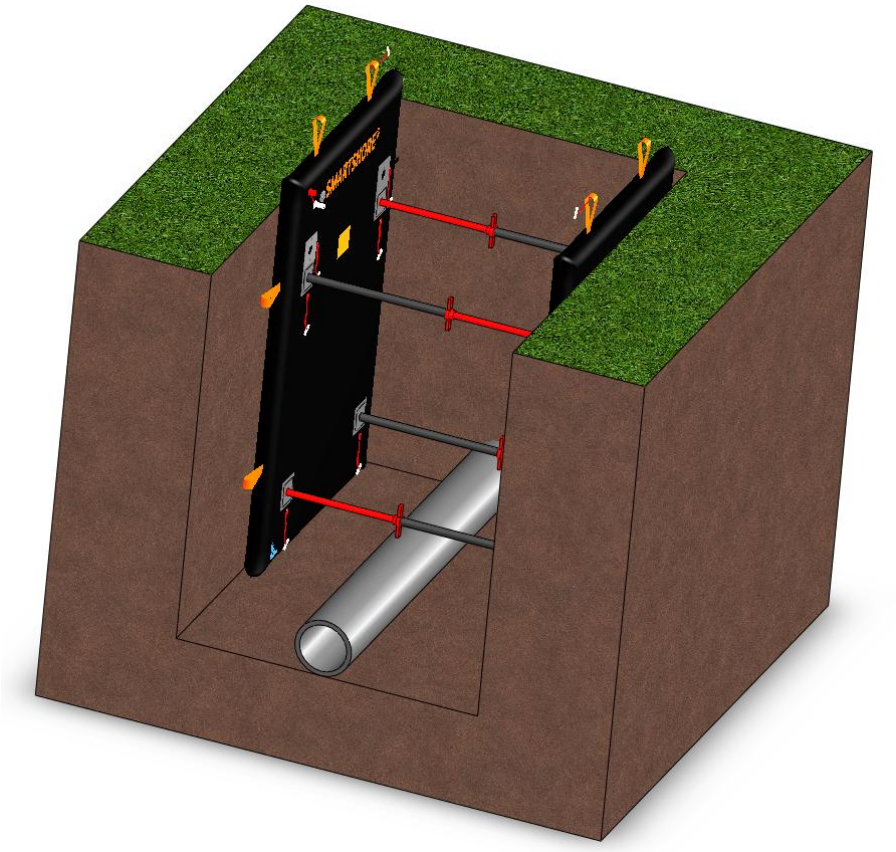
SMARTSHORE

INSTALLATION INSTRUCTIONS
AND USING MANUAL



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INTRODUCTION TO SMARTSHORE UTILISATION

Working in excavations, worker protection is paramount.
SMARTSHORE, inflatable trench shield developed by PRONAL ensures a good and safe working environment. This new technology is an alternative to the traditional use of heavy protection, difficult to set up.

SMARTSHORE cushions are made out from 3D rubber-coated fabric hot vulcanized. Cushions withstand impact, abrasion and rupture.

Cushions design and equipment ensures both horizontal and vertical installation, while guaranteeing a maximal security level.

In case of landslide, the system will contain the load for several hours to enable the operator to escape safely from the excavation.

Due to cushions light weight (13kg), **SMARTSHORE** system installation necessitates only 20 minutes without any cranes or lifting systems.

The weight and the compact design of these cushions made of him and easily transportable pneumatic protection solution from one construction site to another by mean of a light vehicle.

SAFETY INSTRUCTIONS

It is necessary to comply with the relevant local regulations of the country where **SMARTSHORE** is used. Each user should be keep informed and have to ensure that neither him nor its colleagues violate regulations.

This manual should be left in the possession of the teams during mounting, dismounting or displacing of the system.

Training session can be planned with the manufacturer.

Users will find in this document the entire installation instructions on the proper use of the product.

PRONAL reserves the right to modify this document without prior notice.

SMARTSHORE KIT COMPOSITION



- **2 cushions**
  - 3D dual wall coated fabric 125 mm gap
  - Hot vulcanization assembly
  - Inflated dimensions : 2160 * 1380 * 125 mm
  - Inflating pressure : 1 bar maximum



- **1 inflation line**
  - 3 m + 1 m
  - Universal coupling
  - Double security quick coupling
  - Valve quarter of turn



- **1 venturi ejector**
  - Quick cushion deflation



- **4 struts**

Length to determine regarding the kit and the trench width.

- 60/90cm
- 80/110 cm
- 110/140 cm

Supplementary material necessary for the installation:

- Scale
- Compressor
- Protective barriers
- Presonal protective equipment for assembly and dismantling teams

CUSHION DETAILS

Flat dimensions mm	Inflated dimensions mm	Size when rolled mm	Weight kg	Thrust resistance kN/m²	Air volume Litres / Nlitres	Inflating pressure bar
2230 x 1420	2160 x 1380 x 125	Ø 200	13	12	400/800	1

1 self-sealing quick coupling



1 safety valve (1 bar tare)



6 handling straps



Product identification marking



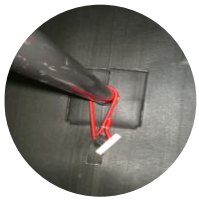
6 struts pockets

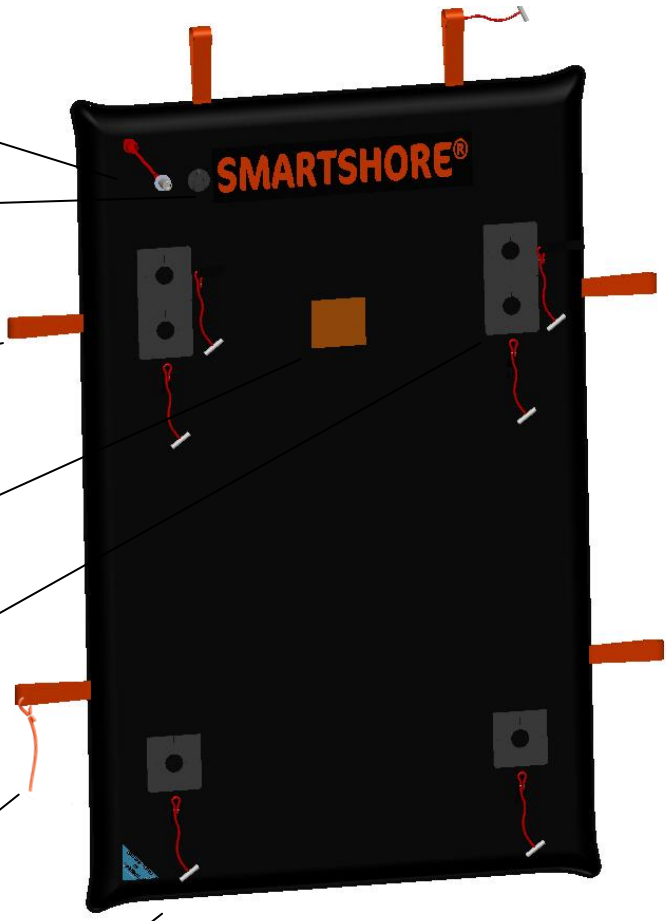


2 sandows for the ladder *(verticale ou horizontale)*



6 sandows for struts



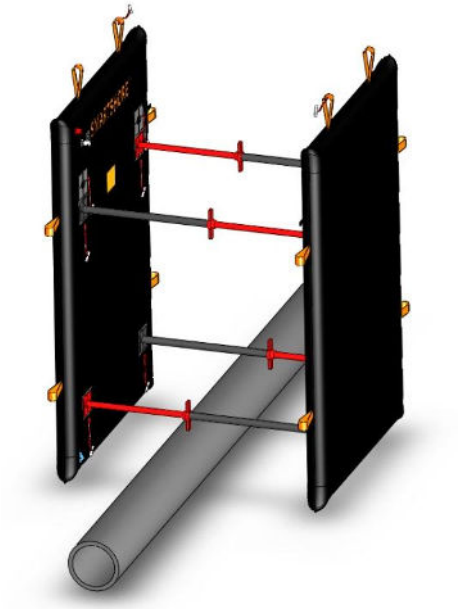


KIT POSSIBLE CONFIGURATION

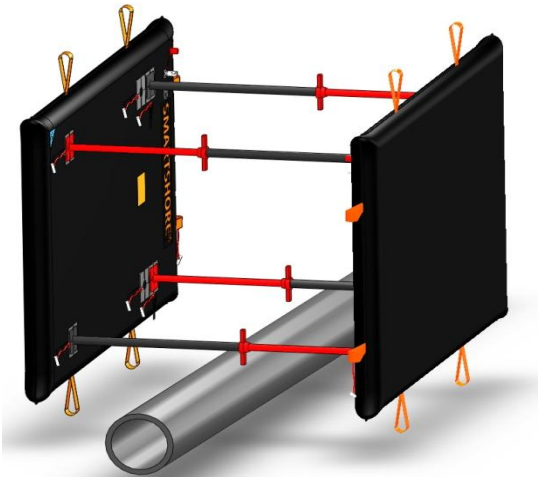
SMARTSHORE kit can be used either horizontally or vertcally regarding the trench configuration.

WARNING: Struts location varies from one configuration to another.
Please, refer to schemes below.

Vertical installation



Horizontal installation



OPERATING DATA

Trench characteristics / Area of use

Maximum depth of the trench to secure: 2.00 m
Maximum width of the trench to secure: depends on struts length.
Operating temperature: from -5 °C to 80°C.

Wether SMARSHTORE is used horizontally or vertically, it is necessary to respect a 15 cm skirting board. (Fig. 1). A 40 cm berm around the excavation has to be respected.



Fig. 1.

SMARTSHORE cushions are sparks resistant during cutting, bucking and all impact due to construction activity. Be careful with safety of the people working within the system.



Do not leave any sharp edges around the area that could cause severe damages to the cushions.

Devices handling & transport


Fig. 2.


Fig. 3.

SMARTSHORE kit is easy to transport with a light vehicle.

On site, the several elements are easy to handle and to set up manually (Fig. 2 & 3), without any cranes of lifting systems.

System setup

We are talking about 2 cushions module assembly horizontally or vertically, connected with struts outside of the trench, lowered into the excavation before accessing the area in a secure way.

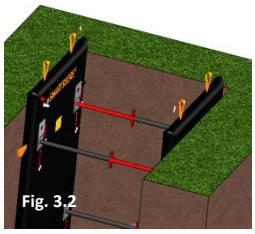


TOTALLY PROHIBITED:
- To use incomplete modules or unconnected with struts.
- To use bended cushions (trench angles for ex.)
- To link modules between each others, regardless the mean.
- To set up cushions one above each other

All abuse or negligence utilization of the system, contrary to the manufacturer recommendations, all damages caused by transit, do not engage **SMARTSHORE** cushions manufacturer or distributor responsibility.

Outside the trench: *Constitution & go down of the modules*

- **Connect the inflation line** *to the compressor and the cushions*
  Pre-inflate the cushions: connect the coupling after protection cap removal.


Fig. 3.2

- **Adjust struts length** *to trench width.*
  (Calculation note : Trench width – cushion thickness x 2)
  For a 1800 mm trench: 1800 – (125x2) = 1550 mm


Fig. 4.

- **Assemble the modules** using cushions in pairs and inserting struts bases in the pockets intended for this.
- *Struts have to respect topsy-turvy installation* (Fig. 3.2) *Inflation accessories have to be situated on the top part of the trench.* (Fig. 4)

Struts utilisation is mandatory


Fig. 5.

- **Lock the modules:** Sandows are set to maintain struts bases in the pockets during the installation but also in case of strong thrust on the system once installed. They can't be used to link modules to each others. (Fig. 5)

- **Push down the modules** *in the trench thanks to the several handling straps* (Fig. 6). *Modules must not touch or overlap each other*


Fig. 6.

In the trench: ***Safety procedure***


Fig. 7.

- **Complete inflation:** *Connect the inflation line to the cushion and inflate up to safety valve triggered. As soon as the safety valve whistles, shut off the intake air valve, disconnect the coupling before protecting it with the cap.* (Fig. 7)

- **Set up the ladder** to one of the top handling straps with the sandow. *(on the width of the cushion when verticale or on the length when horizontale)*

System dismantling

System dismantling is done from the berm, by security purpose.


Fig. 8.

- **Remove the sandow** *from the ladder and remove it from the trench.*

- **Deflate partially the coussins**. *Connect the venturi on the inflation line and connect it on the cushion.* (Fig. 8) *Open the inlet valve. Once the cushion lift off the trench wall shut off the valve. Proceed in the same manneer for the other cushions.*


Fig. 9.

- **Remove the cushions** *from the trench pulling on the top handling straps, then place them on their ends.*

- **Dismantle the modules** *removing the struts from the pockets.*

- **Finalize inflation** *of the cushions, bend or roll them* (Fig. 9)

- **Store cushions and struts** in their original box or in their transport and protection (optional)

Cushions storage & maintenance

If necessary, cushions can be cleaned with mild soapy water. (Solvent prohibited) It is more than recommended to store cushions deflated and rolled in their original box:

- In an inside area,
- In an area protected from light,
- In an area sheltered from all aggression (corrosive vapour & products, rodents, marine atmosphere)

Prior to each utilisation, please check:

- Handling straps presence and integrity
- Good status and cleanliness of the relief valve and its protective grille.
- Elastomer parts : no outage, wear or abnormal deformation.

Building site resumption :

Prior to each return to work, connect the inflation line and inflate the cushions up to *the safety valve whistles*. Then, shut-off the inflation line, disconnect it and protect the coupling with the cap.

Every 6 months, check:

- The proper activation of the relief valve at the normal pressure setting. (1 bar)
- Relief valve watertight (soapy water test)

In case of anomaly, flaw detection, no longer use the cushions and contact the manufacturer.



« KEEP YOUR ENVIRONMENT CLEAN»

For the disposal of wastes generated at the end of life, respect the laws and regulations of your country. Contact the appropriate organism for recovery and waste treatment.

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