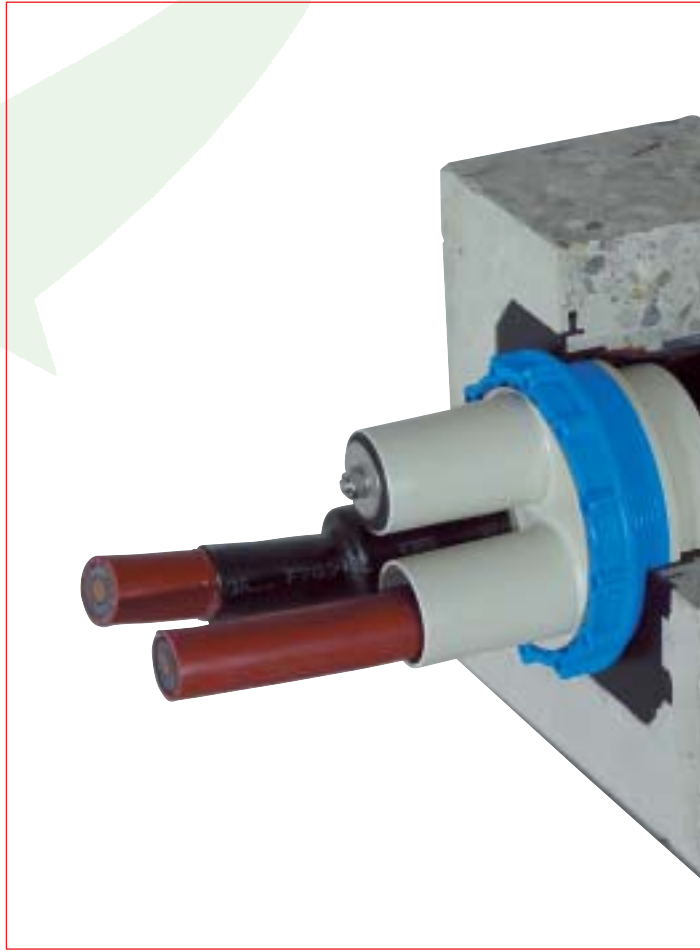




KD 110

Cable Bushing



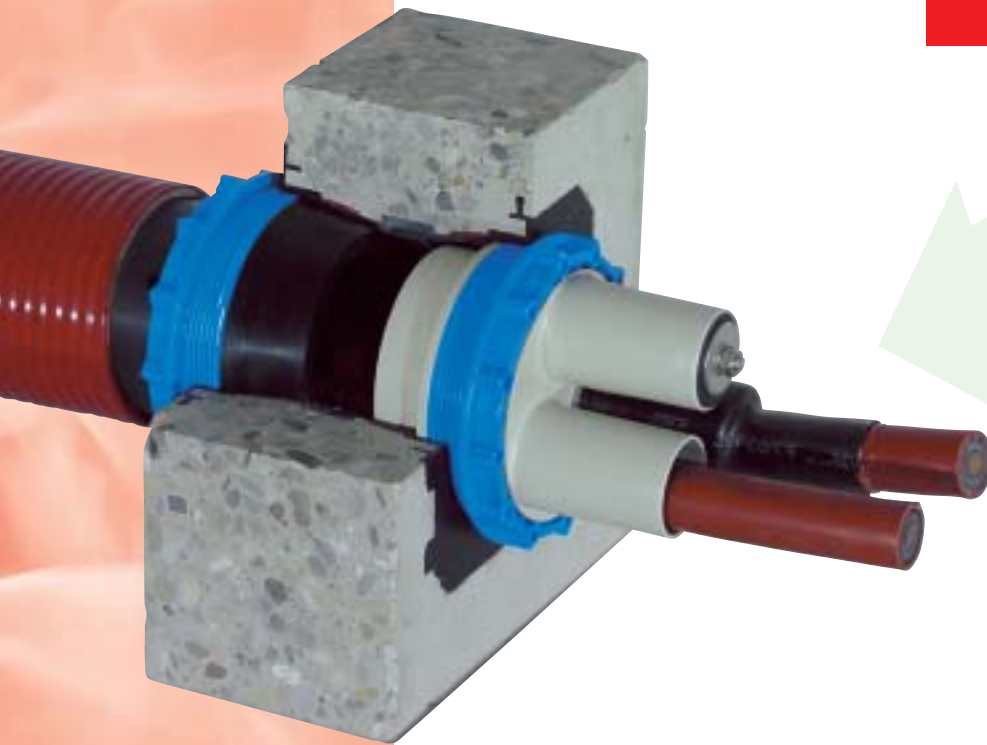
Leading in ideas



SYSTEM-TECHNIK

KD 110

Cable Bushing



Cable Bushing KD 110

System KD 110 consists of a sealing collar which is designed as single or double collar and can be assembled into packages by means of the frames around the collar to be imbedded flush into the concrete of the formwork. The frame is provided with nail holes for fixing with stud nails.

In order to prevent voids the multiple wall duct must be completely enclosed by concrete.

When using individual packages the direction of installation has to be determined with the principal or planner prior to concreting.

KD 110 sealing collars will be supplied fitting to the wall thickness of the structural works and are inserted flush into the formwork. (L = wall thickness in mm)

KD 110 is provided with protective foils and sealing caps. Thus the interior of the sealing collar stays clean during installation and is gas- and watertight immediately after concreting.

- ▶ System KD 110 is suitable for the application of various sealing techniques. The standard design is supplied with heat shrink-on sleeves. As an option, sleeves are also available in cold shrink-on technique KS.
- ▶ Due to the KD system inserts system KD 110 offers an area of 110 mm in diameter for groupings.
- ▶ The table on page 4 shows some examples of groupings. Other combinations with different diameters are certainly possible.
- ▶ Cable bushing KD 110 offers compatibility with other systems and is prepared for numerous special solutions.
- ▶ For special applications and requirements please contact our technical department.



Sealing Collars

System Covers

Application and Function



Single Sealing Collar
suitable for connection of a system cover or system KSS on one side. Applicable for a wall thickness from 80 mm. Direction of installation has to be determined!

🔗 **order no.: KD 110-K/L**
(L) = wall thickness in mm



Double Sealing Collar
suitable for connection of a system cover or system KSS on both sides. Applicable for a wall thickness from 140 mm.

🔗 **order no.: KD 110-K2/L**
(L) = wall thickness in mm



Single Sealing Collar with pipe connection plug-type sleeve.

suitable for connection of a system cover or system KSS on one side. Other side for direct connection of a smooth-walled cable protection tube with an outside diameter of 110, 125, 140, or 160 mm. Minimum wall thickness 200 mm.

🔗 **order no.: KD 110-SMB-110/(L)**
KD 110-SMB-125/(L)
KD 110-SMB-140/(L)
KD 110-SMB-160/(L)

(L) = wall thickness in mm

Also available as single sealing collar with pipe connection glue-in sleeve.

🔗 **order no. e.g.: KD 110-KMB-110/(L)**



Stainless Steel Flange Sealing Collar
suitable for sealing to DIN 18195 part 9 (integral / slip-on type flange design for black basement lining). On both sides connection of system cover or system KSS possible.

Also available as package (flange plate). Flange diameter 470 mm
Minimum wall thickness 160 mm

🔗 **order no.: KD 110-KF2/(L)**

(L) = wall thickness in mm

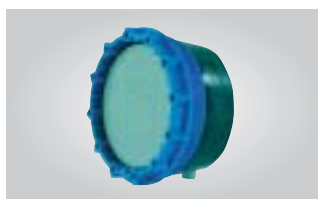


Angular Sealing Collar
suitable for cables laid at an angle of 30°, 45° or 60° from any direction. With auxiliary frame and polystyrene wedge.

Single or double sealing collar also available as package.
Minimum wall thickness 250 mm.

🔗 **order no.: KD 110-S30-K2/(L)**
KD 110-S45-K2/(L)
KD 110-S60-K2/(L)

(L) = wall thickness in mm



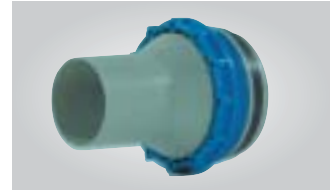
Conical System Insert
of high-quality rubber. Suitable as blind plug for unused KD 110 sealing collars. Convertible for the connection of a cable protection tube with an outside diameter of 110 mm.

🔗 **order no.: KD 110-D**

KD 110 sealing collars are undivided plastic elements which will be supplied fitting to the wall thickness to be imbedded flush into the concrete of the formwork.

Upon supply each sealing collar is provided with a dirt-repelling PE cover and sealing foil. Thus the interior of the sealing collar stays clean during installation. The scope of supply does not include presswater-tight blind covers. Permanent sealing towards the concrete is ensured by the novel expansion sealing system.

Single sealing collars can be plugged together next to each other or one on top of the other. These packages create „check holes“ which allow subsequent control of the concrete compaction. The frame is provided with nail holes for easy fixing of the sealing collar to the formwork. The inner diameter of the sealing collar is 110 mm



System cover with 1 connection piece
and appropriate shrink-on sleeve.

Design for 1 cable of diameter 34 - 98 mm

🔗 **order no.: KD 110-D1/100**

design for 1 cable of diameter 26 - 78 mm

🔗 **order no.: KD 110-D1/80**



System cover with 3 connection pieces
and 3 shrink-on sleeves. Suitable for 3 cables of diameter 16 - 44 mm.

Several joint boxes AK or sealing plugs VS 46 (as blind cover) are available as accessory.

🔗 **order no.: KD 110-D3/46**



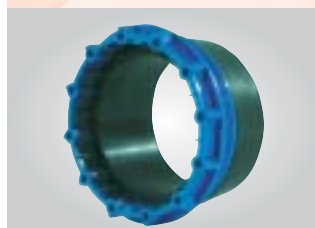
System cover with 7 connection pieces
and 6 shrink-on sleeves. 1 connection piece is closed upon supply and can be opened when necessary. Suitable for max. 4 cables of diameter 7 - 23 mm and max. 3 cables of diameter 12 - 30 mm.

Several joint boxes AK or blind plugs VS are available as accessory.

🔗 **order no.: KD 110-D7/32/25**

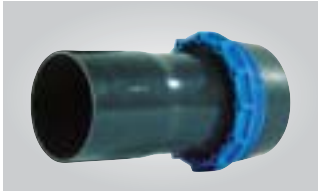
◀ **Conical System Insert**
of high-quality rubber. Suitable for connection of a cable protection tube with an outside diameter of 110 mm.

🔗 **order no.: KD 110-WA/1x110**



Accessory

Application and Function



System Cover with Sleeve
for connection of a cable protection tube with an outside diameter of 75, 80, or 110 mm. Sealing by means of provided shrink-on sleeve.

order no.: **KD 110-DM 75**
KD 110-DM 80
KD 110-DM 110



System Cover with Plug-type Sleeve
for connection of a smooth-walled cable protection tube with an outside diameter of 110 or 125 mm. Sealing by means of sealing lip in the plug-type sleeve.

order no.: **KD 110-DSM 110**
KD 110-DSM 125



Conical System Insert
of high-quality rubber. Suitable for sealing cables or cable protection tubes up to diameter 110 mm. When placing the order please indicate quantity and measured cable diameters. See cable grouping table on page 4.

order no.: **KD 110-WA/ZxD**



Instead of using a system cover it is also possible to connect flexible cable protection hose systems. For further information see Systems KSS.

KD 110 system covers and system inserts offer various possibilities for sealing cables and cable protection tubes. System covers are screwed in manually and tightened by means of the installation spanner GSS prior to laying the cables into a KD 110 sealing shrink-on collar.

After laying the cables, the divided system inserts (WA) are „folded“ around the cables and pushed into the sealing collar. The divided union nut is also tightened with mounting spanner GSS.

Several shrink-on techniques are available for sealing occupied cover connection pieces. (Standard design with heat shrink-on sleeves).

Unused cover connection pieces are sealed with sealing plugs and are thus available for subsequent use.



Three-finger Joint Box AK
(heat shrink-on technique) for sealing 3 cables in one cover connection piece.

order no.: **AK 35-3F-12/2**
for cover KD 110-D7/35/25 and cables with an outside dia. of 2 - 12 mm

order no.: **AK 50-3F-22/5**
for cover KD 110-D3/46 and cables with an outside dia. of 5 - 22 mm



Four-finger Joint Box AK
(heat shrink-on technique) for sealing 4 cables in one cover connection piece.

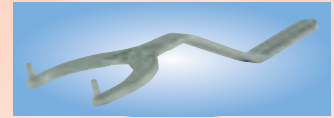
order no.: **AK 35-4F-13/2**
for cover KD 110-D7/35/25 and cables with an outside dia. of 2 - 13 mm

order no.: **AK 50-4F-20/5**
for cover KD 110-D3/46 and cables with an outside dia. of 5 - 20 mm



Sealing Plugs VS
for sealing unused cover connection pieces. Plugs can be removed for using the connection piece. Available for connection pieces of dia. 25, 32, and 46 mm

order no.: **VS 25 / VS 32 / VS 46**



Articulated Face Spanner GSS
with adjustable leg. Suitable for mounting all system covers and KSS systems.

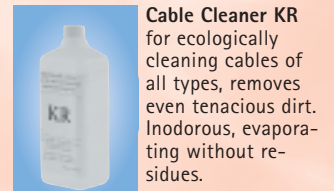
order no.: **GSS**



Melt-type Adhesive Tape SKB
is a cold welding-type tape with very good adhesive properties. Suitable for all cable sheath materials, plastics and metals, for sealing and corrosion protection.

Tape thickness: 1 mm
Tape width: 50 mm
Roll length: 3.30 m

order no.: **SKB**



Cable Cleaner KR
for ecologically cleaning cables of all types, removes even tenacious dirt. Inodorous, evaporating without residues.

Density at 20°C: 0.762
Flash point: >+55°C
Evaporation number: 60
Characteristic value: 0
Duty to mark: none
Packing drum: 1000 ml
5000 ml
500 ml
spray bottle

order no.: **KR**

Grouping Table WA System Insert

WA-insert	Z=1 drilled hole	Z=3 drilled holes	Z=5 drilled holes	Z=7 drilled holes	Z=9 drilled holes	Z=13 drilled holes	Z=19 drilled holes	Z=28 drilled holes
D max. Ø in mm	up to 110	up to 48	up to 36	up to 32	up to 26	up to 21	up to 18	up to 14
order no.								KD 110-WA/28x(D)
							KD 110-WA/19x(D)	
						KD 110-WA/13x(D)		
					KD 110-WA/9x(D)			
				KD 110-WA/7x(D)				
		KD 110-WA/5x(D)						
	KD 110-WA/3x(D)							
	KD 110-WA/1x(D)							

(Z) = number of drilled holes in WA system insert
(D) = measured cable outside diameter in mm

We provide replacements for all parts which are impaired in their function due to faults in the material. No replacement for defects that are due to transport or storage or result from faulty processing or installation or the effects thereof. Our specifications are based on the current state of the art. Subject to technical modifications. Due to the amount of possible influences during installation and application our specifications do not release processors and users from checking and testing the material themselves.

Packages

Application and Function

Variable Packages

Single sealing collars can be plugged together at random next to each other or one on top of the other.

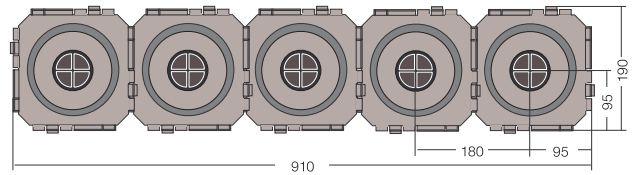
Safety at a Glance

Packages create central check holes which allow subsequent control of the concrete compaction!

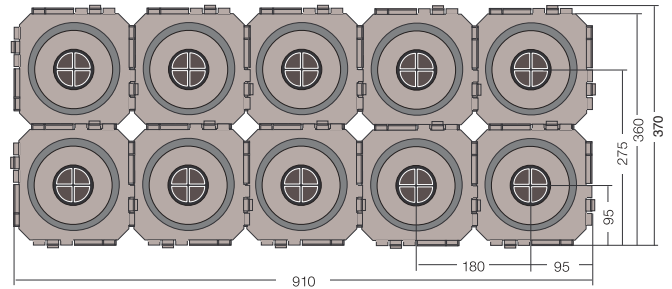
System KD consists of a sealing collar which is designed as single or double collar and can be assembled into packages by means of the frames around the collar to be imbedded flush into the concrete of the formwork.

Variable Packages

KD 110-1x5-K2/(L)



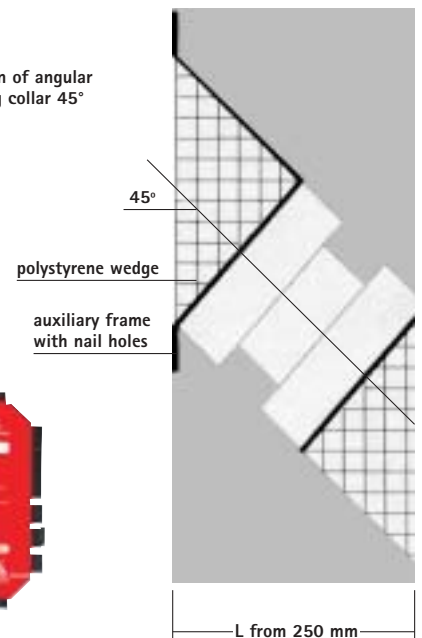
KD 110-2x5-K2/(L)



Angular Sealing Collar



Section of angular sealing collar 45°



Product Nomenclature

Example:
Single Sealing Collar

KD 110 - K/ (L)
 wall thickness in mm
 single sealing collar
 system designation

Example:
Double Sealing Collar

KD 110 - K2 / (L)
 double sealing collar

Example:
Double Sealing Collar as package 2 x 3

KD 110 - 2x 3 - K2/ (L)
 wall thickness in mm
 double sealing collar
 3 sealing collars next to each other
 2 sealing collars one on top of the other
 system designation

Example:
Angular Sealing Collar 45° as double sealing collar

KD 110 - S45 - K2/ (L)
 wall thickness in mm
 double sealing collar
 angular sealing collar 45°
 system designation

Test Report UGA System KD 110

The tests with system KD were carried out at the Fraunhofer Gesellschaft Bremen (IFAM). These tests were to show if UGA's cable bushings type KD 110 are gas- and watertight.

A special test specimen consisting of a concrete part and a test bell was developed for this test. Sealing collar KD 110 was imbedded into the concrete part with a waterproof concrete. The surface of the concrete part was sealed as this test was to reveal the bonding characteristics of the sealing collar to the concrete and not the tightness of the concrete itself.

All test specimens proved successful in the tests for

gastightness, presswater tightness and presswater tightness at low temperatures.

Four system covers of system KD 110 were tested: the blind cover (KD 110-D), the system cover with one connection piece (KD 110-D1/80), the system cover with three connection pieces (KD 110-D3/46) and the system insert with 1 - 3 drilled holes (KD 110-WA/3x32).

In the presswater tightness test at low temperatures only the system cover with three connection pieces was tested.

In the shock wave test pressure was increased until the cover collapsed.

In the helium test the specimens were checked for gastightness. In this test, the partial pressure of helium in the atmosphere directly after the experimental set-up is to give conclusions about the leakage rate of the system.

In the test for presswater tightness at low temperatures the specimens were checked for presswater tightness (with a water / antifreeze compound solution) at extremely low temperatures for a period of 24 hours.

The obtained results confirm that system KD 110 is an excellent sealing system and exceeds the values demanded for practical purposes by far.

Test Results in Detail

The following tightness tests were carried out:

- gastightness with air at a pressure of 1 bar
- presswater tightness at a pressure of 5 bars
- gastightness with helium at a pressure of 5 bars
- presswater tightness at low temperatures at a pressure of 5 bars at -27°C .
- shock wave test (destructive test)

► Result of Shock Wave Test:

KD 110-D (blind cover)	5.00 bars
KD 110-D1/80	20.24 bars
KD 110-D3/46	19.28 bars
KD 110-WA/3x32	12.37 bars

► Result of Gastightness Test:

Partial pressure (directly after experimental set-up) was 5.4×10^{-6} mbars. This is a very good value as the partial pressure of helium in the atmosphere is ca. 4.8×10^{-6} mbars.

► Result of Presswater Tightness Test:

Liquid did not emerge. A feature was made of the optimum structure of the sealing collar and the very good expansion seal which is applied annularly around the sealing collar. This expansion seal guarantees that the connection between sealing collar and concrete does not break when the concrete dries.



Sealing systems and fire protection for cables and pipes

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