



Quick-release pins and spring plungers

Versatile, quick and reliable to fasten

The center of excellence for high-performance fastening technology

KVT-Fastening is an expert for high-quality fastening applications and offers engineering solutions based on the wide product portfolio of the leading manufacturers in the market.



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Aviation and aerospace | Construction industry | Watch manufacturing industry

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High-performance solutions from KVT-Fastening are found wherever absolutely safe and secure connections are essential. These small but extremely resilient components play key roles where it matters most – whether in the electronics and energy sector, the automotive and transportation industries, aviation and aerospace, engineering and construction, precision engineering, or medical equipment.

KVT-Fastening does not just supply standard products and individual components, but also provides close and active customer support in the search for ideal solutions, particularly when specific requirements must be fulfilled. This portfolio is complemented by a range of innovative tools and

machines as well as, if needed, the integration into automated serial production workflows.

Ever since 1927, KVT-Fastening has stood for experience, solution-driven know-how, unique expertise in development and consultancy as well as the ultimate in reliability. Since December 2012, KVT-Fastening is a member of the Bossard Group. Bossard is a leading provider of intelligent solutions for industrial fastening technology. The range includes global sales, technical consulting (engineering) and logistics of fastening technology components and bolts. Customers benefit from the extension of competencies in industrial fastening technology and from an optimally enhanced product or service portfolio.



Quick release pins and spring plungers – optimum solutions for many sectors

As small but strong fasteners, quick release pins and spring plungers are used in many sectors of industry. In a variety of materials and various designs, they are convincing as optimum solutions for a large number of applications.

Quick release pin assortment

for fastening, staking out, exchanging, holding, fixing, securing

- Self-locking ball pins
- Clamping pins with clamp length adjustment
- Ball locking pins with spring ball
- Lifting pins
- Ø 5 – 20 mm in various lengths
- Stainless steel

Spring plunger assortment

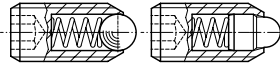
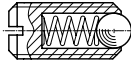
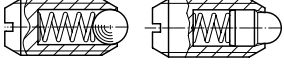

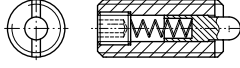
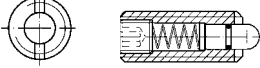

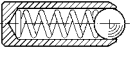
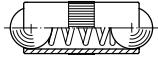
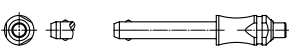
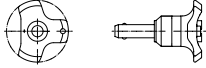
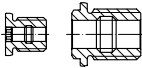
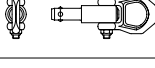
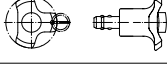
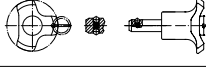
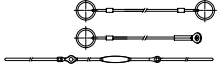
for locking, latching, clamping, securing, positioning, fixing and centring

- With internal hexagon, ball / stud
- As plastic version
- With slit, ball / stud
- With internal hexagon, set screw bonded
- Smooth design
- Size from M 3 – M 24, Ø 2.5 – 12 mm
- Housing of stainless steel or plastic
- Springs generally of stainless steel



Contents

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Technical performances, installation recommendations as well as unspecified tolerances regarding the dimensions of the parts have to be requested individual for each application before starting the series production.

All dimensions are specified in mm.

Spring plungers

With ball and internal hexagon



Type FDS 2203

- For applying pressure or as a detent or for ejection
- Temperature range: max. + 250 °C
- Spring plungers are specially tested for spring deflection and strength

Materials

Bush: free cutting steel, burnished –

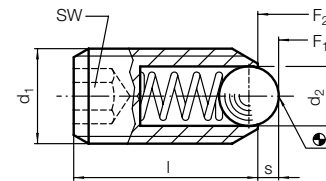
Ball: hardened ball-bearing steel

or

Bush: stainless steel 1.4305 –

Ball: hardened stainless steel

Spring: stainless steel



Marking

Normal spring load = no marking

Enhanced spring load = two lengthways markings

Order example

Spring plunger with ball
and internal hexagon,

Stainless steel,

Normal spring load, $d_1 = M 8$

FDS 2203 . 208

Article group	Design
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Order description	Design	d_1	d_2	l	s	SW	Spring load*	
							F_1 [N]	F_2 [N]
FDS 2203.003	Free cutting steel, normal spring load	M 3	1.5	8	0.4	1.5	3.0	4.5
FDS 2203.004		M 4	2.5	12	0.8	2.0	8.5	14.0
FDS 2203.005		M 5	3.0	14	0.9	2.5	8.0	14.0
FDS 2203.006		M 6	3.5	15	1.0	3.0	11.0	18.0
FDS 2203.008		M 8	4.5	18	1.5	4.0	18.0	31.0
FDS 2203.010		M 10	6.0	23	2.0	5.0	24.0	45.0
FDS 2203.012		M 12	8.0	26	2.5	6.0	26.0	49.0
FDS 2203.016		M 16	10.0	33	3.5	8.0	41.0	86.0
FDS 2203.020		M 20	12.0	43	4.5	10.0	56.0	111.0
FDS 2203.024	M 24	15.0	48	5.5	12.0	81.0	151.0	
FDS 2203.045	Free cutting steel, enhanced spring load	M 5	3.0	14	0.9	2.5	15.0	22.0
FDS 2203.046		M 6	3.5	15	1.0	3.0	19.0	28.0
FDS 2203.048		M 8	4.5	18	1.5	4.0	36.0	62.0
FDS 2203.050		M 10	6.0	23	2.0	5.0	57.0	104.0
FDS 2203.052		M 12	8.0	26	2.5	6.0	61.0	110.0
FDS 2203.056		M 16	10.0	33	3.5	8.0	68.0	142.0
FDS 2203.060		M 20	12.0	43	4.5	10.0	84.0	166.0
FDS 2203.064		M 24	15.0	48	5.5	12.0	127.0	237.0
FDS 2203.203	Stainless steel, normal spring load	M 3	1.5	8	0.4	1.5	3.0	4.5
FDS 2203.204		M 4	2.5	12	0.8	2.0	8.5	14.0
FDS 2203.205		M 5	3.0	14	0.9	2.5	8.0	14.0
FDS 2203.206		M 6	3.5	15	1.0	3.0	11.0	18.0
FDS 2203.208		M 8	4.5	18	1.5	4.0	18.0	31.0
FDS 2203.210		M 10	6.0	23	2.0	5.0	24.0	45.0
FDS 2203.212		M 12	8.0	26	2.5	6.0	26.0	49.0
FDS 2203.216		M 16	10.0	33	3.5	8.0	41.0	86.0
FDS 2203.220		M 20	12.0	43	4.5	10.0	56.0	111.0
FDS 2203.224	M 24	15.0	48	5.5	12.0	81.0	151.0	
FDS 2203.245	Stainless steel, enhanced spring load	M 5	3.0	14	0.9	2.5	15.0	22.0
FDS 2203.246		M 6	3.5	15	1.0	3.0	19.0	28.0
FDS 2203.248		M 8	4.5	18	1.5	4.0	36.0	62.0
FDS 2203.250		M 10	6.0	23	2.0	5.0	57.0	104.0
FDS 2203.252		M 12	8.0	26	2.5	6.0	61.0	110.0
FDS 2203.256		M 16	10.0	33	3.5	8.0	68.0	142.0
FDS 2203.260		M 20	12.0	43	4.5	10.0	84.0	166.0
FDS 2203.264		M 24	15.0	48	5.5	12.0	127.0	237.0

* Statistical mean

Spring plungers

With stud and internal hexagon



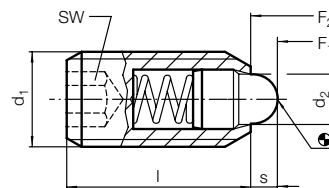
Type FDS 2203

- For applying pressure or as a detent or for ejection
- Temperature range: max. + 250 °C
- Spring plungers are specially tested for spring deflection and strength

Materials

Bush: free cutting steel, burnished –
 Stud: free cutting steel hardened, burnished
 or
 Bush: stainless steel 1.4305 –
 Stud: stainless steel 1.4305

Spring: stainless steel



Marking

Normal spring load = no marking
 Enhanced spring load = two lengthways markings

Order example

Spring plunger with stud
 and internal hexagon,
 Stainless steel,
 Normal spring load, $d_1 = M 8$

FDS 2203 . 308

Article group	Design
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Order description	Design	d_1	d_2	l	s	SW	Spring load*	
							F_1 [N]	F_2 [N]
FDS 2203.104	Free cutting steel, normal spring load	M 4	1.8	12	1.5	2.0	4.5	12.5
FDS 2203.105		M 5	2.4	14	2.0	2.5	5.0	13.0
FDS 2203.106		M 6	2.7	15	2.0	3.0	6.0	17.0
FDS 2203.108		M 8	3.8	18	2.0	4.0	16.0	33.0
FDS 2203.110		M 10	4.5	23	2.5	5.0	19.0	42.0
FDS 2203.112		M 12	6.2	26	3.5	6.0	22.0	57.0
FDS 2203.116		M 16	8.5	33	4.5	8.0	38.0	78.0
FDS 2203.120		M 20	10.0	43	6.5	10.0	39.0	81.0
FDS 2203.124	M 24	13.0	48	8.0	12.0	72.0	155.0	
FDS 2203.146	Free cutting steel, enhanced spring load	M 6	2.7	15	2.0	3.0	11.0	25.0
FDS 2203.148		M 8	3.8	18	2.0	4.0	23.0	59.0
FDS 2203.150		M 10	4.5	23	2.5	5.0	20.0	54.0
FDS 2203.152		M 12	6.2	26	3.5	6.0	38.0	96.0
FDS 2203.156		M 16	8.5	33	4.5	8.0	50.0	100.0
FDS 2203.160		M 20	10.0	43	6.5	10.0	52.0	133.0
FDS 2203.164		M 24	13.0	48	8.0	12.0	91.0	223.0
FDS 2203.304	Stainless steel, normal spring load	M 4	1.8	12	1.5	2.0	4.5	12.5
FDS 2203.305		M 5	2.4	14	2.0	2.5	5.0	13.0
FDS 2203.306		M 6	2.7	15	2.0	3.0	6.0	17.0
FDS 2203.308		M 8	3.8	18	2.0	4.0	16.0	33.0
FDS 2203.310		M 10	4.5	23	2.5	5.0	19.0	42.0
FDS 2203.312		M 12	6.2	26	3.5	6.0	22.0	57.0
FDS 2203.316		M 16	8.5	33	4.5	8.0	38.0	78.0
FDS 2203.320		M 20	10.0	43	6.5	10.0	39.0	81.0
FDS 2203.324	M 24	13.0	48	8.0	12.0	72.0	155.0	
FDS 2203.346	Stainless steel, enhanced spring load	M 6	2.7	15	2.0	3.0	11.0	25.0
FDS 2203.348		M 8	3.8	18	2.0	4.0	23.0	59.0
FDS 2203.350		M 10	4.5	23	2.5	5.0	20.0	54.0
FDS 2203.352		M 12	6.2	26	3.5	6.0	38.0	96.0
FDS 2203.356		M 16	8.5	33	4.5	8.0	50.0	100.0
FDS 2203.360		M 20	10.0	43	6.5	10.0	52.0	133.0
FDS 2203.364		M 24	13.0	48	8.0	12.0	91.0	223.0

* Statistical mean

Spring plungers

With slit, plastic version



Type FDS 2204

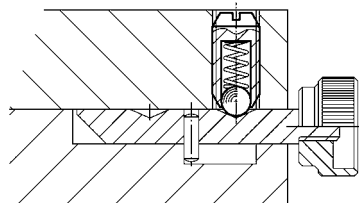
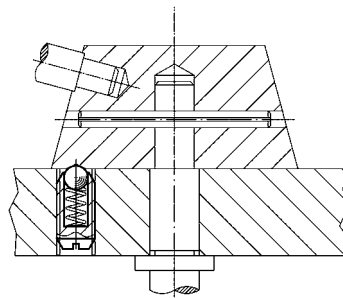
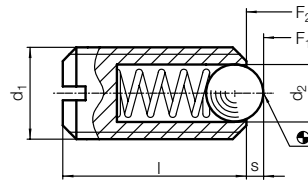
- For applying pressure or as a detent or for ejection
- Temperature range: - 30 °C to + 50 °C
- Spring plungers are specially tested for spring deflection and strength

Materials

Bush: Delrin blue (POM)

Ball: stainless steel hardened or Delrin white (POM)

Spring: stainless steel



Order example

Spring plunger, plastic,
ball of stainless steel,
 $d_1 = M 10$

FDS 2204 . 010

Article group	Design
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Order description	Design	d_1	d_2	l	s	Spring load*	
						F_1 [N]	F_2 [N]
FDS 2204.006	Ball of stainless steel	M 6	3.5	14	1.0	12	17
FDS 2204.008		M 8	5.0	16	1.5	20	35
FDS 2204.010		M 10	6.0	19	2.0	25	45
FDS 2204.406	Ball of Delrin	M 6	3.5	14	1.0	12	17
FDS 2204.408		M 8	5.0	16	1.5	20	35
FDS 2204.410		M 10	6.0	19	2.0	25	45

* Statistical mean

Spring plungers

With ball and slit



Type FDS 2205

- For applying pressure or as a detent or for ejection
- Temperature range: max. + 250 °C
- Spring plungers are specially tested for spring deflection and strength

Materials

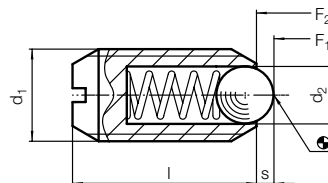
Bush: free cutting steel burnished –

Ball: hardened ball-bearing steel
or

Bush: stainless steel 1.4305 –

Ball: hardened stainless steel

Spring: stainless steel



Marking

Normal spring load = no marking

Enhanced spring load = two lengthways markings

Order example

Spring plunger with ball
and slit, stainless steel,
Normal spring load, $d_1 = M 10$

FDS 2205 . 410

Article group	Design
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Order description	Design	d_1	d_2	l	s	Spring load*	
						F_1 [N]	F_2 [N]
FDS 2205.003	Free cutting steel, normal spring load	M 3	1.5	7	0.4	3	4.5
FDS 2205.004		M 4	2.5	9	0.8	6	14.5
FDS 2205.005		M 5	3.0	12	0.9	8	14.0
FDS 2205.006		M 6	3.5	14	1.0	11	18.0
FDS 2205.008		M 8	4.5	16	1.5	18	31.0
FDS 2205.010		M 10	6.0	19	2.0	24	45.0
FDS 2205.012		M 12	8.0	22	2.5	26	49.0
FDS 2205.016		M 16	10.0	24	3.5	41	86.0
FDS 2205.020		M 20	12.0	30	4.5	56	111.0
FDS 2205.024		M 24	15.0	34	5.5	81	151.0
FDS 2205.205	Free cutting steel, normal spring load	M 5	3.0	12	0.9	15	22.0
FDS 2205.206		M 6	3.5	14	1.0	19	28.0
FDS 2205.208		M 8	4.5	16	1.5	36	62.0
FDS 2205.210		M 10	6.0	19	2.0	57	104.0
FDS 2205.212		M 12	8.0	22	2.5	61	110.0
FDS 2205.216		M 16	10.0	24	3.5	68	142.0
FDS 2205.220		M 20	12.0	30	4.5	84	166.0
FDS 2205.224		M 24	15.0	34	5.5	127	237.0
FDS 2205.402	Stainless steel, normal spring load	M 2	1.0	4	0.3	0.8	1.5
FDS 2205.403		M 3	1.5	7	0.4	3	4.5
FDS 2205.404		M 4	2.5	9	0.8	6	14.5
FDS 2205.405		M 5	3.0	12	0.9	8	14.0
FDS 2205.406		M 6	3.5	14	1.0	11	18.0
FDS 2205.408		M 8	4.5	16	1.5	18	31.0
FDS 2205.410		M 10	6.0	19	2.0	24	45.0
FDS 2205.412		M 12	8.0	22	2.5	26	49.0
FDS 2205.416		M 16	10.0	24	3.5	41	86.0
FDS 2205.420		M 20	12.0	30	4.5	56	111.0
FDS 2205.424		M 24	15.0	34	5.5	81	151.0
FDS 2205.605		Stainless steel, enhanced spring load	M 5	3.0	12	0.9	15
FDS 2205.606	M 6		3.5	14	1.0	19	28.0
FDS 2205.608	M 8		4.5	16	1.5	36	62.0
FDS 2205.610	M 10		6.0	19	2.0	57	104.0
FDS 2205.612	M 12		8.0	22	2.5	61	110.0
FDS 2205.616	M 16		10.0	24	3.5	68	142.0
FDS 2205.620	M 20		12.0	30	4.5	84	166.0
FDS 2205.624	M 24		15.0	34	5.5	127	237.0

* Statistical mean

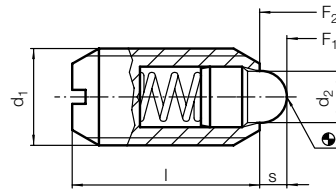
Spring plungers

With stud and slit



Type FDS 2205

- For applying pressure or as a detent or for ejection
- Temperature range: max. + 250 °C
- Spring plungers are specially tested for spring deflection and strength



Materials

Bush: free cutting steel burnished –
 Stud: free cutting steel hardened, burnished
 or
 Bush: stainless steel 1.4305 –
 Stud: stainless steel 1.4305

Spring: stainless steel

Marking

Normal spring load = no marking
 Enhanced spring load = two lengthways markings

Order example

Spring plunger with stud
 and slit, stainless steel,
 Normal spring load, $d_1 = M 10$

FDS 2205 . 510

Article group	Design
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Order description	Design	d_1	d_2	l	s	Spring load*	
						F_1 [N]	F_2 [N]
FDS 2205.104	Free cutting steel, normal spring load	M 4	1.8	9	1.5	4.5	12.5
FDS 2205.105		M 5	2.4	12	2.0	5.0	13.0
FDS 2205.106		M 6	2.7	14	2.0	6.0	17.0
FDS 2205.108		M 8	3.8	16	2.0	16.0	33.0
FDS 2205.110		M 10	4.5	19	2.5	19.0	42.0
FDS 2205.112		M 12	6.2	22	3.5	22.0	57.0
FDS 2205.116		M 16	8.5	24	4.5	38.0	78.0
FDS 2205.120		M 20	10.0	30	6.5	39.0	81.0
FDS 2205.124	M 24	13.0	34	8.0	8.0	72.0	155.0
FDS 2205.306	Free cutting steel, enhanced spring load	M 6	2.7	14	2.0	11.0	25.0
FDS 2205.308		M 8	3.8	16	2.0	23.0	59.0
FDS 2205.310		M 10	4.5	19	2.5	20.0	54.0
FDS 2205.312		M 12	6.2	22	3.5	38.0	96.0
FDS 2205.316		M 16	8.5	24	4.5	50.0	100.0
FDS 2205.320		M 20	10.0	30	6.5	52.0	133.0
FDS 2205.324	M 24	13.0	34	8.0	8.0	91.0	233.0
FDS 2205.504	Stainless steel, normal spring load	M 4	1.8	9	1.5	4.5	12.5
FDS 2205.505		M 5	2.4	12	2.0	5.0	13.0
FDS 2205.506		M 6	2.7	14	2.0	6.0	17.0
FDS 2205.508		M 8	3.8	16	2.0	16.0	33.0
FDS 2205.510		M 10	4.5	19	2.5	19.0	42.0
FDS 2205.512		M 12	6.2	22	3.5	22.0	57.0
FDS 2205.516		M 16	8.5	24	4.5	38.0	78.0
FDS 2205.520		M 20	10.0	30	6.5	39.0	81.0
FDS 2205.524	M 24	13.0	34	8.0	8.0	72.0	155.0
FDS 2205.706	Stainless steel, enhanced spring load	M 6	2.7	14	2.0	11.0	25.0
FDS 2205.708		M 8	3.8	16	2.0	23.0	59.0
FDS 2205.710		M 10	4.5	19	2.5	20.0	54.0
FDS 2205.712		M 12	6.2	22	3.5	38.0	96.0
FDS 2205.716		M 16	8.5	24	4.5	50.0	100.0
FDS 2205.720		M 20	10.0	30	6.5	52.0	133.0
FDS 2205.724	M 24	13.0	34	8.0	8.0	91.0	223.0

* Statistical mean

Spring plungers

With ball and head



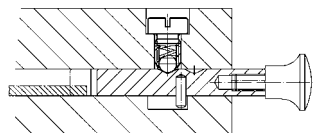
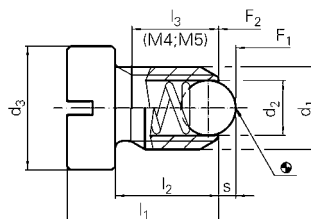
Type FDS 2205

- For applying pressure or as a detent or for ejection
- Temperature range: max. + 250 °C
- Spring plungers are specially tested for spring deflection and strength
- Also available with internal hexagon

Materials

- Bush: free cutting steel burnished –
- Ball: ball-bearing steel, hardened, burnished or
- Bush: stainless steel 1.4305 –
- Ball: stainless steel, hardened

Spring: stainless steel



Order example

Spring plunger with ball and head, free cutting steel, normal spring load, $d_1 = M 6$

FDS 2205 . 510

Article group	Design
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Order description	Design	d_1	d_2	d_3	l_1	l_2	l_3	s	Spring load*	
									F_1 [N]	F_2 [N]
FDS 2205.930	Free cutting steel, normal spring load	M 4	2.5	6	9.5	6.5	5.0	0.8	8	14
FDS 2205.931		M 5	3.0	8	12.5	8.5	6.7	0.9	8	14
FDS 2205.932		M 6	3.5	10	14.0	9.0	–	1.0	11	18
FDS 2205.933		M 8	4.5	13	16.5	11.0	–	1.5	18	31
FDS 2205.934		M 10	6.0	16	20.0	14.0	–	2.0	24	45
FDS 2205.935		M 12	8.0	18	22.0	15.0	–	2.5	26	49
FDS 2205.940	Stainless steel, normal spring load	M 4	2.5	6	9.5	6.5	5.0	0.8	8	14
FDS 2205.941		M 5	3.0	8	12.5	8.5	6.7	0.9	8	14
FDS 2205.942		M 6	3.5	10	14.0	9.0	–	1.0	11	18
FDS 2205.943		M 8	4.5	13	16.5	11.0	–	1.5	18	31
FDS 2205.944		M 10	6.0	16	20.0	14.0	–	2.0	24	45
FDS 2205.945		M 12	8.0	18	22.0	15.0	–	2.5	26	49

* Statistical mean

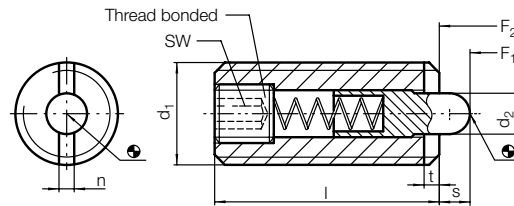
Spring plungers

With internal hexagon, thread bonded



Type FDS 2206

- For applying pressure or as a detent or for ejection
- Assembly, disassembly with internal hexagon and slit possible
- Screwdriver see page 13
- Spring plungers are specially tested for spring deflection and strength



Materials

Bush: free cutting steel burnished –
 Stud: free cutting steel hardened, burnished
 or Delrin white (POM)

or

Bush: stainless steel 1.4305 –
 Stud: stainless steel 1.4305

Spring: stainless steel

Marking

Normal spring load = no marking
 Enhanced spring load = two lengthways markings

Order example

Spring plunger with
 internal hexagon,
 free cutting steel,
 normal spring load, $d_1 = M 10$

FDS 2206 . 010

Article group	Design
---------------	--------

Order description	Design	d_1	d_2	l	n	s	t	SW	Spring load*		max. °C
									F_1 [N]	F_2 [N]	
FDS 2206.003	Free cutting steel, normal spring load	M 3	1.0	12	0.4	1.0	0.5	0.7	2.0	4	+250
FDS 2206.004		M 4	1.5	15	0.6	1.5	0.6	1.3	4.5	16	+250
FDS 2206.005		M 5	2.4	18	1.2	2.3	0.8	1.5	6.0	19	+250
FDS 2206.006		M 6	2.7	20	1.3	2.5	0.9	2.0	6.0	19	+250
FDS 2206.008		M 8	3.5	22	1.5	3.0	1.4	2.5	10.0	39	+250
FDS 2206.010		M 10	4.0	22	1.5	3.0	1.4	3.0	10.0	39	+250
FDS 2206.012		M 12	6.0	28	2.7	4.0	2.0	4.0	12.0	53	+250
FDS 2206.016		M 16	7.5	32	3.2	5.0	2.5	5.0	45.0	100	+250
FDS 2206.022		M 20	10.0	40	3.7	7.0	3.0	6.0	52.0	125	+250
FDS 2206.024		M 24	12.0	52	3.7	10.0	3.0	8.0	70.0	170	+250
FDS 2206.105	Free cutting steel, enhanced spring load	M 5	2.4	18	1.2	2.3	0.8	1.5	11.0	40	+250
FDS 2206.106		M 6	2.7	20	1.3	2.5	0.9	2.0	15.0	43	+250
FDS 2206.108		M 8	3.5	22	1.5	3.0	1.4	2.5	20.0	75	+250
FDS 2206.110		M 10	4.0	22	1.5	3.0	1.4	3.0	20.0	75	+250
FDS 2206.112		M 12	6.0	28	2.7	4.0	2.0	4.0	45.0	120	+250
FDS 2206.116		M 16	7.5	32	3.2	5.0	2.5	5.0	64.0	160	+250
FDS 2206.120		M 20	10.0	40	3.7	7.0	3.0	6.0	75.0	195	+250
FDS 2206.124		M 24	12.0	52	3.7	10.0	3.0	8.0	75.0	245	+250
FDS 2206.204	Free cutting steel, stud of Delrin, normal spring load	M 4	1.5	15	0.6	1.5	0.6	1.3	4.5	16	-30/+50
FDS 2206.205		M 5	2.4	18	1.2	2.3	0.8	1.5	6.0	19	-30/+50
FDS 2206.206		M 6	2.7	20	1.3	2.5	0.9	2.0	6.0	19	-30/+50
FDS 2206.208		M 8	3.5	22	1.5	3.0	1.4	2.5	10.0	39	-30/+50
FDS 2206.210		M 10	4.0	22	1.5	3.0	1.4	3.0	10.0	39	-30/+50
FDS 2206.212		M 12	6.0	28	2.7	4.0	2.0	4.0	12.0	53	-30/+50
FDS 2206.216		M 16	7.5	32	3.2	5.0	2.5	5.0	45.0	100	-30/+50

* Statistical mean

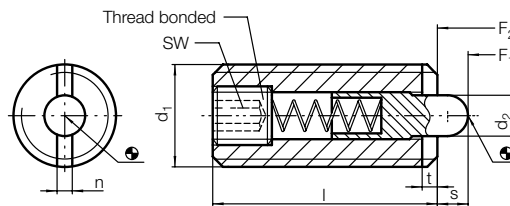
Spring plungers

With internal hexagon thread bonded



Type FDS 2206

See page 12



Screwdriver for the following thread sizes



ID marking	d ₁
FDS 2206.803	M 3
FDS 2206.804	M 4
FDS 2206.805	M 5
FDS 2206.806	M 6
FDS 2206.808	M 8
FDS 2206.810	M 10
FDS 2206.812	M 12
FDS 2206.816	M 16
FDS 2206.820	M 20
FDS 2207.838	M 24

Order description	Design	d ₁	d ₂	l	n	s	t	SW	Spring load*		max. °C
									F ₁ [N]	F ₂ [N]	
FDS 2206.404	Stainless steel, normal spring load	M 4	1.5	15	0.6	1.5	0.6	1.3	4.5	16	+250
FDS 2206.405		M 5	2.4	18	1.2	2.3	0.8	1.5	6.0	19	+250
FDS 2206.406		M 6	2.7	20	1.3	2.5	0.9	2.0	6.0	19	+250
FDS 2206.408		M 8	3.5	22	1.5	3.0	1.4	2.5	10.0	39	+250
FDS 2206.410		M 10	4.0	22	1.5	3.0	1.4	3.0	10.0	39	+250
FDS 2206.412		M 12	6.0	28	2.7	4.0	2.0	4.0	12.0	53	+250
FDS 2206.416		M 16	7.5	32	3.2	5.0	2.5	5.0	45.0	100	+250
FDS 2206.420		M 20	10.0	40	3.7	7.0	3.0	6.0	52.0	125	+250
FDS 2206.604	Stainless steel, stud of Delrin, normal spring load	M 4	1.5	15	0.6	1.5	0.6	1.3	4.5	16	-30/+50
FDS 2206.605		M 5	2.4	18	1.2	2.3	0.8	1.5	6.0	19	-30/+50
FDS 2206.606		M 6	2.7	20	1.3	2.5	0.9	2.0	6.0	19	-30/+50
FDS 2206.608		M 8	3.5	22	1.5	3.0	1.4	2.5	10.0	39	-30/+50
FDS 2206.610		M 10	4.0	22	1.5	3.0	1.4	3.0	10.0	39	-30/+50
FDS 2206.612		M 12	6.0	28	2.7	4.0	2.0	4.0	12.0	53	-30/+50
FDS 2206.616		M 16	7.5	32	3.2	5.0	2.5	5.0	45.0	100	-30/+50

* Statistical mean

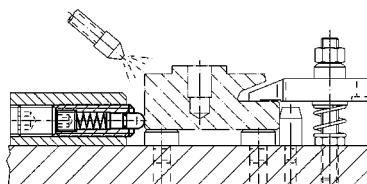
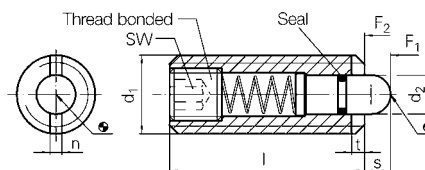
Spring plungers

With internal hexagon and seal thread bonded



Type FDS 2206

- For applying pressure or as a detent or for ejection
- The seal prevents the ingress of liquid into the plunger
- Assembly, disassembly with internal hexagon and slit possible
- Temperature range: max. - 30 °C to + 80 °C
- Differences in dimension l, spring load and temperature resistance compared with version FDS 2206 "without seal"
- Screwdriver see page 13
- Spring plungers are specially tested for spring deflection and strength



Materials

Bush: free cutting steel burnished –
 Stud: free cutting steel hardened, burnished or
 Bush: stainless steel 1.4305 –
 Stud: stainless steel 1.4305

Spring: stainless steel
 Seal: NBR

Marking

Normal spring load = no marking
 Enhanced spring load = two lengthways markings

Order example

Spring plunger with internal hexagon and seal, free cutting steel, normal spring load, $d_1 = M 8$

FDS 2206 . 048

Article group	Design
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Order description	Design	d_1	d_2	l	n	s	t	SW	Spring load*	
									F_1 [N]	F_2 [N]
FDS 2206.048	Free cutting steel, normal spring load	M 8	3.8	26	1.5	3.0	1.4	2.5	9	24
FDS 2206.050		M 10	4.0	28	1.5	3.5	1.4	3.0	15	30
FDS 2206.052		M 12	6.0	35	2.7	4.0	2.0	4.0	24	50
FDS 2206.056		M 16	7.5	40	3.2	5.0	2.5	5.0	36	58
FDS 2206.148	Free cutting steel, enhanced spring load	M 8	3.8	26	1.5	3.0	1.4	2.5	17	39
FDS 2206.150		M 10	4.0	28	1.5	3.5	1.4	3.0	22	43
FDS 2206.152		M 12	6.0	35	2.7	4.0	2.0	4.0	40	80
FDS 2206.156		M 16	7.5	40	3.2	5.0	2.5	5.0	44	113
FDS 2206.448	Stainless steel, normal spring load	M 8	3.8	26	1.5	3.0	1.4	2.5	9	24
FDS 2206.450		M 10	4.0	28	1.5	3.5	1.4	3.0	15	30
FDS 2206.452		M 12	6.0	35	2.7	4.0	2.0	4.0	24	50
FDS 2206.456		M 16	7.5	40	3.2	5.0	2.5	5.0	36	58

* Statistical mean

Spring plungers

Smooth design with collar



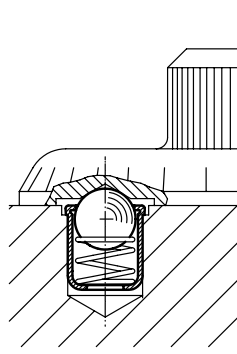
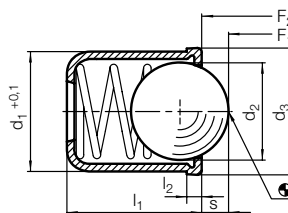
Type FDS 2208

- For applying pressure or as a detent or for ejection
- Spring plungers are specially tested for spring deflection and strength

Materials

- Bush: stainless steel 1.4303 –
- Ball: stainless steel hardened
- or
- Bush: brass –
- Ball: stainless steel hardened
- or
- Bush: Delrin blue (POM) –
- Ball: stainless steel hardened
- or
- Bush: Delrin blue (POM) –
- Ball: Delrin white (POM)

Spring: stainless steel



Order example

Spring plunger,
smooth design with collar,
stainless steel, $d_1 = 10$

FDS 2208 . 010

Article group	Design
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Order description	Design	d_1	d_2	d_3	l_1	l_2	s	Spring load*		max. °C
								F_1 [N]	F_2 [N]	
FDS 2208.003	Bush and ball of stainless steel	3	2.38	3.5	4.0	0.75	0.70	1.8	3.5	+250
FDS 2208.004		4	3.00	4.6	5.0	0.90	1.00	2.5	6.0	+250
FDS 2208.005		5	4.00	5.6	6.0	0.90	1.40	3.0	6.5	+250
FDS 2208.006		6	5.00	6.5	7.0	1.00	1.80	5.5	11.5	+250
FDS 2208.008		8	6.50	8.5	9.0	1.10	2.40	7.0	12.5	+250
FDS 2208.010		10	8.50	11.0	13.5	1.70	3.30	8.5	18.5	+250
FDS 2208.012		12	10.00	13.0	16.0	2.30	4.00	12.0	26.5	+250
FDS 2208.203	Bush of brass, ball of stainless steel	3	2.38	3.6	4.0	0.60	0.60	1.8	3.5	+250
FDS 2208.204		4	2.50	4.5	5.0	1.00	0.80	2.5	6.0	+250
FDS 2208.205		5	3.50	5.5	6.0	1.00	1.00	3.0	6.5	+250
FDS 2208.206		6	4.50	6.5	7.0	1.00	1.60	5.5	11.5	+250
FDS 2208.208		8	6.00	8.5	9.0	1.00	1.90	7.0	12.5	+250
FDS 2208.403	Bush of Delrin, ball of stainless steel	3	2.00	3.6	4.0	0.60	0.55	1.7	3.6	-30/+50
FDS 2208.404		4	3.00	4.6	5.0	1.00	0.80	2.5	6.5	-30/+50
FDS 2208.405		5	4.00	5.6	6.0	1.00	1.00	4.5	9.0	-30/+50
FDS 2208.406		6	5.00	6.5	7.0	1.00	1.60	6.5	13.0	-30/+50
FDS 2208.408		8	6.50	8.5	9.0	1.00	1.90	8.0	18.0	-30/+50
FDS 2208.410		10	8.00	11.0	13.5	1.50	2.40	12.00	23.0	-30/+50
FDS 2208.412		12	10.00	13.0	16.0	1.50	3.30	13.00	25.0	-30/+50
FDS 2208.604	Bush and ball of Delrin	4	3.00	4.6	5.0	1.00	0.80	2.5	6.5	-30/+50
FDS 2208.605		5	4.00	5.6	6.0	1.00	1.00	4.5	9.0	-30/+50
FDS 2208.606		6	5.00	6.5	7.0	1.00	1.60	6.5	13.0	-30/+50
FDS 2208.608		8	6.50	8.5	9.0	1.00	1.90	8.0	18.0	-30/+50
FDS 2208.610		10	8.00	11.0	13.5	1.50	2.40	12.0	23.0	-30/+50
FDS 2208.612		12	10.00	13.0	16.0	1.50	3.30	13.0	25.0	-30/+50

* Statistical mean

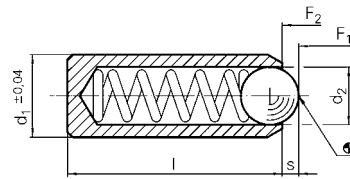
Spring plungers

Smooth design, without collar



Type FDS 2208

- For applying pressure or as a detent or for ejection
- Temperature range: max. + 250 °C
- Spring plungers are specially tested for spring deflection and strength



Materials

Bush: stainless steel 1.4305

Ball: stainless steel hardened

Spring: stainless steel

Order example

Spring plunger,
smooth design without collar
stainless steel, $d_1 = 3,0$

FDS 2208 . 310

Article group	Design
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Order description	Design	d_1	d_2	l	s	Spring load*	
						F_1 [N]	F_2 [N]
FDS 2208.310	Bush and ball of stainless steel	3.0	2.0	7	0.65	4.5	7.5
FDS 2208.312		3.5	2.5	9	0.80	6.0	14.5
FDS 2208.315		4.0	3.0	11	0.90	8.0	14.0
FDS 2208.317		4.5	3.2	12	0.95	9.5	16.5
FDS 2208.320		5.0	3.5	13	1.00	11.0	18.0
FDS 2208.322		5.5	4.0	14	1.20	15.5	25.0
FDS 2208.325		6.0	4.5	15	1.50	18.0	31.0

* Statistical mean

Spring plungers

Bidirectional spring plunger



Type FDS 2209

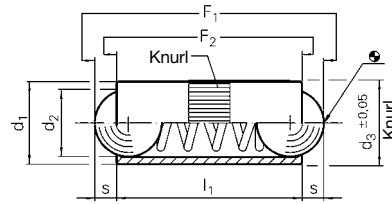
- For applying pressure, for securing and as an electrical contact
- Temperature range: max. + 250 °C

Materials

Bush: brass

Ball: stainless steel hardened

Spring: stainless steel



Order example

Bidirectional spring plunger,
d₁ = 5,0

FDS 2209 . 050

Article group	Design
---------------	--------

Order description	Design	d ₁	d ₂	d ₃	l ₁	s	Spring load*	
							F ₁ [N]	F ₂ [N]
FDS 2209.025	Bush of brass Ball of stainless steel	2.5	2.0	2.52	5.3	0.65	1.3	2.5
FDS 2209.030		3.0	2.5	3.02	7.3	0.80	2.0	4.5
FDS 2209.040		4.0	3.0	4.03	9.0	0.90	2.5	7.5
FDS 2209.050		5.0	4.0	5.03	10.8	1.20	3.5	8.0
FDS 2209.070		7.0	6.0	7.03	14.0	2.00	4.0	12.0
FDS 2209.080		8.0	6.5	8.03	18.0	2.10	6.0	15.0

* Statistical mean

Ball locking pins

Self-locking, single-acting



Type KSB 2237 / 2238

For speedy fixing and securing of parts and work pieces. Quick and easy to release for frequently-repeated connections, such as when replacing bearing pins.

Properties

- High-strength, hardened, hard-wearing studs, extremely strong
- Corrosion-resistant
- Compact design with lifting groove
- Fixing options for retaining cables see page 30
- Temperature range: max. + 250 °C

Materials

Studs: stainless steel 1.4305,
stainless steel 1.4542,
precipitation-hardened
Spring: stainless steel

Order example

Ball locking pin self-locking,
single-acting, stainless steel
1.4305, $d_1 = 5$; $l_1 = 10$

KSB 2237 . 012

Article group	Design
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Order description		d_1	l_1	d_2	d_3	l_2	l_3	Locating hole H 11	Shear strength two-shear kN min. 1.4305*	Shear strength two-shear kN min. 1.4542*
1.4305	1.4542									
KSB 2237.012	KSB 2238.012	5	10	5.5	10	6.0	26.2	5	14	24
KSB 2237.013	KSB 2238.013	5	15	5.5	10	6.0	26.2	5	14	24
KSB 2237.014	KSB 2238.014	5	20	5.5	10	6.0	26.2	5	14	24
KSB 2237.015	KSB 2238.015	5	25	5.5	10	6.0	26.2	5	14	24
KSB 2237.016	KSB 2238.016	5	30	5.5	10	6.0	26.2	5	14	24
KSB 2237.022	KSB 2238.022	6	10	7.0	10	7.0	26.2	6	21	35
KSB 2237.023	KSB 2238.023	6	15	7.0	10	7.0	26.2	6	21	35
KSB 2237.024	KSB 2238.024	6	20	7.0	10	7.0	26.2	6	21	35
KSB 2237.025	KSB 2238.025	6	25	7.0	10	7.0	26.2	6	21	35
KSB 2237.026	KSB 2238.026	6	30	7.0	10	7.0	26.2	6	21	35
KSB 2237.027	KSB 2238.027	6	35	7.0	10	7.0	26.2	6	21	35
KSB 2237.028	KSB 2238.028	6	40	7.0	10	7.0	26.2	6	21	35
KSB 2237.029	KSB 2238.029	6	45	7.0	10	7.0	26.2	6	21	35
KSB 2237.030	KSB 2238.030	6	50	7.0	10	7.0	26.2	6	21	35
KSB 2237.034	KSB 2238.034	8	20	9.6	14	8.2	33.1	8	38	63
KSB 2237.035	KSB 2238.035	8	25	9.6	14	8.2	33.1	8	38	63
KSB 2237.036	KSB 2238.036	8	30	9.6	14	8.2	33.1	8	38	63
KSB 2237.037	KSB 2238.037	8	35	9.6	14	8.2	33.1	8	38	63
KSB 2237.038	KSB 2238.038	8	40	9.6	14	8.2	33.1	8	38	63
KSB 2237.039	KSB 2238.039	8	45	9.6	14	8.2	33.1	8	38	63
KSB 2237.040	KSB 2238.040	8	50	9.6	14	8.2	33.1	8	38	63
KSB 2237.044	KSB 2238.044	10	20	12.0	14	9.6	33.1	10	60	100
KSB 2237.045	KSB 2238.045	10	25	12.0	14	9.6	33.1	10	60	100
KSB 2237.046	KSB 2238.046	10	30	12.0	14	9.6	33.1	10	60	100
KSB 2237.047	KSB 2238.047	10	35	12.0	14	9.6	33.1	10	60	100
KSB 2237.048	KSB 2238.048	10	40	12.0	14	9.6	33.1	10	60	100
KSB 2237.049	KSB 2238.049	10	45	12.0	14	9.6	33.1	10	60	100
KSB 2237.050	KSB 2238.050	10	50	12.0	14	9.6	33.1	10	60	100
KSB 2237.052	KSB 2238.052	10	60	12.0	14	9.6	33.1	10	60	100

* Shear strength similar to DIN 50141

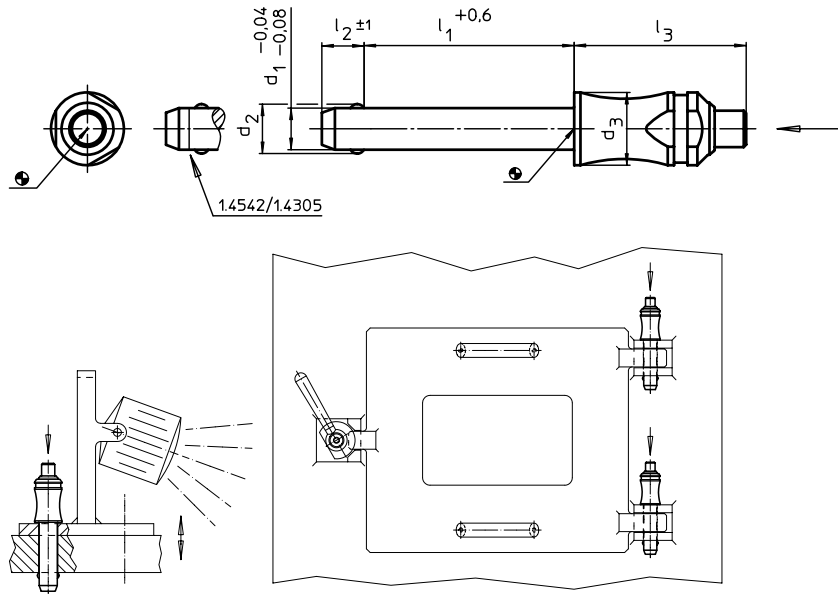
Ball locking pins

Self-locking, single-acting



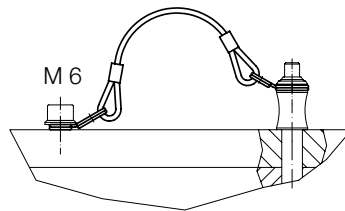
Type KSB 2237/2238

See page 18



Retaining cable with eye

See page 30



Order description		d ₁	l ₁	d ₂	d ₃	l ₂	l ₃	Locating hole H 11	Shear strength two-shear kN min. 1.4305*	Shear strength two-shear kN min. 1.4542*
1.4305	1.4542									
KSB 2237.065	KSB 2238.065	12	25	14.5	20	10.6	39.5	12	87	144
KSB 2237.066	KSB 2238.066	12	30	14.5	20	10.6	39.5	12	87	144
KSB 2237.067	KSB 2238.067	12	35	14.5	20	10.6	39.5	12	87	144
KSB 2237.068	KSB 2238.068	12	40	14.5	20	10.6	39.5	12	87	144
KSB 2237.069	KSB 2238.069	12	45	14.5	20	10.6	39.5	12	87	144
KSB 2237.070	KSB 2238.070	12	50	14.5	20	10.6	39.5	12	87	144
KSB 2237.072	KSB 2238.072	12	60	14.5	20	10.6	39.5	12	87	144
KSB 2237.074	KSB 2238.074	12	70	14.5	20	10.6	39.5	12	87	144
KSB 2237.076	KSB 2238.076	12	80	14.5	20	10.6	39.5	12	87	144
KSB 2237.086	KSB 2238.086	16	30	19.0	20	14.0	39.5	16	155	257
KSB 2237.087	KSB 2238.087	16	35	19.0	20	14.0	39.5	16	155	257
KSB 2237.088	KSB 2238.088	16	40	19.0	20	14.0	39.5	16	155	257
KSB 2237.089	KSB 2238.089	16	45	19.0	20	14.0	39.5	16	155	257
KSB 2237.090	KSB 2238.090	16	50	19.0	20	14.0	39.5	16	155	257
KSB 2237.092	KSB 2238.092	16	60	19.0	20	14.0	39.5	16	155	257
KSB 2237.094	KSB 2238.094	16	70	19.0	20	14.0	39.5	16	155	257
KSB 2237.096	KSB 2238.096	16	80	19.0	20	14.0	39.5	16	155	257
KSB 2237.112	KSB 2238.112	20	60	25.0	28	20.5	50.1	20	244	403
KSB 2237.116	KSB 2238.116	20	80	25.0	28	20.5	50.1	20	244	403
KSB 2237.120	KSB 2238.120	20	100	25.0	28	20.5	50.1	20	244	403
KSB 2237.124	KSB 2238.124	20	120	25.0	28	20.5	50.1	20	244	403

* Shear strength similar to DIN 50141

Ball locking pins

Self-locking



Type KSB 2237

For speedy fixing and securing of parts and work pieces. Quick and easy to release for frequently-repeated connections, such as when replacing bearing pins.

Properties

- Corrosion-resistant
- Ergonomic handle
- Fixing options for retaining cables see page 30
- Temperature range: - 30 °C to + 80 °C

Materials

Studs: stainless steel 1.4305
 Handle: plastic (PA 6), grey/orange,
 grey/blue, grey/grey
 Spring: stainless steel

Order example

Ball locking pin self-locking
 orange, d₁ = 5; l₁ = 10

KSB 2237 . 152

Article group	Design
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Order description			d ₁	l ₁	d ₂	d ₃	d ₄	l ₂	l ₃	l ₄	Locating hole H 11	Shear strength two-shear kN min.*
orange	grey	blue										
KSB 2237.152	KSB 2237.292	KSB 2237.432	5	10	5.5	33.2	14.5	6.0	26.7	10.8	5	14
KSB 2237.153	KSB 2237.293	KSB 2237.433	5	15	5.5	33.2	14.5	6.0	26.7	10.8	5	14
KSB 2237.154	KSB 2237.294	KSB 2237.434	5	20	5.5	33.2	14.5	6.0	26.7	10.8	5	14
KSB 2237.155	KSB 2237.295	KSB 2237.435	5	25	5.5	33.2	14.5	6.0	26.7	10.8	5	14
KSB 2237.156	KSB 2237.296	KSB 2237.436	5	30	5.5	33.2	14.5	6.0	26.7	10.8	5	14
KSB 2237.162	KSB 2237.302	KSB 2237.442	6	10	7.0	33.2	14.5	7.0	26.7	10.8	6	21
KSB 2237.163	KSB 2237.303	KSB 2237.443	6	15	7.0	33.2	14.5	7.0	26.7	10.8	6	21
KSB 2237.164	KSB 2237.304	KSB 2237.444	6	20	7.0	33.2	14.5	7.0	26.7	10.8	6	21
KSB 2237.165	KSB 2237.305	KSB 2237.445	6	25	7.0	33.2	14.5	7.0	26.7	10.8	6	21
KSB 2237.166	KSB 2237.306	KSB 2237.446	6	30	7.0	33.2	14.5	7.0	26.7	10.8	6	21
KSB 2237.167	KSB 2237.307	KSB 2237.447	6	35	7.0	33.2	14.5	7.0	26.7	10.8	6	21
KSB 2237.168	KSB 2237.308	KSB 2237.448	6	40	7.0	33.2	14.5	7.0	26.7	10.8	6	21
KSB 2237.169	KSB 2237.309	KSB 2237.449	6	45	7.0	33.2	14.5	7.0	26.7	10.8	6	21
KSB 2237.170	KSB 2237.310	KSB 2237.450	6	50	7.0	33.2	14.5	7.0	26.7	10.8	6	21
KSB 2237.174	KSB 2237.314	KSB 2237.454	8	20	9.6	39.2	19.3	8.2	33.3	13.4	8	38
KSB 2237.175	KSB 2237.315	KSB 2237.455	8	25	9.6	39.2	19.3	8.2	33.3	13.4	8	38
KSB 2237.176	KSB 2237.316	KSB 2237.456	8	30	9.6	39.2	19.3	8.2	33.3	13.4	8	38
KSB 2237.177	KSB 2237.317	KSB 2237.457	8	35	9.6	39.2	19.3	8.2	33.3	13.4	8	38
KSB 2237.178	KSB 2237.318	KSB 2237.458	8	40	9.6	39.2	19.3	8.2	33.3	13.4	8	38
KSB 2237.179	KSB 2237.319	KSB 2237.459	8	45	9.6	39.2	19.3	8.2	33.3	13.4	8	38
KSB 2237.180	KSB 2237.320	KSB 2237.460	8	50	9.6	39.2	19.3	8.2	33.3	13.4	8	38
KSB 2237.184	KSB 2237.324	KSB 2237.464	10	20	12.0	39.2	19.3	9.6	33.3	13.4	10	60
KSB 2237.185	KSB 2237.325	KSB 2237.465	10	25	12.0	39.2	19.3	9.6	33.3	13.4	10	60
KSB 2237.186	KSB 2237.326	KSB 2237.466	10	30	12.0	39.2	19.3	9.6	33.3	13.4	10	60
KSB 2237.187	KSB 2237.327	KSB 2237.467	10	35	12.0	39.2	19.3	9.6	33.3	13.4	10	60
KSB 2237.188	KSB 2237.328	KSB 2237.468	10	40	12.0	39.2	19.3	9.6	33.3	13.4	10	60
KSB 2237.189	KSB 2237.329	KSB 2237.469	10	45	12.0	39.2	19.3	9.6	33.3	13.4	10	60
KSB 2237.190	KSB 2237.330	KSB 2237.470	10	50	12.0	39.2	19.3	9.6	33.3	13.4	10	60
KSB 2237.192	KSB 2237.332	KSB 2237.472	10	60	12.0	39.2	19.3	9.6	33.3	13.4	10	60

* Shear strength similar to DIN 50141

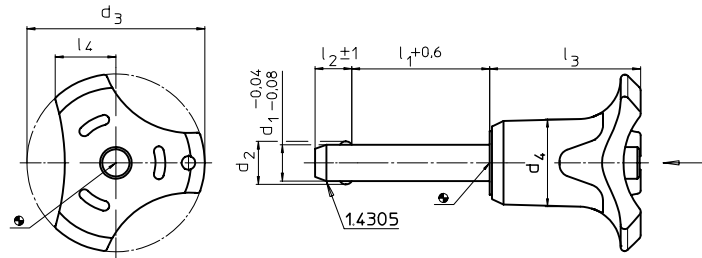
Ball locking pins

Self-locking



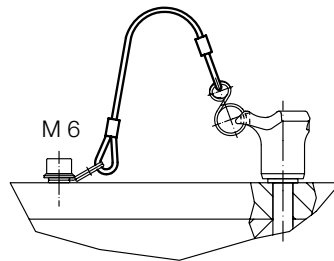
Type KSB 2237

See page 20



Retaining cable with eye

See page 30



Order description			d ₁	l ₁	d ₂	d ₃	d ₄	l ₂	l ₃	l ₄	Locating hole H 11	Shear strength two-shear kN min.*
orange	grey	blue										
KSB 2237.205	KSB 2237.345	KSB 2237.485	12	25	14.5	47.6	26.3	10.6	39.7	16.7	12	87
KSB 2237.206	KSB 2237.346	KSB 2237.486	12	30	14.5	47.6	26.3	10.6	39.7	16.7	12	87
KSB 2237.207	KSB 2237.347	KSB 2237.487	12	35	14.5	47.6	26.3	10.6	39.7	16.7	12	87
KSB 2237.208	KSB 2237.348	KSB 2237.488	12	40	14.5	47.6	26.3	10.6	39.7	16.7	12	87
KSB 2237.209	KSB 2237.349	KSB 2237.489	12	45	14.5	47.6	26.3	10.6	39.7	16.7	12	87
KSB 2237.210	KSB 2237.350	KSB 2237.490	12	50	14.5	47.6	26.3	10.6	39.7	16.7	12	87
KSB 2237.212	KSB 2237.352	KSB 2237.492	12	60	14.5	47.6	26.3	10.6	39.7	16.7	12	87
KSB 2237.214	KSB 2237.354	KSB 2237.494	12	70	14.5	47.6	26.3	10.6	39.7	16.7	12	87
KSB 2237.216	KSB 2237.356	KSB 2237.496	12	80	14.5	47.6	26.3	10.6	39.7	16.7	12	87
KSB 2237.226	KSB 2237.366	KSB 2237.506	16	30	19.0	47.6	26.3	14.0	39.7	16.7	16	155
KSB 2237.227	KSB 2237.367	KSB 2237.507	16	35	19.0	47.6	26.3	14.0	39.7	16.7	16	155
KSB 2237.228	KSB 2237.368	KSB 2237.508	16	40	19.0	47.6	26.3	14.0	39.7	16.7	16	155
KSB 2237.229	KSB 2237.369	KSB 2237.509	16	45	19.0	47.6	26.3	14.0	39.7	16.7	16	155
KSB 2237.230	KSB 2237.370	KSB 2237.510	16	50	19.0	47.6	26.3	14.0	39.7	16.7	16	155
KSB 2237.232	KSB 2237.372	KSB 2237.512	16	60	19.0	47.6	26.3	14.0	39.7	16.7	16	155
KSB 2237.234	KSB 2237.374	KSB 2237.514	16	70	19.0	47.6	26.3	14.0	39.7	16.7	16	155
KSB 2237.236	KSB 2237.376	KSB 2237.516	16	80	19.0	47.6	26.3	14.0	39.7	16.7	16	155
KSB 2237.252	KSB 2237.392	KSB 2237.532	20	60	25.0	57.6	35.4	20.5	51.2	21.5	20	244
KSB 2237.256	KSB 2237.396	KSB 2237.536	20	80	25.0	57.6	35.4	20.5	51.2	21.5	20	244
KSB 2237.260	KSB 2237.400	KSB 2237.540	20	100	25.0	57.6	35.4	20.5	51.2	21.5	20	244
KSB 2237.264	KSB 2237.404	KSB 2237.544	20	120	25.0	57.6	35.4	20.5	51.2	21.5	20	244

* Shear strength similar to DIN 50141

Ball locking pins

Self-locking, precipitation-hardened



Type KSB 2238

For speedy fixing and securing of parts and work pieces. Quick and easy to release for frequently-repeated connections, such as when replacing bearing pins.

Properties

- High-strength, hardened, hard-wearing studs, extremely strong
- Aviation standard design
- Corrosion-resistant
- Ergonomic handle
- Fixing options for retaining cables see page 30
- Temperature range: - 30 °C to + 80 °C

Materials

Studs: stainless steel 1.4542, precipitation-hardened
 Handle: plastic (PA 6), grey/orange, grey/blue, grey/grey
 Spring: stainless steel

Order example

Ball locking pin self-locking, precipitation-hardened, orange, $d_1 = 5$; $l_1 = 10$

KSB 2238 . 152

Article group	Design
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Order description			d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	Locating hole H 11	Shear strength two-shear kN min.*
orange	grey	blue										
KSB 2238.152	KSB 2238.292	KSB 2238.432	5	10	5.5	33.2	14.5	6.0	26.7	10.8	5	24
KSB 2238.153	KSB 2238.293	KSB 2238.433	5	15	5.5	33.2	14.5	6.0	26.7	10.8	5	24
KSB 2238.154	KSB 2238.294	KSB 2238.434	5	20	5.5	33.2	14.5	6.0	26.7	10.8	5	24
KSB 2238.155	KSB 2238.295	KSB 2238.435	5	25	5.5	33.2	14.5	6.0	26.7	10.8	5	24
KSB 2238.156	KSB 2238.296	KSB 2238.436	5	30	5.5	33.2	14.5	6.0	26.7	10.8	5	24
KSB 2238.162	KSB 2238.302	KSB 2238.442	6	10	7.0	33.2	14.5	7.0	26.7	10.8	6	35
KSB 2238.163	KSB 2238.303	KSB 2238.443	6	15	7.0	33.2	14.5	7.0	26.7	10.8	6	35
KSB 2238.164	KSB 2238.304	KSB 2238.444	6	20	7.0	33.2	14.5	7.0	26.7	10.8	6	35
KSB 2238.165	KSB 2238.305	KSB 2238.445	6	25	7.0	33.2	14.5	7.0	26.7	10.8	6	35
KSB 2238.166	KSB 2238.306	KSB 2238.446	6	30	7.0	33.2	14.5	7.0	26.7	10.8	6	35
KSB 2238.167	KSB 2238.307	KSB 2238.447	6	35	7.0	33.2	14.5	7.0	26.7	10.8	6	35
KSB 2238.168	KSB 2238.308	KSB 2238.448	6	40	7.0	33.2	14.5	7.0	26.7	10.8	6	35
KSB 2238.169	KSB 2238.309	KSB 2238.449	6	45	7.0	33.2	14.5	7.0	26.7	10.8	6	35
KSB 2238.170	KSB 2238.310	KSB 2238.450	6	50	7.0	33.2	14.5	7.0	26.7	10.8	6	35
KSB 2238.174	KSB 2238.314	KSB 2238.454	8	20	9.6	39.2	19.3	8.2	33.3	13.4	8	63
KSB 2238.175	KSB 2238.315	KSB 2238.455	8	25	9.6	39.2	19.3	8.2	33.3	13.4	8	63
KSB 2238.176	KSB 2238.316	KSB 2238.456	8	30	9.6	39.2	19.3	8.2	33.3	13.4	8	63
KSB 2238.177	KSB 2238.317	KSB 2238.457	8	35	9.6	39.2	19.3	8.2	33.3	13.4	8	63
KSB 2238.178	KSB 2238.318	KSB 2238.458	8	40	9.6	39.2	19.3	8.2	33.3	13.4	8	63
KSB 2238.179	KSB 2238.319	KSB 2238.459	8	45	9.6	39.2	19.3	8.2	33.3	13.4	8	63
KSB 2238.180	KSB 2238.320	KSB 2238.460	8	50	9.6	39.2	19.3	8.2	33.3	13.4	8	63
KSB 2238.184	KSB 2238.324	KSB 2238.464	10	20	12.0	39.2	19.3	9.6	33.3	13.4	10	100
KSB 2238.185	KSB 2238.325	KSB 2238.465	10	25	12.0	39.2	19.3	9.6	33.3	13.4	10	100
KSB 2238.186	KSB 2238.326	KSB 2238.466	10	30	12.0	39.2	19.3	9.6	33.3	13.4	10	100
KSB 2238.187	KSB 2238.327	KSB 2238.467	10	35	12.0	39.2	19.3	9.6	33.3	13.4	10	100
KSB 2238.188	KSB 2238.328	KSB 2238.468	10	40	12.0	39.2	19.3	9.6	33.3	13.4	10	100
KSB 2238.189	KSB 2238.329	KSB 2238.469	10	45	12.0	39.2	19.3	9.6	33.3	13.4	10	100
KSB 2238.190	KSB 2238.330	KSB 2238.470	10	50	12.0	39.2	19.3	9.6	33.3	13.4	10	100
KSB 2238.192	KSB 2238.332	KSB 2238.472	10	60	12.0	39.2	19.3	9.6	33.3	13.4	10	100

* Shear strength similar to DIN 50141

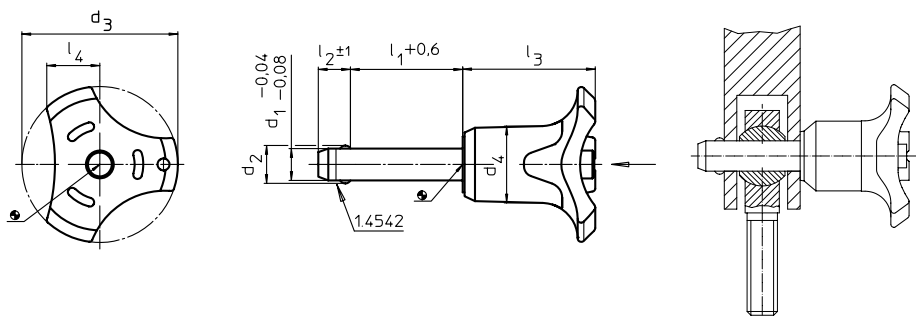
Ball locking pins

Self-locking, precipitation-hardened



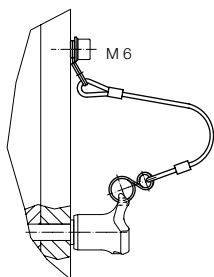
Type KSB 2238

See page 22



Retaining cable with eye

See page 30



Order description			d ₁	l ₁	d ₂	d ₃	d ₄	l ₂	l ₃	l ₄	Locating hole H 11	Shear strength two-shear kN min.*
orange	grey	blue										
KSB 2238.205	KSB 2238.345	KSB 2238.485	12	25	14.5	47.6	26.3	10.6	39.7	16.7	12	144
KSB 2238.206	KSB 2238.346	KSB 2238.486	12	30	14.5	47.6	26.3	10.6	39.7	16.7	12	144
KSB 2238.207	KSB 2238.347	KSB 2238.487	12	35	14.5	47.6	26.3	10.6	39.7	16.7	12	144
KSB 2238.208	KSB 2238.348	KSB 2238.488	12	40	14.5	47.6	26.3	10.6	39.7	16.7	12	144
KSB 2238.209	KSB 2238.349	KSB 2238.489	12	45	14.5	47.6	26.3	10.6	39.7	16.7	12	144
KSB 2238.210	KSB 2238.350	KSB 2238.490	12	50	14.5	47.6	26.3	10.6	39.7	16.7	12	144
KSB 2238.212	KSB 2238.352	KSB 2238.492	12	60	14.5	47.6	26.3	10.6	39.7	16.7	12	144
KSB 2238.214	KSB 2238.354	KSB 2238.494	12	70	14.5	47.6	26.3	10.6	39.7	16.7	12	144
KSB 2238.216	KSB 2238.356	KSB 2238.496	12	80	14.5	47.6	26.3	10.6	39.7	16.7	12	144
KSB 2238.226	KSB 2238.366	KSB 2238.506	16	30	19.0	47.6	26.3	14.0	39.7	16.7	16	257
KSB 2238.227	KSB 2238.367	KSB 2238.507	16	35	19.0	47.6	26.3	14.0	39.7	16.7	16	257
KSB 2238.228	KSB 2238.368	KSB 2238.508	16	40	19.0	47.6	26.3	14.0	39.7	16.7	16	257
KSB 2238.229	KSB 2238.369	KSB 2238.509	16	45	19.0	47.6	26.3	14.0	39.7	16.7	16	257
KSB 2238.230	KSB 2238.370	KSB 2238.510	16	50	19.0	47.6	26.3	14.0	39.7	16.7	16	257
KSB 2238.232	KSB 2238.372	KSB 2238.512	16	60	19.0	47.6	26.3	14.0	39.7	16.7	16	257
KSB 2238.234	KSB 2238.374	KSB 2238.514	16	70	19.0	47.6	26.3	14.0	39.7	16.7	16	257
KSB 2238.236	KSB 2238.376	KSB 2238.516	16	80	19.0	47.6	26.3	14.0	39.7	16.7	16	257
KSB 2238.252	KSB 2238.392	KSB 2238.532	20	60	25.0	57.6	35.4	20.5	51.2	21.5	20	403
KSB 2238.256	KSB 2238.396	KSB 2238.536	20	80	25.0	57.6	35.4	20.5	51.2	21.5	20	403
KSB 2238.260	KSB 2238.400	KSB 2238.540	20	100	25.0	57.6	35.4	20.5	51.2	21.5	20	403
KSB 2238.264	KSB 2238.404	KSB 2238.544	20	120	25.0	57.6	35.4	20.5	51.2	21.5	20	403

* Shear strength similar to DIN 50141

Ball locking pins

Self-locking, with elastic handle



Type KSB 2237/2238

For speedy fixing and securing of parts and work pieces. Quick and easy to release for frequently-repeated connections, such as when replacing bearing pins.

Properties

- High-strength, hardened, hard-wearing extremely strong
- New, modern, patented design
- Corrosion-resistant
- Elastic, ergonomic handle with integral reset (sealing)
- Fixing options for retaining cables see page 30
- Temperature range: – 30 °C to + 80° C

Materials

Studs: stainless steel 1.4305,
stainless steel 1.4542,
precipitation-hardened
Handle: plastic (PA 6/TPE), grey/orange

Order example

Ball locking pin self-locking
stainless steel 1.4305,
with elastic handle, $d_1 = 5$; $l_1 = 10$

KSB 2237 . 712

Article group	Design
---------------	--------

Order description		d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	Locating hole H 11	Shear strength two-shear kN min. 1.4305*	Shear strength two-shear kN min. 1.4542*
1.4305	1.4542											
KSB 2237.712	KSB 2238.712	5	10	5.5	36	12.7	6.0	31.0	15.9	5	14	24
KSB 2237.713	KSB 2238.713	5	15	5.5	36	12.7	6.0	31.0	15.9	5	14	24
KSB 2237.714	KSB 2238.714	5	20	5.5	36	12.7	6.0	31.0	15.9	5	14	24
KSB 2237.715	KSB 2238.715	5	25	5.5	36	12.7	6.0	31.0	15.9	5	14	24
KSB 2237.716	KSB 2238.716	5	30	5.5	36	12.7	6.0	31.0	15.9	5	14	24
KSB 2237.722	KSB 2238.722	6	10	7.0	36	12.7	7.0	31.0	15.9	6	21	35
KSB 2237.723	KSB 2238.723	6	15	7.0	36	12.7	7.0	31.0	15.9	6	21	35
KSB 2237.724	KSB 2238.724	6	20	7.0	36	12.7	7.0	31.0	15.9	6	21	35
KSB 2237.725	KSB 2238.725	6	25	7.0	36	12.7	7.0	31.0	15.9	6	21	35
KSB 2237.726	KSB 2238.726	6	30	7.0	36	12.7	7.0	31.0	15.9	6	21	35
KSB 2237.727	KSB 2238.727	6	35	7.0	36	12.7	7.0	31.0	15.9	6	21	35
KSB 2237.728	KSB 2238.728	6	40	7.0	36	12.7	7.0	31.0	15.9	6	21	35
KSB 2237.729	KSB 2238.729	6	45	7.0	36	12.7	7.0	31.0	15.9	6	21	35
KSB 2237.730	KSB 2238.730	6	50	7.0	36	12.7	7.0	31.0	15.9	6	21	35
KSB 2237.734	KSB 2238.734	8	20	9.6	41	16.4	8.2	34.8	19.2	8	38	63
KSB 2237.735	KSB 2238.735	8	25	9.6	41	16.4	8.2	34.8	19.2	8	38	63
KSB 2237.736	KSB 2238.736	8	30	9.6	41	16.4	8.2	34.8	19.2	8	38	63
KSB 2237.737	KSB 2238.737	8	35	9.6	41	16.4	8.2	34.8	19.2	8	38	63
KSB 2237.738	KSB 2238.738	8	40	9.6	41	16.4	8.2	34.8	19.2	8	38	63
KSB 2237.739	KSB 2238.739	8	45	9.6	41	16.4	8.2	34.8	19.2	8	38	63
KSB 2237.740	KSB 2238.740	8	50	9.6	41	16.4	8.2	34.8	19.2	8	38	63
KSB 2237.744	KSB 2238.744	10	20	12.0	41	16.4	9.6	34.8	19.2	10	60	100
KSB 2237.745	KSB 2238.745	10	25	12.0	41	16.4	9.6	34.8	19.2	10	60	100
KSB 2237.746	KSB 2238.746	10	30	12.0	41	16.4	9.6	34.8	19.2	10	60	100
KSB 2237.747	KSB 2238.747	10	35	12.0	41	16.4	9.6	34.8	19.2	10	60	100
KSB 2237.748	KSB 2238.748	10	40	12.0	41	16.4	9.6	34.8	19.2	10	60	100
KSB 2237.749	KSB 2238.749	10	45	12.0	41	16.4	9.6	34.8	19.2	10	60	100
KSB 2237.750	KSB 2238.750	10	50	12.0	41	16.4	9.6	34.8	19.2	10	60	100
KSB 2237.752	KSB 2238.752	10	60	12.0	41	16.4	9.6	34.8	19.2	10	60	100

* Shear strength similar to DIN 50141

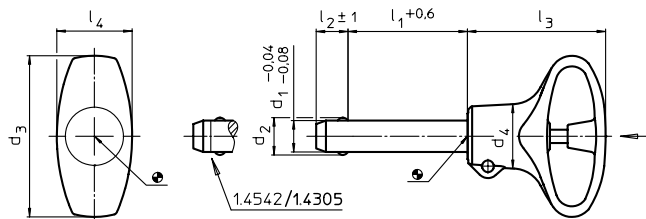
Ball locking pins

Self-locking, with elastic handle



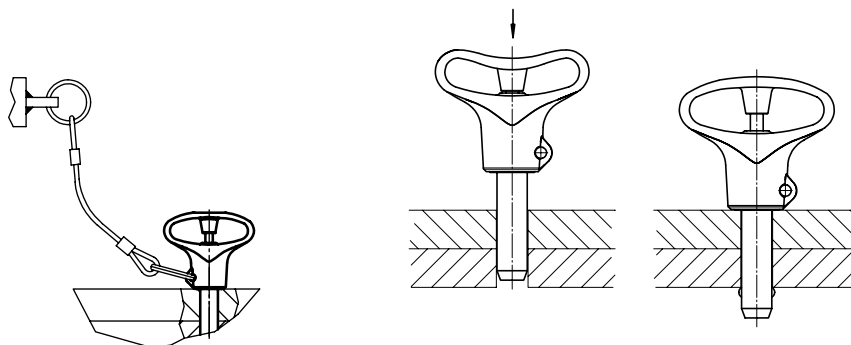
Type KSB 2237/2238

See page 24



Retaining cable with eye

See page 30



Order description		d ₁	l ₁	d ₂	d ₃	d ₄	l ₂	l ₃	l ₄	Locating hole H 11	Shear strength two-shear kN min. 1.4305*	Shear strength two-shear kN min. 1.4542*
1.4305	1.4542											
KSB 2237.765	KSB 2238.765	12	25	14.5	49	21.2	10.6	40.5	24.8	12	87	144
KSB 2237.766	KSB 2238.766	12	30	14.5	49	21.2	10.6	40.5	24.8	12	87	144
KSB 2237.767	KSB 2238.767	12	35	14.5	49	21.2	10.6	40.5	24.8	12	87	144
KSB 2237.768	KSB 2238.768	12	40	14.5	49	21.2	10.6	40.5	24.8	12	87	144
KSB 2237.769	KSB 2238.769	12	45	14.5	49	21.2	10.6	40.5	24.8	12	87	144
KSB 2237.770	KSB 2238.770	12	50	14.5	49	21.2	10.6	40.5	24.8	12	87	144
KSB 2237.772	KSB 2238.772	12	60	14.5	49	21.2	10.6	40.5	24.8	12	87	144
KSB 2237.774	KSB 2238.774	12	70	14.5	49	21.2	10.6	40.5	24.8	12	87	144
KSB 2237.776	KSB 2238.776	12	80	14.5	49	21.2	10.6	40.5	24.8	12	87	144
KSB 2237.786	KSB 2238.786	16	30	19.0	49	21.2	14.0	40.5	24.8	16	155	257
KSB 2237.787	KSB 2238.787	16	35	19.0	49	21.2	14.0	40.5	24.8	16	155	257
KSB 2237.788	KSB 2238.788	16	40	19.0	49	21.2	14.0	40.5	24.8	16	155	257
KSB 2237.789	KSB 2238.789	16	45	19.0	49	21.2	14.0	40.5	24.8	16	155	257
KSB 2237.790	KSB 2238.790	16	50	19.0	49	21.2	14.0	40.5	24.8	16	155	257
KSB 2237.792	KSB 2238.792	16	60	19.0	49	21.2	14.0	40.5	24.8	16	155	257
KSB 2237.794	KSB 2238.794	16	70	19.0	49	21.2	14.0	40.5	24.8	16	155	257
KSB 2237.796	KSB 2238.796	16	80	19.0	49	21.2	14.0	40.5	24.8	16	155	257

* Shear strength similar to DIN 50141

Ball blocking pins | Equipment

Locating bushes



Type KSB 2240

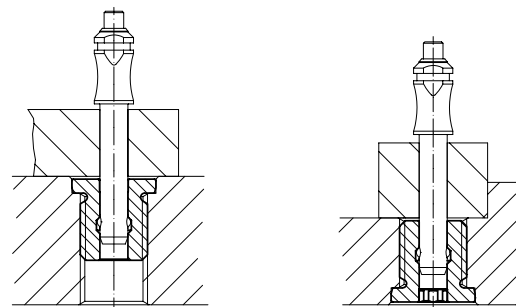
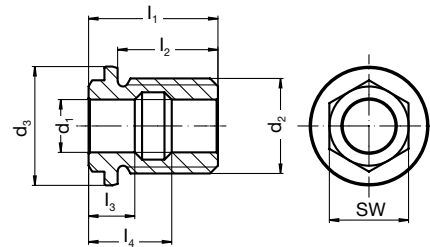
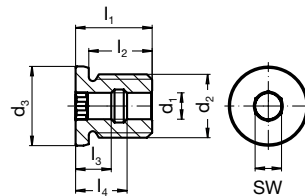
Positioning bushes are a quick and reliable method for locating ball blocking pins KSB 2237 and KSB 2238, also for KSB 2240 locking pins.

Properties

- Optimised centring possibilities due to the precise collar (such as speedy fixing of panels and components)
- Easy and reliable to fit
- Can be fitted in many different carrier materials
- Can also be used for thin-walled components
- Corrosion-resistant
- Hard-wearing
- Usable from both sides

Materials

Stainless steel 1.4305



Order example

Locating bush stainless steel with internal hexagon for ball locking pins, $d_1 = M12$; $d_2 = 5,0$

KSB 2240 . 905

Article group	Design
---------------	--------

Order description	Design	d_1 H 11	d_2	d_3 h 9	l_1	l_2	l_3	l_4	SW
KSB 2240.905	with internal hexagon (drawing 1)	5.0	M 12	18	19.0	15.0	9.0	13.0	5
KSB 2240.906		6.0	M 12	18	19.0	15.0	9.4	13.0	6
KSB 2240.908		8.0	M 16	22	25.0	20.0	12.0	17.0	8
KSB 2240.910		10.0	M 24	30	29.0	24.0	13.5	19.5	10
KSB 2240.912		12.0	M 24	30	29.0	24.0	14.0	20.0	12
KSB 2240.916	with hexagon head (drawing 2)	16.0	M 30	36	39.0	29.0	15.5	23.5	24
KSB 2240.920		20.0	M 36	45	49.0	38.0	17.5	31.5	30

Ball lifting pins

Self-locking



Type KTB 2235

- Ball lifting pins and locating bushes in stainless steel on application
- Press = unlock
Release = lock
- Quick and easy to use, a robust carrying device with movable shackle. Special carrying aids such as threads are no longer needed on the work piece. H 11 drilled holes are all you need.

Properties

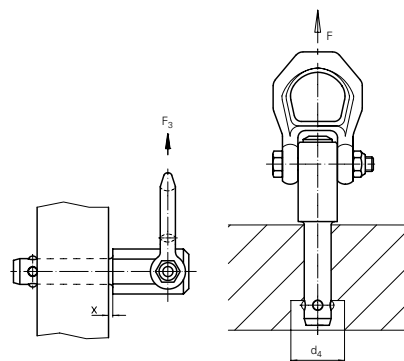
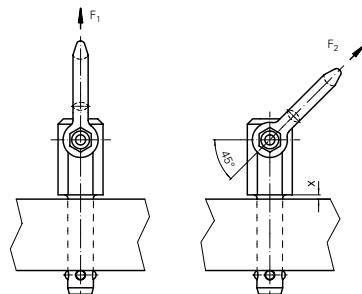
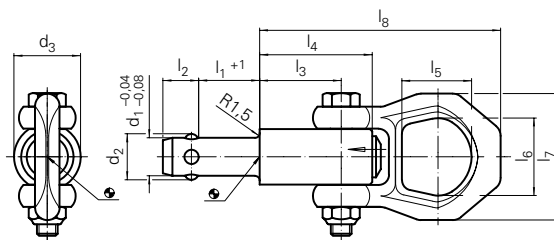
- Protected against corrosion
- Temperature range: + 250° C

Materials

Stud/shackle: manganese-phosphated steel

Pushbutton: aluminium

Spring: stainless steel



Order example

Self-locking ball lifting pin,
d₁ = 12; l₁ = 35

KSB 2235 . 635

Article group	Design
---------------	--------

Order description	d ₁	l ₁	d ₂	d ₃	d ₄ min.	l ₂	l ₃	l ₄	l ₅	l ₆	l ₇	l ₈	x min.	x max.	Locating hole H 11	F ₁ kN*	F ₂ kN*	F ₃ kN*
KTB 2235.621	10	15	11.7	21.5	12.2	10.2	25.7	36.0	27.0	30.0	49.0	87.5	1.5	10	10	2.7	2.4	2.1
KTB 2235.623	10	25	11.7	21.5	12.2	10.2	25.7	36.0	27.0	30.0	49.0	87.5	1.5	15	10	2.7	2.4	2.1
KTB 2235.625	10	35	11.7	21.5	12.2	10.2	25.7	36.0	27.0	30.0	49.0	87.5	1.5	25	10	2.7	2.4	2.1
KTB 2235.627	10	50	11.7	21.5	12.2	10.2	25.7	36.0	27.0	30.0	49.0	87.5	1.5	35	10	2.7	2.4	2.1
KTB 2235.631	12	15	14.2	21.5	14.7	11.0	25.7	36.0	27.0	30.0	49.0	87.5	1.5	10	12	3.5	3.2	2.8
KTB 2235.633	12	25	14.2	21.5	14.7	11.0	25.7	36.0	27.0	30.0	49.0	87.5	1.5	20	12	3.5	3.2	2.8
KTB 2235.635	12	35	14.2	21.5	14.7	11.0	25.7	36.0	27.0	30.0	49.0	87.5	1.5	25	12	3.5	3.2	2.8
KTB 2235.637	12	50	14.2	21.5	14.7	11.0	25.7	36.0	27.0	30.0	49.0	87.5	1.5	45	12	3.5	3.2	2.8
KTB 2235.641	16	25	18.6	25.0	19.2	15.1	31.0	44.5	27.0	30.0	49.0	92.8	1.5	20	16	4.8	4.5	4.1
KTB 2235.643	16	50	18.6	25.0	19.2	15.1	31.0	44.5	27.0	30.0	49.0	92.8	1.5	40	16	4.8	4.5	4.1
KTB 2235.645	16	75	18.6	25.0	19.2	15.1	31.0	44.5	27.0	30.0	49.0	92.8	1.5	55	16	4.8	4.5	4.1

* With 5-way reliability

Ball clamping pins

Self-locking with grip range adjustment



Type KSB 2236

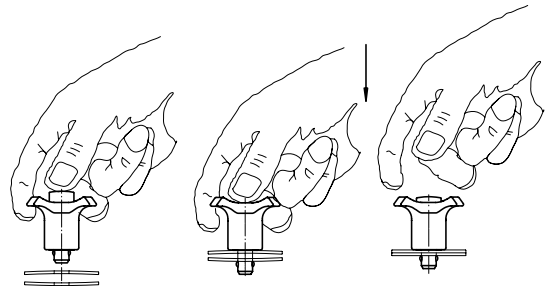
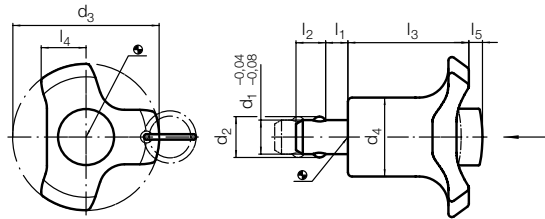
For fixing and connecting thin panels free of play. Clamping thickness of only 5 mm for clamping sheets for welding work, for protective coverings, for welding doors shut etc.

Properties

- Corrosion-resistant
- Ergonomic handle.
- Fixing options for retaining cables see page 30
- Temperature range: - 30 °C to + 80 °C

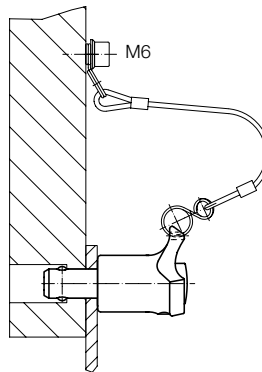
Materials

Stud: stainless steel 1.4305
 Handle: plastic (PA 6), black/red
 Spring: stainless steel



Retaining cable with eye

See page 30



Order example

Ball clamping pin self-locking with grip range adjustment, $d_1 = 10$; $l_1 = 0-5$

KSB 2236 . 030

Article group	Design
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Order description	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	l_5 unclamped	Locating hole H 11	Clamping force N max.
KSB 2236.010	6	0 - 5	7.0	38	17.5	5.0	30.2	11.0	3	6	16
KSB 2236.012	6	5 - 10	7.0	38	17.5	5.0	30.2	11.0	3	6	18
KSB 2236.020	8	0 - 5	9.5	38	17.5	6.5	30.2	11.0	3	8	16
KSB 2236.022	8	5 - 10	9.5	38	17.5	6.5	30.2	11.0	3	8	18
KSB 2236.030	10	0 - 5	12.0	47	23.0	8.7	36.0	11.0	4	10	21
KSB 2236.032	10	5 - 10	12.0	47	23.0	8.7	36.0	11.0	4	10	23
KSB 2236.040	12	0 - 5	14.0	47	23.0	9.4	36.0	13.5	4	12	21
KSB 2236.042	12	5 - 10	14.0	47	23.0	9.4	36.0	13.5	4	12	23

Ball plug pins

With spring-loaded balls



Type KSB 2240

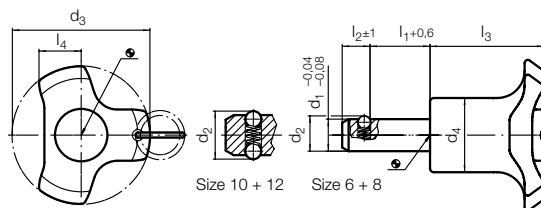
- For applying pressure quickly and easily to secure axles and studs
- **Balls are spring-loaded and not locked as in KSB 2236, KSB 2237 and KSB 2238**

Properties

- Corrosion-resistant
- Ergonomic handle
- Fixing options for retaining cables see page 30
- Temperature range: - 30 °C to + 80 °C

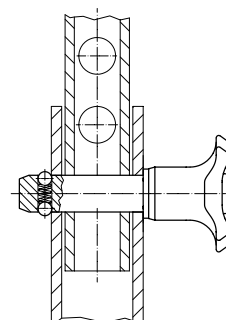
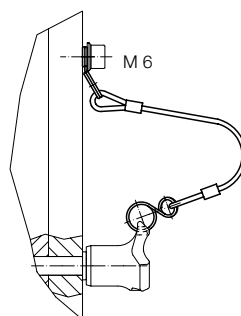
Materials

Stud: stainless steel 1.4305
 Handle: plastic (PA 6), black-red
 Spring: stainless steel



Retaining cable with eye

See page 30



Order example

Ball plug pin, $d_1 = 8$; $l_1 = 30$

KSB 2240 . 090

Article group	Design
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Order description	d_1	l_1	d_2	d_3	d_4	l_2	l_3	l_4	Locating hole D 12	Shear strength two-shear kN	Tensile strength uncoiled N max.
KSB 2240.062	6	10	6.5	38	17.3	5.0	27.0	10.8	6	22	8
KSB 2240.064	6	15	6.5	38	17.3	5.0	27.0	10.8	6	22	8
KSB 2240.066	6	20	6.5	38	17.3	5.0	27.0	10.8	6	22	8
KSB 2240.068	6	25	6.5	38	17.3	5.0	27.0	10.8	6	22	8
KSB 2240.070	6	30	6.5	38	17.3	5.0	27.0	10.8	6	22	8
KSB 2240.075	6	50	6.5	38	17.3	5.0	27.0	10.8	6	22	8
KSB 2240.084	8	15	8.7	38	17.3	6.3	28.6	10.8	8	40	15
KSB 2240.086	8	20	8.7	38	17.3	6.3	28.6	10.8	8	40	15
KSB 2240.088	8	25	8.7	38	17.3	6.3	28.6	10.8	8	40	15
KSB 2240.090	8	30	8.7	38	17.3	6.3	28.6	10.8	8	40	15
KSB 2240.095	8	50	8.7	38	17.3	6.3	28.6	10.8	8	40	15
KSB 2240.104	10	15	12.0	38	17.3	8.7	28.6	10.8	10	62	30
KSB 2240.106	10	20	12.0	38	17.3	8.7	28.6	10.8	10	62	30
KSB 2240.108	10	25	12.0	38	17.3	8.7	28.6	10.8	10	62	30
KSB 2240.110	10	30	12.0	38	17.3	8.7	28.6	10.8	10	62	30
KSB 2240.115	10	50	12.0	38	17.3	8.7	28.6	10.8	10	62	30
KSB 2240.122	12	20	14.5	38	17.3	9.5	28.6	10.8	12	90	32
KSB 2240.124	12	30	14.5	38	17.3	9.5	28.6	10.8	12	90	32
KSB 2240.126	12	40	14.5	38	17.3	9.5	28.6	10.8	12	90	32
KSB 2240.128	12	50	14.5	38	17.3	9.5	28.6	10.8	12	90	32

Quick release pins | Equipment

Retaining cables

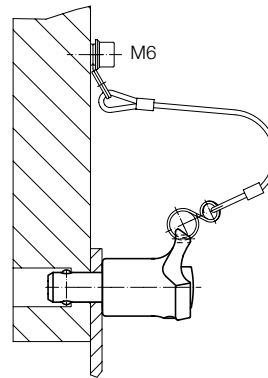
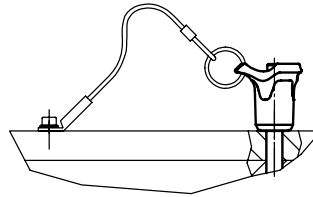
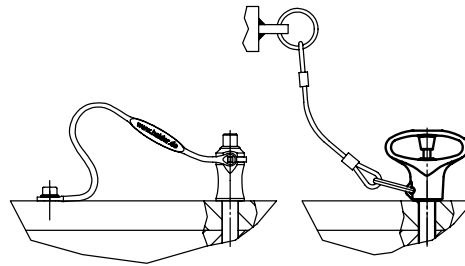
Type HS 2240

- These retaining cables are for securing ball locking pins KSB 2237 and KSB 2238, ball clamping pins and socket studs and act as a captive fastening.
- After fixing plastic devices, cut off any projecting ends cleanly.
- Temperature range: max. + 80° C

Materials

Retaining cables: stainless steel with PVC (clear) jacket, plastic (PA 6), grey

Eye/fixing panel or ring: stainless steel



Order example

Retaining cable with eye, l = 200

HS 2240 . 962

Article group	Design
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Order description	Design	l
<p>HS 2240.950*</p> <p>HS 2240.952*</p> <p>HS 2240.956*</p>	<p>Stainless steel, with 2 securing rings</p>	<p>150</p> <p>200</p> <p>300</p>
<p>HS 2240.960*</p> <p>HS 2240.962*</p> <p>HS 2240.966*</p>	<p>Stainless steel, with one securing ring and screw-on eye</p>	<p>150</p> <p>200</p> <p>300</p>
<p>HS 2240.970</p> <p>HS 2240.974</p>	<p>Plastic, with clamp-catch mechanism each end</p>	<p>150</p> <p>250</p>

* Not for single-acting ball blocking pins

KVT-Fastening – Fastening technology



Blind rivet nuts



Blind rivet technology



Thread inserts



Self-clinching fasteners



Stud welding systems¹⁾



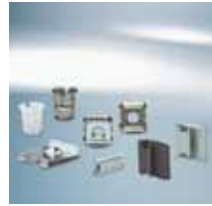
Lock nuts



Bonding fasteners



Access solutions



Quick fastening elements and clips



Quick release pins and spring plungers



Adhesives and sealants¹⁾



Construction fasteners²⁾



Special processes²⁾



Plugs



Pressure intensifiers³⁾



Installation technology



Quick connectors⁴⁾

Fastening, sealing and flow control solutions for complex applications

The extensive KVT-Fastening portfolio offers optimal solutions for your most challenging applications. The products included in this catalog represent only a selection from our entire product portfolio. Upon request, we will be pleased to provide additional information or an individual consultation to you.

Intelligent logistic systems

Bossard SmartBin and SmartLabel are intelligent logistics systems which monitor stock with total reliability and ensure stock replenishment automatically. An online system transmits the data to our server, and this – if necessary – triggers an order. These systems ensure quick and easy availability of C-parts while production is running.



Logistic systems

Competent analysis for efficient solutions

KVT-Fastening's highly qualified experts analyze the given task at hand. Based on this sound understanding of the project, they then develop ideal solutions that are economical, efficient, and safe.



Solutioneering

For more information about our range of products and order at our E-shop, please visit www.kvt-fastening.com

¹⁾ Not available in Germany. ²⁾ Only available in Switzerland. ³⁾ Not available in Switzerland. ⁴⁾ Not available in Austria.

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