

CONNEX®



CONNEX
Spring Pins

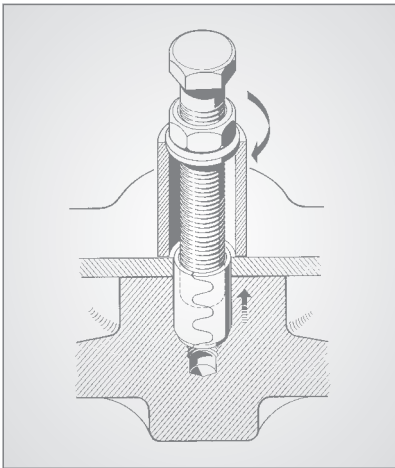
with internal thread

also with collar

CONNEX spring pins

with internal thread

Blind hole removal



Thanks to the internal thread, you can remove CONNEX spring pins from a blind hole.

All you need is...

- A spacer sleeve
- A washer
- A hexagonal-head bolt
- A hexagonal nut

You can pull the CONNEX spring pin out by turning the hexagonal nut.



CONNEX spring pins with internal thread, ground, type SGM are for applications that require the utmost precision.



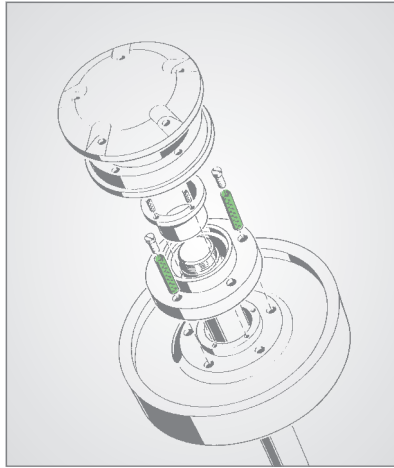
CONNEX spring pins with internal thread and collar, type SBM are multifunctional and simpler in applications where hexagonal and weld nuts are used.

Additional benefits

- Easier to install than dowel pins
- Easy to remove thanks to the internal thread
- Lower material stresses:
The toothed slot enables spring pins to bridge bore tolerances and center distance tolerances better than dowels pins.
- Can also be used as an axle thanks to the toothed slot
- High quality chrome-vanadium spring steel

CONNEX spring pins with internal thread, not ground, type SM – for applications that require normal precision.

Protection against dirt



Using CONNEX spring pins with internal thread in a blind hole in a machine gear unit.



Plastic plugs – prevent dirt from entering.

Material

- CONNEX uses a high quality chrome-vanadium spring steel, 50CrV4, in accordance with DIN 1.8159
- For detailed information on the material, please refer to the specifications in our main catalogue “CONNEX Spring Pins”

Installing CONNEX spring pins

- CONNEX spring pins are easy to install using a mounting mandrel and hammer. We recommend using a hydraulic press to install spring pins with larger diameters.
- A lubricant is essential to ensure that CONNEX spring pins are properly installed. We recommend products based on molybdenum disulphide.

CONNEX spring pins

with internal thread

More than just a pin

When we developed the CONNEX spring pins with internal thread, our customers placed special emphasis on the ability to remove CONNEX spring pins from blind holes.

These additional benefits, combined with the unique properties of the standard CONNEX spring pins, enable entirely new structural solutions.

Bridging workpiece tolerances

If you use more than one CONNEX spring pin to join two workpieces, the spring pins absorb the unavoidable minimal deviations in axis distance.

This solution applies especially to applications that require high precision using ground CONNEX spring pins.

Accuracy combined with elasticity

CONNEX spring pins provide exact and nevertheless elastic pin connections – required, for example, with positioning jobs that are subject to high-frequency vibration.

Cost reduction

The elastic behaviour of CONNEX spring pins is especially impressive with hardened workpieces: CONNEX spring pins can bridge tolerances. The costs of achieving the required accuracy in machinery and tool construction can be reduced considerably.

Certified quality management

Our company was certified according to ISO 9002 as early as 1991. Since then, we have extended our management system to incorporate the standards ISO 9001, ISO/TS 16949, ISO 14001 and also work safety aspects. We ensure continued quality improvement by performing periodic review audits.





Notes on the standard sheets

- 1) The chamfer is partially formed on the strip and can change during pin formation.
- 2) The length of the CONNEX spring pins is measured point-to-point on the faces at 180° (opposite) to the shaft slot.
- 3) Wall thickness tolerances:

Nominal wall thickness s	Wall thickness tolerance
1,5 – 2 mm	+ 0,05/-0,05
2,5 – 7 mm	- 0,04/-0,16
7,5 – 10 mm	- 0,05/-0,20
- 4) Shear strength values are values at failure determined in the laboratory according to DIN EN 28749, without safety factor.

Order designations

For example:

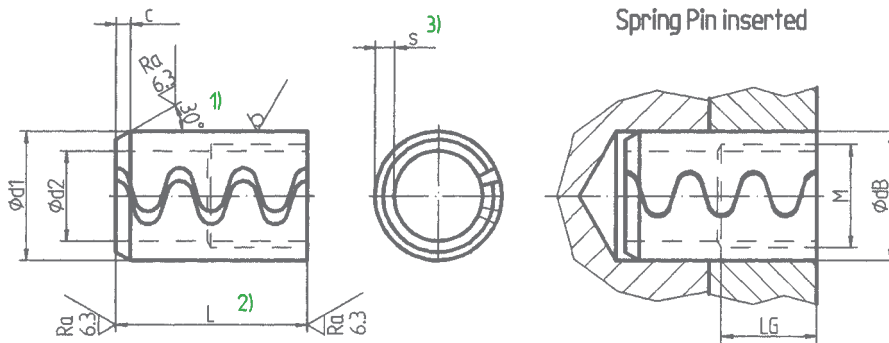
- Designation of a CONNEX heavy-duty spring pin with internal thread, nominal diameter 12 mm and length 40 mm, made of 50CrV4 according to DIN 1.8159:
SM 12 x 40 mm M8, 1.8159
- Ground:
SGM 12 x 40 mm M8, 1.8159
- Designation of a CONNEX heavy-duty spring pin with internal thread, with outer collar diameter of 15 mm, nominal diameter (without collar) of 12 mm, and length of 20 mm:
SBM 15/12 x 20 mm M10, 1.8159

Shear strength

- The standard sheet for the CONNEX heavy-duty spring pin, type SM with internal thread, contains minimum shear strengths (outside the region of the internal thread). These apply for static loads and temperatures up to 300 °C.
- The designer then chooses the appropriate factor of safety based on the loading type and the application conditions. The factor of safety is higher for dynamic loads and can be 5 or greater for shock or high-frequency pulsating stresses. With special pin connections, we recommend testing a prototype in addition to analysing the connection using calculation and previous experience.
- Ground CONNEX spring pins (see heavy-duty spring pin dimension sheet), type SGM, have values that are approximately 25% lower.
- For detailed information on the shear strength and how to determine it, please refer to the specifications in our main catalogue "CONNEX Spring Pins".

CONNEX spring pins

with internal thread, type SM



CONNEX company standard
no. 14.3.03
 Dimensions in mm

Material:
 Spring steel 50CrV4, DIN 1.8159
 Hardened to 420 – 510 HV

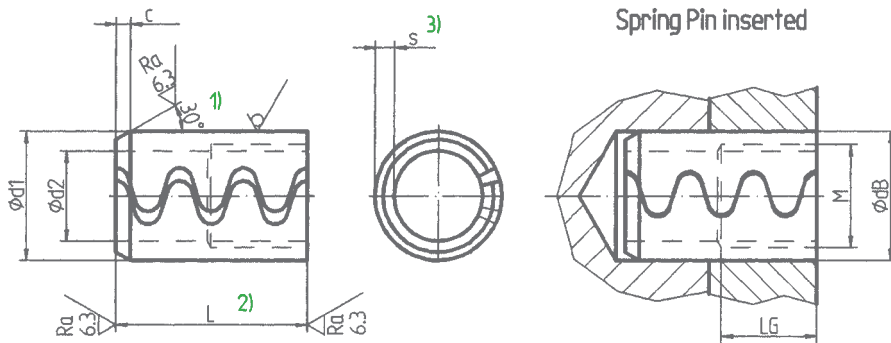
Nominal diameter		8	10	12	14	16	18	20	22	24	25	
d1	Before installation	8.4	10.5	12.5	14.5	16.5	18.5	20.5	22.5	24.5	25.5	
	Permissible tolerance	+ 0.2			+ 0.3							
d2	Before installation	5.4	6.5	7.5	8.5	10.5	11.5	12.5	13.5	15.5	15.5	
s		1.5	2.0	2.5	3.0	3.0	3.5	4.0	4.5	4.5	5.0	
c		1.0	1.3	1.6	2.2	2.2	2.6	2.6	3.0	3.0	3.0	
Thread	M	M 6	M 8	M 8	M 10	M 12	M 14	M 16	M 16	M 18	M 18	
	LG	5	6	8	10	12	12	15	15	15	15	
Minimum shear strength in N	single shear	21380	35080	52050	72350	85500	111250	140300	172500	192300	219250	
	double shear	42760	70160	104100	144700	17100	222500	280600	345000	384600	438500	
Weight in kg / 1000 pieces per 10 mm length		2.16	3.39	5.06	6.8	8.34	11.68	14.35	17.8	19.95	22.78	
Length L	Permissible tolerance	The nominal diameter is also the insertion bore diameter dB. Tolerance H 12										
20												
25												
30												
35	0 / -0.3											
40												
45												
50												
55												
60												
65												
70												
75												
80												
85												
90	0 / -0.5											
95												
100												
110												
120												
130												
140												
150												
160												
170												
180												
190												

Notes 1) to 4) see page 5

CONNEX reserves the right to approve any material and design changes to published specifications.

CONNEX spring pins

with internal thread, type SM



CONNEX company standard
no. 14.3.03
 Dimensions in mm

Material:
 Spring steel 50CrV4, DIN 1.8159
 Hardened to 420 – 510 HV

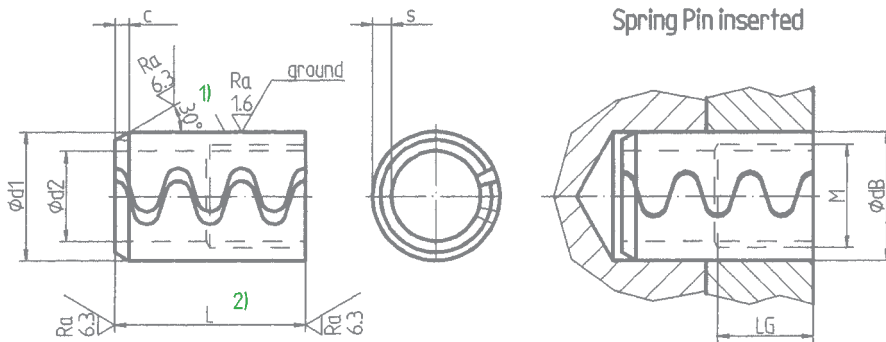
	28	30	32	35	38	40	45	50	Other dimensions on request	Nominal diameter	
	28.5	30.5	32.5	35.5	38.5	40.5	45.5	50.5		Before installation	d1
										Permissible tolerance	
										Before installation	d2
											s
											c
	M 20	M 20	M 24	M 24	M 30	M 30	M 36	M 36		M	Thread
	15	15	22	22	25	25	30	30		LG	
	271300	315700	342000	429500	501500	534000	680000	842500		4)	Minimum
	542600	631400	684000	859000	1003000	1068000	1360000	1685000		single shear	shear strength
										double shear	in N
										Weight in kg / 1000 pieces. per 10 mm length	
	28.5	33.35	35.4	45.09	50.05	55.15	65.03	90.3		Permissible tolerance	Length L
The nominal diameter is also the insertion bore diameter dB. Tolerance H 12											20
											25
										0 / -0.3	30
											35
											40
											45
											50
											55
											60
											65
											70
											75
											80
										0 / -0.5	85
											90
											95
											100
											110
											120
											130
											140
											150
											160
											170
											180
											190

Notes 1) to 4) see page 5

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CONNEX ground spring pins

with internal thread, type SGM



CONNEX company standard
no. 14.3.04
 Dimensions in mm

Material:
 Spring steel 50CrV4, DIN 1.8159
 Hardened to 420 – 510 HV

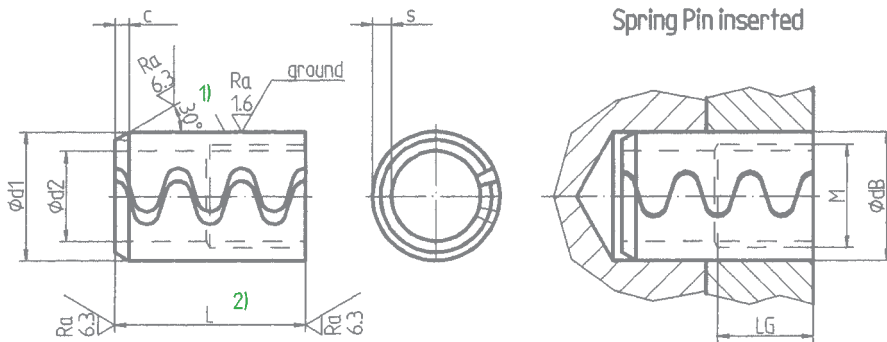
Nominal diameter		8	10	12	14	16	18	20	22	24	25
d1	Before installation	8.2	10.2	12.2	14.25	16.25	18.25	20.25	22.25	24.25	25.25
	Permissible tolerance	+ 0.058	+ 0.070				+ 0.084				
d2	Before installation	5.4	6.5	7.5	8.5	10.5	11.5	12.5	13.5	15.5	15.5
s		1.3	1.8	2.3	2.8	2.8	3.3	3.8	4.3	4.3	4.8
c		0.7	1.0	1.3	2.0	2.0	2.3	2.3	2.7	2.7	2.7
Thread	M	M 6	M 8	M 8	M 10	M 12	M 14	M 16	M 16	M 18	M 18
	LG	5	6	8	10	12	12	15	15	15	15
Weight in kg / 1000 pieces per 10 mm length		2.0	3.15	4.8	6.25	7.7	10.95	13.5	16.9	19	21.8
Length L	Permissible tolerance	The nominal diameter is also the insertion bore diameter dB. Tolerance H 8									
20											
25											
30											
35	0 / -0.3										
40											
45											
50											
55											
60											
65											
70											
75											
80											
85											
90	0 / -0.5										
95											
100											
110											
120											
130											
140											
150											
160											
170											
180											
190											

Notes 1) and 2) see page 5

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CONNEX ground spring pins

with internal thread, type SGM



CONNEX company standard
no. 14.3.04
 Dimensions in mm

Material:
 Spring steel 50CrV4, DIN 1.8159
 Hardened to 420 – 510 HV

	28	30	32	35	38	40	45	50	Other dimensions on request	Nominal diameter	
	28.25	30.25	32.25	35.25	38.25	40.25	45.25	50.25		Before installation	d1
	+ 0.084				+ 0.100					Permissible tolerance	
	17.5	18.5	20.5	21.5	23.5	25.5	29.5	30.5		Before installation	d2
	5.3	5.8	5.8	6.8	7.3	7.3	7.8	9.8			s
	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7			c
	M 20	M 20	M 24	M 24	M 30	M 30	M 36	M 36		M	Thread
	15	15	22	22	25	25	30	30		LG	
	27.4	32.15	34.1	43.8	48.5	53.5	63.2	88.4		Weight in kg / 1000 pieces per 10 mm length	
The nominal diameter is also the insertion bore diameter dB. Tolerance H 8										Permissible tolerance	Length L
											20
											25
										0 / -0.3	30
											35
											40
											45
											50
											55
											60
											65
											70
											75
											80
											85
										0 / -0.5	90
											95
											100
											110
											120
											130
											140
											150
											160
											170
											180
											190

Notes 1) and 2) see page 5

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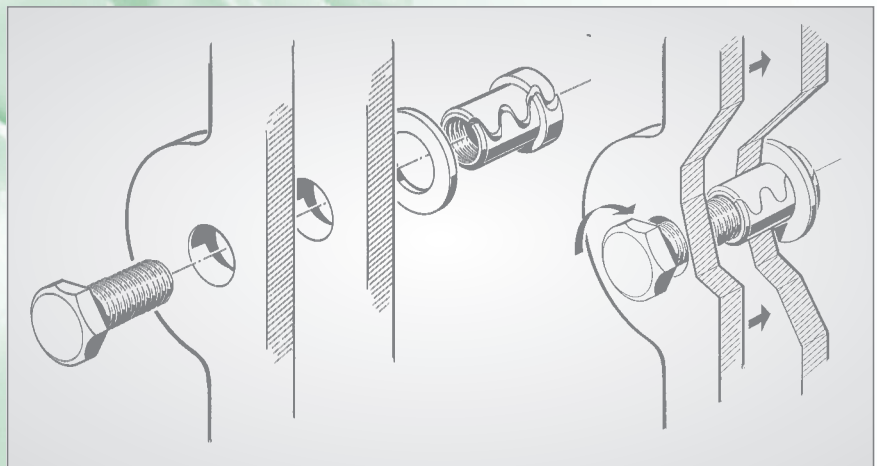
CONNEX spring pins

with collar and internal thread, type SBM



CONNEX spring pins with internal thread and collar, type SBM

- Standard designs according to standard sheet
- Special designs according to drawings



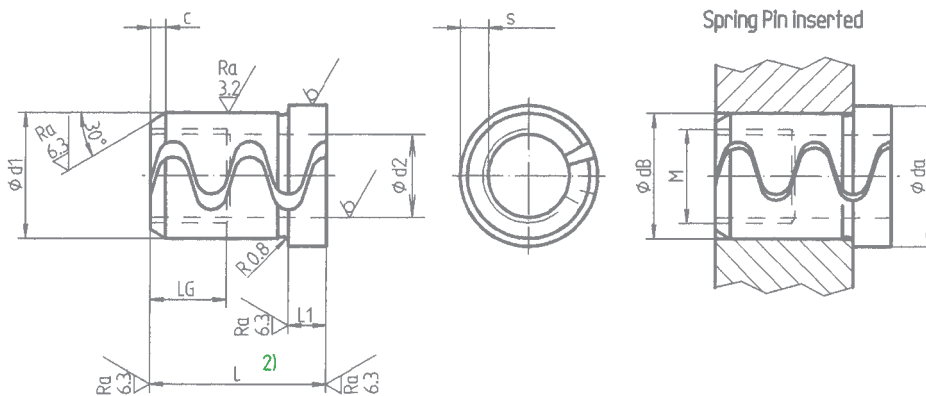
Example applications:

You use the CONNEX spring pin with internal thread and collar as a clamping nut (to replace a hexagonal nut or weld nut) if the hexagonal nut is inaccessible and cannot be held when tightening the bolt:

- The collar holds the CONNEX spring pin when under axial load.
- The washer reduces the surface pressure.
- To remove the connection, you can unscrew the hexagonal head bolt while the CONNEX spring pin remains fixed in the locating bore.

CONNEX spring pins

with collar and internal thread, type SBM



**CONNEX company standard
no. 14.3.05**
Dimensions in mm

Material:
Spring steel 50CrV4, DIN 1.8159
Hardened to 420 – 510 HV

Nominal diameter		12/10	15/12	16/13	18/15	19/15	23/19	24/20	28/25	30/25	35/30	40/36	45/40	50/45	Other dimensions on request
da		12.1	15.3	16.3	18.3	19.3	23.3	24.3	28.3	30.3	35.3	40.3	45.3	50.3	
	Permissible tolerance	+ 0.3/-0													
dB		10	12	13	15	15	19	20	25	25	30	36	40	45	
d1	Before installation	10.2	12.2	13.2	15.2	15.2	19.2	20.2	25.2	25.2	30.2	36.2	40.2	45.2	
	Permissible tolerance	+ 0.3/-0													
d2	Before installation	7.4	9.2	9.2	11.2	11.2	14.6	14.6	17.6	18.6	21.6	25.6	29.6	30.6	
s		2.5	3.2	3.7	3.7	4.2	4.5	5	5.5	6	7	7.5	8	10	
c		0.8	0.8	1	1	1	1	1	1	1	1	1	1	1	
Thread	M	M 8	M 10	M 10	M 12	M 12	M 16	M 16	M 20	M 20	M 24	M 30	M 36	M 36	
	LG	8	10	10	12	12	15	15	15	15	22	25	30	30	
Collar length	L1	5	5	5	5	5	5	5	5	5	5	5	5	5	
Length L	Permissible tolerance	The nominal diameter is also the insertion bore diameter dB. Tolerance H 12													
10															
15															
20															
25															
30															
35	0 / -0.5														
40															
45															
50															
55															
60															

Note 2) see page 5

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