

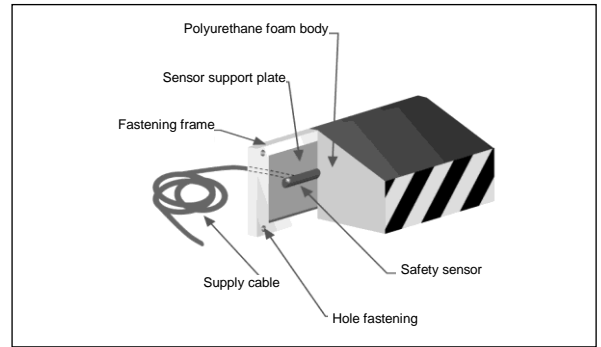
SENSITIVE SHOCK ABSORBER

The sensitive shock absorber is used to protect people from shocks against vehicles or moving parts, such as AGV, elevators, fork lifts, automatic stores...

With a minimum compression of the shock absorber, after a pre-run, the internal contact of the sensor closes (NO to NC) and the control unit produces immediately a stop signal eliminating the danger situation. After the pre-run, the shock absorbers allows an "overrun" compression, variable according to the shock absorber depth, to release the shock.

The shock absorbers are made of polyurethane foam, stuck onto a frame, and covered by a protection fabric. Inside, a sensitive element "sensor" is present, on a supporting plate.

The supply cable is a 4 poles cable 4*0,35mm² FROR 300/500 standard length 3 m. We can supply different lengths, upon request.



The shock absorber coating can be:

- 1 Fabric (standard)
- 2 PVC (for externals)
- 3 Anti-spark (fire protection)

In the standard version, the shock absorber is supplied with a black fabric coating, front side with yellow and black stripes. Upon request, other colours or coatings can be supplied.

DIMENSIONING OF THE SENSITIVE SHOCK ABSORBER

To find out the correct depth of the shock absorber, see the following data:

Pre-run (up to commutation point):

S_B = 20% of shock absorber depth

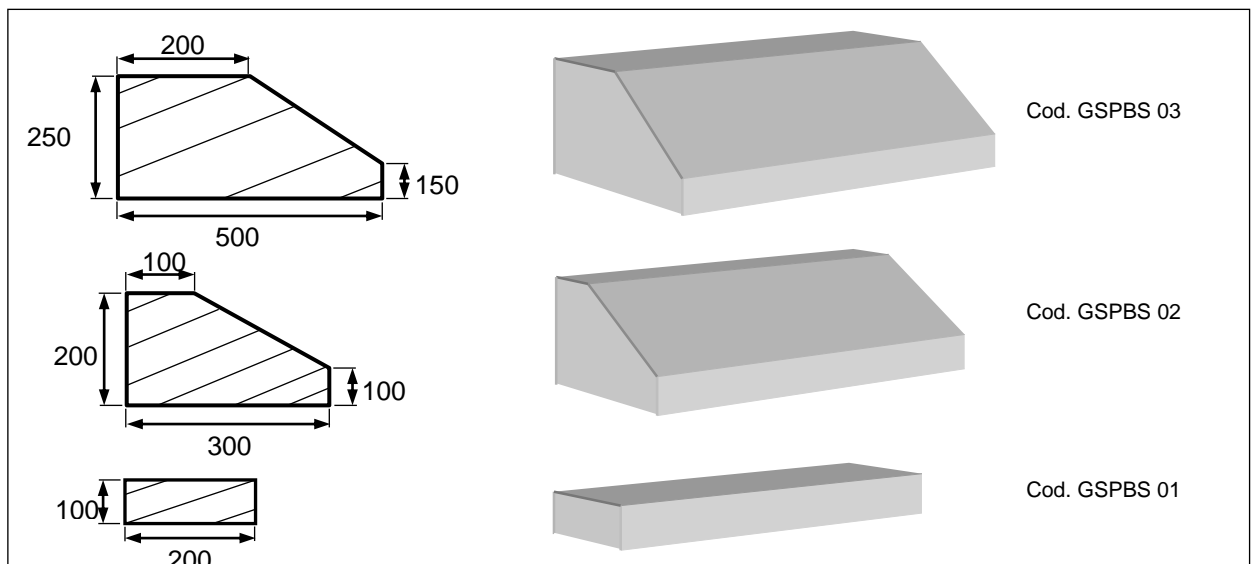
Overrun (max. deformation):

S_v = 50% of shock absorber depth

Part not to be deformed: 30% of shock absorbed depth

The choice of the shock absorber depth is made considering the stop space and the overrun S_v if required.

Available shapes



Upon request, different shapes and dimensions are available. For shock absorbers with special shape, contact our technical Office.

The shock absorbers are available with max. length 3000 mm. For larger size, they can be divided into several parts.

TECHNICAL FEATURES

Sensor	Bumper GSBPS01	Bumper GSBPS02	Bumper GSBPS03
Pre-run	< 20% depth of shock absorber		
Overrun without deformation	50% depth of shock absorber 30% depth of shock absorber		
Actuation force with Φ 80mm at 10 mm/s	32N	56N	24N
Actuation force with Φ 80mm at 100 mm/s	48N	56N	32N
Max admissible load	500N	500N	500N
Max length of sensor*	3000 mm		
Weight in kg / m	5,5	8	11
Max response time (constant speed 100 mm/s specimen 1, point 3)	<200 ms with Gamma System devices		
Max operating speed	100 mm/s		
Min operating speed	10 mm/s		
Mechanical life	10000 operations		
PFH (bumper)	$4,29 \cdot 10^{-8}$		
Max operating voltage	24 Vdc/ac		
Max operating current	30 mA		
Power cord**	4x0,35mm ² standard length 3 m 4x1 mm ² length >20 m (max 100 m)		
Output contact	NO		
Operating temperature of sensor	-10°C + 50°C		
Type of coating	Yellow/black tissue, PVC and anti-spark		
Degree of protection (according to EN 60529) of sensor	IP 54 (*)		
B10 _D	260000		
Reference standard	EN ISO 13856-3, EN ISO 13849-1		
Safety parameters Sensore + Control unit	GSBPS0x + GP02/E	GSBPS0x +GP02R.T	
Category	3	3	
PL	d	d	
PFH _D [1/h]	$8,58 \cdot 10^{-8}$	$8,58 \cdot 10^{-8}$	
No. of operations/year	12000***		
Usage category	DC13 – 1,5 A ; AC1 – 1,5 A	AC15 – 1,2 A	
T _{10D} [years] control unit***	20	20	
EC-type certificate	16CMAC0046	16CMAC0047	
Others European Directives			
2012/19/UE	RAEE		
2011/65/UE	ROHS		
Regulation (EC) n°1907/2006	REACH		
*Max length of sensor 3 m. For bigger dimensions, they can be divided into several parts and then connecting sensors in series. ** For length more than m 20 use wires with section of mm ² 1 ***Consider the number max of operations. After the time indicated on the data sheet above, contact the Gamma System office.			
Recovery after deformation: For a deformation equal to the running stroke to a force of 250 applied during 24 hours, the depth variation is less than 20% after 30s, 10% after 5 min. and 5% after 30 min.			

(*) IP 65 in case of coating welding PVC

FASTENING OF SENSITIVE SHOCK ABSORBER

The shock absorber is fastened to the machine by a frame, featuring one of the three configurations :

A- Plate protruding from the shock absorber, holes \varnothing 8,5 mm for fastening to the machine through screws and bolts;
Plate width upon customer's request (drawing A)

B- Plate along the shock absorber, with threaded holes (specify the thread) for fastening through screws from inside (drawing B). **The type "B" fastening is not suggest for the external application.**

C- Plate long the shock absorber, with bolt screws M6 length 30 mm, for fastening through nuts from inside (drawing C)

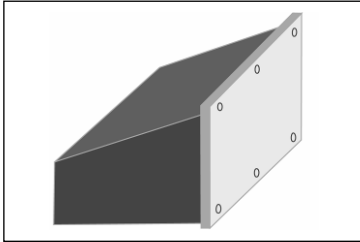


FIGURE A

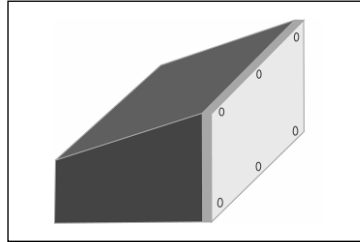


FIGURE B

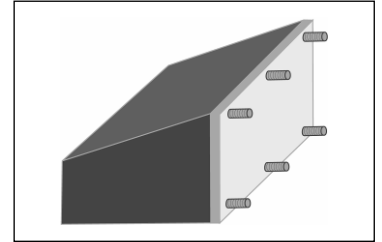


FIGURE C

HOW TO ORDER A SENSITIVE SHOCK ABSORBER

When ordering, always supply a drawing of the shock absorber: In addition specify the following information:

- Height,
- Width,
- Depth.
- The coating material (ex. fabric),
- Type of fastening plate (ex. version B)
- Cable length, if different from the standard one.