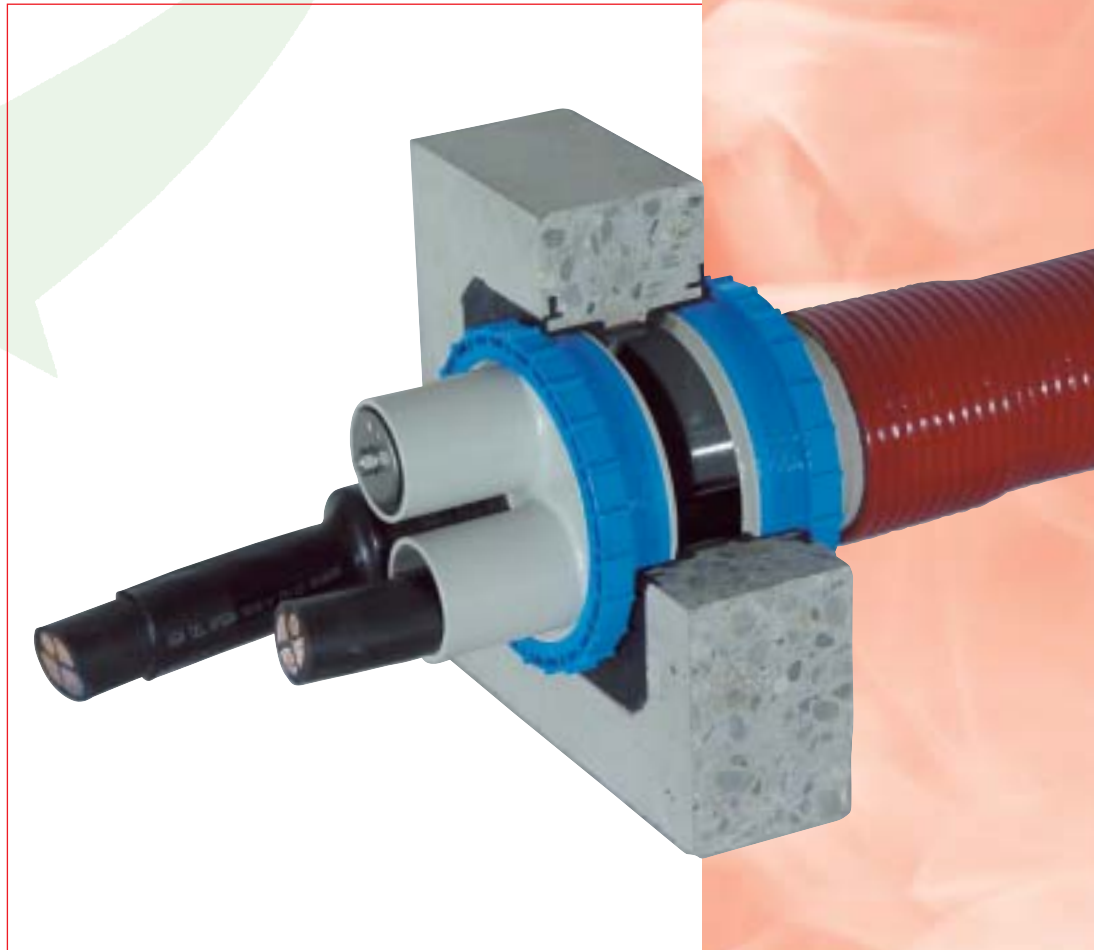




KD 150

Cable Bushing



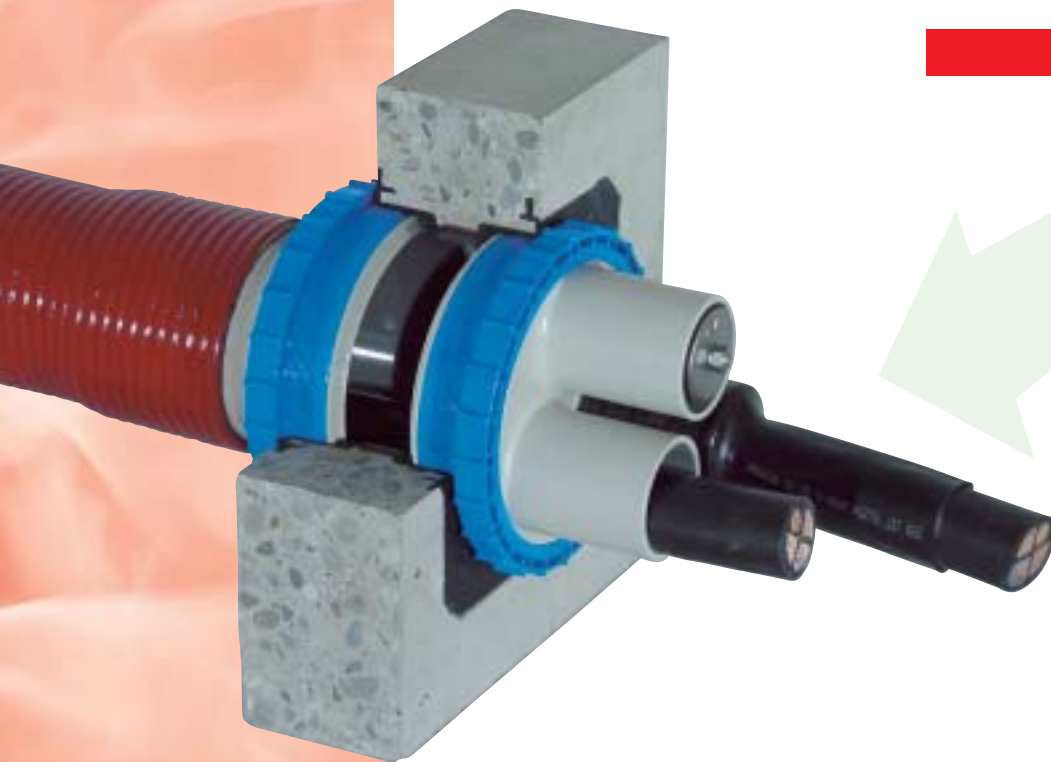
Leading in ideas



SYSTEM-TECHNIK

KD 150

Cable Bushing



Cable Bushing KD 150

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. The frame is provided with nail holes for fixing with stud nails.

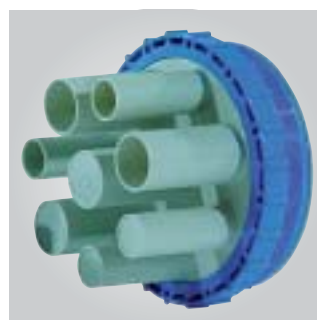
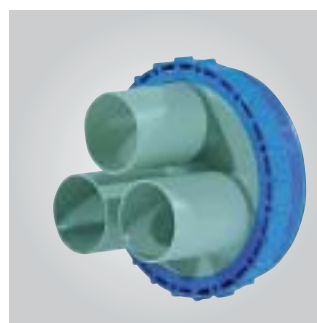
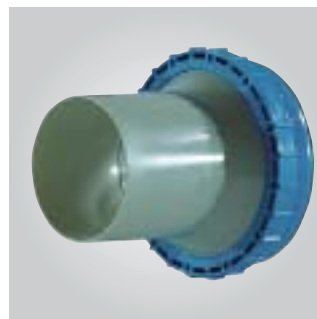
In order to prevent voids the multiple wall duct must be completely enclosed by concrete.

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

KD 150 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 150 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 150 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.
- ▶ Cable bushing KD 150 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 60 mm. Direction of installation has to be determined!

order no.: **KD 150-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 100 mm.

order no.: **KD 150-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 150 mm.
order no.: **KD 150-SMB-110/(L)**
KD 150-SMB-125/(L)
KD 150-SMB-140/(L)
KD 150-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 150-KMB-110/(L)**



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.

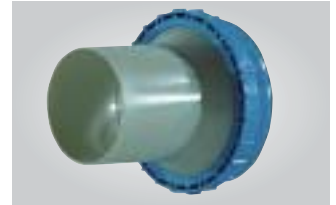
order no.: **KD 150-S30-K2/(L)**
KD 150-S45-K2/(L)
KD 150-S60-K2/(L)

(L) = wall thickness in mm

KD 150 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 closed cover and is thus gas- and watertight immediately after concreting. 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 150 mm

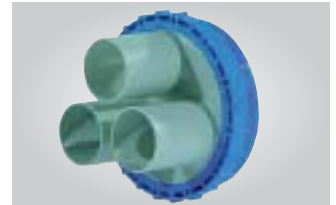


System cover with 1 connection piece and appropriate shrink-on sleeve. Design for 1 cable of diameter 34 - 108 mm

order no.: **KD 150-D1/110**

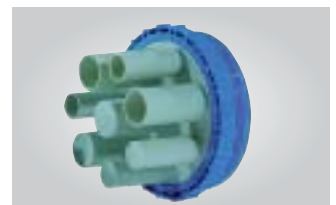
design for 1 cable of diameter 26 - 78 mm

order no.: **KD 150-D1/80**



System cover with 3 connection pieces and 3 shrink-on sleeves. Suitable for 3 cables of diameter 21 - 56 mm. Several joint boxes AK or sealing plugs VS 60 (as blind cover) are available as accessory.

order no.: **KD 150-D3/60**

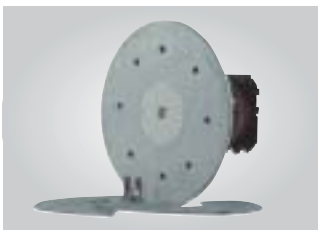


System cover with 8 connection pieces and 4 shrink-on sleeves. 4 connection pieces are closed upon supply and can be opened when necessary. Suitable for max. 4 cables of diameter 7 - 23 mm and max. 4 cables of diameter 12 - 33 mm.

order no.: **KD 150-D8/35/25**

A set of special thermal sleeves for the subsequently opened connection pieces is available as accessory.

order no.: **KD 150-TM Set-D8**



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 500 mm. Minimum wall thickness 160 mm

order no.: **KD 150-KF2/(L)**

(L) = wall thickness in mm



Aluminium Flange Sealing Collar AF
suitable for sealing in front of diamond tipped drilled holes in walls or ceilings. Supplied with flange gasket, sealing ring, protective cover and fastening elements. Connection of a system cover or system KSS possible. Diameter of diamond tipped drilled hole max. 150 mm. Flange 200 x 200 mm.

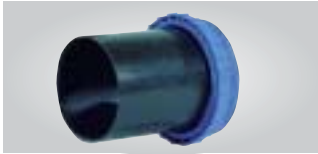
order no.: **KD 150-AF 200**

(L) = wall thickness 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.

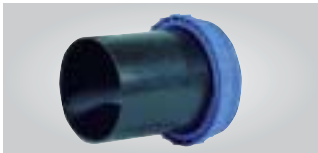
Accessory

Application and Function



System Cover with Sleeve
for connection of a cable protection tube with an outside diameter of 80, 110, 125, 140, or 160 mm. Sealing by means of provided shrink-on sleeve.

order no.: **KD 150-DM 80**
KD 150-DM 110
KD 150-DM 125
KD 150-DM 140
KD 150-DM 160



System Cover
with 1 thick-walled connection piece and appropriate shrink-on sleeve. Suitable for 1 cable of dia. 60 - 158 mm or for the connection of a cable protection tube of max. 160 mm outside diameter.

order no.: **KD 150-D1/160**



System Cover with Plug-type Sleeve
for connection of a smooth-walled cable protection tube with an outside diameter of 110, 125, 140, or 160 mm. Sealing by means of sealing lip in the plug-type sleeve.

order no.: **KD 150-DSM 110**
KD 150-DSM 125
KD 150-DSM 140
KD 150-DSM 160



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

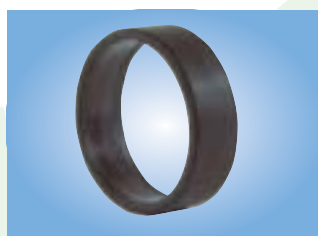
KD 150 system covers offer various possibilities for sealing cables and cable protection tubes. They are screwed in manually and tightened by means of the installation spanner GSS prior to laying the cables into a KD 150 sealing collar or a KD 150 aluminium flange AF 200. Several shrink-on techniques 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 can be subsequently used as spare ducts.



System Cover
suitable as blind cover for unused sealing collars. **This system cover is included in the scope of supply of each sealing collar.** A square wrench VMS is available for economical installation.

order no.: **KD 150-D**



Variable Rubber Joint
for retrofitting and using KD 150 system covers in variable sealing collars.

order no.: **KD 150 Vario-Dichtung**



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 150-D8/35/25 and cables with an outside dia. of 2 - 12 mm

order no.: **AK 50-3F-22/5**
for cover KD 150-D8/35/25 and cables with an outside dia. of 5 - 22 mm

order no.: **AK 75-3F-29/8**
for cover KD 150-D3/60 and cables with an outside dia. of 8 - 29 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 150-D8/35/25 and cables with an outside dia. of 2 - 13 mm

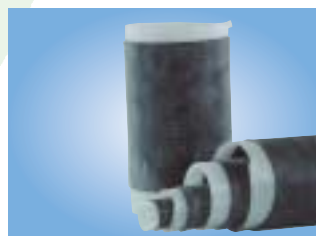
order no.: **AK 50-4F-20/5**
for cover KD 150-D8/35/25 and cables with an outside dia. of 5 - 20 mm

order no.: **AK 75-4F-29/8**
for cover KD 150-D3/60 and cables with an outside dia. of 8 - 29 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, 35, 60 mm

order no.: **VS 25 / VS 35 / VS 60**



Cold Shrink-on Technique KS
for quick and simple installation without auxiliaries under all weather conditions. Gas- and watertight up to 2 bars. Absorbs tension and pressure loads.

Available for all system covers

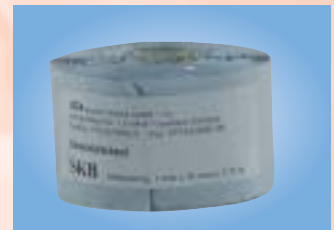


Articulated Face Spanner GSS
with adjustable leg. Suitable for mounting all system covers and KSS systems.

Best.-Nr.: **GSS**

Square Mounting Wrench VMS
suitable for efficiently mounting and dismantling KD 150 and KD 85 blind covers with 1/2" ratchet spanner.

order no.: **VMS**



Melt-type Adhesive Tape SKB
is a cold welding-type tape with very good adhesive properties. Suitable for all cable sheath materials, for 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**



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.

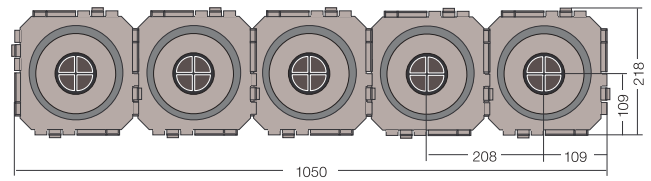
Safety at a Glance

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

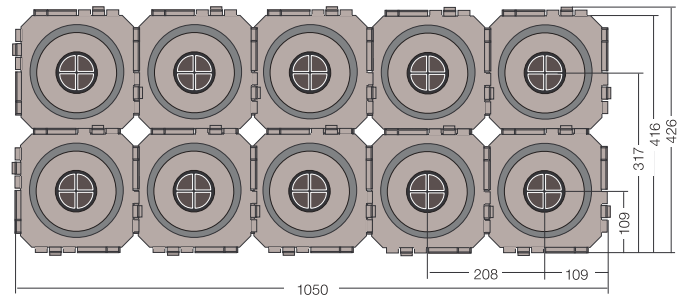
System KD consists of a sealing collar which is designed as single or double collar and can be assembled into packages by means of the frames around the collar to be imbedded flush into the concrete of the formwork.

Variable Packages

KD 150-1x5-K2/(L)



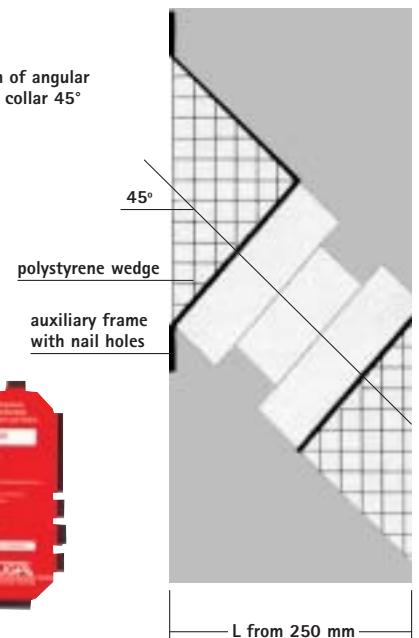
KD 150-2x5-K2/(L)



Angular Sealing Collar



Section of angular sealing collar 45°



Product Nomenclature

Example:
Single Sealing Collar

KD 150 - K/(L)
 wall thickness in mm
 single sealing collar
 system designation

Example:
Double Sealing Collar

KD 150 - K2 / (L)
 double sealing collar

Example:
Double Sealing Collar as package 2 x 3

KD 150-2x 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 150-S45-K2/(L)
 wall thickness in mm
 double sealing collar
 angular sealing collar 45°
 system designation

Test Report UGA System KD 150

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 150 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 150 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 gas-tightness, presswater tight-

ness and presswater tightness at low temperatures.

Three system covers of system KD 150 were tested: the blind cover (KD 150-D), the system cover with one connection piece (KD 150-D1/110) and the system cover with three connection pieces (KD 150-D3/60).

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 150 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 150-D (blind cover)	5.00 bars
KD 150-D1/80	20.20 bars
KD 150-D3/60	21.92 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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