



Pipeline Accessories

Casing End Seals
4 pipes

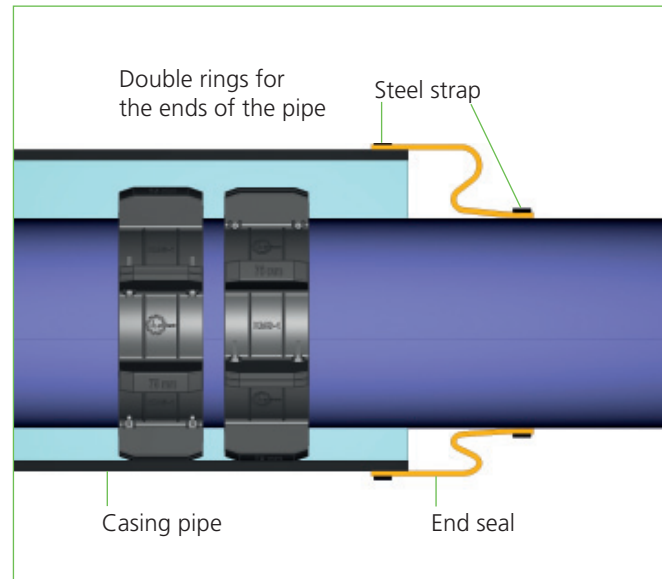


End Seals 4 pipes

Elastomeric casing-end seals serve as **pressure-less sealing** of the annular space between casing pipe and carrier pipe. To protect the carrier pipe against corrosion, the inside of the casing pipe has to stay dry. End seals are especially suitable for retrofit mounting and also for new constructions because they can be delivered individually (basic, multiple, conic, and split version). End Seals 4 pipes close the annular space at the end of the casing pipe around the carrier pipe, preventing any dirt or moisture from getting in. For pressure tight applications special measurements have to be taken e.g. type KMR.

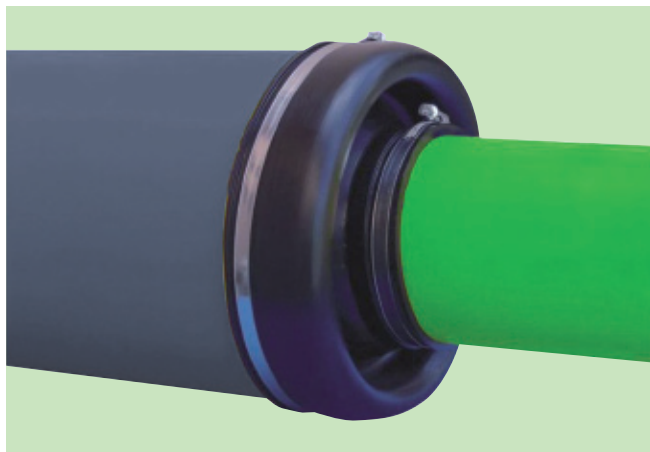
When ordering we ask for **information of the exact pipe dimensions and spacer types** so we can choose the ideal seal.

- Type ADU wave shape - fix dimensions
- Type AKT/AWM end seal multidiameter design
- Type AST step shape
- Type AKG/AKO conic shape, AKO split possible
- Type ASTM individual end seal
- Type heat-shrinkable end seal



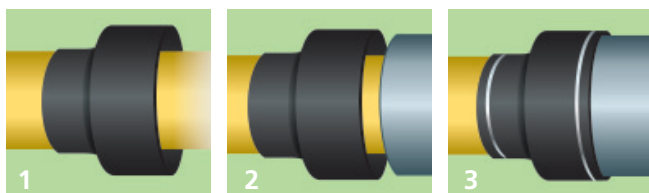
End Seals 4 pipes

Type ADU end seals



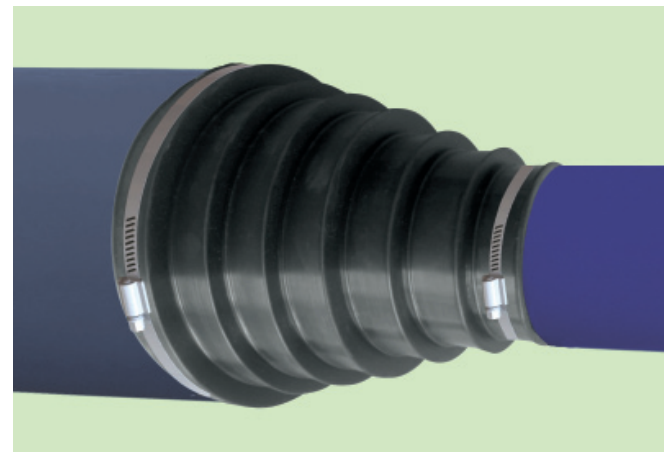
End seals ADU are a high quality and well-priced possibility to seal **standard combinations** of casing and carrier pipes with a rubber molded part. **Integrated waves** allow great flexibility and also enable also non-centric application. ADU end seals are stretchable up to 10%. For all standard sizes please have a look at our price list. A lot of further sizes are available on request. Using EPDM rubber and the suitable **stainless steel fastening straps** make the end seal a high quality product. Special qualities in silicone rubber are available on request. Operational temperature from -40° C up to +120° C
For all standard dimensions, please see our latest price list.

Installation Type ADU



1. Insert the end seal on the main pipe before inserting the casing pipe
2. Insert the end seal on the jacket pipe
3. Secure both pipes with the supplied straps

Type AST end seals



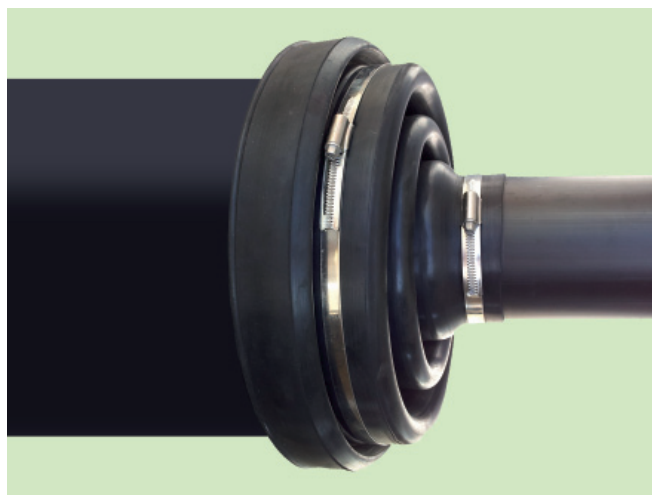
Type AST:

- Only two types for 25 mm - 160 mm range
- High quality rubber
- Dimensions perfect for plastic pipes
- Marks for cutting on site
- Supplied with stainless steel straps
- Low stock, high flexibility
- NBR version for the gas sector
- Operational temperature from EPDM -40°C up to +120°C

Step dimensions in mm		DN	Art.-No.
Stepseal AST 20 - 90 closed	EPDM	20/30/40/50/ 75/90	18086
Stepseal AST 25 - 110	EPDM	25/32/40/50/ 63/75/90/110	18088
Stepseal AST 63 - 160	EPDM	63/75/90/110 125/140/160	18089
Stepseal AST 25 - 125	NBR	25/32/40/50 63/75/90/110 125	18087

End Seals 4 pipes

End seals Type AKT/AWM



End seals AKT/AWM are made of high quality moulded EPDM-rubber. The conic shape of the seal allows a flexible cutting on various pipe diameters. The innovative AWM-seal although the cone is wave-shaped when delivered. AKT/AWM seals are available for a carrier pipes size up to 800 mm. Having only a small number of sizes makes storage easy for our distributors and sales partners..

Operational temperature from -40°C up to +120°C

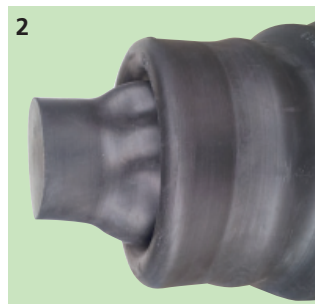
End seals Type AKT/AWM – Sizes

Dimensions in mm casing1/casing2 - min. OD carrier pipe	DN	Art.-No.
AKT 135/110-0	125/100-0	18090
AKT 215/165-0	200/150-0	18091
AWM 320/270-63	300/250-50	18092
AWM 402/350-80	400/350-80	18093
AWM 610/508-160	600/500-150	18094
AWM 810/710-273	800/700-250	18095

Installation

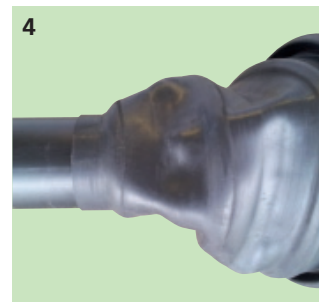
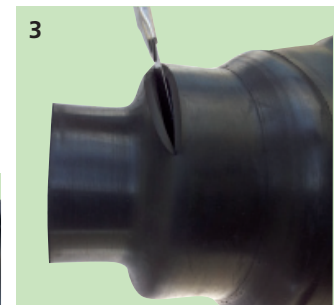


1. The end seal type AWM comes with two stainless steel straps. The steel straps are adjustable individually for the largest as well as smallest pipe diameters.



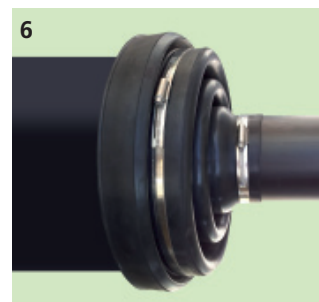
2. Pull the AWM seal over the carrier pipe until the contour of the pipe clearly begins to show (elasticity of the seal about 10 %). Thereby the AWM-seal unfolds to a conic shape which balances the eccentricities of the carrier pipe well.

3. Cut seal around carrier pipe's end.



4. After that, push AWM-seal over carrier pipe and casing pipe.

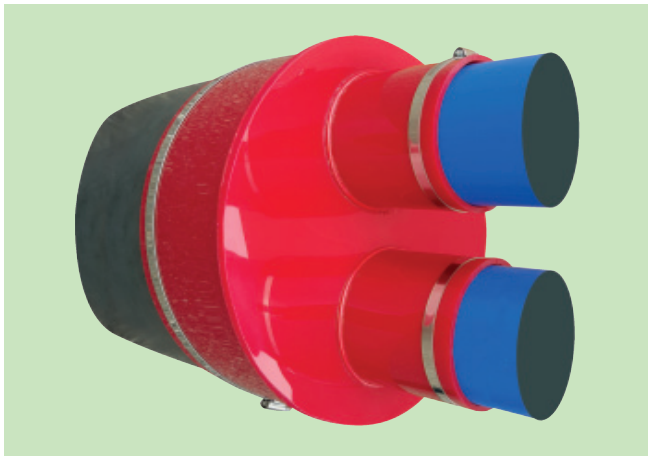
5. After pushing the AWM-seal over both pipes, move the rubber seal into annular space for protection.



6. To conclude, fix AWM seal to the carrier pipe and casing pipe using steel straps.

End Seals 4 pipes

End Seal Type ASTM

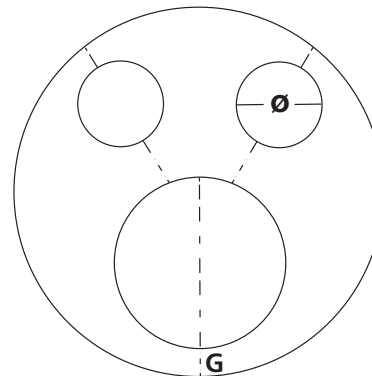


End seals type ASTM are the **highest quality** seal type between casing and carrier pipe. ASTM seals are made of soft PVC. Here you have the possibility to include **additional outlets** e.g. for further cable casing pipes. In special cases the welding of the seal on site for retrofit rehabilitation purposes is possible. ASTM-seals are **made individually** and are not available from stock.

A tightness against high external water pressure can be achieved by using a special sealing compound and double tightening straps (type ASTM-KMR). Standard colour is red.

Stainless steel tightening straps are also standard.

Example/Template



Necessary information:

- OD casing
- Wall thickness casing
- Height of spacers
- OD carrier pipes
- Position carrier pipes

Technical Data Type ASTM - soft PVC

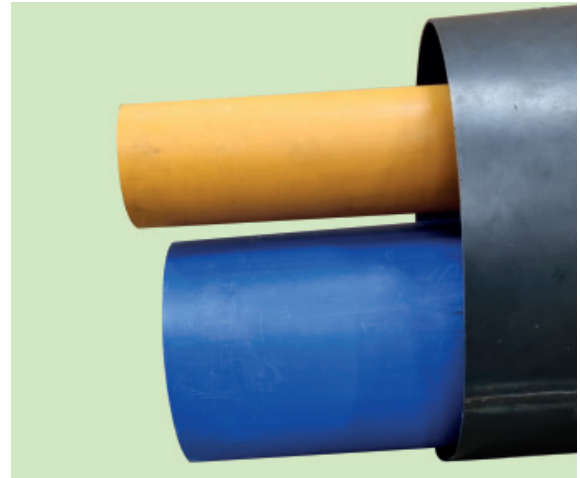
Characteristics	Test method	Technical Data
Colour	-	red
Thickness	-	5 mm ± 0.30 mm
Break due to cold	DIN EN 1876-2	ca. -35°C
Working temperature min.	JEDI 35.008 / 35.010	ca. -5°C
Working temperature max.	JEDI 35.008 / 35.010	ca. +60°C
Water absorption	DIN 53472	0.1 % - 1 %
Elongation at break	ISO 527	≥ 360 %
Tensile strength	ISO 527	≥ 18 N/mm ²
Tear growth resistance	DIN 53515	≥ 5 N/mm
Inflammability	DIN 53382 / DIN 4102/B2	Normally inflammable B2
Edge flaming	DIN 53382/2 / DIN 4102/B2	Self-extinguishing
Hardness Shore A	DIN 53505	77 ± 3
REACH-Conformity	-	Conform to (EG) Nr. 1272/2008 (REACH-regulation)
PAK-free	-	No polycyclic aromatic hydrocarbons are used in production
Silicone-free	-	Silicone is not part of the material and not used in the production process
RoHS	2011/65/EU the European Parliament	Raw materials meet the requirements of the JEDI document 35.012

Installation guide

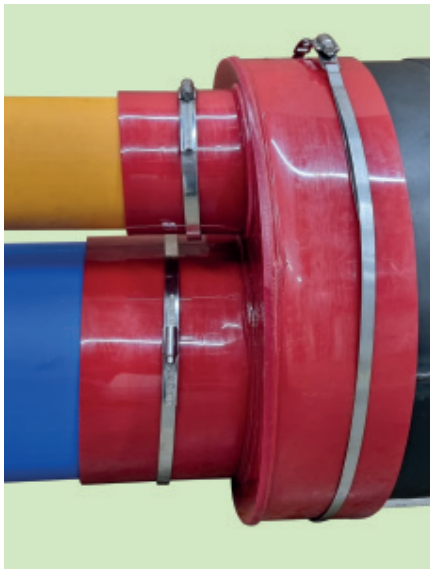
Casing End Seals 4 pipes



1. The casing end seal is supplied with a stainless steel tightening strap for the casing pipe and a stainless steel tightening strap for each carrier pipe opening.



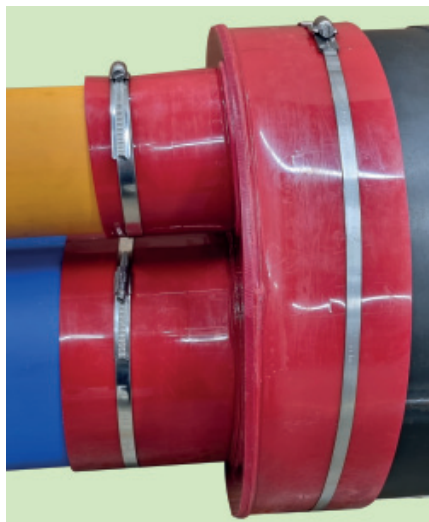
2. Clean casing pipe and carrier pipes.



3. Pull casing end seal over carrier pipes and casing pipe, afterwards put the supplied tightening straps in place over the corresponding pipes.



4. Fasten the casing end seal on the carrier pipes and the casing pipe with the tightening straps.



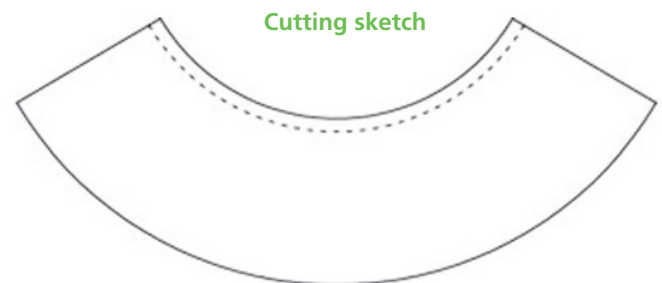
5. Correctly installed casing end seal type ASTM.

End Seals Typ AKO and Type AKG 4 pipes

End seals Type AKG/AKO



End seals AKG - AKO (split) are made for particular pipe combinations as a **conic cut**. The **individually-made seal** is available **for almost all pipe sizes**. For all standard pipe combinations please see our price list. Neoprene rubber with a consistent 2 mm thickness and the corresponding stainless steel straps make it a high quality and flexible product. Operational temperature from -30° C up to +70° C. Silicone rubber is available on request, only as closed version, temperature range -50° C up to +200° C.



Carrier pipe DN (mm)	External jacket DN (mm)
25 up to 1300	37.5 up to 3000

For standard sizes please have a look at our price list.

If the casing end seal diameter is too small for the carrier pipe, scissors or a knife can be used on site to cut off the inner edge of the AKG or AKO end seal (20 mm result in a diameter increase of approx. 13 mm – 20 mm). It is important to ensure that in the area around the carrier pipe, the casing end seal is 2 - 5 % smaller than the outside diameter of the pipe, so that seal can be applied without wrinkles.

Application Instructions

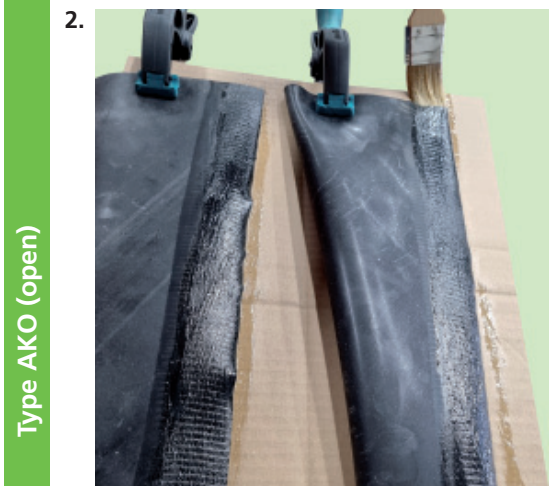
Casing End Seals - Type AKO and Type AKG

Type AKG see point 5 and 6



The AKO casing end seal has to be prepared on a clean surface, with its two tapered bonding strips facing upwards.

Attention: The bonding strips have to be clean, dry and free of grease.



The bonding strips (width approx. 30mm) are thinly coated with the adhesive provided. The adhesive requires approx. 10 - 15 minutes to dry. A finger test is a reliable way to ensure the correct drying time; the adhesive should feel dry but still sticky.



After the adhesive on the bonding strips has dried sufficiently, the AKO end seal is wrapped around the carrier pipe.

Attention: The larger end of the casing end seal should point in the direction of the casing pipe.



Align the two bonding strips over each other and press them firmly together.

Hint: Use a pressure roller or a small wooden block to apply pressure evenly with an up and down motion.

Type AKO (open)



The larger end of the casing end seal is pulled onto the casing pipe until it is tightly in position. A stainless steel tensioning strap is then used to hold the end seal in place on the casing pipe.

Type AKG (closed)



After that, the end seal should be tucked in and then fastened securely to the carrier pipe using another stainless steel tensioning strap.