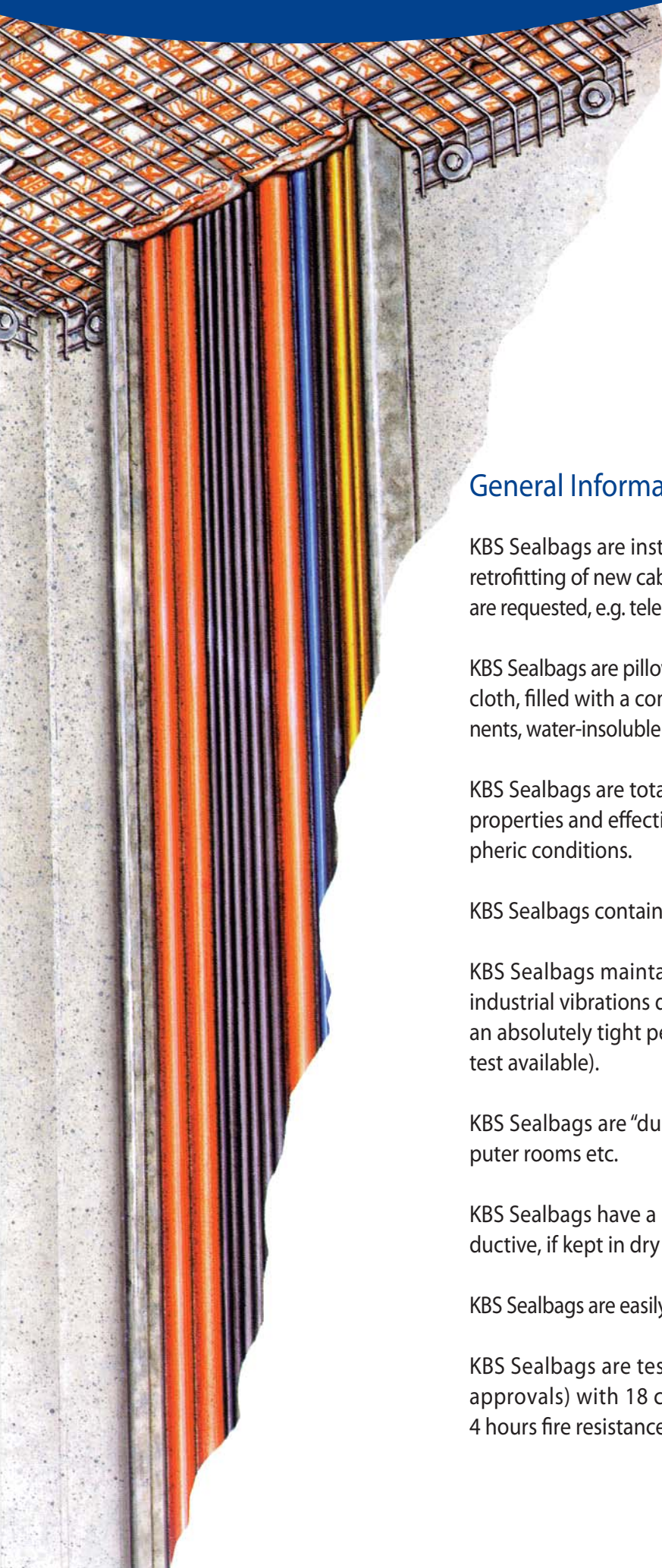


Sealbags

Expanding pillows for penetration seals



General Information

KBS Sealbags are installed in cable penetration seals, where frequent retrofitting of new cables is expected or where dustfree penetration seals are requested, e.g. telephone exchanges, pilot plants, computer rooms, etc.

KBS Sealbags are pillows consisting of tightly woven, durable fibre-glass cloth, filled with a combination of mineral fibres, incombustible components, water-insoluble expansion agents and special fire retardant additives.

KBS Sealbags are totally water- and weather-resistant and retain their properties and effectiveness under all weather, temperature and atmospheric conditions.

KBS Sealbags contain no asbestos nor any other toxic substances.

KBS Sealbags maintain their volume constancy. Even many years of industrial vibrations do not induce sagging of the bags, which results in an absolutely tight penetration seal (official report for 7 years vibration test available).

KBS Sealbags are "dustproof" for use in telephone exchanges, computer rooms etc.

KBS Sealbags have a high electric resistance and are not current conductive, if kept in dry conditions.

KBS Sealbags are easily installed and just as easily removed for retrofitting.

KBS Sealbags are tested internationally (see list of test reports and approvals) with 18 cm and 34 cm sealing thickness providing up to 4 hours fire resistance. They are FM- and UL-listed.

Special Features / Types

How they react in fire:

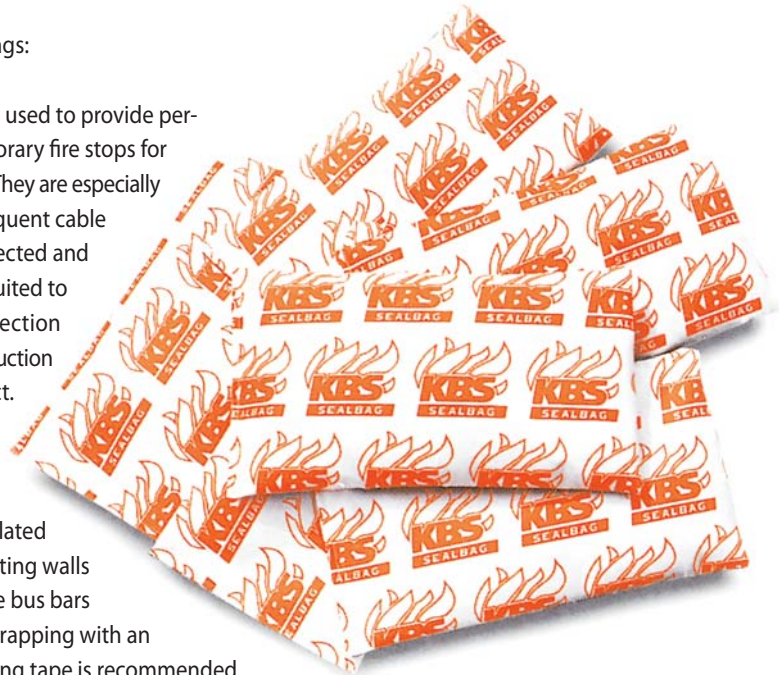
- At approx. 130C the various components of the bags start gluing up and sticking together, preventing the fillers from running out, even if the wrap is damaged by mechanical impact.
- At approx. 280C the content begins to expand up to 45%, so that even the smallest remaining spaces between cables, trays and masonry are tightly closed.



- At approx. 800C a "ceramic reaction" causes the content to harden into a solid block. The seal becomes mechanically so strong that it will withstand mechanical damage caused by falling debris etc. or a hose stream from fire fighters.

Uses of KBS Sealbags:

- KBS Sealbags are used to provide permanent or temporary fire stops for electrical cables. They are especially suited where frequent cable changes are expected and are also ideally suited to provide fire protection during the construction phase of a project.
- KBS Sealbags are also used to seal bare or insulated bus bars penetrating walls or floors. For bare bus bars and additional wrapping with an electrical insulating tape is recommended.
- KBS Sealbags are used as well for sealing small PVC or steel pipes, ducts or cable conduits.
- KBS Sealbags provide smoke-gastight penetration seals where cold smoke from a distant fire will not pass through and in case of a nearby fire any gaseous extinguishing agents (used in computer rooms etc.) will keep their extinguishing concentration.



- KBS Sealbags are ideal for the protection of cables in double floors of processing centres.
- KBS Sealbags may also be used to cover cables in trays against fire from sources such as welding.
- KBS Sealbags come in various sizes so as to allow the sealing of even the smallest openings.

Available sizes

Standard types:

Type	Total weight in g (approx.)	Size in mm (approx.) Length x width x height (not padded)	Packaging Bags per carton
KBS Sealbag 400	400	340 x 180 x 18	35
KBS Sealbag 720	720	340 x 180 x 35	20

Special types available on request:

Type	Total weight in g (approx.)	Size in mm (approx.) Length x width x height (not padded)	Packaging Bags per carton
KBS Sealbag 250	250	340 x 180 x 13	20
KBS Sealbag 1500	1500	340 x 330 x 35	10

Installation

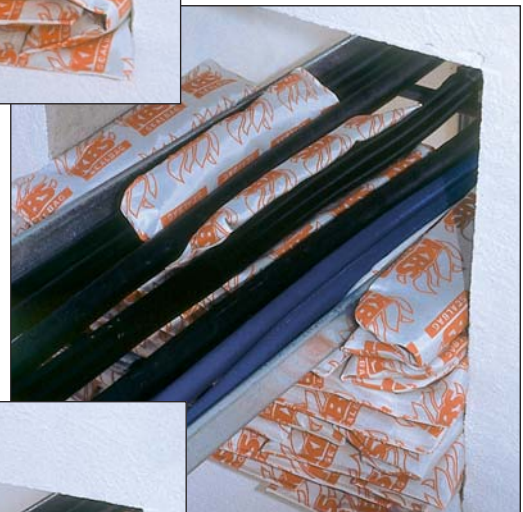
Wall penetration

KBS Sealbags should be patted by hand so that the content is distributed evenly before inserting them into the opening. KBS Sealbags should be placed into the opening by staggering the joints.

Use a smooth wooden stick to help push Sealbags in place.

Floor and ceiling openings

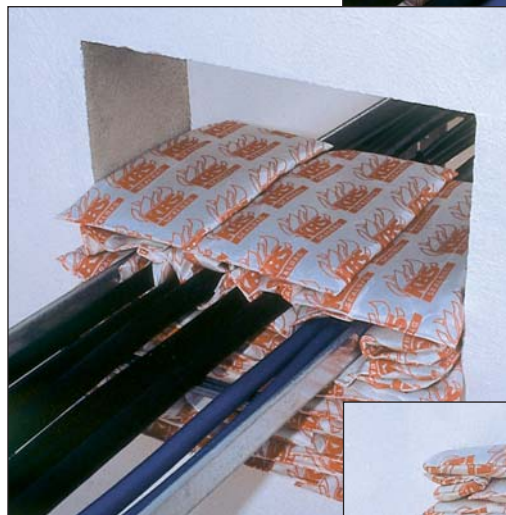
A wire screen must be installed to the underside of the opening. The screen should be fastened to the ceiling using steel dowels and washers.



Place KBS Sealbags lengthwise and flat onto the wire mesh, layer after layer. The filling of tight spaces is accomplished as described above.

If walking on the floor penetration seal becomes necessary, use any suitable cover.

For more details see our installation recommendations in each carton.



Selection of International Test Results and Approvals

Country	Testing Institute/ Approval Body	Ceiling or Wall Test	Sealbag Seal Thickness [mm]	Size of Opening [mm]	Hose-stream Test	Official Fire Resistance Rating [minutes]	Standard	Ref. No.
Belgium	University of Gent	ceiling	250	600 x 300	not required	130	NBN 713020	312
	University of Liège	wall	a) 150	400 x 400	not required	90	NBN 713020	308
			b) 330	400 x 400		90		
	University of Liège	wall	B2) 150	400 x 400	not required	149	NBN 713020	310
		wall	C2) 330	400 x 300		149		
wall		340	300 x 300	not required	180	NBN 713020	309	
France	C.S.T.B.	wall	340	500 x 300	not required	180	Arrêté 21.4.83	613
		wall	180	450 x 250		120		630
Germany	State Materials Testing Institute Braunschweig	ceiling	340	1000 x 600	not required	F90	DIN 4102	115A
		wall	340	1100 x 1250	not required	F90	DIN 4102	115B
	DIBt, Berlin	wall	340	1500 x 1100	not required	F90	DIN 4102	161
Italy	CSI	ceiling	340	600 x				
		wall	340	600 x 500	not required	REI 180	CM 91	1003
		wall	190	300 x 400	not required	REI 120	CM 91	1010
		wall	340	400 x 300	not required	REI 180	CM 91	1011
South Africa	S.A.B.S.	ceiling	340	300 x 200	not required	REI 180	CM 91	1012
		wall	330	600 x 650	not required	120	SABS 0177: Part II	4005
Spain	I.N.I.A.	ceiling	240	460 x 300	not required	180	UNE 23.802	1201
		ceiling	150	450 x 400				
Sweden	Statens Provnings- anstalten SITAC	wall or	300	400 x 1000	not required	EI90	SBN-PFS	818
		ceiling	210	400 x 1000		EI120	1983-2	
Switzerland	EMPA	ceiling	210	700 x 400	passed	F90	ISO 834 - 1975	502
UK	LPC (FIRTO)	wall	340	505 x 510	not required	180	BS 476, Part 8 (72)	903
		ceiling	180	500 x 500	not required	180		906
		ceiling	1) 340	Ø 100	passed	F180 T180	UL 1479 ISO 834	912
			2) 340	Ø 180	passed	F180 T151		
			3) 340	Ø 120	passed	F180 T180		
			4) 340	Ø 120	passed	F180 T180		
5) 340	Ø 280	passed	F180 T180					
wall	180	750 x 750	not required	248	BS 476, p. 20	913		
USA	UL	ceiling (floor)	330 (13")	810 x 1020 (32" x 40")	passed	F240 T 240	UL 1479 ASTM E-814	2010
		(a)						
	(b)		passed	F T ating depending on cable type				
	FM	ceiling (floor)	330 (13")	810 x 1020 (32" x 40")	passed	T180	ASTM E-814	2011
(a)								
(b)		passed	F180 T 120 - 180 depending on cable type					

All test reports on request



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