



Cable entry systems



## Cable entry systems

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Further technical information can be found on the Internet  
[www.hensel-electric.de](http://www.hensel-electric.de) -> Products



**ESM 16**  
**Grommets**  
**for knockouts M 16**

- sealing range: Ø 4.8-11 mm
- bore-hole: Ø 16.5 mm
- wall thickness 1.5-3.5 mm
- for indoor - normal environment and (or) protected outdoor installation
- ambient temperature - 25 °C to + 35 °C
- glow wire test IEC 60695-2-11: 750 °C
- Colour: grey, RAL 7035



**ESM 20**  
**Grommets**  
**for knockouts M 20**

- sealing range: Ø 6-13 mm
- bore-hole: Ø 20.5 mm
- wall thickness 1.5-3.5 mm
- for indoor - normal environment and (or) protected outdoor installation
- ambient temperature - 25 °C to + 35 °C
- glow wire test IEC 60695-2-11: 750 °C
- Colour: grey, RAL 7035



**ESM 25**  
**Grommets**  
**for knockouts M 25**

- sealing range: Ø 9-17 mm
- bore-hole: Ø 25.5 mm
- wall thickness 1.5-3.5 mm
- for indoor - normal environment and (or) protected outdoor installation
- ambient temperature - 25 °C to + 35 °C
- glow wire test IEC 60695-2-11: 750 °C
- Colour: grey, RAL 7035



**ESM 32**  
**Grommets**  
**for knockouts M 32**

- sealing range: Ø 9-23 mm
- bore-hole: Ø 32.5 mm
- wall thickness 1.5-3.5 mm
- for indoor - normal environment and (or) protected outdoor installation
- ambient temperature - 25 °C to + 35 °C
- glow wire test IEC 60695-2-11: 750 °C
- Colour: grey, RAL 7035



**ESM 40**  
**Grommets**  
**for knockouts M 40**

- sealing range: Ø 17-30 mm
- bore-hole: Ø 40.5 mm
- wall thickness 1.5-3.5 mm
- for indoor - normal environment and (or) protected outdoor installation
- ambient temperature - 25 °C to + 35 °C
- glow wire test IEC 60695-2-11: 750 °C
- Colour: grey, RAL 7035





**STM 16**  
**Stepped grommet**  
**for knockouts M 16**

- sealing range: Ø 3.5-12 mm
- bore-hole: Ø 16.5 mm
- wall thickness 1.5-4 mm
- for indoor - normal environment and (or) protected outdoor installation
- ambient temperature - 25 °C to + 35 °C
- glow wire test IEC 60695-2-11: 750 °C
- Colour: grey, RAL 7035



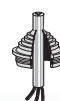
**STM 20**  
**Stepped grommet**  
**for knockouts M 20**

- sealing range: Ø 5-16 mm
- bore-hole: Ø 20.5 mm
- wall thickness 1.5-4 mm
- for indoor - normal environment and (or) protected outdoor installation
- ambient temperature - 25 °C to + 35 °C
- glow wire test IEC 60695-2-11: 750 °C
- Colour: grey, RAL 7035



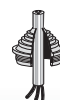
**STM 25**  
**Stepped grommet**  
**for knockouts M 25**

- sealing range: Ø 5-21 mm
- bore-hole: Ø 25.5 mm
- wall thickness 1.5-4 mm
- for indoor - normal environment and (or) protected outdoor installation
- ambient temperature - 25 °C to + 35 °C
- glow wire test IEC 60695-2-11: 750 °C
- Colour: grey, RAL 7035



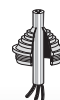
**STM 32**  
**Stepped grommet**  
**for knockouts M 32**

- sealing range: Ø 13-26.5 mm
- bore-hole: Ø 32.5 mm
- wall thickness 1.5-4 mm
- for indoor - normal environment and (or) protected outdoor installation
- ambient temperature - 25 °C to + 35 °C
- glow wire test IEC 60695-2-11: 750 °C
- Colour: grey, RAL 7035



**STM 40**  
**Stepped grommet**  
**for knockouts M 40**

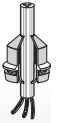
- sealing range: Ø 13-34 mm
- bore-hole: Ø 40.5 mm
- wall thickness 1.5-4 mm
- for indoor - normal environment and (or) protected outdoor installation
- ambient temperature - 25 °C to + 35 °C
- glow wire test IEC 60695-2-11: 750 °C
- Colour: grey, RAL 7035





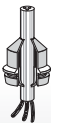
**EDK 16**  
**Grommets**  
**for knockouts M 16**

- sealing range: Ø 5-10 mm
- bore-hole: Ø 16.5 mm
- wall thickness 1.5-3.5 mm
- for indoor - normal environment and (or) protected outdoor installation
- ambient temperature - 25 °C to + 35 °C
- glow wire test IEC 60695-2-11: 750 °C
- Colour: grey, RAL 7035



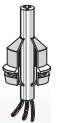
**EDK 20**  
**Grommets**  
**for knockouts M 20**

- sealing range: Ø 6-13 mm
- bore-hole: Ø 20.5 mm
- wall thickness 1.5-3.5 mm
- for indoor - normal environment and (or) protected outdoor installation
- ambient temperature - 25 °C to + 35 °C
- glow wire test IEC 60695-2-11: 750 °C
- Colour: grey, RAL 7035



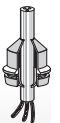
**EDK 25**  
**Grommets**  
**for knockouts M 25**

- sealing range: Ø 9-17 mm
- bore-hole: Ø 25.5 mm
- wall thickness 1.5-3.5 mm
- for indoor - normal environment and (or) protected outdoor installation
- ambient temperature - 25 °C to + 35 °C
- glow wire test IEC 60695-2-11: 750 °C
- Colour: grey, RAL 7035



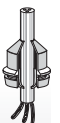
**EDK 32**  
**Grommets**  
**for knockouts M 32**

- sealing range: Ø 8-23 mm
- bore-hole: Ø 32.5 mm
- wall thickness 1.5-3.5 mm
- for indoor - normal environment and (or) protected outdoor installation
- ambient temperature - 25 °C to + 35 °C
- glow wire test IEC 60695-2-11: 750 °C
- Colour: grey, RAL 7035



**EDK 40**  
**Grommets**  
**for knockouts M 40**

- sealing range: Ø 11-30 mm
- bore-hole: Ø 40.5 mm
- wall thickness 1.5-3.5 mm
- for indoor - normal environment and (or) protected outdoor installation
- ambient temperature - 25 °C to + 35 °C
- glow wire test IEC 60695-2-11: 750 °C
- Colour: grey, RAL 7035





**EDR 16**  
**Grommets for conduits for knockouts M 16**

- conduit connection M 16
- bore-hole: Ø 16.5 mm
- wall thickness 1.5-3.2 mm
- for indoor - normal environment and (or) protected outdoor installation
- ambient temperature - 25 °C to + 35 °C
- glow wire test IEC 60695-2-11: 750 °C
- Colour: grey, RAL 7035



**EDR 20**  
**Grommets for conduits for knockouts M 20**

- conduit connection M 20
- bore-hole: Ø 20.5 mm
- wall thickness 1.5-3.2 mm
- for indoor - normal environment and (or) protected outdoor installation
- ambient temperature - 25 °C to + 35 °C
- glow wire test IEC 60695-2-11: 750 °C
- Colour: grey, RAL 7035



**EDR 25**  
**Grommets for conduits for knockouts M 25**

- conduit connection M 25
- bore-hole: Ø 25.5 mm
- wall thickness 1.5-3.2 mm
- for indoor - normal environment and (or) protected outdoor installation
- ambient temperature - 25 °C to + 35 °C
- glow wire test IEC 60695-2-11: 750 °C
- Colour: grey, RAL 7035



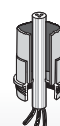
**EDR 32**  
**Grommets for conduits for knockouts M 32**

- conduit connection M 32
- bore-hole: Ø 32.5 mm
- wall thickness 1.5-3.2 mm
- for indoor - normal environment and (or) protected outdoor installation
- ambient temperature - 25 °C to + 35 °C
- glow wire test IEC 60695-2-11: 750 °C
- Colour: grey, RAL 7035



**EDR 40**  
**Grommets for conduits for knockouts M 40**

- conduit connection M 40
- bore-hole: Ø 40.5 mm
- wall thickness 1.5-3.2 mm
- for indoor - normal environment and (or) protected outdoor installation
- ambient temperature - 25 °C to + 35 °C
- glow wire test IEC 60695-2-11: 750 °C
- Colour: grey, RAL 7035

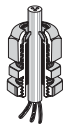




**AKM 12**  
**Cable glands for knockouts M 12**



- sealing range: Ø 4-6 mm
- ISO thread M 12 x 1.5
- bore-hole: Ø 12.3 mm
- wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2-11: 960 °C
- Colour: grey, RAL 7035



tightening torque	0,9 Nm
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**AKM 16**  
**Cable glands for knockouts M 16**



- sealing range: Ø 5-10 mm
- ISO thread M 16 x 1.5
- bore-hole: Ø 16.3 mm
- wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2-11: 960 °C
- Colour: grey, RAL 7035



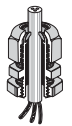
tightening torque	3.0 Nm
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**AKM 20**  
**Cable glands for knockouts M 20**



- sealing range Ø 6,5-13,5 mm
- ISO thread M 20 x 1.5
- bore-hole: Ø 20.3 mm
- wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2-11: 960 °C
- Colour: grey, RAL 7035



tightening torque	4.0 Nm
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**AKM 25**  
**Cable glands for knockouts M 25**



- sealing range Ø 11-17 mm
- ISO thread M 25 x 1.5
- bore-hole: Ø 25.3 mm
- wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2-11: 960 °C
- Colour: grey, RAL 7035



tightening torque	7,5 Nm
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**AKM 32**  
**Cable glands for knockouts M 32**

IP 66/67 IP 69

- sealing range  $\varnothing$  15-21 mm
- ISO thread M 32 x 1.5
- bore-hole:  $\varnothing$  32.3 mm
- wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2-11: 960 °C
- Colour: grey, RAL 7035



tightening torque	10,0 Nm
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**AKM 40**  
**Cable glands for knockouts M 40**

IP 66/67 IP 69

- sealing range:  $\varnothing$  19-28 mm
- ISO thread M 40 x 1.5
- bore-hole:  $\varnothing$  40.3 mm
- wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2-11: 960 °C
- Colour: grey, RAL 7035



tightening torque	10,0 Nm
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**AKM 50**  
**Cable glands for knockouts M 50**

IP 66/67 IP 69

- sealing range:  $\varnothing$  27-35 mm
- ISO thread M 50 x 1.5
- bore-hole:  $\varnothing$  50.3 mm
- wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2-11: 960 °C
- Colour: grey, RAL 7035



tightening torque	10,0 Nm
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**AKM 63**  
**Cable glands for knockouts M 63**

IP 66/67 IP 69

- sealing range:  $\varnothing$  35-42 mm
- ISO thread M 63 x 1.5
- bore-hole:  $\varnothing$  63.3 mm
- wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2-11: 960 °C
- Colour: grey, RAL 7035



tightening torque	10,0 Nm
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**ASS 12**  
**Cable glands for knockouts M 12**



- sealing range: Ø 2-5 mm
- ISO thread M 12 x 1.5
- bore-hole: Ø 12.3 mm
- wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2: 960 °C
- colour: black, RAL 9005



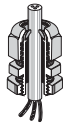
tightening torque	0,9 Nm
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**ASS 16**  
**Cable glands for knockouts M 16**



- sealing range: Ø 3-10 mm
- ISO thread M 16 x 1.5
- bore-hole: Ø 16.3 mm
- wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2: 960 °C
- colour: black, RAL 9005



tightening torque	3.0 Nm
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**ASS 20**  
**Cable glands or knockouts M 20**



- sealing range: Ø 5-13 mm
- ISO thread M 20 x 1.5
- bore-hole: Ø 20.3 mm
- wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2: 960 °C
- colour: black, RAL 9005



tightening torque	4.0 Nm
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**ASS 25**  
**Cable glands for knockouts M 25**



- sealing range: Ø 8-17 mm
- ISO thread M 25 x 1.5
- bore-hole: Ø 25.3 mm
- wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2: 960 °C
- colour: black, RAL 9005



tightening torque	7,5 Nm
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**ASS 32**  
**Cable glands for knockouts M 32**

IP 66/67 IP 69

- sealing range: Ø 12-21 mm
- ISO thread M 32 x 1.5
- bore-hole: Ø 32.3 mm
- wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2: 960 °C
- colour: black, RAL 9005



tightening torque	10,0 Nm
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**ASS 40**  
**Cable glands for knockouts M 40**

IP 66/67 IP 69

- sealing range: Ø 16-28,5 mm
- ISO thread M 40 x 1.5
- bore-hole: Ø 40.3 mm
- wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2: 960 °C
- colour: black, RAL 9005



tightening torque	10,0 Nm
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**ASS 50**  
**Cable glands for knockouts M 50**

IP 66/67 IP 69

- sealing range: Ø 21-35 mm
- ISO thread M 50 x 1.5
- bore-hole: Ø 50.3 mm
- wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2: 960 °C
- colour: black, RAL 9005



tightening torque	10,0 Nm
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**ASS 63**  
**Cable glands for knockouts M 63**

IP 66/67 IP 69

- sealing range: Ø 20-48 mm
- ISO thread M 63 x 1.5
- bore-hole: Ø 63.3 mm
- wall thickness up to 3 mm
- with counter nut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2: 960 °C
- colour: black, RAL 9005



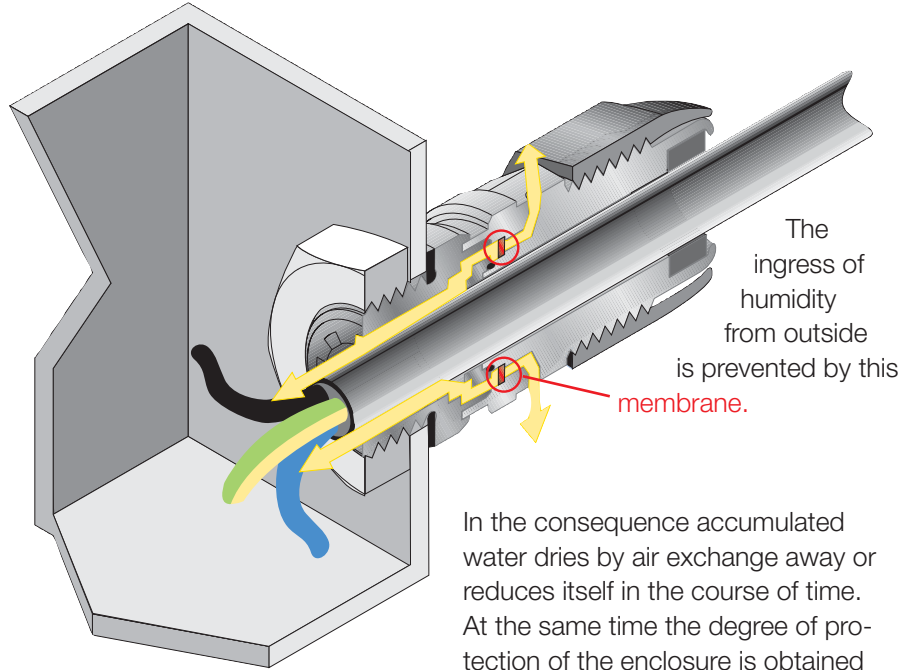
tightening torque	10,0 Nm
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**Ventilation and cable entry in one!**

In general the formation of water in case of condensation in closed enclosures cannot be prevented in installation areas with high temperature differences!

For adherence to the requested degree of protection the ventilation of the enclosure is effected via a special combi climate gland.

Via an inserted, breathable membrane combi climate glands ensure pressure compensation between enclosure interior and ambient air.



**The combi climate gland allows the cable entry and pressure compensation additionally.**

Combi climate glands prevent accumulations of condensation, which can form among others by large temperature fluctuations, like changing weather, intensive solar irradiation etc., in enclosures with high degree of protection.



**Your advantages with combi climate glands:**

- Cable entry and ventilation in one!
- Degree of protection of enclosure is obtained



**KBM 20**  
**Combi climate gland**  
**for knockouts M 20**

IP  
 66/67



- for the reduction of condensation by pressure compensation
- sealing range: Ø 6-13 mm
- ISO thread M 20 x 1.5
- bore-hole: Ø 20.5 mm
- wall thickness up to 3,5 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2: 960 °C
- In order not to exceed leakage limit of 0.07 bar with pressure compensation, one combi climate gland M20 must be used per 6 litres (6000 cm<sup>3</sup>) of enclosure volume.
- Example: enclosure size 27 cm x 27 cm x 17 cm = 12393 cm<sup>3</sup> = 12,393 litres. Number of necessary combi climate glands M20 ≥ 3 pieces.
- When using different gland sizes the values for the enclosure volumes of the used combi climate glands can be added on.
- If the quantity of the necessary climate glands for pressure compensation is larger, than the number of necessary cable glands for cable entry, the unused climate glands can be sealed with sealing plugs.
- Colour: grey, RAL 7035

tightening torque

3.0 Nm



**KBM 25**  
**Combi climate gland**  
**for knockouts M 25**

IP  
 66/67



- for the reduction of condensation by pressure compensation
- sealing range: Ø 9-17 mm
- ISO thread M 25 x 1.5
- bore-hole: Ø 25.5 mm
- wall thickness up to 3,5 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2: 960 °C
- In order not to exceed leakage limit of 0.07 bar with pressure compensation, one combi climate gland M25 must be used per 10 litres (10000 cm<sup>3</sup>) of enclosure volume.
- Example: enclosure size 27 cm x 27 cm x 17 cm = 12393 cm<sup>3</sup> = 12,393 litres. Number of necessary combi climate glands M25 ≥ 2 pieces
- When using different gland sizes the values for the enclosure volumes of the used combi climate glands can be added on.
- If the quantity of the necessary climate glands for pressure compensation is larger, than the number of necessary cable glands for cable entry, the unused climate glands can be sealed with sealing plugs.
- Colour: grey, RAL 7035

tightening torque

4.0 Nm



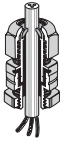
Combi climate glands in application





**KBM 32**  
**Combi climate gland**  
**for knockouts M 32**

IP  
66/67



- for the reduction of condensation by pressure compensation
- sealing range: Ø 13-21 mm
- ISO thread M 32 x 1.5
- bore-hole: Ø 32.5 mm
- wall thickness up to 3,5 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2: 960 °C
- In order not to exceed leakage limit of 0.07 bar with pressure compensation, one combi climate gland M32 must be used per 12 litres (12000 cm<sup>3</sup>) of enclosure volume.
- Example: enclosure size 27 cm x 27 cm x 17 cm = 12393 cm<sup>3</sup> = 12,393 litres.  
Number of necessary combi climate glands M32 ≥ 2 piece.
- When using different gland sizes the values for the enclosure volumes of the used combi climate glands can be added on.
- If the quantity of the necessary climate glands for pressure compensation is larger, than the number of necessary cable glands for cable entry, the unused climate glands can be sealed with sealing plugs.
- Colour: grey, RAL 7035

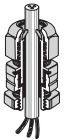
tightening torque

4.0 Nm



**KBM 40**  
**Combi climate gland**  
**for knockouts M 40**

IP  
66/67



- for the reduction of condensation by pressure compensation
- sealing range: Ø 16-28 mm
- ISO thread M 40 x 1.5
- bore-hole: Ø 40,5 mm
- wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2: 960 °C
- In order not to exceed leakage limit of 0.07 bar with pressure compensation, one combi climate gland M40 must be used per 16 litres (16000 cm<sup>3</sup>) of enclosure volume.
- Example: enclosure size 27 cm x 27 cm x 17 cm = 12393 cm<sup>3</sup> = 12.393 litres. Number of necessary KB. 40 (M40) ≥ 1 piece.
- When using different gland sizes the values for the enclosure volumes of the used combi climate glands can be added on.
- If the quantity of the necessary climate glands for pressure compensation is larger, than the number of necessary cable glands for cable entry, the unused climate glands can be sealed with sealing plugs.
- Colour: grey, RAL 7035

tightening torque

6.0 Nm



**KBS 20**  
**Combi climate gland**  
**for knockouts M 20**

IP  
 66/67



- for the reduction of condensation by pressure compensation
- sealing range: Ø 6-13 mm
- ISO thread M 20 x 1.5
- bore-hole: Ø 20.5 mm
- wall thickness up to 3,5 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2: 960 °C
- In order not to exceed leakage limit of 0.07 bar with pressure compensation, one combi climate gland M20 must be used per 6 litres (6000 cm<sup>3</sup>) of enclosure volume.
- Example: enclosure size 27 cm x 27 cm x 17 cm = 12393 cm<sup>3</sup> = 12,393 litres.  
 Number of necessary combi climate glands M20 ≥ 3 pieces.
- When using different gland sizes the values for the enclosure volumes of the used combi climate glands can be added on.
- If the quantity of the necessary climate glands for pressure compensation is larger, than the number of necessary cable glands for cable entry, the unused climate glands can be sealed with sealing plugs.
- colour: black, RAL 9005

tightening torque

3.0 Nm



**KBS 25**  
**Combi climate gland**  
**for knockouts M 25**

IP  
 66/67



- for the reduction of condensation by pressure compensation
- sealing range: Ø 9-17 mm
- ISO thread M 25 x 1.5
- bore-hole: Ø 25.5 mm
- wall thickness up to 3,5 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2: 960 °C
- In order not to exceed leakage limit of 0.07 bar with pressure compensation, one combi climate gland M25 must be used per 10 litres (10000 cm<sup>3</sup>) of enclosure volume.
- Example: enclosure size 27 cm x 27 cm x 17 cm = 12393 cm<sup>3</sup> = 12,393 litres.  
 Number of necessary combi climate glands M25 ≥ 2 pieces
- When using different gland sizes the values for the enclosure volumes of the used combi climate glands can be added on.
- If the quantity of the necessary climate glands for pressure compensation is larger, than the number of necessary cable glands for cable entry, the unused climate glands can be sealed with sealing plugs.
- colour: black, RAL 9005

tightening torque

4.0 Nm

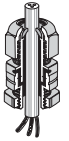


Combi climate glands in application



**KBS 32**  
**Combi climate gland**  
**for knockouts M 32**

IP  
66/67



- for the reduction of condensation by pressure compensation
- sealing range: Ø 13-21 mm
- ISO thread M 32 x 1.5
- bore-hole: Ø 32.5 mm
- wall thickness up to 3,5 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2: 960 °C
- In order not to exceed leakage limit of 0.07 bar with pressure compensation, one combi climate gland M32 must be used per 12 litres (12000 cm<sup>3</sup>) of enclosure volume.
- Example: enclosure size 27 cm x 27 cm x 17 cm = 12393 cm<sup>3</sup> = 12,393 litres.  
Number of necessary combi climate glands M32 ≥ 2 piece.
- When using different gland sizes the values for the enclosure volumes of the used combi climate glands can be added on.
- If the quantity of the necessary climate glands for pressure compensation is larger, than the number of necessary cable glands for cable entry, the unused climate glands can be sealed with sealing plugs.
- colour: black, RAL 9005

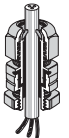
tightening torque

4.0 Nm



**KBS 40**  
**Combi climate gland**  
**for knockouts M 40**

IP  
66/67



- for the reduction of condensation by pressure compensation
- sealing range: Ø 16-28 mm
- ISO thread M 40 x 1.5
- bore-hole: Ø 40,5 mm
- wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2: 960 °C
- In order not to exceed leakage limit of 0.07 bar with pressure compensation, one combi climate gland M40 must be used per 16 litres (16000 cm<sup>3</sup>) of enclosure volume.
- Example: enclosure size 27 cm x 27 cm x 17 cm = 12393 cm<sup>3</sup> = 12.393 litres. Number of necessary KB. 40 (M40) ≥ 1 piece.
- When using different gland sizes the values for the enclosure volumes of the used combi climate glands can be added on.
- If the quantity of the necessary climate glands for pressure compensation is larger, than the number of necessary cable glands for cable entry, the unused climate glands can be sealed with sealing plugs.
- colour: black, RAL 9005

tightening torque

6.0 Nm

**VSB 13****Sealing plug**  
**diameter 13 mm**

- for sealing combi climate glands M20 or M25, which are not used for cable entry
- ambient temperature - 25 °C to + 55 °C
- colour: red, RAL 3000

**VSB 21****Sealing plug**  
**diameter 21 mm**

- for sealing combi climate glands M32 and M40, which are not used for cable entry
- ambient temperature - 25 °C to + 55 °C
- colour: red, RAL 3000

Application:

Combi climate glands in  
application

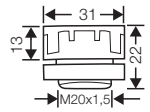




**BM 20G**

**Pressure compensation element for M 20 knockouts**

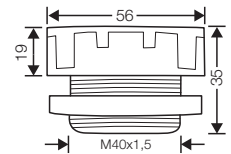
- for the reduction of condensation by pressure compensation in power distribution systems
- ISO thread M 20 x 1.5
- bore-hole: Ø 20.3 mm
- wall thickness up to 4 mm
- with counter nut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- In order not to exceed leakage limit of 0.07 bar with pressure compensation, one pressure compensation element BM 20G must be used per 28 litres (28000 cm³) of enclosure volume.
- Example:  
 enclosure size 30 cm x 60 cm x 17 cm = 30600 cm³ = 30.6 litres.  
 Number of necessary BM 20G (M32) = 2 piece.
- technical changes reserved
- Colour: grey, RAL 7035



**BM 40G**

**Pressure compensation element for M 40 knockouts**

- for the reduction of condensation by pressure compensation in power distribution systems
- ISO thread M 40 x 1.5
- bore-hole: Ø 40.3 mm
- wall thickness of up to 8 mm
- with counter nut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- In order not to exceed leakage limit of 0.07 bar with pressure compensation, one pressure compensation element BM 40G must be used per 122 litres (122000 cm³) of enclosure volume.
- Example:  
 enclosure size 60 cm x 60 cm x 17 cm = 61200 cm³ = 61.2 litres.  
 Number of necessary BM 40G (M40) = 1 piece.
- technical changes reserved
- Colour: grey, RAL 7035



Pressure compensation elements reduce condensation in power distribution systems





**KST 70**  
**Stepped grommet**

- sealing range: Ø 30-72 mm
- bore-hole: Ø 83 mm
- wall thickness 1.5-3 mm
- for indoor - normal environment and (or) protected outdoor installation
- ambient temperature - 25 °C to + 35 °C
- glow wire test IEC 60695-2-11: 750 °C



**MV FP 66**  
**Flange**

- with cable entry glands and screws
- sealing range: Ø 30-72 mm
- wall thickness of at least 1.5 mm



**KHR 01**  
**Cable retention**  
**for cable diameter 6.5 - 14 mm**

- set with 10 x 6 cable retention rings
- 30 pieces for cable diameter 6,5 - 10 mm
- 30 pieces for cable diameter 10 - 14 mm



**KHR 02**  
**Cable retention**  
**for cable diameter 10 - 16 mm**

- set with 10 x 6 cable retention rings
- 30 pieces for cable diameter 10 - 14 mm
- 30 pieces for cable diameter 13 - 16 mm

Outside diameter of conventional cable cross sections. The outside diameters are average values of different products.

Cable cross section	NYM	NYY	NYCY NYCWY
1x4 mm <sup>2</sup>	Ø 8 mm	Ø 9 mm	—
1x6 mm <sup>2</sup>	Ø 8.5 mm	Ø 10 mm	—
1x10 mm <sup>2</sup>	Ø 9.5 mm	Ø 10.5 mm	—
1x16 mm <sup>2</sup>	Ø 11 mm	Ø 12 mm	—
1x25 mm <sup>2</sup>	—	Ø 14 mm	—
1x35 mm <sup>2</sup>	—	Ø 15 mm	—
1x50 mm <sup>2</sup>	—	Ø 16.5 mm	—
1x70 mm <sup>2</sup>	—	Ø 18 mm	—
1x95 mm <sup>2</sup>	—	Ø 20 mm	—
1x120 mm <sup>2</sup>	—	Ø 21 mm	—
1x150 mm <sup>2</sup>	—	Ø 23 mm	—
1x185 mm <sup>2</sup>	—	Ø 25 mm	—
1x240 mm <sup>2</sup>	—	Ø 28 mm	—
1x300 mm <sup>2</sup>	—	Ø 30 mm	—
2x1.5 mm <sup>2</sup>	Ø 10 mm	Ø 12 mm	—
2x2.5 mm <sup>2</sup>	Ø 11 mm	Ø 13 mm	—
2x4 mm <sup>2</sup>	—	Ø 15 mm	—
2x6 mm <sup>2</sup>	—	Ø 16 mm	—
2x10 mm <sup>2</sup>	—	Ø 18 mm	—
2x16 mm <sup>2</sup>	—	Ø 20 mm	—
2x25 mm <sup>2</sup>	—	—	—
2x35 mm <sup>2</sup>	—	—	—
3x1.5 mm <sup>2</sup>	Ø 10.5 mm	Ø 12.5 mm	Ø 13 mm
3x2.5 mm <sup>2</sup>	Ø 11 mm	Ø 13 mm	Ø 14 mm
3x4 mm <sup>2</sup>	Ø 13 mm	Ø 16 mm	Ø 16 mm
3x6 mm <sup>2</sup>	Ø 15 mm	Ø 17 mm	Ø 17 mm
3x10 mm <sup>2</sup>	Ø 18 mm	Ø 19 mm	Ø 18 mm
3x16 mm <sup>2</sup>	Ø 20 mm	Ø 21 mm	Ø 21 mm
3x25 mm <sup>2</sup>	—	Ø 26 mm	—
3x35 mm <sup>2</sup>	—	—	—
3x50 mm <sup>2</sup>	—	—	—
3x70 mm <sup>2</sup>	—	—	—
3x95 mm <sup>2</sup>	—	—	—
3x120 mm <sup>2</sup>	—	—	—
3x150 mm <sup>2</sup>	—	—	—
3x185 mm <sup>2</sup>	—	—	—
3x240 mm <sup>2</sup>	—	—	—
3x25/16 mm <sup>2</sup>	—	Ø 27 mm	Ø 27 mm
3x35/16 mm <sup>2</sup>	—	Ø 28 mm	Ø 27 mm
3x50/25 mm <sup>2</sup>	—	Ø 32 mm	Ø 32 mm
3x70/35 mm <sup>2</sup>	—	Ø 32-36 mm	Ø 36 mm
3x95/50 mm <sup>2</sup>	—	Ø 37-41 mm	Ø 40 mm
3x120/70 mm <sup>2</sup>	—	Ø 42 mm	Ø 43 mm
3x150/70 mm <sup>2</sup>	—	Ø 46 mm	Ø 47 mm
3x185/95 mm <sup>2</sup>	—	Ø 52 mm	Ø 48-54 mm
3x240/120 mm <sup>2</sup>	—	Ø 57-63 mm	Ø 60 mm
3x300/150 mm <sup>2</sup>	—	Ø 63-69 mm	—

Cable cross section	NYM	NYY	NYCY NYCWY
4x1.5 mm <sup>2</sup>	Ø 11 mm	Ø 13.5 mm	Ø 14 mm
4x2.5 mm <sup>2</sup>	Ø 12.5 mm	Ø 14.5 mm	Ø 15 mm
4x4 mm <sup>2</sup>	Ø 14.5 mm	Ø 17.5 mm	Ø 17 mm
4x6 mm <sup>2</sup>	Ø 16.5 mm	Ø 18 mm	Ø 18 mm
4x10 mm <sup>2</sup>	Ø 18.5 mm	Ø 20 mm	Ø 20 mm
4x16 mm <sup>2</sup>	Ø 23.5 mm	Ø 23 mm	Ø 23 mm
4x25 mm <sup>2</sup>	Ø 28.5 mm	Ø 28 mm	Ø 28 mm
4x35 mm <sup>2</sup>	Ø 32 mm	Ø 26-30 mm	Ø 29 mm
4x50 mm <sup>2</sup>	—	Ø 30-35 mm	Ø 34 mm
4x70 mm <sup>2</sup>	—	Ø 34-40 mm	Ø 37 mm
4x95 mm <sup>2</sup>	—	Ø 38-45 mm	Ø 42 mm
4x120 mm <sup>2</sup>	—	Ø 42-50 mm	Ø 47 mm
4x150 mm <sup>2</sup>	—	Ø 46-53 mm	Ø 52 mm
4x185 mm <sup>2</sup>	—	Ø 53-60 mm	Ø 60 mm
4x240 mm <sup>2</sup>	—	Ø 59-71 mm	Ø 70 mm
4x25/16 mm <sup>2</sup>	—	—	Ø 30 mm
4x35/16 mm <sup>2</sup>	—	—	Ø 30 mm
4x50/25 mm <sup>2</sup>	—	—	Ø 36.5 mm
4x70/35 mm <sup>2</sup>	—	—	Ø 40 mm
4x95/50 mm <sup>2</sup>	—	—	Ø 44.5 mm
4x120/70 mm <sup>2</sup>	—	—	Ø 48.5 mm
4x150/70 mm <sup>2</sup>	—	—	Ø 53 mm
4x185/95 mm <sup>2</sup>	—	—	—
4x240/120 mm <sup>2</sup>	—	—	—
5x1.5 mm <sup>2</sup>	Ø 12 mm	Ø 15 mm	Ø 15 mm
5x2.5 mm <sup>2</sup>	Ø 13.5 mm	Ø 16 mm	Ø 17 mm
5x4 mm <sup>2</sup>	Ø 15.5 mm	Ø 16.5 mm	Ø 18 mm
5x6 mm <sup>2</sup>	Ø 18 mm	Ø 19 mm	Ø 20 mm
5x10 mm <sup>2</sup>	Ø 20 mm	Ø 21 mm	—
5x16 mm <sup>2</sup>	Ø 26 mm	Ø 24 mm	—
5x25 mm <sup>2</sup>	Ø 31.5 mm	—	—
7x1.5 mm <sup>2</sup>	Ø 13 mm	Ø 16 mm	—
7x2.5 mm <sup>2</sup>	Ø 14.5 mm	Ø 16.5 mm	—
19x1.5 mm <sup>2</sup>	—	Ø 22 mm	—
24x1.5 mm <sup>2</sup>	—	Ø 25 mm	—

Assignment of cable outside diameters to cable entries (glands, grommets etc.)

Outside diameters of cables		Cable entry metric
Ø min.	Ø max.	
3 mm	6 mm	AKM/ASS 12
5 mm	10 mm	AKM/ASS 16
6.5 mm	13.5 mm	AKM/ASS 20
11 mm	17 mm	AKM/ASS 25
15 mm	21 mm	AKM/ASS 32
19 mm	28 mm	AKM/ASS 40
27 mm	35 mm	AKM/ASS 50
35 mm	42 mm	AKM/ASS 63
4.8 mm	11 mm	ESM 16
6 mm	13 mm	ESM 20
9 mm	17 mm	ESM 25
9 mm	23 mm	ESM 32
17 mm	30 mm	ESM 40
3.5 mm	12 mm	STM 16
5 mm	16 mm	STM 20
5 mm	21 mm	STM 25
13 mm	26.5 mm	STM 32
13 mm	34 mm	STM 40

Outside diameters of cables		Cable entry metric
Ø min.	Ø max.	
5 mm	10 mm	EDK 16
6 mm	13 mm	EDK 20
9 mm	17 mm	EDK 25
8 mm	23 mm	EDK 32
11 mm	30 mm	EDK 40
conduit connection		
M 16		EDR 16
M 20		EDR 20
M 25		EDR 25
M 32		EDR 32
M 40		EDR 40



**AKS 9**  
for knockouts Pg 9

- sealing range: Ø 4-8 mm
- for bore-hole Pg 9, Ø 15.5 mm
- wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2-11: 960 °C
- Colour: grey, RAL 7035



**AKS 11**  
for knockouts Pg 11

- sealing range: Ø 5-10 mm
- for bore-hole Pg 11, Ø 19 mm
- wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2-11: 960 °C
- Colour: grey, RAL 7035



**AKS 13,5**  
for knockouts Pg 13.5

- sealing range: Ø 6-12 mm
- bore-hole Pg 13,5, Ø 21 mm
- wall thickness up to 3 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2-11: 960 °C
- Colour: grey, RAL 7035



**AKS 16**  
for knockouts Pg 16

- sealing range: Ø 10-14 mm
- for bore-hole Pg 16, Ø 23 mm
- wall thickness up to 4 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2-11: 960 °C
- Colour: grey, RAL 7035



**AKS 21**  
for knockouts Pg 21

- sealing range: Ø 13-18 mm
- for bore-hole Pg 21, Ø 29 mm
- wall thickness up to 4 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2-11: 960 °C
- Colour: grey, RAL 7035







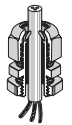
**AKS 29**  
for knockouts Pg 29

- sealing range: Ø 18-25 mm
- for bore-hole Pg 29, Ø 37.5 mm
- wall thickness up to 4 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2-11: 960 °C
- Colour: grey, RAL 7035



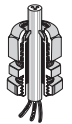
**AKS 36**  
for knockouts Pg 36

- sealing range: Ø 22-32 mm
- for bore-hole Pg 36, Ø 47.5 mm
- wall thickness of up to 5 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2-11: 960 °C
- Colour: grey, RAL 7035



**AKS 42**  
for knockouts Pg 42

- sealing range: Ø 30-38 mm
- for bore-hole Pg 42, Ø 54,5 mm
- wall thickness of up to 5 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2-11: 960 °C
- Colour: grey, RAL 7035



**AKS 48**  
for knockouts Pg 48

- sealing range: Ø 34-44 mm
- bore-hole Pg 48, Ø 60 mm
- wall thickness of up to 6 mm
- with strain relief and locknut
- for indoor (normal environment and/or protected outdoor) and outdoor installation (harsh environment and/or outdoor)
- ambient temperature - 25 °C to + 55 °C
- glow wire test IEC 60695-2-11: 960 °C
- Colour: grey, RAL 7035

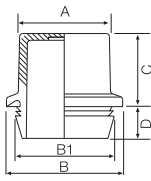
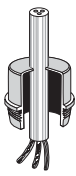




## Cable entry systems

### Technical details

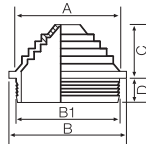
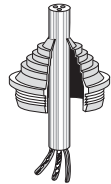
Dimensions	418
Operating and ambient conditions	419



Grommets in mm	A	B	B1	C	D
ESM 16	16.5	22	18.5	14.5	8.5
ESM 20	20.5	26	22.5	14.5	8.5
ESM 25	26.0	31	27.5	14.5	8.5
ESM 32	33.0	38	34.5	17.5	8.5
ESM 40	41.0	46	42.5	17.5	8.5

**Grommets ESM**

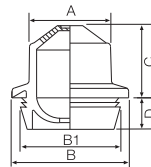
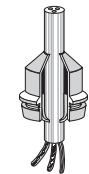
Degree of protection IP 55  
Grommets ESM are inserted into knockouts. There is no counter nut required!



Stepped grommets in mm	A	B	B1	C	D
STM 16	13.2	21.2	19	7.4	8.0
STM 20	18.0	25	23	9.2	8.0
STM 25	21.6	30	28	11.5	7.4
STM 32	27.6	37	35	11.5	8.6
STM 40	33.6	45	43	15.1	8.6

**Stepped grommets STM**

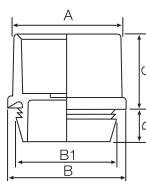
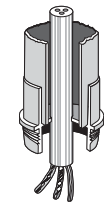
Degree of protection IP 55  
Stepped glands STM are inserted into knockouts. There is no counter nut required!



Grommets in mm	A	B	B1	C	D
EDK 16	14.5	22	18.5	13.5	8.5
EDK 20	18.5	26	22.5	14.5	8.5
EDK 25	23.5	31	27.5	14.5	8.5
EDK 32	30.5	38	34.5	19.5	8.5
EDK 40	38.5	46	42.5	19.5	8.5

**Grommets EDK**

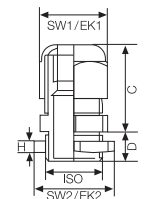
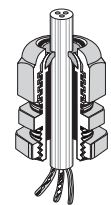
Degree of protection IP 65  
Grommets EDK are inserted into knockouts. There is no counter nut required!



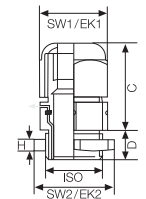
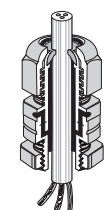
Grommets for conduits in mm	A	B	B1	C	D
EDR 16	20	22	18.5	14.5	8.5
EDR 20	24	26	22.5	14.5	8.5
EDR 25	29	31	27.5	14.5	8.5
EDR 32	36	38	34.5	17.5	8.5
EDR 40	44	46	42.5	17.5	8.5

**Grommets for conduits EDR**

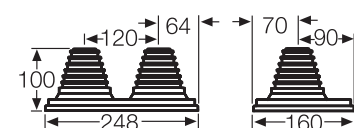
Degree of protection IP 65  
Grommets for conduits EDR are inserted into knockouts. There is no counter nut required!



Cable glands AKM/ASS with strain relief counter nut, degree of protection IP 65								
in mm	ISO	SW1 across flats	EK1 across corners Ø	C max.	D	SW2 across flats	EKS across corners Ø	H
AKM/ASS 12	M 12	15	16.4	22	8	17	19.0	5
AKM/ASS 16	M 16	20	22.0	26	8	22	24.7	5
AKM/ASS 20	M 20	24	26.5	29	8	27	30.2	6
AKM/ASS 25	M 25	29	32.0	34	8	32	36.0	6
AKM/ASS 32	M 32	36	39.7	39	10	41	46.0	7
AKM/ASS 40	M 40	46	50.5	46	10	50	54.1	7
AKM/ASS 50	M 50	55	60.0	51	10	60	66.3	8
AKM/ASS 63	M 63	68	74.7	55	10	75	83.0	8

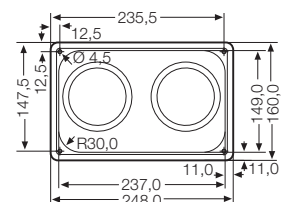


Combi climate glands KBM / KBS with strain relief counter nut, degree of protection IP 66 / IP 67								
in mm	ISO	SW1 across flats	EK1 across corners Ø	C max.	D	SW2 across flats	EK2 across corners Ø	H
KBM/KBS 20	M 20	24	27.0	42	8	27	29.0	5
KBM/KBS 25	M 25	29	32.0	45	8	32	35.5	5
KBM/KBS 32	M 32	36	40.0	47	10	40	44.5	6
KBM/KBS 40	M 40	46	50.5	59	10	50	54.1	7



**Flange MV FP 66**

Degree of protection IP 55  
for retrofitting onto boxes made of sheet steel material thickness ≥ 1.5 mm



	ESM ... STM ... EDK ... EDR ... KST... MV FP 66	AKM ... ASS ...	AKS ... KBM ... KBS ...
<b>Application area</b>	Suitable for indoor installation (normal environment and/or protected outdoor)	Suitable for <b>outdoor installation</b> - harsh environment and / or outdoor	
<b>Ambient temperature</b>			
- Average value over 24 hours	+ 35 °C	+ 55 °C	+ 55 °C
- Maximum value	+ 40 °C	+ 70 °C	+ 70 °C
- Minimum value	- 25 °C	- 25 °C	- 25 °C
<b>Fire protection</b> in the event of internal faults	Demands placed on electrical devices from standards and laws:  Minimum requirements - Glow wire test in accordance with IEC 60695-2-11: - 650 °C for boxes and Cable glands		
<b>Burning behaviour</b>			
- Glow wire test IEC 60695-2-11	750 °C	960 °C	960 °C
- UL Subject 94	flame-retardant self-extinguishing	V-0 flame-retardant self-extinguishing	V-2 flame-retardant self-extinguishing
<b>Toxic behaviour</b>	halogen-free silicone-free	halogen-free silicone-free	halogen-free silicone-free
	"Halogen-free" in accordance with IEC 60754-2 "Common test methods for cables - Determination of the amount of halogen acid gas". For material properties see technical data.		