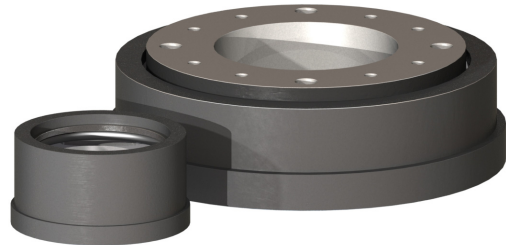


## Technical Data Sheet TI-A20

# Spring bases for Safety Catchers series KR, KRP and K

- allow a release without lifting the load after minor lowering of the load
- compensate for lateral misalignment between slide guide and clamping rod
- The Safety Catchers' safety function remains



## Purpose

For reasons of safety, SITEMA Safety Catchers can only be released if their clamping system is not under load.

For a detailed function description and an explanation of the different operating conditions "secure the load" and "take the load", please refer to "Technical Information TI-A10".

As long as the Safety Catcher only secures the load and does not take the load, the clamping can be released by applying pressure at pressure port L "release".

As soon as the Safety Catcher takes the load, applying pressure at pressure port L does not suffice anymore to release the clamping. Additionally, the load needs to be lifted.

In case of a minor lowering of the load (e. g. caused by leakage or post-pulse oscillation), the Safety Catcher already takes the load partially. The clamping cannot be released by solely applying pressure.

**Spring bases** can compensate for a minor lowering of the load, making it possible to release the clamping without lifting the load.

## Application in presses

In practice, spring bases are often used in **presses**: When the slide or any other load carrying device overshoots after reaching its top cut-off position, or moves slightly downward for any particular reason, the Safety Catcher is subjected to a partial load. This means that the slide must first be lifted before a closing movement of the press is possible.

This effect can often be avoided when the Safety Catcher is attached on a spring base.

The **advantages** of the spring bases are:

- The slide does not need to be lifted before a downward movement when minor leakage occurs on the cylinder seals.
- The Safety Catcher's crucial safety criteria, "**the clamping can only be released when the weight of the slide is supported entirely by the pressure column of the cylinder**", is satisfied without restriction.
- The spring base **compensates for lateral misalignment** between the slide guide and the clamping rod. Other methods (see "Technical Information TI-A10", Chapter 13.1 "Attachment options for PRESSURE versions") are not necessary in this case.

## Function

### KR 25 to KR 80 und KRP 25 to KRP 80

Connected to the bottom plate (2) Fig. 1 the housing (1) Fig. 1 is securely fixed to the machine frame (4) Fig. 1.

When released (i.e. not under load), the Safety Catcher is pressed upward by the spring (3) Fig. 1 against the stop.

Inside the housing the Safety Catcher is free to move vertically (stroke "h") as well as horizontally (radial play of 2 mm) against the machine frame (4) Fig. 1.

### KRP 100 and K 100 to K 140

Connected to the flange plate (5) Fig. 2 the housing (1) Fig. 2 is securely fixed to the machine frame (4) Fig. 2.

The bottom plate (2) Fig. 2 bears the Safety Catcher and is securely fixed to it.

When released (i.e. not under load) the Safety Catcher and the bottom plate are pressed upward by the springs (3) Fig. 2 against the stop.

The bottom plate is free to move vertically (stroke "h") as well as horizontally (radial play of X mm) against the machine frame (4) Fig. 2.

If the slide should settle slightly (due to leakage, for example) while the Safety Catcher is engaged, only the spring force is exerted on the Safety Catcher. In this case, the Safety Catcher can be released without an upward movement.

Only when the lowering movement exceeds the stroke length "h", the full weight of the slide will be taken by the Safety Catcher. Now it is only possible to release the Safety Catcher after a short upward movement.

### Note:

The overall distance after which the slide will be secured mechanically is increased by the distance h (for h see Table 1). This amount is to be taken into consideration when making safety analyses for engineering purposes.

- i** The **release pressure for hydraulic standard designs is 60 bar, for pneumatic standard designs 6 bar.**  
Pressure must be supplied via a flexible line.

The spring bases for the hydraulic Safety Catchers **KR 25 to KR 80** have no protection against torsion. The housing can self-align to the forces applied by the connecting hose.

Spring bases for Safety Catchers KR, KRP and K

Releasing without lifting the load after minor lowering

TI-A20-EN-02/2015

The spring bases for the pneumatic Safety Catchers **KRP 25 to KRP 80** are fitted with an internal protection against torsion to prevent the pneumatic hoses from kinking or squeezing.

The spring bases **KRP 100/FS 100, K 100/FS 100 to K 140/FS140** are fitted with a set of borehole guided compression springs, which at the same time prevent the body from rotating.

This anti-twist protection prevents connecting lines from kinking or squeezing, especially with pneumatic designs.

**Order and mounting**

If the spring base and the Safety Catcher are ordered together, the spring base is factory-mounted under the Safety Catcher, ready for use. All spring bases are also available separately.

The control of the Safety Catcher is not affected by the spring base, see "Technical Information TI-A10".

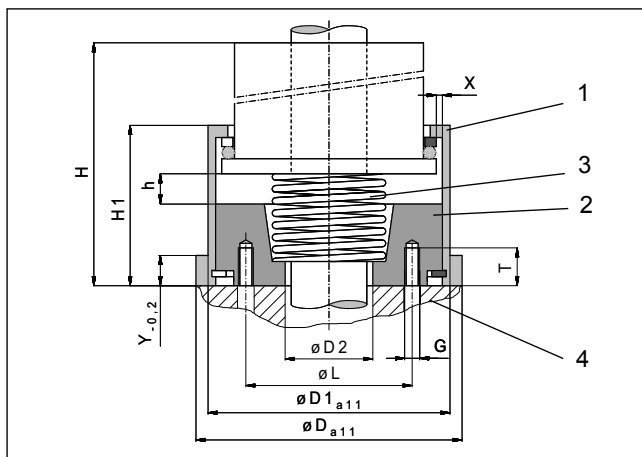


Fig. 1: Dimensions of spring base for Safety Catchers KR 25 to KR 80 and KRP 25 to KRP 80

- 1 Housing
- 2 Bottom plate
- 3 Spring
- 4 Machine frame

**Attachment**

There are two alternatives for attaching the spring bases to the machine frame:

- **direct screw mounting** using the threaded holes and drilling patterns arranged identically to the ones of the Safety Catcher
- with the **mounting flange FL/FS** which engages with the externally attached shoulder ("Technical Data Sheet TI-A30").

All fixation elements carrying the load need to be dimensioned for 3.5 x M. (Attachment screws are not included in the scope of delivery.)

Threaded holes with the correct dimensions (see Table 1) need to be provided in the machine frame.

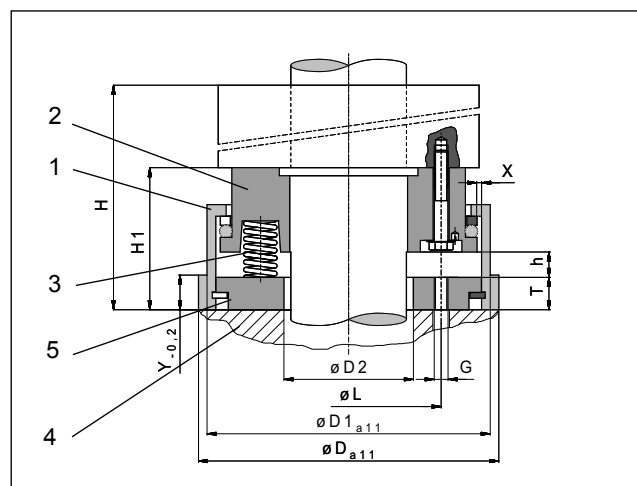


Fig. 2: Dimensions of spring base for Safety Catchers KRP 100 and K 100 to K 140

- 1 Housing
- 2 Bottom plate
- 3 Spring
- 4 Machine frame
- 5 Flange plate

Safety Catcher (ID no.)	Spring base (ID no.)	H	H1	D	D1	D2	Y	L	G	T	h	X	release pressure
(order no.)	(order no.)	mm	mm	mm	mm	mm		mm			mm	mm	bar
<b>KR 25 (KR 025 30)</b>	<b>FS 25 (FS 025 10)</b>	192	58	98	92	40	10	56	6 x M6	12	6	2	60
<b>KRP 25 (KR 025 31)</b>	<b>FS 25 (FS 025 11)</b>												6
<b>KR 40 (KR 040 30)</b>	<b>FS 40 (FS 040 10)</b>	257	75	146	140	50	16	80	6 x M8	20	8	3.5	60
<b>KRP 40 (KR 040 31)</b>	<b>FS 40 (FS 040 11)</b>												6
<b>KR 56 (KR 056 30)</b>	<b>FS 56 (FS 056 10)</b>	339	106	192	176	70	20	115	6 x M10	20	8	4	60
<b>KRP 56 (KR 056 31)</b>	<b>FS 56 (FS 056 14)</b>												6
<b>KR 80 (KR 080 30)</b>	<b>FS 80 (FS 080 10)</b>	390	102	246	236	100	20	160	6 x M10	25	8	4	60
<b>KRP 80 (KR 080 31)</b>	<b>FS 80 (FS 080 11)</b>												6
<b>K 100 (K 100 30)</b>	<b>FS 100 (FS 100 10)</b>	404	94	260	245	112	30	160	6 x M12	32	10	4	60
<b>KRP 100 (KR 100 21)</b>	<b>FS 100 (FS 100 11)</b>	459											6
<b>K 125 (K 125 30)</b>	<b>FS 125 (FS 125 10)</b>	450	94	325	310	150	30	220	4 x M16	31	10	4	60
<b>K 140 (K 140 30)</b>	<b>FS 140 (FS 140 10)</b>	484	94	355	340	170	30	250	4 x M16	31	10	4	60

Table 1: Dimensions of spring bases for Safety Catchers KR, KRP and K

Subject to modification without prior notice