

KSS B150

KSS 150

KSS 110

KSS B90

Cable protection system



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Cable protection and flexibility

With the KSS system from UGA

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The cable protection systems from UGA protect the cables reliable from moisture and mechanical effects. The manifold connection elements allow the connection to packings, casing tubes, core holes and other cable protection tubes and pipes. A gas- and pressing-watertight connection between two buildings is possible at any time. If a change of the cable configuration is needed, no extensive earthworks are necessary.

KSS systems are available with diameters 80, 110, 125 and 150 mm. They consist of flexible high mechanical load capacity plastic and can be encased in concrete without any problems. The minimal bending radius, depending on the diameter of the hose, is located between a half- and one meter.

► The advantages of the KSS-system

- Gas- and pressing-watertight connection
- Cable protection during earth- and building movements
- Manifold connection elements
- Compatible to all standard cable protection tubes
- The hose can be encased in concrete

► Instructions

Compact base frame before installing the KSS, in order to avoid deepening. Place KSS in sand, and compact the sand to avoid a movement on the entry spot. Do not encase in concrete in blocks – since possible land subsidence damages can be caused. Do not use cable cleaner with solvent. When installing KSS systems at temperatures below zero, they have to be preheated.

KSS versions

The order numbers for the KSS versions shown below, can be found in the chart on page 5.



D / KB
First side for the connection to a packing. Second side with packing for encasing in concrete.



KB2
Both sides with packing for encasing in concrete.



D2
Both sides for the connection of a packing.



D / 0
First side for the connection to a packing. Second side without connection element (subsequent installation is possible).



D / KM
First side for the connection to a packing. Second side with bonded socket joint for the connection of a pipe.



KB / SM
First side with packing for encasing in concrete. Second side with connecting sleeve for the connection of a smooth-walled pipe.



D / Dx
First side for the connection to a packing. Second side with system cover for the sealing of pipes with heat shrink technology.

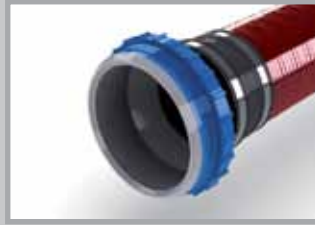


D / GPD
First side for the connection to a packing. Second side with GPD rubber-press-seal for the connection to a core hole or casing tube.

System elements



System connection D for BKD 150 or BKD 90
For the connection of the KSS B150 with the bayonet-packing BKD 150 respectively the KSS 90 with the bayonet-packing BKD 90.



System connection D for BKD 150 or BKD 90
For the connection of the KSS B150 with the bayonet-packing BKD 150 respectively the KSS 90 with the bayonet-packing BKD 90.



System connection D for KD 110
For the connection of the KSS B110 with the bayonet-packing KD 110.



Packing with combination frame K
Available for KSS B150, KSS 150, KSS 110 or KSS B90.



Bonded socket joint KM 110 or KM 160
For the connection of a pipe.
KM 110: For pipes with outside diameter of 110 mm, available for KSS B150, KSS 150, KSS 110 and KSS B90.
KM 160: For pipes with outside diameter 160 mm, available for KSS B150, KSS 150 and KSS 110.



Connection sleeve KS 110 or SM 160
For the connection of a smooth-walled pipe.
SM 110: For pipes with outside diameter of 110 mm, available for KSS B150, KSS 150, KSS 110 and KSS B90.
SM 160: For pipes with outside diameter 160 mm, available for KSS B150, KSS 150 and KSS 110.

System covers

Sealing of the system cover joints due to shrink-on sleeves. Heat shrink-on sleeves or cold shrink-on sleeves are available. Unused connections can be sealed easily with the sealing plug VS and are therefore available for later configurations.



System cover D1
With one connection for sealing a cable with shrink technique.
D1-110: Connection with diameter 110 mm for cables from diameter 34 up to 108 mm. Available for KSS B150 and KSS 150.
D1-80: Connection with diameter 80 mm for cables with diameters from 26 up to 78 mm. Available for KSS B150, KSS 150 and KSS 110.
D1-75: Connection with diameter 75 mm for cables with diameter 26 up to 73 mm. Available for KSS B90.



System cover D3
With three connections for sealing up to three cables with shrink technique.
D3-46: Connection with diameter 46 mm for cables with diameter 16 up to 44 mm. Available for KSS B150, KSS 150 and KSS 110.
D3-30: Connection with diameter 30 mm for cables with diameter 7 up to 28 mm. Available for KSS B90.



System cover D5
With five connections for sealing up to five cables with shrink technique.
D5-20: Connection with diameter 20 mm for cables with diameter 7 up to 18 mm. Available for KSS 90.



System cover D7
With seven connections for sealing up to seven cables with shrink technique.
D7-32-25: Three connections with diameter 32 mm for cables with 12 up to 30 mm. Four connections with diameter 25 mm for cables 7 up to 23 mm. Available for KSS B150, KSS 150 und KSS 110.

System data

System	Spiral coiled tube Øi		Bending radius at 20 °C	
	Standard	Versions	Standard	Versions
KSS B150	110 mm	125 mm, 150 mm	740 mm	830 mm, 990 mm
KSS 110	110 mm	125 mm, 150 mm	740 mm	830 mm, 990 mm
KSS B90	80 mm	110 mm	540 mm	740 mm

Spiral coiled tube as material sold by the meter

Inner width	Weight	Bending radius	Wall thickness	Roll length	Order no.
mm	g/m	mm	mm	m	
80	1900	540	5,0	25	KSS - S 80
110	2900	740	5,8	25	KSS - S 110
125	3600	830	7,0	25	KSS - S 125
150	4700	990	8,5	25	KSS - S 150

Accessories



Spacer ASH 2 x 3

For positioning and fixation of a maximum 6 hoses next to each other or on top of each other.
Order no. **ASH 125-2x3** for hose with inside diameter 110 mm.
Order no. **ASH 140-2x3** for hose with inside diameter 125 mm.
Order no. **ASH 170-2x3** for hose with inside diameter 150 mm.

Spacer ASH 2 x 4

For positioning and fixation of a maximum 8 hoses next to each other or on top of each other.
Order no. **ASH 90-2x4** for hose with inside diameter 80 mm.



Cold shrink-on technique KS

For quick and easy installation without auxiliary material under allweather conditions.
Gas- and watertight up to 2 bars.

Available for all system covers.



Rubber press seal GPD

For the gas- and watertight connection to a core hole or casing tube. Available for all KSS cable protection systems.

Standard: With KSS 150, KSS 125 for core hole or casing tube diameter 200 mm.

With KSS 110 for core hole or casing tube diameter 150 mm
With KSS 80 for core hole or casing tube diameter 125 mm.

Versions for larger core holes/ casing tubes are also available.



KSS-hose without connection piece.

Optionally for subsequent installation.



3 Finger-joint box AK

Heat shrink-on technology for the sealing of three cables in a system cover connection piece.

Order no. **AK 35-3F-12/2** connections with inside diameter up to 30 mm
Suitable for cables with outside diameter 2 up to 11 mm

Order no. **AK 50-3F-22/5** For connections with inside diameter up to 46 mm.
Suitable for cables with outside diameter 5 up to 21 mm.

Order no. **AK 75-3F-29/8** For connections with diameter up to 60 mm. Suitable for cables with diameter 8-28 mm.



4 Finger-joint box AK

Heat shrink-on technology for the sealing of four cables in a system cover connection piece.

Order no. **AK 35-4F-13/2** connections with inside diameter up to 30 mm
Suitable for cables with outside diameter 2 up to 12 mm

Order no. **AK 50-4F-20/5** For connections with inside diameter up to 46 mm.
Suitable for cables with outside diameter from 5 up to 19 mm.

Order no. **AK 75-4F-29/8** For connections with diameter up to 60 mm. Suitable for cables with diameter 8-28 mm.



Sealing plugs VS

For the sealing of unused system cover connection pieces. Plugs can be quickly removed for retrofitting. Available for connection pieces With diameter 20, 25, and 32, 35, 46 and 60 mm.

Order no. **VS 20 / VS 25 / VS 30 / VS 32 / VS 46 / VS 60**



Adjustable pin spanner wrench

For the installation of all system covers and KSS systems. With adjustable flank.
Order no. **GSS**



Melt-type adhesive tape SKB

A cold welding-type tape with very good adhesive features for waterproofing and as corrosion protection. Ideal for wrapping cables, pipes, and tubes to enlarge the diameter for the shrink-on process. Suitable for all kinds of plastic and metal.

Tape thickness: 1 mm, width: 50 mm, roll length: 3.00 m
Order no. **SKB**



Cable cleaner KR

For the ecological cleaning of cables. Odorless, evaporates without residues.

500 ml spray bottle, 1000 ml bottle or container with 5000 ml.
Density at 20°C: 0.762 g/cm³
Flash point: 55°C
Evaporation number: 60
Characteristic value: 0
Mandatory labelling: none
Order no. **KR**

KSS-versions

KSS B150 / KSS 150 / KSS 110 / KSS B90

KSS B150

Example	First side	Second side	Order number
1	For the connection to packing BKD 150	With packing BKD 150	KSS B150/110/D/K/ (L)
2	With packing BKD 150	With packing BKD 150	KSS B150/110/K(B)2/ (L)
3	For the connection to packing BKD 150	For the connection to packing BKD 150	KSS B150/110/D2/ (L)
4	For the connection to packing BKD 150	Without connection element	KSS B150/110/D/0/ (L)
5	For the connection to packing BKD 150	With bonded socket joint for the connection of a pipe with outside Ø 110 mm	KSS B150/110/D/KM110/ (L)
6	With packing BKD 150	Connection sleeve for connection of a smooth walled pipe, outside Ø 110 mm	KSS B150/110/K/SM110/ (L)
7	For the connection to packing BKD 150	1 connection piece inside Ø 80 mm for sealing via heat shrink-on technology	KSS B150/110/D/D1-80/ (L)
7	For the connection to packing BKD 150	3 connection pieces inside Ø 46 mm for sealing via heat shrink-on technology	KSS B150/110/D/D3-46/ (L)
7	For the connection to packing BKD 150	7 connection pieces inside Ø 32/25 mm for sealing via heat shrink-on technology	KSS B150/110/D/D7-32-25/ (L)
8	For the connection to packing BKD 150	With GPD for the installation in a core hole casing tube with an inside Ø of 150 mm	KSS B150/110/D/GPD150/ (L)

KSS 150

Example	First side	Second side	Order number
1	For the connection to packing KD 150	With packing KD 150	KSS 150/110/D/K/(L)
2	With packing KD 150	With packing KD 150	KSS 150/110/K(B)2/(L)
3	For the connection to packing KD 150	For the connection to packing KSS 150	KSS 150/110/D2/(L)
4	For the connection to packing KD 150	Without connection element	KSS 150/110/D/0/(L)
5	For the connection to packing KD 150	With bonded socket joint for the connection of a pipe with outside Ø 110 mm	KSS 150/110/D/KM110/(L)
6	With packing KD 150	Connection sleeve for the connection of a smooth walled pipe, outside Ø 110 mm	KSS 150/110/K/SM110/(L)
7	For the connection to packing KD 150	1 connection piece inside Ø 80 mm for sealing via heat shrink-on technology	KSS 150/110/D/D1-80/(L)
7	For the connection to packing KD 150	3 connection pieces inside Ø 46 mm for sealing via heat shrink-on technology	KSS 150/110/D/D3-46/(L)
7	For the connection to packing KD 150	7 connection pieces inside Ø 32/25 mm for sealing via heat shrink-on technology	KSS 150/110/D/D7-32-25/(L)
8	For the connection to packing KD 150	With GPD for the installation in a core hole casing tube with an inside Ø of 150 mm	KSS 150/110/D/GPD150/(L)

KSS 110

Example	First side	Second side	Order number
1	For the connection to packing KD 110	With packing KD 110	KSS 110/110/D/K/(L)
2	With packing KD 110	With packing KD 110	KSS 110/110/K(B)2/(L)
3	For the connection to packing KD 110	For the connection to packing KSS 110	KSS 110/110/D2/(L)
4	For the connection to packing KD 110	Without connection element	KSS 110/110/D/0/(L)
5	For the connection to packing KD 110	With bonded socket joint for the connection of a pipe with outside Ø 110 mm	KSS 110/110/D/KM110 (L)
6	With packing KD 110	Connection sleeve for the connection of a smooth walled pipe, outside Ø110 mm	KSS 110/110/K/SM110/(L)
7	For the connection to packing KD 110	1 connection piece inside Ø 80 mm for sealing via heat shrink-on technology	KSS 110/110/D/D1-80/(L)
7	For the connection to packing KD 110	3 connection pieces inside Ø 46 mm for sealing via heat shrink-on technology	KSS 110/110/D/D3-46/(L)
7	For the connection to packing KD 110	7 connection pieces inside Ø 32/25 mm for sealing via heat shrink-on technology	KSS 110/110/D/D7-32-25/(L)
8	For the connection to packing KD 110	With GPD for the installation in a core hole casing tube with an inside Ø of 150 mm	KSS 110/110/D/GPD150/(L)

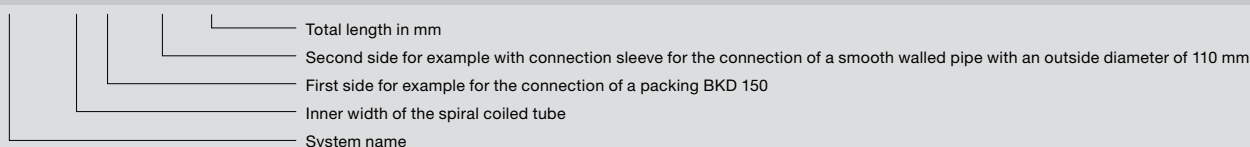
KSS B90

Example	First side	Second side	Order number
1	For the connection to packing KSS B90	With packing KSS B90	KSS B90/80/D/K/(L)
2	With packing KSS B90	With packing KSS B90	KSS B90/80/K(B)2/(L)
3	For the connection to packing KSS B90	For the connection to packing KSS 150	KSS B90/80/D2/(L)
4	For the connection to packing KSS B90	Without connection element	KSS B90/80/D/0/(L)
5	For the connection to packing KSS B90	With bonded socket joint for the connection of a pipe with outside Ø 75 mm	KSS B90/80/D/KM75/(L)
6	With packing KSS B90	Connection sleeve for the connection of a smooth walled pipe, outside Ø 110 mm	KSS B90/80/K/SM110/(L)
7	For the connection to packing KSS B90	1 connection piece inside Ø 75 mm for sealing via heat shrink-on technology	KSS B90/80/D/D1-75/(L)
7	For the connection to packing KSS B90	3 connection pieces inside Ø 30 mm for sealing via heat shrink-on technology	KSS B90/80/D/D3-30/(L)
7	For the connection to packing KSS B90	5 connection pieces inside Ø 20 mm for sealing via heat shrink-on technology	KSS B90/80/D/D5-20/(L)
8	For the connection to packing KSS B90	With GPD for the installation in a core hole casing tube with an inside Ø of 125 mm	KSS B90/80/D/GPD125/(L)

(L) = Total length in mm

Product nomenclature for KSS (example)

KSS B150/110/D/SM110/(L)



Approved tightness

The Fraunhofer Gesellschaft Bremen (IFAM) tested the UGA systems BKD, KD and KSS in experiments. The tests confirm the gastightness, the pressure water tightness and the cold-pressure-watertightness of all systems. The BKD 90-, BKD 150-, KD 150- and KD 110-systems have also been tested in a destruction test. All achieved results exceeded the required values for practical purpose by far.

► Performed tests

- Gastightness with air at a gauge pressure of 1 bar
- Gastightness with helium at a gauge pressure of 1 bar
- Pressure water tightness at a gauge pressure of 5 bar
- Pressure water tightness at low temperatures at a gauge pressure of 5 bar and a temperature of -27°
- Destruction test

Every system was tested in combination with 3 system covers: The blind cover, the system cover with one connection, and the system cover with three connections. The cold-pressure-watertightness was tested in each case with the system cover with three connections.



► Test results

• Gastightness

The partial pressure immediately after the experimental set-up was 5.4×10^{-6} mbar. This is an excellent value since the partial pressure of helium in the atmosphere is approximately $4,8 \times 10^{-6}$ mbar. ca. 4.8×10^{-6} mbars.

• Water pressure tightness

No liquid did emerge.

• Destruction test BKD 90

BKD 90-D (blind cover)	5,00 bar
BKD 90-D1/75	20,76 bar
BKD 90-D3/30	21,15 bar

• Destruction test BKD 110

KD 110-D (blind cover)	5,00 bar
KD 110-D1/80	20,24 bar
KD 110-D3/46	19,28 bar
KD 110-WA/3x32	12,37 bar

• Destruction test BKD 150

KD 150-D (blind cover)	5,00 bar
KD 150-D1/80	20,20 bar
KD 150-D3/60	21,92 bar

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All systems of UGA have to be installed according to the corresponding installation advice.