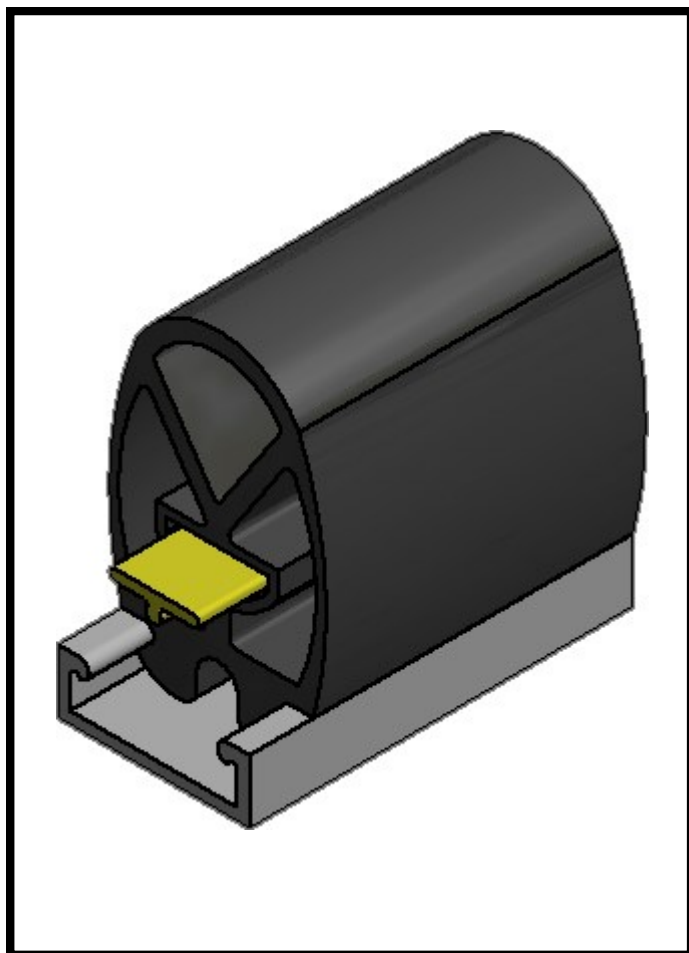


## PS-400



**PS-400** type pressure sensitive safety edge are designed according to EN 13856-2, for safety based applications and can be installed on big/medium sized machineries.

PS 400 type safety edges are designed to protect personnel and equipment from being trapped or crushed by moving parts. The inner ribbon switch is sealed in a specific chamber inside the edge housing, ensuring a very good functioning also in case of hard crushing.

The ribbon switch is sealed inside the edge housing and the PS-400 type safety edge can be provided with external end caps.

This ensures a durability and resistance in case of extreme industrial conditions. This type of safety edge can be easily installed to safeguards long portions of hazard points.

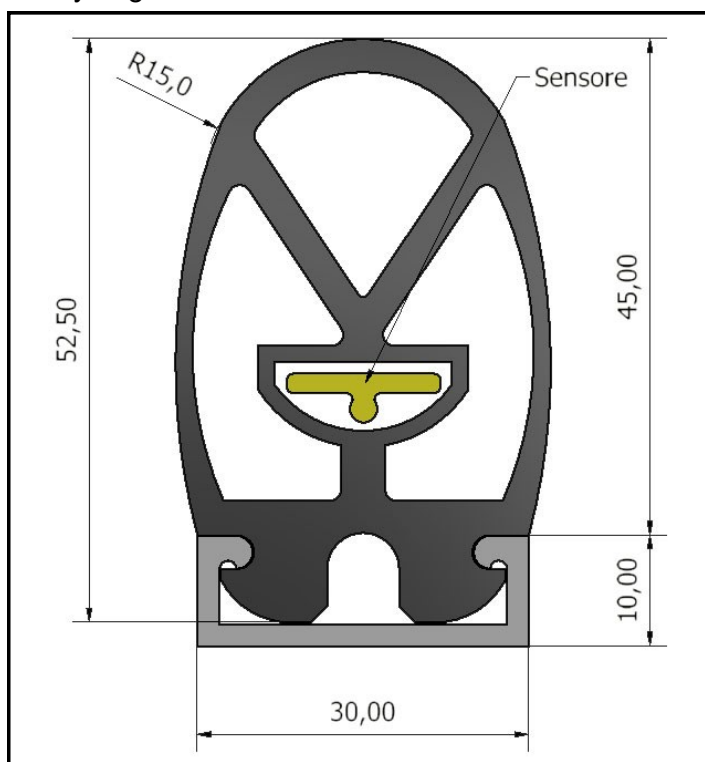
PS-400 type safety edge can be curved on request.

### General features

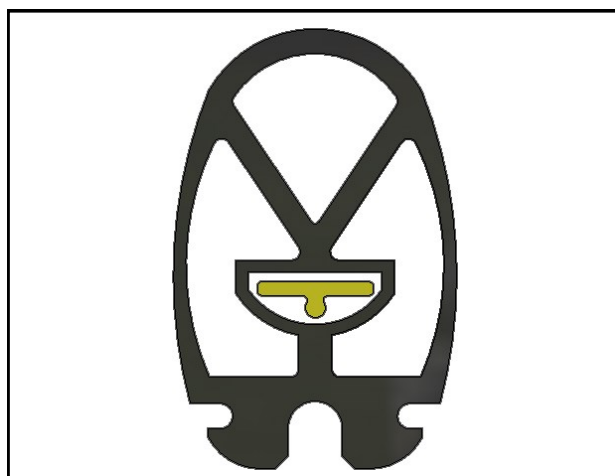
Edge housing material:	EPDM
Edge housing colour:	Black
Edge housing hardness:	70 shore
Dimensional tolerances:	DIN ISO 3302-1 E2 class
Edge channel material:	Aluminium
Wires:	PVC insulated copper
Protection level:	IP56 (IP65 on request)
Total weight:	0,4 Kg
Actuations number:	2x10 <sup>6</sup>
Switch contact type:	N.O.
Inactive zone on each end of the edge:	15 mm
Actuation angle:	90°
Max. length:	65 m (one piece or serial pieces)
Functioning temperature:	-10°C + 65°C @ 10 mm/s or 0°C + 65°C @ 100 mm/s

## Dimensions

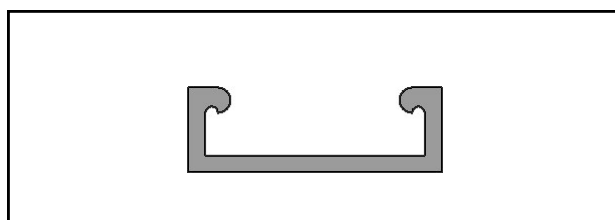
Safety edge dimensions



Edge housing GM-H50 + switch



Aluminium channel



## Electrical features

Resistance:	0,5 Ohm/m
Max current:	1 A
Max tension:	32 Vcc
Max wire length:	100 m (section 0,50 mm <sup>2</sup> copper)

## Mechanical features

Pre-travel:	6.0 mm
Working travel 250 N:	15.2mm
Working travel 400 N:	22.2 mm
Working travel 600 N:	26.5 mm
Overtravel 250 N:	10.5 mm
Overtravel 400 N:	17.8 mm
Overtravel 600 N:	22.5 mm
Actuating force test rod $\varnothing 20$ mm:	40 N @ 20°C
Actuating force test rod $\varnothing 80$ mm:	110 N @ 20°C
Mechanical force:	500 N

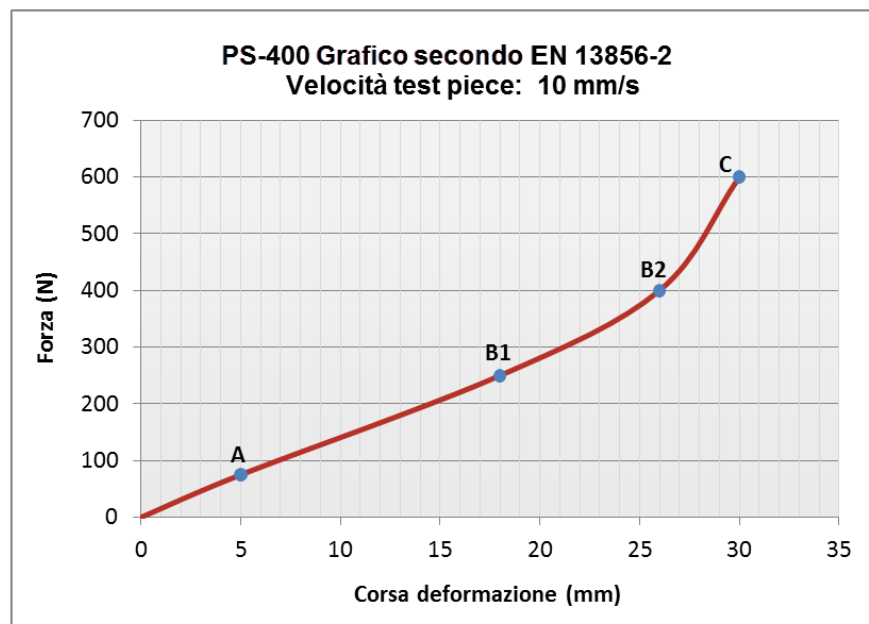
## Chemical compatibility

The edge housing profiles are made of **EPDM**, that is compatible with incombustible hydraulic fluids, such as ketones, cold and hot water, alkalis and alcohols, while it is less compatible with oils, aromatic and aliphatic hydrocarbons, halogenated solvents and concentrated acids. In order to assess precisely the edge housing profile with specific substances contact, it is highly recommended to check the analytic tables on the chemical substances, considering the exposure time and the temperature.

## Characteristic curve

Each **Proswitch™** safety edge is designed to meet the requirements of EN 13869-2, and is duly tested through application of force. Such force parameters can be represented on a characteristic graph.

The graph relating safety edge type **PS-400** is the following:



Legend:

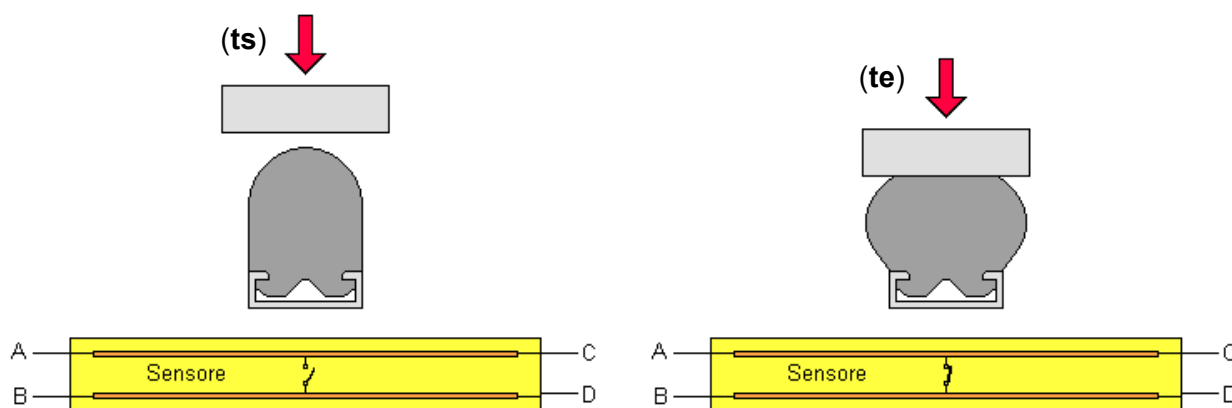
- A** Switch activation point
- B1** Travel at 250N
- B2** Travel at 400N
- C** Travel at 600N

## Functioning principle

**Proswitch™** safety edge type **PS-300** is designed to meet the requirements of EN 13856-2. In order to meet the standard CAT 3-PLe ISO 13849-1, **Proswitch™** safety edge type **PS-400** must be used with the **SP-xx** control unit.

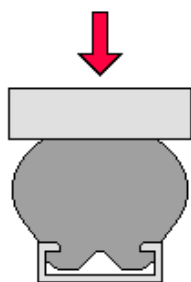
The time between the safety edge actuation (**ts**) and the moment the inner sensor's contact gets closed (**te**) is called "edge reaction time" (**Tr**). Such reaction time depends on the "pre-travel" parameter proper of the **Proswitch™** safety edge type **PS-400** and on the force application speed on the safety edge.

$$Tr = \text{pre-travel} / \text{actuating force speed}$$



## Dynamic functioning of the safety edge

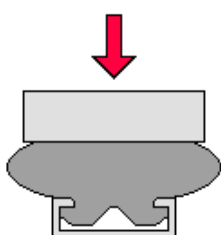
### Pre-travel



Pre-travel is the distance the test piece travels from the external part of the safety edge to the inner switch actuation, as a consequence of the safety edge cushioning.

In the graph representing the safety edge type **PS-400** characteristic curve (pag. 4), pre-travel is the distance travelled from 0 to point A.

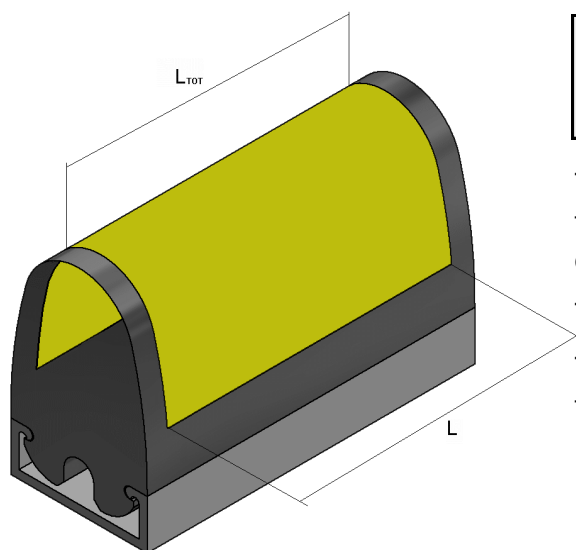
### Overtravel



Overtravel is the further cushioning distance of the safety edge, detected at 250 N, 400 N and 600 N. During this phase, the inner switch contact is always closed, and the machine has already started the emergency stop.

In the graph representing the safety edge type **PS-400** characteristic curve (pag. 4), overtravel is the distance travelled from point A to point B1 (250 N), B2 (400 N) and C (600 N).

### Inactive parts



**LTOT**: total edge length

**L**: effective safety length.

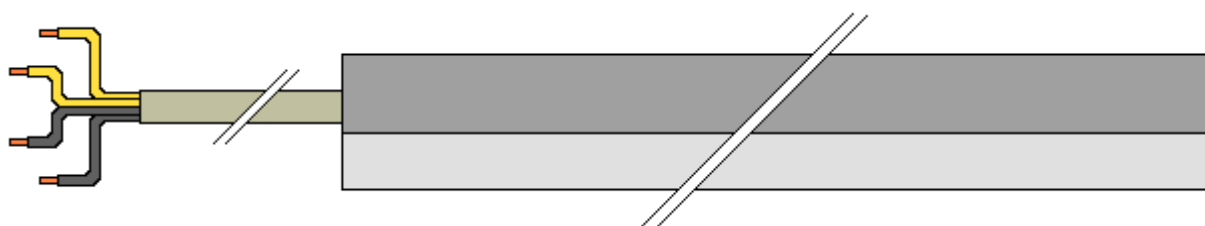
The image on the left shows a grey surface, that represents the inactive parts of the safety edge that, if submitted to crushing force, do not compress the inner switch.

The inactive parts are 15 mm long for each edge's end.

The following formula can be used to obtain the value of the effective safety length:

### View of the safety edge

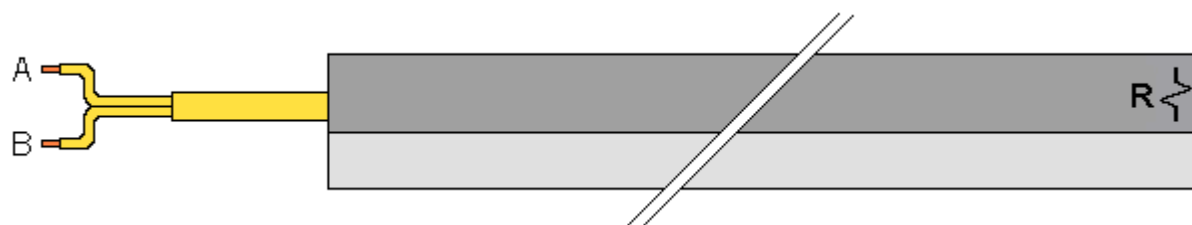
$$L = LTOT - 2 (15 \text{ mm})$$



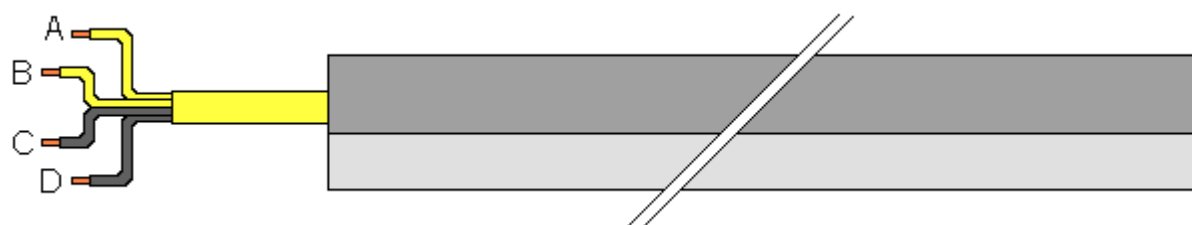
## PS-400 safety edge different types

PS-400 type safety edges may be in three different versions, depending on the wire exit, and in another version that is not used for safety purposes.

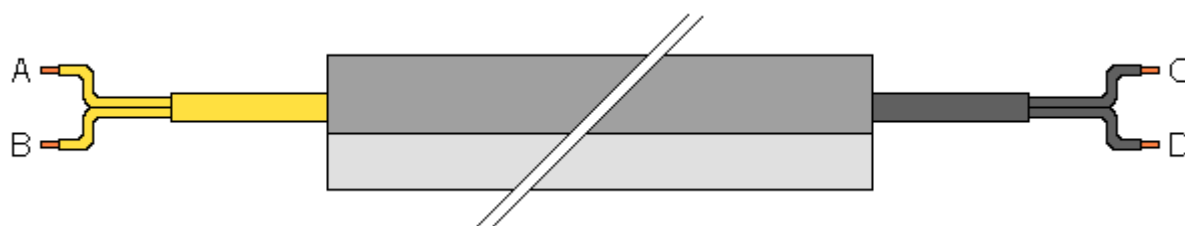
### PS-400 safety edge, exit 1 wire 2 poles with final resistance



### PS-400 safety edge, exit 1 wire 4 poles



### PS-400 safety edge, exit 2 wires 2 poles



### PS-400 safety edge, exit 1 wire 2 poles, not for safety purposes

