d_5	d_8	d_9	k	t	$l_{1-0,3}$	$l_{3-0,2}$	l_4	
15	28	45	35	4.5	15	3.5	29	23	6	15 x 029
								36	6	15 x 036
								29	6	16 x 029
16	28	45	35	4.5	15	3.5	29	36	6	16 x 036
								30	6	16 x 030
								23	6	16 x 023
19	32	50	40	4.5	18	4.6	38	23	15	19 x 038
								45	15	19 x 045
								51	15	19 x 051
20	32	50	40	4.5	18	4.6	38	23	15	20 x 038
								45	15	20 x 045
								51	15	20 x 051
24	40	63	50	5.5	23	5.7	38	23	15	24 x 038
								55	25	24 x 055
								62	25	24 x 062
25	40	63	50	5.5	23	5.7	38	23	15	25 x 038
								55	25	25 x 055
								62	25	25 x 062
30	48	72	58	5.5	28	5.7	45	30	15	30 x 045
								62	25	30 x 062
								72	25	30 x 072
32	48	72	58	5.5	28	5.7	45	30	15	32 x 045
								62	25	32 x 062
								72	25	32 x 072
38	58	85	70	6.6	33	6.8	55	30	25	38 x 055
								67	30	38 x 067
								77	30	38 x 077
40	58	85	70	6.6	33	6.8	55	30	25	40 x 055
								67	30	40 x 067
								77	30	40 x 077
48	70	104	86	9	38	9	62	37	25	48 x 062
								89	42	48 x 089
								102	42	48 x 102
50	70	104	86	9	38	9	62	37	25	50 x 062
								89	42	50 x 089
								102	42	50 x 102
60	85	120	100	9	46	9	89	47	42	60 x 089
								102	42	60 x 102
								89	42	63 x 089
63	85	120	100	9	46	9	89	47	42	63 x 089
								102	42	63 x 102
								89	42	63 x 089
80	105	148	125	11	56	11	125	75	50	80 x 125

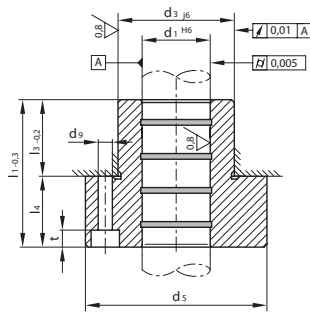
Guide bushes ST 7441

with flange, sliding guide with solid lubricant

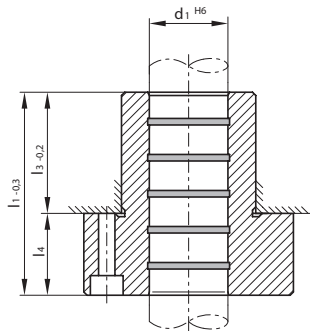
STEINEL
NORMALIEN



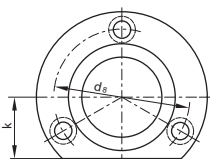
Short version



Mid-length version



Long version



Dimensions according to
DIN 9831/ISO 9448

Material:

Bronze with solid lubricant bands.
Due to the solid lubricant bands, the sliding guide is self-lubricating and suitable for higher loads.

Guide diameter ISO H6, precision turned.
Mounting diameter ISO j6, precision turned.

Lubrication:

In the solid lubricant construction, the particles of the solid lubricant have a low shearing resistance in their crystalline structure. They are between two surfaces and take over the lubricating function.

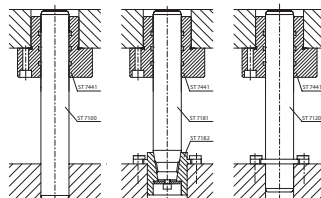
Matching guide pillars:

ST 7100, ST 7106, ST 7107, ST 7108,
ST 7120, ST 7126, ST 7127, ST 7128 and
ST 7181/82

Mounting instructions:

Fit in mounting bore hole to ISO H6.
Fasten with 3 socket-head cap screws.
The shoulder surface is right-angled ground to the guide bore and pressed into the base plate. It is held by the clamps, which provide a rigid mounting of the guide bush.

Technical description: see page 3.04



Matching possibilities

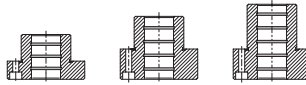
Order example:

Guide bush **ST 7441.**

$d_1 = 24$, $l_1 = 38$ mm

Add **24 x 038**

Order number **ST 7441. 24 x 038**



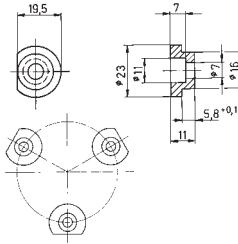
Add
size to
order number

Order no. **ST 7441.**



d_1^{H6}	$d_{9/6}$	d_5	d_8	d_9	k	t	$l_{1-0.3}$	$l_{3-0.2}$	l_4	
15	28	45	35	4.5	15	3.5	29	23	6	15 x 029
							36	30	6	15 x 036
16	28	45	35	4.5	15	3.5	29	23	6	16 x 029
							36	30	6	16 x 036
19	32	50	40	4.5	18	4.6	38	23	15	19 x 038
							45	30	15	19 x 045
							51	36	15	19 x 051
20	32	50	40	4.5	18	4.6	38	23	15	20 x 038
							45	30	15	20 x 045
							51	36	15	20 x 051
24	40	63	50	5.5	23	5.7	38	23	15	24 x 038
							55	30	25	24 x 055
							62	37	25	24 x 062
25	40	63	50	5.5	23	5.7	38	23	15	25 x 038
							55	30	25	25 x 055
							62	37	25	25 x 062
30	48	72	58	5.5	28	5.7	45	30	15	30 x 045
							62	37	25	30 x 062
							72	47	25	30 x 072
32	48	72	58	5.5	28	5.7	45	30	15	32 x 045
							62	37	25	32 x 062
							72	47	25	32 x 072
38	58	85	70	6.6	33	6.8	55	30	25	38 x 055
							67	37	30	38 x 067
							77	47	30	38 x 077
40	58	85	70	6.6	33	6.8	55	30	25	40 x 055
							67	37	30	40 x 067
							77	47	30	40 x 077
48	70	104	86	9	38	9	62	37	25	48 x 062
							89	47	42	48 x 089
							102	60	42	48 x 102
50	70	104	86	9	38	9	62	37	25	50 x 062
							89	47	42	50 x 089
							102	60	42	50 x 102
60	85	120	100	9	46	9	89	47	42	60 x 089
							102	60	42	60 x 102
63	85	120	100	9	46	9	89	47	42	63 x 089
							102	60	42	63 x 102
80	105	148	125	11	56	11	125	75	50	80 x 125

Holding clamps



Arrangement possibilities

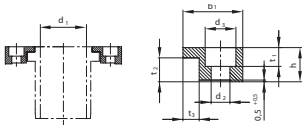
Holding clamps ST 7367

Material: 1.0715 (9 S Mn 28 K)

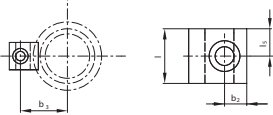
Fitting guide pillars ST 7118, ST 7120, ST 7126, ST 7127, ST 7128, ST 9825, ST 9827
pillar holding bushes ST 7182
guide bushes with shoulder ST 7412, ST 7413, ST 7414, ST 7415, ST 7416, ST 7419, ST 7431 and ST 7471.

Order example: holding clamp ST 7367

Order number **ST 7367**



Attachment with 2 holding clamps



Attachment with one holding clamp

Holding clamps ST 7377

DIN 9832

Material: steel

Attachment

Suitable hexagon socket screws DIN 912
Order number SZ 8510

Order example: Holding clamp **ST 7377**

diameter $d_1 = 32$ mm

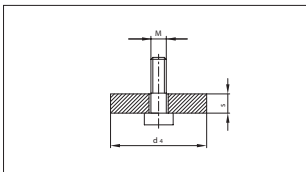
Add **01**

Order number **ST 7377.01**

Add
size to
order number

Order no. **ST 7377.**

d_1	d_2	d_3	b_1	b_2	b_3	h	l	l_5	t_1	t_2	t_3	screw	
25	7	11	20	7.5	29	10	20	10	7	6.3	5	M6 x 16	01
32													01
40													01
50													01
63	11.5	17.5	32	11	61.5	16	32	16	11.5	10	10	M10 x 25	02
80													02
100													02
125													02
160													02



Fitting to guide pillars ST 7106, ST 7107, ST 7120, ST 7126, ST 9827

Holding disc with screw ST 7387

Material: 1.0503 (C 45)

Suitable hexagon socket screws DIN 6912
(included).

Order example: Holding disc **ST 7387**

$d_1 = 25$ mm

Add **25**

Order number **ST 7387.25**

Add
size to
order number

Order no. **ST 7387.**

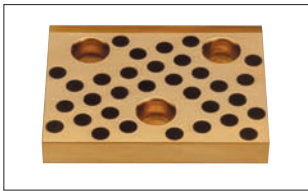
d_1	d_3	d_4	s	h_{min}	M	
15 and 16	23	21	6	13	8	16
19 and 20	27	25	6	13	8	20
24 and 25	34	32	6	13	8	25
30 and 32	42	40	7	14	8	32
38 and 40	52	50	7	16	10	40
48 and 50	62	60	8	17	10	50
60 and 63	72	70	8	19	12	63
	80	98	95	10	12	80

Fitting to guide pillars ST 7106, ST 7107, ST 7120, ST 7126, ST 9827

Guide plates ST 7571

with solid lubricant

STEINEL
NORMALIEN



VDI 3357

Material: bronze with solid lubricant

Attachement

Suitable hexagon socket screws DIN 912

Order number **SZ 8510.12 x 025**

Order example: guide plate **ST 7571**

Size $b_1 \times l_1 = 80 \times 125$

Add **080 x 125**

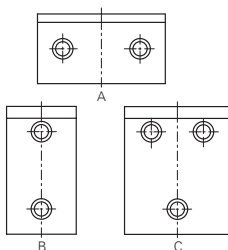
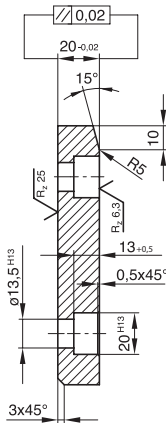
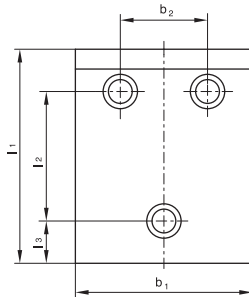
Order number **ST 7571.080 x 125**

Function:

Guide plates will preferably be used when moving within the limits of mixed friction or solidstate friction, that means, with very low sliding speeds and high specific surface pressures.

They are insensible against impacts and pushes and have very good wearing properties.

Due to the integrate solid lubricant inserts the sliding guide is self-lubricating and for that reason without maintenance.



Hole picture

Add size to order number

Order no. **ST 7571.**

b_1 -0,2	l_1 -0,2	b_2 $\pm 0,2$	l_2 $\pm 0,2$	l_3 $\pm 0,2$	hole picture	
50	80*	-	30	25	B	050 x 080
100	-	-	50	25	B	050 x 100
125	-	-	75	25	B	050 x 125
160	-	-	110	25	B	050 x 160
200	-	-	150	25	B	050 x 200
80	50*	30	-	25	A	080 x 050
80	-	-	30	25	B	080 x 080
100	-	-	50	25	B	080 x 100
125	-	-	75	25	B	080 x 125
160	-	-	110	25	B	080 x 160
200	-	-	150	25	B	080 x 200
100	50	50	-	25	A	100 x 050
80	50	-	-	40	A	100 x 080
100	-	-	50	25	B	100 x 100
125	-	-	75	25	B	100 x 125
160	-	-	110	25	B	100 x 160
200	-	-	150	25	B	100 x 200
125	50	75	-	25	A	125 x 050
80	75	-	-	40	A	125 x 080
100	75	50	25	C	125 x 100	
125	75	75	25	C	125 x 125	
160	75	110	25	C	125 x 160	
200	75	150	25	C	125 x 200	
160	50	110	-	25	A	160 x 050
80	110	-	-	40	A	160 x 080
100	110	50	25	C	160 x 100	
125	110	75	25	C	160 x 125	
160	110	110	25	C	160 x 160	
200	110	150	25	C	160 x 200	

special sizes upon request

*fastening drill hole for M8

Guide plates ST 7561

with solid lubricant

STEINEL
NORMALIEN



ISO 9183

Material: Bronze with solid lubricant

Attachement

Suitable hexagon socket screws DIN 912

Order number **SZ 8510.12 x 025**

Order example: guide plate **ST 7561**

Size $b_1 \times l_1 \times t = 80 \times 125 \times 20$

Add **080 x 125 x 20**

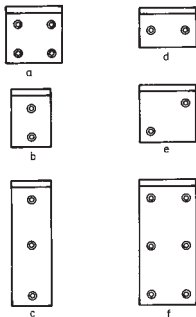
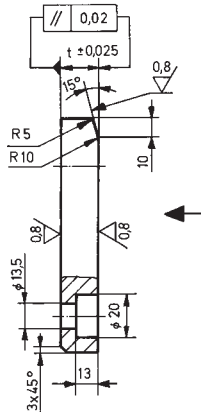
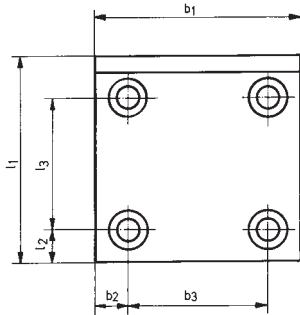
Order number **ST 7561.080 x 125 x 20**

Function:

Guide plates will preferably be used when moving within the limits of mixed friction or solidstate friction, that means, with very low sliding speeds and high specific surface pressures.

They are insensible against impacts and pushes and have very good wearing properties.

Due to the integrate solid lubricant inserts the sliding guide is self-lubricating and for that reason without maintenance.



Hole picture

Add size to order number

Order no. **ST 7561.**

x x

b_1 ± 1	l_1 ± 1	t $\pm 0,025$	l_2 $\pm 0,2$	l_3 $\pm 0,1$	b_2 $\pm 0,2$	b_3 $\pm 0,1$	hole picture	
50	80	20	20	35	25	-	b	050 x 080 x 20
	100			55			b	050 x 100 x 20
	125			80			b	050 x 125 x 20
	160			115			b	050 x 160 x 20
	200			155			b	050 x 200 x 20
	250			100			c	050 x 250 x 20
80	50	20	25	-	20	40	d	080 x 050 x 20
	80		20	35			e	080 x 080 x 20
	100			55			e	080 x 100 x 20
	125			80			e	080 x 125 x 20
	160			115			a	080 x 160 x 20
	200			155			a	080 x 200 x 20
	250			100			f	080 x 250 x 20
	315			132			f	080 x 315 x 20
100	50	20	25	-	20	60	d	100 x 050 x 20
	80		20	35			e	100 x 080 x 20
	100			55			e	100 x 100 x 20
	125			80			a	100 x 125 x 20
	160			115			a	100 x 160 x 20
	200			155			a	100 x 200 x 20
	250			100			f	100 x 250 x 20
	315			132			f	100 x 315 x 20
125	50	20	25	-	20	85	d	125 x 050 x 20
	80		20	35			e	125 x 080 x 20
	100			55			a	125 x 100 x 20
	125			80			a	125 x 125 x 20
	160			115			a	125 x 160 x 20
	200			155			a	125 x 200 x 20
	250			100			f	125 x 250 x 20
	315			132			f	125 x 315 x 20
160	50	20	25	-	20	120	d	160 x 050 x 20
	80		20	35			a	160 x 080 x 20
	100			55			a	160 x 100 x 20
	125			80			a	160 x 125 x 20
	160			115			a	160 x 160 x 20
	200			155			a	160 x 200 x 20
	250			100			f	160 x 250 x 20
	315			132			f	160 x 315 x 20

special sizes upon request