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Clamping unit safety catcher

Protects axles from sinking



Safety catcher as a safety component

is used for clamping round rods in vertical axles. The clamping mechanism activates automatically when energy fails. It provides reliable protection against uncontrolled sinking in the case of a power failure, drive or control faults – it protects people, machines and systems from damage. Safety catchers are found in numerous industries:

- Machine tools
- Intralogistics & lifts
- Presses & punching systems
- Robotics & portals



Safety catcher

Always play it safe

Functional principle	4
Use / Safety	6
Mounting / Sensors	8
Technical data	10





Holds up.
When it matters.

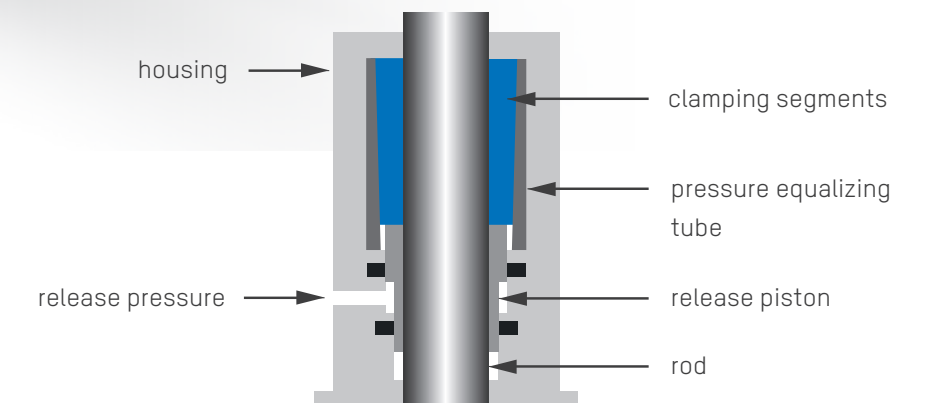
The safety catcher operates mechanically according to the functional principle of frictional contact. When unpressurised, the holding load builds up via the conical clamping system as the load sinks. The self-energizing principle comes into effect, locking the rod.

+ Securing load

When the release pressure drops, the spring-loaded clamping segments rest against the rod to be clamped. The resulting friction force secures the load, and the safety catcher is ready to take over the load.

+ Locking, take over the load

If the rod to be clamped moves in the direction of the load, the clamping segments shift due to friction until they reach the internal stop. This leads to a self-reinforcing locking of the system. As a result, the holding load builds up, and the load is taken over.



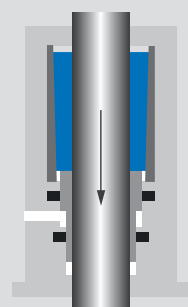
+ Releasing

Hydraulic or pneumatic release pressure pushes the release piston, together with the clamping segments, upward from the “securing load” state into the released position. In the locked state, in addition to the release pressure, an external force must be applied to the clamped rod in the opposite direction to the load.

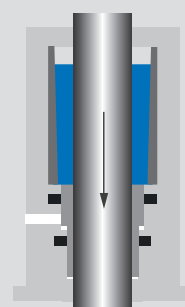
+ Load and overload

Once the load is taken over, the rod holds securely as long as the maximum permissible holding load is not exceeded. An overload causing the rod to slip through may occasionally occur without damaging it or the safety catcher.

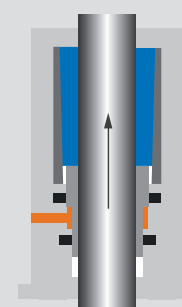
Functional principle
Securing load



Functional principle
Locking, take over the load



Functional principle
Releasing



The safety catcher is also available with a DGUV Test certification. The holding load of the safety catcher for machines has a safety factor of at least 2, but does not exceed a safety factor of 2.8



Protection of people and machines.

The safety catcher is based on our experience with clamping units of the Ratio-Clamp® design, which has grown since 1965. We have specifically developed this proven technology to ensure maximum safety in applications on vertical, gravity-loaded axles. This allows us to provide a higher clamping force in an emergency.

+ Use

- Fixing round rods of all types, in any position
- Clamps out from standstill
- Clamping force without energy supply for an unlimited time
- Fixes axles precisely in the event of power failure, drive or control errors

+ Safety

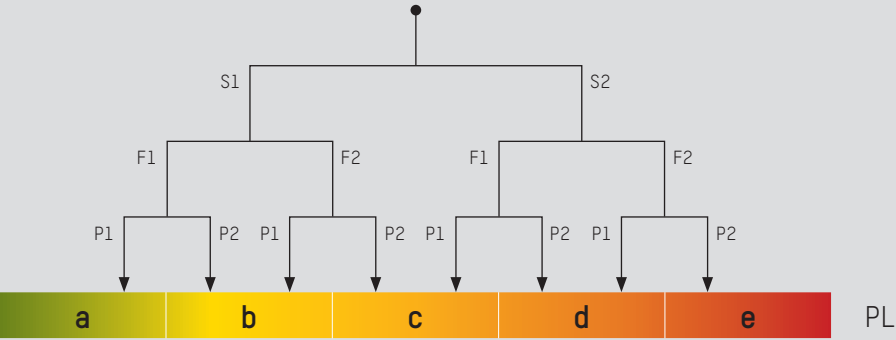
The safety catcher is a reliable technological solution if hazards due to external forces or loads must be taken into account in accordance with EN ISO 13849-1. In case of fluctuation or loss of pressure energy, the clamping unit locks round rods under axial load.

- As a secure position-holding element in case of a line break
- As a safety component in gravity-loaded axles, when hazards occur due to load, e.g. in lifting devices where there is a risk of dangerous sinking of a load.

The safety catcher is permissible as a safety component in accordance with EN ISO 13849-2. For a performance level that requires redundancy, it can be combined with a non-return valve as a secondary safety element, for example.

The safety catcher is approved for use on hydraulic presses according to EN ISO 16092-1/-3 or on injection molding machines according to EN ISO 20430.

Performance level calculation



PL = performance level
S = severity of injury
F = frequency of hazard
P = probability of hazard avoidance



To use the clamping unit as a safety component, you can request the B₁₀₀ value from us to determine your performance level.



For every use.
The right solution.



1 Safety catcher for compressive and tensile-load

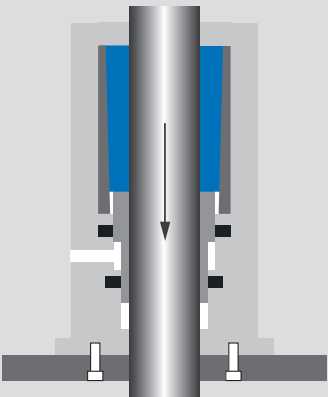
HAKO

You can find the exact dimensions and the data sheets for the collar flanges in our product configurator at www.haenchen-hydraulic.com.

+ Compressive load

With the compressive load mounting type, the safety catcher rests on the machine bed and transmits the holding load directly. It can be fixed from below with axial threaded holes.

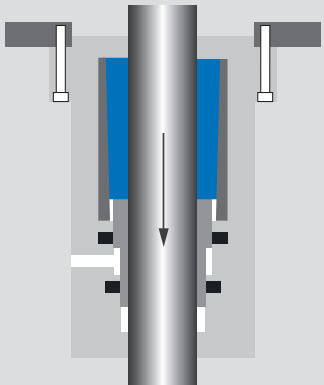
If a screw mounting from the underside of the machine cannot be implemented structurally, collar flanges offer an alternative.



+ Tensile load

With the tensile load mounting type, the safety catcher is installed in a suspended position: It is connected directly to the machine bed using cylinder screws. In this case, the screws transmit the holding load.

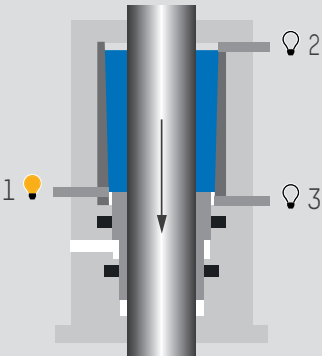
For versions without an integrated mounting flange with screw holes, mounting must be implemented using a collar flange.



The safety catcher can optionally be equipped with several independent sensors:

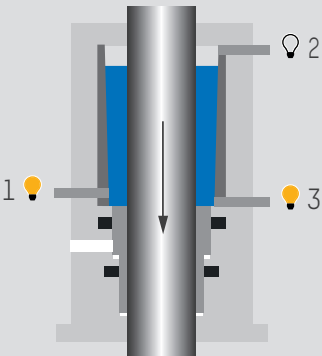
+ Load secured Switch 1

The inductive proximity switch detects the **lower** edge of the clamping segments. It is closed when the load is secured.



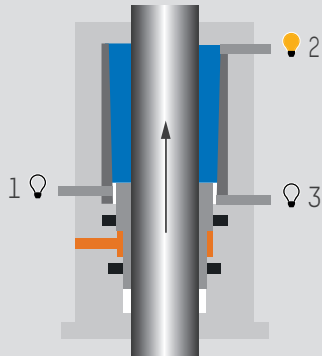
+ Locked Switch 3

The inductive proximity switch detects the **lower** edge of the clamping segments. It is closed when the clamping segments are at the bottom stop.



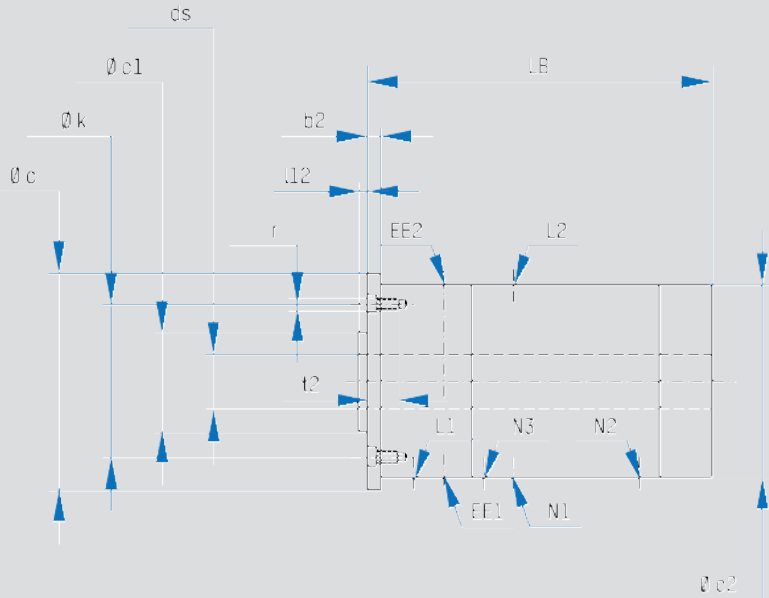
+ Released Switch 2

The inductive proximity switch detects the **upper** edge of the clamping segments. It is closed when the clamping segments are at the upper stop.



+ Mounting compressive load

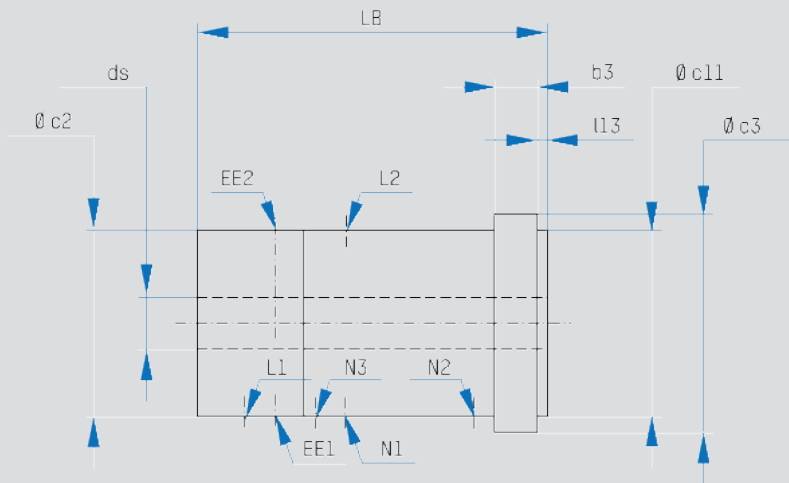
Rod-Ø [mm]	Permissible load [kN]	LB	EE1 EE2	L1	L2	c2 -0,5	c -0,2	c1 e8	l12	b2 - 0.2	k +/- 0.2	r	t2	Weight [kg]
25	10	152	G1/8	G1/8	G1/8	71	81	40	3	5	56	6xM6	15	3.8
28	15	169	G1/8	G1/8	G1/8	82	92	45	3	5	65	6xM8	20	5.8
40	33	211	G1/4	G1/8	G1/8	106	123	52	3	8	80	6xM8	20	12.0
50	52	264	G1/4	G1/4	G1/4	125	142	65	3	8	110	6xM10	25	20.3
56	67	262	G1/4	G1/8	G1/4	140	156	70	3	8	115	6xM10	25	25.2
63	100	285	G1/4	G1/8	G1/4	160	177	80	5	10	140	6xM10	25	36.1
70	107	302	G1/4	G1/8	G1/4	172	188	90	3	10	140	6xM10	25	43.7
80	133	322	G1/4	G1/8	G1/4	194	212	100	3	10	160	6xM10	25	59.1



Our product range is constantly expanding. Discover all available sizes on our homepage!

+ Mounting tensile load

Rod-Ø [mm]	Permissible load [kN]	LB	EE1 EE2	L1	L2	c2 -0.5	c3 -0.2	c11 e8	l13	b3 -0.2	Weight [kg]
25	10	155	G1/8	G1/8	G1/8	71	88	70	3	16	4.2
40	33	214	G1/4	G1/4	G1/8	106	125	106	4	17	12.3
56	67	265	G1/4	G1/4	G1/4	140	164	140	5	25	26.4
63	100	290	G1/4	G1/4	G1/4	160	188	160	5	30	39.4
80	133	325	G1/4	G1/4	G1/4	194	225	200	6	34	61.9



All dimensions in mm | EE1; EE2 = Releasing, L1, L2 = Leakage
N1 = Proximity switch securing load | N2 = Proximity switch releasing | N3 = Proximity switch locking, take over the load

- Hydraulically released: min. 40 bar, max. 250 bar
- Pneumatically released: min. 4 bar, max. 10 bar
- Max. rod speed: 0.5 m/s
- Working temperature: 0 °C to +60 °C
- Fluids: mineral oils, HFC or compressed air, others on request



Collar flanges are available in the following designs for safety catcher: fixed mounting flange and loose mounting flange.



Contact us: we provide you with comprehensive advice. On-site, at one of our locations, by telephone or via e-mail. You can find our contact details at www.haenchen-hydraulic.com.



More data sheets for the safety catcher and possible mounting flanges can be selected in the Hächchen product configurator HächKo at www.haenchen-hydraulic.com.