

ChemLine

FoodLine

**ShieldLine**

FrictionLine

# Multigates made of ShieldLine Materials



IP66/67, IP65, IP55, IP54

# Multigates

Multigates are metal or plastic reinforced cable gland plates for leading through low and medium power current cables as well various types of tubing. The products fits directly to B- or C- standard cut-outs (FL 13 or FL 21).

Multigates do not need any separate gaskets or glands which makes Multigates very easy to use, providing innumerable advantages in a single assembly unit.

Multigate cable gland plates are made of various types of polymers. All these polymers are RoHS approved and have excellent weather, UV- and ozone resistance. Also EMC-compatible and oil resistant models are available. Oil resistancy has been tested according to UL 157 -standard, and these test results are available on request.

Multigates are available with plastic locking pins, which can be used to secure the Multigate to metal as well as plastic enclosures (indoor applications).



## Packing codes

Example code 105002

105002b	LMC-14 IP54 RAL7035 single packed bag
105002f	LMC-14 IP54 RAL7035 with fastener pins
105002c	LMC-14 IP54 RAL7035 single packed with fastener pins (combination)

## IP66/67-series

Multigates MC 3/7, MC 25/27, MC 35/37 and MB 5/11 are metal reinforced cable gland plates with new excellent design. The design gives absolute protection against dust and strong jets of water and also against the effects of immersion between 15 cm and 1 m. Also the new design gives excellent protection for separate cables when cables are bended effectly.

## IP65-series

Multigates MC 3, MC 25 and MC 35 are metal reinforced cable gland plates with well known design. The design gives absolute protection against dust and spraying water from all directions.



## IP55-series

Multigate MB 4/10 are metal reinforced cable gland plates with well known design. The design gives protection for limited ingress of dust and against water splashed from all directions.

## IP54 LMC-series

Multigates LMC 14, LMC 25, LMC 35 and LMC 51 are metal reinforced cable gland plates with new design. The design gives protection against water splashed from all directions. Also the new design gives excellent protection for separate cables when cables are bended effectly.

## IP54-series

Multigates MC 10, MC 16 and MB 4 are plastic or metal reinforced cable gland plates with well known design. The design gives protection for limited ingress of dust and against water splashed from all directions.

# MC 3/7



MC 3/7 Multigate is suitable for leading through both low and medium power current cables as well as various types of tubing. It fits directly to a C-standard cut-out (or FL 21).

MC 3/7 Multigate is metal reinforced new type of cable gland plate made of various types of polymers. It meets the respective IP enclosure classes as it does not need separate gaskets or glands which makes it very easy to use, providing innumerable advantages in a single assembly unit.

MC 3/7 Multigate is suitable for both outdoor and indoor use.

MC 3/7 Multigate gives absolute protection against dust and both strong jets of water from all direction and against the effects of immersion between 15 cm and 1,0 m.

MC 3/7 Multigate can be used instead of MC 3 Multigate. The configuration has the same openings than MC 3.

MC 3/7 Multigate is inspected and certified by:  
SGS FIMKO the Finnish authority in charge of electrical equipment safety standards.

MC 3/7 Multigate will lead through and seal cables as follows:

24 - 54 mm	2 pcs
30 - 60 mm	1 pc
8 - 16 mm	4 pcs

Total of 7 cables

Code	Colour	Ral code	Electrical number	Delivery time	Service temperature *)	Special
105041	Light Grey	7035	3400353	From Stock	-40 - +100 °C	Material UL 94 V-0 approved
103577	Light Grey	7035	3400321	From Stock	-40 - +100 °C **)	
103576	Grey	7032	3400320	3-4 weeks from PO	-40 - +100 °C **)	
103580	Black		3400323	From Stock	-40 - +100 °C ***)	Material UL 94 V-0 approved

- Packing size 60 pcs/box
- Single packed 40 pcs/box (b)

\*) Service temperature for unstressed material  
 \*\*) Available with fastener pins (f)  
 \*\*\*) IP-classification under testing

# MC 25/27



MC 25/27 Multigate is suitable for leading through both low and medium power current cables as well as various types of tubing. It fits directly to a C-standard cut-out (or FL 21).

MC 25/27 Multigate is metal reinforced new type of cable gland plate made of various types of polymers. It meets the respective IP enclosure classes as it does not need separate gaskets or glands which makes it very easy to use, providing innumerable advantages in a single assembly unit.

MC 25/27 Multigate is suitable for both outdoor and indoor use.

MC 25/27 Multigate gives absolute protection against dust and both strong jets of water from all direction and against the effects of immersion between 15 cm and 1,0 m.

MC 25/27 Multigate can be used instead of MC 25 Multigate. The configuration has the same openings than MC 25 and 2 extra.

MC 25/27 Multigate is inspected and certified by: SGS FIMKO the Finnish authority in charge of electrical equipment safety standards

MC 25/27 Multigate will lead through and seal cables as follows:

5 - 7 mm	4 pcs
8 - 12 mm	4 pcs
10 - 14 mm	13 pcs
14 - 20 mm	4 pcs
20 - 26 mm	2 pcs

Total of 27 cables

Code	Colour	Ral code	Electrical number	Delivery time	Service temperature *)	Special
105042	Light Grey	7035	3400354	From Stock	-40 - +100 °C	Material UL 94 V-0 approved
103584	Light Grey	7035	3400326	From Stock	-40 - +100 °C **)	
103583	Grey	7032	3400325	3-4 weeks from PO	-40 - +100 °C **)	
103586	Black		3400328	From Stock	-40 - +100 °C ***)	Material UL 94 V-0 approved

- Packing size 60 pcs/box
- Single packed 40 pcs/box (b)

\*) Service temperature for unstressed material

\*\*) Available with fastener pins (f)

\*\*\*) IP-classification under testing

# MC 35/37



MC 35/37 Multigate is suitable for leading through both low and medium power current cables as well as various types of tubing. It fits directly to a C-standard cut-out (or FL 21).

MC 35/37 Multigate is metal reinforced new type of cable gland plate made of various types of polymers. It meets the respective IP enclosure classes as it does not need separate gaskets or glands which makes it very easy to use, providing innumerable advantages in a single assembly unit.

MC 35/37 Multigate is suitable for both outdoor and indoor use.

MC 35/37 Multigate gives absolute protection against dust and both strong jets of water from all direction and against the effects of immersion between 15 cm and 1,0 m.

MC 35/37 Multigate can be used instead of MC 35 Multigate. The configuration has the same openings than MC 35 and 2 extra.

MC 35/37 Multigate is inspected and certified by:  
SGS FIMKO the Finnish authority in charge of electrical equipment safety standards.

MC 35/37 Multigate will lead through and seal cables as follows:

6 - 10 mm	4 pcs
8 - 12 mm	14 pcs
10 - 14 mm	16 pcs
12 - 18 mm	2 pcs
17 - 32 mm	1 pc

Total of 37 cables

Code	Colour	Ral code	Electrical number	Delivery time	Service temperature *)	Special
105043	Light Grey	7035	3400355	From Stock	-40 - +100 °C	Material UL 94 V-0 approved
103589	Light Grey	7035	3400331	From Stock	-40 - +100 °C **)	
103588	Grey	7032	3400330	3-4 weeks from PO	-40 - +100 °C **)	
103591	Black		3400333	From Stock	-40 - +100 °C ***)	Material UL 94 V-0 approved

- Packing size 60 pcs/box
- Single packed 40 pcs/box (b)

\*) Service temperature for unstressed material

\*\*) Available with fastener pins (f)

\*\*\*) IP-classification under testing

# MB 5/11



**MB 5/11 Multigate is suitable for leading through both low and medium power current cables as well as various types of tubing. It fits directly to a B-standard cut-out (or FL 13).**

MB 5/11 Multigate is metal reinforced new type of cable gland plate made of various types of polymers. It meets the respective IP enclosure classes as it does not need separate gaskets or glands which makes it very easy to use, providing innumerable advantages in a single assembly unit.

MB 5/11 Multigate is suitable for both outdoor and indoor use.

MB 5/11 Multigate gives absolute protection against dust and both strong jets of water from all directions and against the effects of immersion between 15 cm and 1,0 m.

MB 5/11 Multigate can be used instead of MB 5 Multigate. The configuration has the same openings than MB 5 and 6 extra.

MB 5/11 Multigate is inspected and certified by: SGS FIMKO the Finnish authority in charge of electrical equipment safety standards.

MB 5/11 Multigate will lead through and seal cables as follows:

5 - 7 mm	4 pcs
7 - 10 mm	3 pcs
10 - 14 mm	2 pcs
15 - 30 mm	2 pcs

Total of 11 cables

Code	Colour	Ral code	Electrical number	Delivery time	Service temperature *)	Special
105044	Light Grey	7035	3400356	From Stock	-40 - +100 °C	Material UL 94 V-0 approved
103608	Light Grey	7035	3400336	From Stock	-40 - +100 °C **)	
103607	Grey	7032	3400335	3-4 weeks from PO	-40 - +100 °C **)	

- Packing size 200 pcs/box

\*) Service temperature for unstressed material

\*\*\*) Available with fastener pins (f)

# MC 3



MC 3 Multigate is suitable for leading through both low and medium power current cables as well as various types of tubing. It fits directly to a C-standard cut-out ( or FL 21 ).

MC 3 Multigate is well known metal reinforced cable gland plate made of various types of polymers. It meets the respective IP enclosure classes as it does not need separate gaskets or glands which makes it very easy to use, providing innumerable advantages in a single assembly unit.

MC 3 Multigate is suitable for both outdoor and indoor use.

MC 3 Multigate gives absolute protection against dust and spraying water from all directions.

MC 3 Multigate is inspected and certified by:  
SGS FIMKO the Finnish authority in charge of electrical equipment safety standards.

MC 3 Multigate will lead through and seal cables as follows:

24 - 54 mm	2 pcs	IP65
30 - 60 mm	1 pc	IP65
8 - 12 mm	4 pcs	IP54

Total of 7 cables

Code	Colour	Ral code	Electrical number	Delivery time	Service temperature *)	Special
100234	Light Grey	7035	1732351	From Stock	-40 - +100 °C **)	
100235	Black		3400301	From Stock	-40 - +100 °C	Material V-0, oil-resistant
100233	Grey	7032	1732350	3-4 weeks from PO	-40 - +100 °C **)	
100931	Black		3400302		-40 - +100 °C	EMC tested

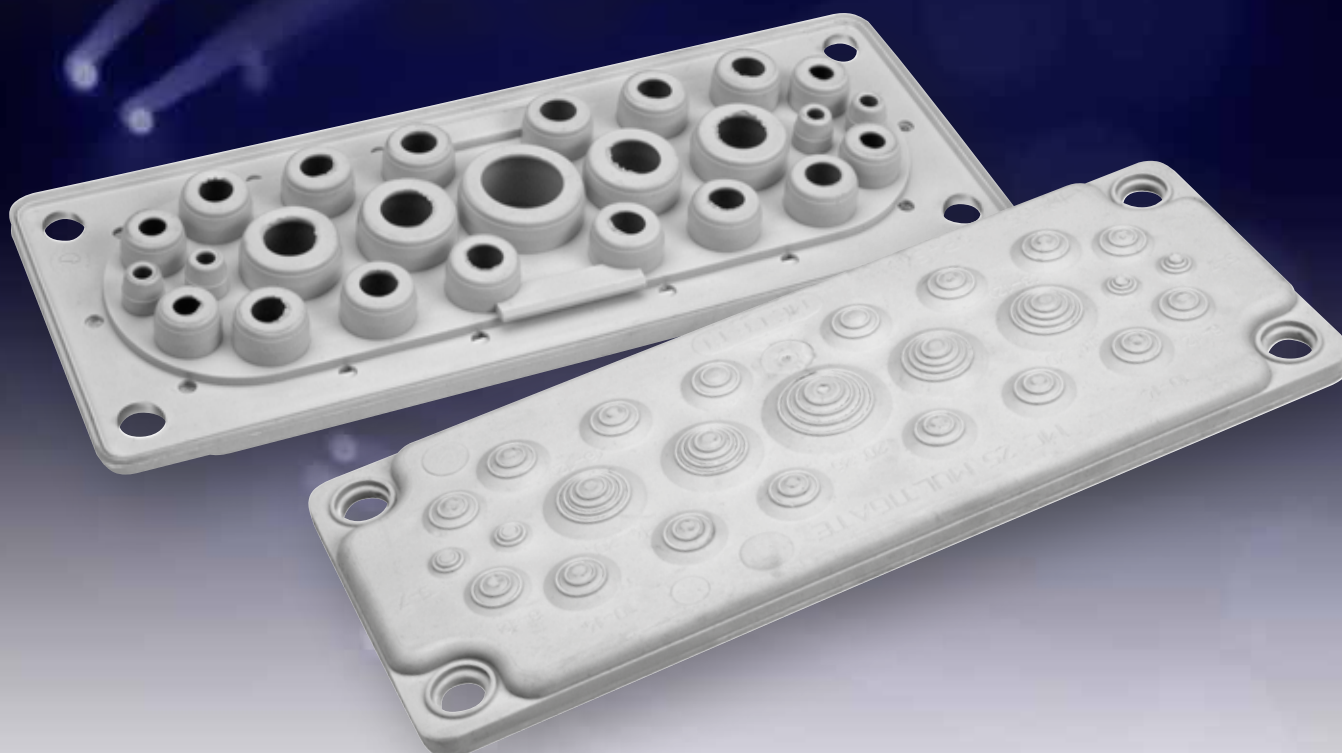
- Packing size 100 pcs/box
- Single packed 80 pcs/box (b)

\*) Service temperature for unstressed material

\*\*\*) Available with fastener pins (f)



# MC 25



MC 25 Multigate is suitable for leading through both low and medium power current cables as well as various types of tubing. It fits directly to a C-standard cut-out (or FL 21).

MC 25 Multigate is well known metal reinforced cable gland plate made of various types of polymers. It meets the respective IP enclosure classes as it does not need separate gaskets or glands which makes it very easy to use, providing innumerable advantages in a single assembly unit.

MC 25 Multigate is suitable for both outdoor and indoor use.

MC 25 Multigate gives absolute protection against dust and spraying water from all directions.

MC 25 Multigate is inspected and certified by:  
SGS FIMKO the Finnish authority in charge of electrical equipment safety standards.

MC 25 Multigate will lead through and seal cables as follows:

5 - 7 mm	4 pcs
8 - 12 mm	4 pcs
10 - 14 mm	12 pcs
14 - 20 mm	4 pcs
20 - 26 mm	1 pc

Total of 25 cables

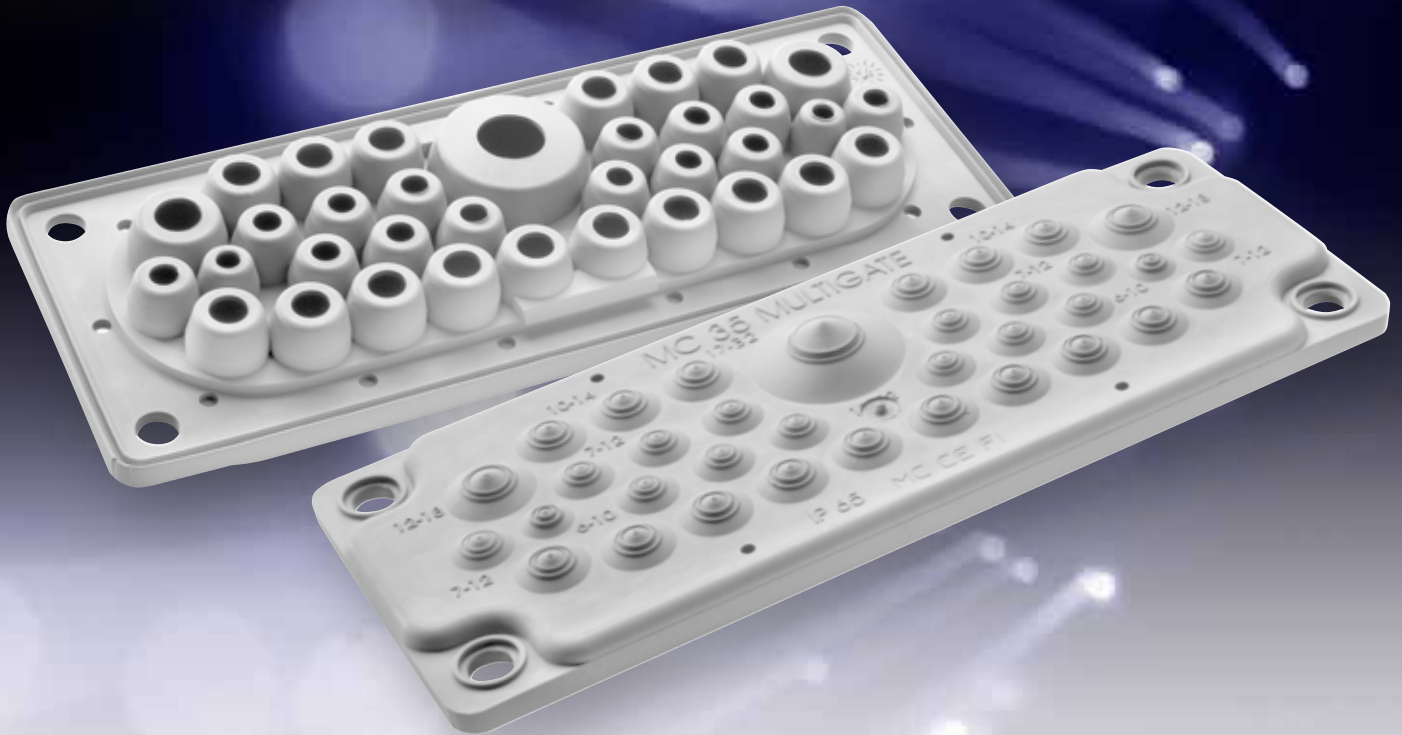
Code	Colour	Ral code	Electrical number	Delivery time	Service temperature *)	Special
100238	Light Grey	7035	1732352	From Stock	-40 - +100 °C **)	
100239	Black		3400304	From Stock	-40 - +100 °C	Material V-0, oil-resistant
100237	Grey	7032	3400306	3-4 weeks from PO	-40 - +100 °C **)	
100214	Black		3400305		-40 - +100 °C	EMC tested

- Packing size 100 pcs/box
- Single packed 80 pcs/box (b)

\*) Service temperature for unstressed material

\*\*\*) Available with fastener pins (f)

# MC 35



MC 35 Multigate is suitable for leading through both low and medium power current cables as well as various types of tubing. It fits directly to a C-standard cut-out (or FL 21).

MC 35 Multigate is well known metal reinforced cable gland plate made of various types of polymers. It meets the respective IP enclosure classes as it does not need separate gaskets or glands which makes it very easy to use, providing innumerable advantages in a single assembly unit.

MC 35 Multigate is suitable for both outdoor and indoor use.

MC 35 Multigate gives absolute protection against dust and spraying water from all directions.

MC 35 Multigate is inspected and certified by:  
SGS FIMKO the Finnish authority in charge of electrical equipment safety standards.

MC 35 Multigate will lead through and seal cables as follows:

6 - 10 mm	2 pcs
7 - 12 mm	14 pcs
10 - 14 mm	16 pcs
12 - 18 mm	2 pcs
17 - 32 mm	1 pc

Total of 35 cables

Code	Colour	Ral code	Electrical number	Delivery time	Service temperature *)	Special
100244	Light Grey	7035	1732353	From Stock	-40 - +100 °C **)	
100245	Black		3400308	From Stock	-40 - +100 °C	Material V-0, oil-resistant
100243	Grey	7032	3400310	3-4 weeks from PO	-40 - +100 °C **)	
100215	Black		3400309		-40 - +100 °C	EMC tested

- Packing size 100 pcs/box
- Single packed 80 pcs/box (b)

\*) Service temperature for unstressed material

\*\*) Available with fastener pins (f)

# MC 16



**MC 16 Reversible Multigate is suitable for leading through both low and medium power current cables as well as various types of tubing. It fits directly to a C-standard cut-out (or FL 21)**

MC 16 Reversible Multigate is plastic reinforced cable gland plate made of various types of polymers. It meets the respective IP enclosure classes as it does not need separate gaskets or glands which makes it very easy to use, providing innumerable advantages in a single assembly unit.

MC 16 Reversible Multigate can be used by two different ways. When the Multigate is used "facade" up, it works as a regular IP54 enclosure cable gland plate. The product contains a gasket against the cabinet and it comes with self-locking pins. This means that no special tools are needed at any point of the installa-

tion. When the Multigate is used reversed it functions as a piping grommet in dry space switchboards. Pipes lock securely to the seal in the gland plate by the friction of the elastic material. Membranes on the plate seal the pipes and effectively prevent condensate formation in pipes that run, for instance, through attic space. The self-locking pins supplied with the Multigate are also suitable for reverse mounting.

MC 16 Reversible Multigate is suitable for both outdoor and indoor use.

MC 16 Reversible Multigate gives protection for limited ingress of dust and against water splashed from all directions.

MC 16 Reversible Multigate is inspected and certified by:  
SGS FIMKO the Finnish authority in charge of electrical equipment safety standards.

MC 16 Multigate will lead through and seal cables as follows:

10 - 20 mm	15 pcs
10 - 30 mm	1 pc

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Total of 16 cables

Code	Colour	Ral code	Electrical number	Delivery time	Service temperature *)	Special
100084	Light Grey	7035	3400311	3-4 weeks from PO	-40 - +100°C	

- Packing size 100 pcs/box
- Single packed 80 pcs/box (b)

\*) Service temperature for unstressed material

# MC 10



MC 10 Multigate is suitable for leading through both low and medium power current cables as well as various types of tubing. It fits directly to a C-standard cut-out (or FL 21).

MC 10 Multigate is metal reinforced cable gland plate made of various types of polymers. It meets the respective IP enclosure classes as it does not need separate gaskets or glands which makes it very easy to use, providing innumerable advantages in a single assembly unit.

MC 10 Multigate is suitable for both outdoor and indoor use.

MC 10 Multigate gives protection for limited ingress of dust and against water splashed from all directions.

MC 10 Multigate is inspected and certified by: SGS FIMKO the Finnish authority in charge of electrical equipment safety standards.

MC 10 Multigate will lead through and seal cables as follows:

7 - 12 mm	2 pcs
10 - 30 mm	8 pcs

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Total of 10 cables

Code	Colour	Ral code	Electrical number	Delivery time	Service temperature *)	Special
103552	Light Grey	7035	3400312	From Stock	-40 - +100 °C	Material UL 94 V-0 approved

- Packing size 100 pcs/box
- Single packed 80 pcs/box (b)

\*) Service temperature for unstressed material

# MB 4



**MB 4 Multigate is suitable for leading through both low and medium power current cables as well as various types of tubing. It fits directly to a B-standard cut-out (or FL 13)**

MB 4 Multigate is metal reinforced cable gland plate made of various types of polymers. It meets the respective IP enclosure classes as it does not need separate gaskets or glands which makes it very easy to use, providing innumerable advantages in a single assembly unit.

MB 4 Multigate is suitable for both outdoor and indoor use.

MB 4 Multigate gives protection for limited ingress of dust and against water splashed from all directions.

MB 4 Multigate is inspected and certified by:  
SGS FIMKO the Finnish authority in charge of electrical equipment safety standards

**MB 4 Multigate will lead through and seal cables as follows:**

10 - 25 mm      4 pcs

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**Total of 4 cables**

Code	Colour	Electrical number	Delivery time	Service temperature *)	Special
100216	White	3400318	From Stock	-40 - +100 °C	Material UL 94 V-0 approved

- Packing size 200 pcs/box

\*) Service temperature for unstressed material

# LMC 14 IP54



LMC 14 Multigate is suitable for leading through both low and medium power current cables as well as various types of tubing. It fits directly to a C-standard cut-out (or FL 21).

LMC 14 Multigate is metal reinforced cable gland plate made of various types of polymers. It meets the respective IP enclosure classes as it does not need separate gaskets or glands which makes it very easy to use, providing innumerable advantages in a single assembly unit.

LMC 14 Multigate is suitable for both outdoor and indoor use.

LMC 14 Multigate gives protection against water splashed from all directions.

LMC 14 Multigate is inspected and certified by: SGS FIMKO the Finnish authority in charge of electrical equipment safety standards.

LMC 14 IP54 Multigate will lead through and seal cables as follows:

24 - 54 mm	2 pcs
14 - 22 mm	3 pcs
14 - 18 mm	4 pcs
10 - 14 mm	5 pcs

Total of 14 cables

Code	Colour	Ral code	Electrical number	Delivery time	Service temperature *)	Special
104338	Light Grey	7035	3400350	From Stock	-40 - +100 °C	Material UL 94 V-0 approved
105002	Light Grey	7035	3400357	From Stock	-40 - +100 °C **)	

- Packing size 100 pcs/box
- Single packed 80 pcs/box (b)

\*) Service temperature for unstressed material

\*\*\*) Available with fastener pins (f)

# LMC 25 IP54



**LMC 25 Multigate is suitable for leading through both low and medium power current cables as well as various types of tubing. It fits directly to a C-standard cut-out (or FL 21).**

LMC 25 Multigate is metal reinforced cable gland plate made of various types of polymers. It meets the respective IP enclosure classes as it does not need separate gaskets or glands which makes it very easy to use, providing innumerable advantages in a single assembly unit.

LMC 25 Multigate is suitable for both outdoor and indoor use.

LMC 25 Multigate gives protection against water splashed from all directions.

LMC 25 Multigate is inspected and certified by:  
SGS FIMKO the Finnish authority in charge of electrical equipment safety standards.

LMC 25 IP54 Multigate will lead through and seal cables as follows:

14 - 35 mm	1 pc
14 - 22 mm	5 pcs
14 - 18 mm	12 pcs
10 - 14 mm	5 pcs
3.5 - 11 mm	2 pcs

Total of 25 cables

Code	Colour	Ral code	Electrical number	Delivery time	Service temperature *)	Special
104335	Light Grey	7035	3400341	From Stock	-40 - +100 °C	Material UL 94 V-0 approved
105003	Light Grey	7035	3400358	From Stock	-40 - +100 °C **)	

- Packing size 100 pcs/box
- Single packed 80 pcs/box (b)

\*) Service temperature for unstressed material

\*\*) Available with fastener pins (f)

# LMC 51 IP54



LMC 51 Multigate is suitable for leading through both low and medium power current cables as well as various types of tubing. It fits directly to a C-standard cut-out (or FL 21).

LMC 51 Multigate is metal reinforced cable gland plate made of various types of polymers. It meets the respective IP enclosure classes as it does not need separate gaskets or glands which makes it very easy to use, providing innumerable advantages in a single assembly unit.

LMC 51 Multigate is suitable for both outdoor and indoor use.

LMC 51 Multigate gives protection against water splashed from all directions.

LMC 51 Multigate is inspected and certified by: SGS FIMKO the Finnish authority in charge of electrical equipment safety standards.

LMC 51 IP54 Multigate will lead through and seal cables as follows:

15 - 25 mm	1 pc
7 - 13 mm	50 pcs

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Total of 51 cables

Code	Colour	Ral code	Electrical number	Delivery time	Service temperature *)	Special
104344	Light Grey	7035	3400347	From Stock	-40 - +100 °C	Material UL 94 V-0 approved
105004	Light Grey	7035	3400359	From Stock	-40 - +100 °C **)	

- Packing size 100 pcs/box
- Single packed 80 pcs/box (b)

\*) Service temperature for unstressed material

\*\*\*) Available with fastener pins (f)



# LMC 35 IP44



**LMC 35 Multigate is suitable for leading through both low and medium power current cables as well as various types of tubing. It fits directly to a C-standard cut-out (or FL 21).**

LMC 35 Multigate is metal reinforced cable gland plate made of various types of polymers. It meets the respective IP enclosure classes as it does not need separate gaskets or glands which makes it very easy to use, providing innumerable advantages in a single assembly unit.

LMC 35 Multigate is suitable for both

outdoor and indoor use.

LMC 35 Multigate gives protection against water splashed from all directions.

LMC 35 Multigate is inspected and certified by:  
SGS FIMKO the Finnish authority in charge of electrical equipment safety standards.

LMC 35 IP44 Multigate will lead through and seal cables as follows:

15 - 32 mm	1 pc
12 - 18 mm	2 pcs
10 - 14 mm	16 pcs
7 - 12 mm	14 pcs
6 - 10 mm	2 pcs

Total of 35 cables

Code	Colour	Ral code	Electrical number	Delivery time	Service temperature *)	Special
100241	Light Grey	7035	3400344	From Stock	-40 - +100 °C	

- Packing size 100 pcs/box
- Single packed 80 pcs/box (b)

\*) Service temperature for unstressed material

# MB 4/10



MB 4/10 Multigate is suitable for leading through both low and medium power current cables as well as various types of tubing. It fits directly to a B-standard cut-out (or FL 13).

MB 4/10 Multigate is metal reinforced new type of cable gland plate made of various types of polymers. It meets the respective IP enclosure classes as it does not need separate gaskets or glands which make it very easy to use, providing innumerable advantages in a single assembly unit.

MB 4/10 Multigate is suitable for both outdoor and indoor use.

MB 4/10 Multigate can be used instead of MB 4 Multigate. The configuration has the same openings than MB 4 and 6 extra.

MB 4/10 Multigate will lead through and seal cables as follows:

4 - 9 mm	6 pc
10 - 25 mm	4 pcs

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Total of 10 cables

Code	Colour	Electrical number	Delivery time	Service temperature *)	Special
105953	Grey		3 - 4 weeks from PO	-40 - +100 °C	
105954	Light Grey		From stock	-40 - +100 °C	
105955	Black		3 - 4 weeks from PO	-40 - +100 °C	

- Packing size 200 pcs/box

\*) Service temperature for unstressed material

# Splitting Multigate



Splitting Multigate is based of totally new philosophy and is provided for cables with connectors or/and without. Splitting Multigate is metal and plastic reinforced cable gland plate combination for leading through both low and medium power current cables as well various types of tubing and it wires. The product fits directly to c-standard cut-out ( FL 21 ).

Splitting Multigate frame is installed with four M8 bolts and nuts ( included ). Special design with gaskets protect the screws when installed.

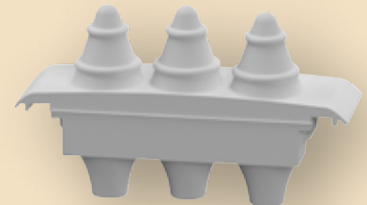
Splitting Multigate consist of frame and combination of blocks.

Principle of the blocks is easy and cost effective to customize if special items are needed.

Splitting Multigate cable gland plates are made of various types of polymers. All these polymers are RoHS approved and have excellent weather, UV- and ozone resistance. Flame retardant classification of the materials meet UL 94 V-0. Also EMC-compatible and oil resistant models will be available.

Splitting Multigate will be inspected and certified by SGS Fimko, the Finnish authority in charge of electrical equipment safety standards.

## Standard Multigate Blocks



Splitting Multigate with Standatd Multigate type of Blocks gives protection for limited ingress of dust and spraying water from all directions. Classification code IP55.

For more information contact sales support at [www.trelleborg.com/industrial-products](http://www.trelleborg.com/industrial-products)

# Shield Lines

Trelleborg have developed in long co-operations with customers a line of materials Shield line especially suitable for the electrical, electric-, and telecom industries with excellent shielding performance in demanding environments. The material selection and development have been done in order to meet customer and application requirements for long term performance of gasket, lead trough's, grommet's, gaskets and various solutions of shielding electro technical equipment from external stress, weather, dust, UV-light, humidity or mechanical effect.

All Shield line materials fulfill REACH and RoHS latest requirements and are constantly monitored to fulfill any regulations that is requested by authorities.

Below is listed some key performance and properties of material groups within shield line material selection with typical application examples.

The right material solution is recommended to each customer application and optimized to meet the technical and other requirements.

## ShieldLine

Thermoplastic Elastomer

T

Excellent resistance to weathering, ozone and UV exposure provides good chemical resistance, and electrical properties

Typically used for high volume items with request of high precision, low tolerances high quality combined with low-price of end product, especially suitable for fully automated production. Shield line T materials are fully recyclable and easy to customize by color and hardness in a range from 25° to 70° ShA . Major applications are cable seals, gaskets or cable lead troughs that are assembled outside in harsh environments and have to stand for some long terms mechanical stress such as stressing the shielding grommet or membrane.

Grades with limited resistance for oils, flame retardant grades UL 94 V-0, halogen free, FDA approved and EMC- shielding grades are available.

## ShieldLine

Thermoplastic Urethane

U

Shield line U have basically the same properties as Shield line T but with excellent abrasive and mechanical properties.

Typically used where the items have to stand for abrasive stress combined with environmental conditions. Full recyclability and customized coloring is possible, hardness range is slightly limited by the materials physical properties but is still fairly wide 50° to 90° ShA  
Grades with limited resistance for oils, FDA grades are available.

## ShieldLine

Thermoplastic Vulcanizate

V

Shield line V have similar properties as Shield line T the special performance is in color stability in UV-light, the color does not change even in years of direct sunlight and in various temperatures. Also the chemical resistance properties are superior to other materials, oils petroleum, automotive fluids acids, solvents etc. have no or minor effect on Shield line V materials

Shield line V is very similar in feel and looks as traditional rubbers, but can be produced in high performance automated production lines, the hardness and temperature range is very wide, 15° ShA to 50° ShD and from -60°C to up to 150°C in short term exposure.

Typically used where the items have to stand for extreme environmental stress in elevated temperatures and harsh conditions, such as equipment parts for industrial use, automotive parts and visible parts with high visual standards on colors.

Special grades with FDA medical/ food contacts approval are available as well as flame retardant and other special grades.



REACH ✓

## ShieldLine

Ethylene Propylene Diene Monomer

E

Basic performance is as for any EPDM material, these Shield line E grades have superior resistance to weathering, ozone and UV exposure they provides excellent chemical resistance, and good electrical properties and also resists animal and vegetable oils, steam, water and oxygenated solvents.

Shield line E is typically used when the solution requires rubber to be used; this can come from a moderate size of production series or low cost at low volumes when visual issues are not important since black is the main color for the material, still with good sealing properties. Cable grommets and single gates are produced out of Shield line E

There are some grades with EMC attenuation of 40 dB – 60 dB

## ShieldLine

Nitrile Butadiene Rubber

N

Material mostly used for indoor or shielded applications due to limited weathering resistance, but excellent oil fuel and other chemical resistance. Gas permeability and water resistance are excellent as well as adhesion to metal and vibration damping performance.

Typical application would be a gasket, grommet, lead trough in automotive industry where oil or water sealing performance is important or gas tightness. Also vibration dampers are produced out of this materials due to wide hardness range that is available 20° to 95° ShA

## ShieldLine

Chloroprene Rubber

C

Shield line C is used when rubber like performance is required with a wide temperature range -45... +120 °C and moderate fire protection or with chemical stability in the temperature range.

## ShieldLine

Silicone

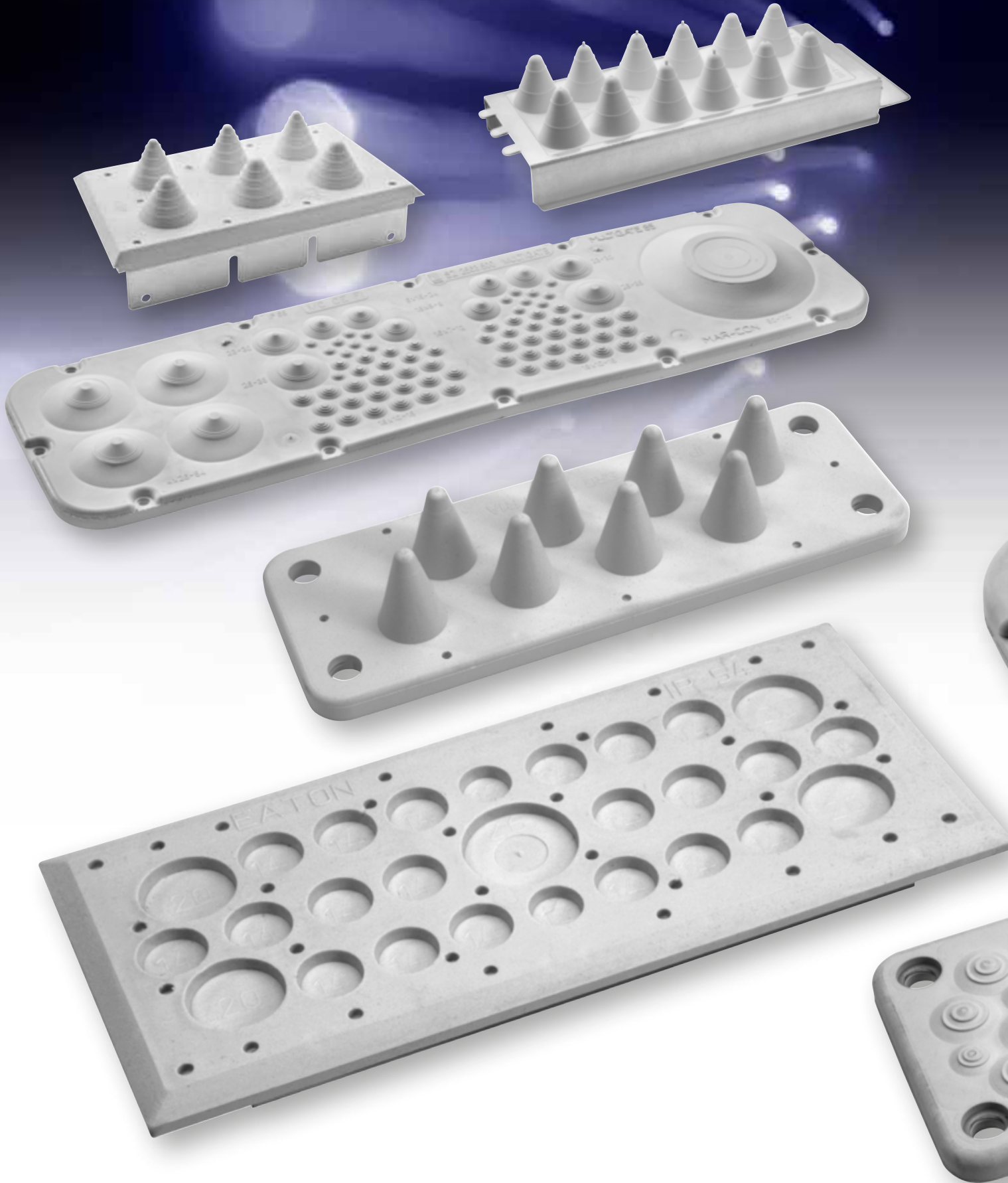
Q

Shield line Q offer excellent resistance to weathering, ozone and UV exposure also provides excellent chemical resistance and good electrical properties while resisting oil splashes.

Shield line Q is typically used in most demanding applications, with wide temperature range -50... + 200°C, and high quality performance and visual requirements, Shield line Q natural color is transparent or white so customized coloring is easy to obtain, it's a very flexible material and with high range of hardness 25° – 90° ShA which makes it very usable in sealing, grommet, cable lead troughs and terminal covers or plugs.

Special EMC/RFI/EMI grades are available with an attenuation of up to 120 dB, various fillers can be used such as silver or nickel graphite to fulfill the conductivity requirement. UL94 V-0 flame retardant grades are available and halogen free versions.

# Custom made





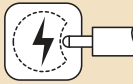
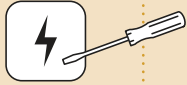

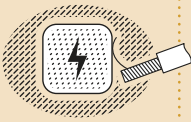
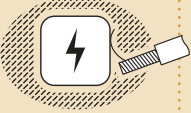


# IP codes

## First numeral

Protection against ingress of solid foreign objects






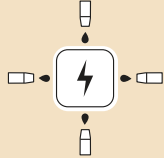
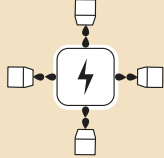


Meaning protection of persons against access to hazardous parts with:

IP	Requirements	Example	
0	No protection		No protection provided
1	Full penetration of 50.0 mm diameter sphere not allowed and shall have adequate clearance from hazardous parts. Contact with hazardous parts not permitted		Back of hand
2	Full penetration of 12.5 mm diameter sphere not allowed. The jointed test finger shall have adequate clearance from hazardous parts		Finger
3	The access probe of 2.5 mm diameter shall not penetrate		Tool
4	The access probe of 1.0 mm diameter shall not penetrate		Wire
5	Limited ingress of dust permitted (no harmful deposit, refer to standard)		Wire
6	Totally protected against ingress of dust		Wire

## Second numeral

Protection against harmful ingress of water

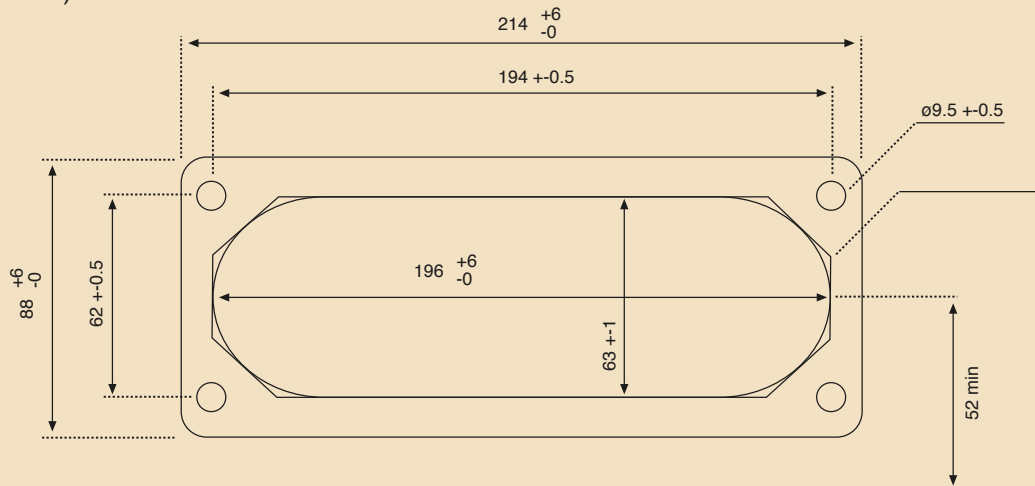
Meaning for protection from ingress of water:

IP	Requirements	Example	
0	No protection		No protection provided
1	Protected against vertically falling drops of water		Vertically dripping
2	Protected against vertically falling drops of water with enclosure tilted 15° from the vertical.		Enclosure tilted 15° from the vertical
3	Protected against sprays to 60° from the vertical		Limited spraying
4	Protected against water splashed from all directions		Splashing from all directions
5	Protected against lowpressure jets of water from all directions		Hosing jets from all directions
6	Protected against strong jets of water		Strong hosing jets from all directions
7	Protected against the effects of immersion between 15.0 cm and 1.0 m		Temporary immersion
8	Protected against longer periods of immersion under pressure		Immersion

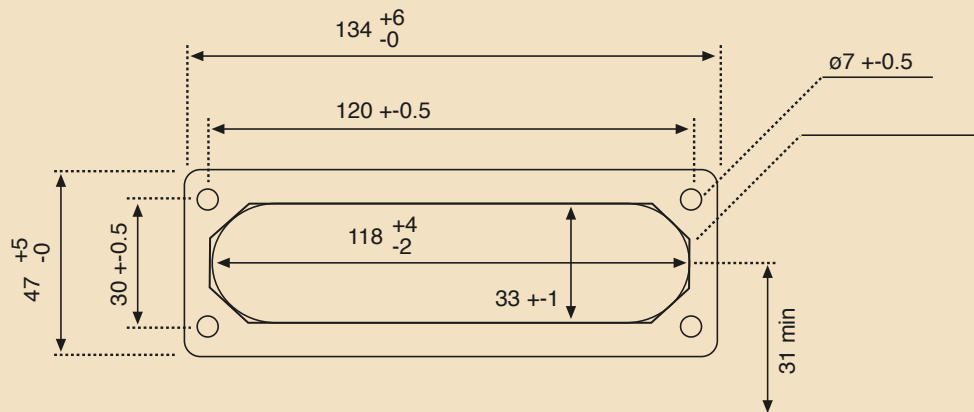


# Fixing details

Size C (FL 21)

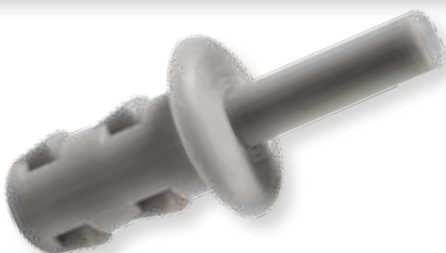


Size B (FL 13)



## Pin

Primarily used with MC 25 and MC 35 multigates for indoor applications.

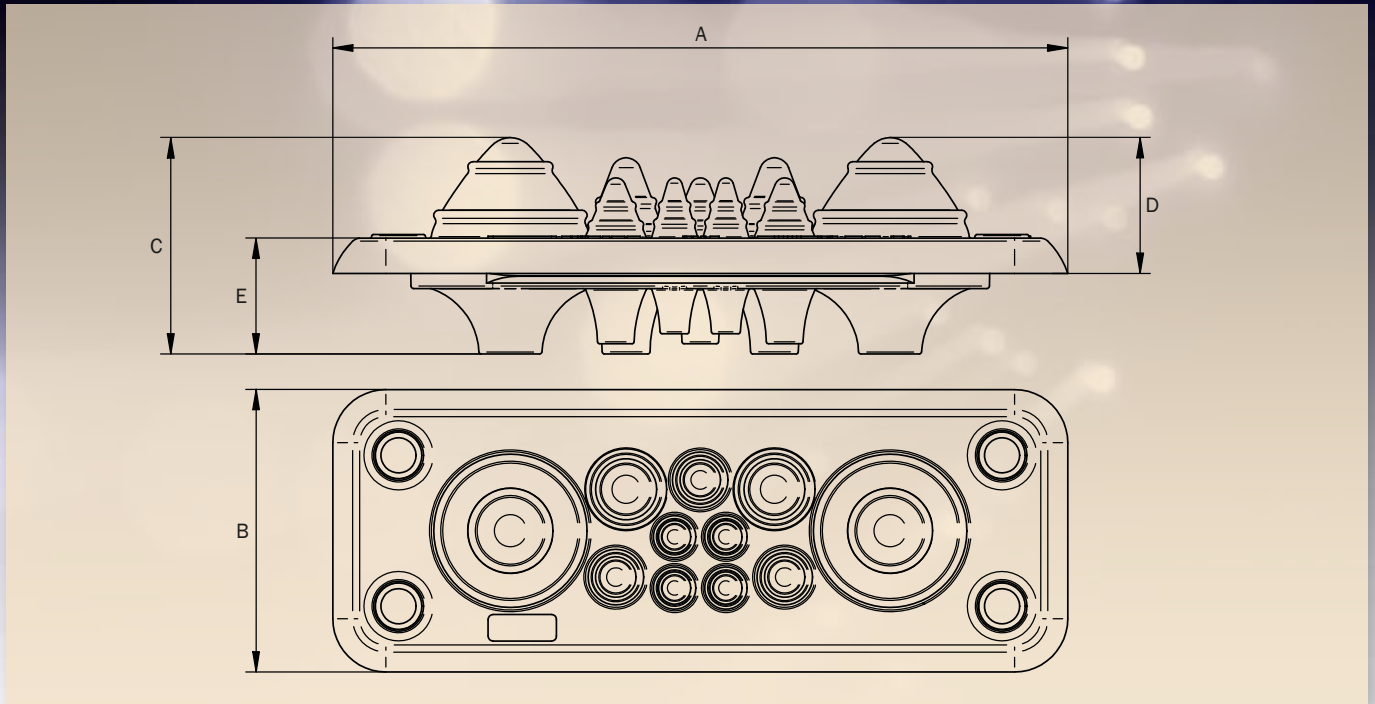


## Bolt and nut

Always for outdoor and EMC applications or with large cable sizes, recommended torque 2Nm.



# Dimensions



## IP66/67-series

Type	Width (A)	Lenght (B)	Height (C)	Depth 1 (D)	Depth 2 (E)
MC 3/7	222	92	76	53	33
MC 25/27	222	92	43	30	23
MC 35/37	222	92	43	30	23
MB 5/11	147	57	42	26	23

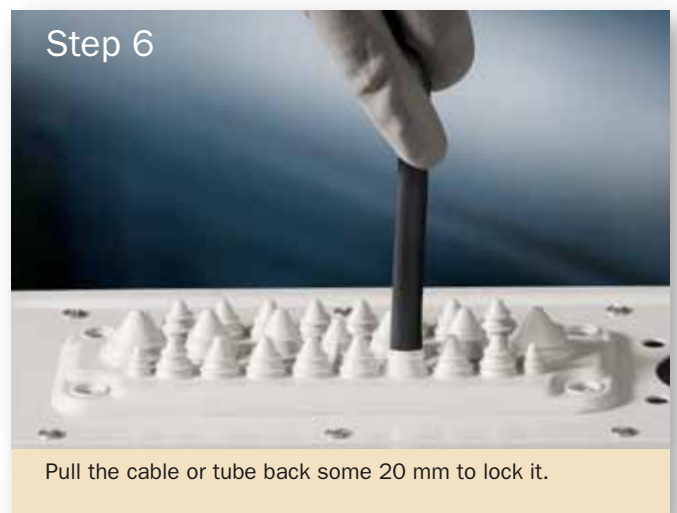
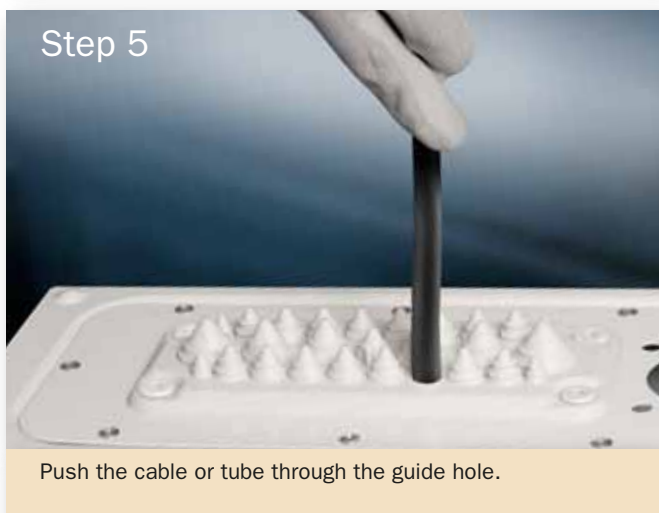
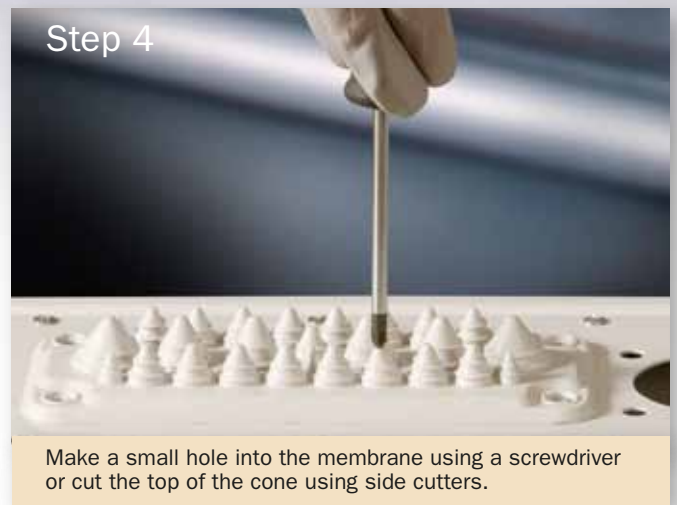
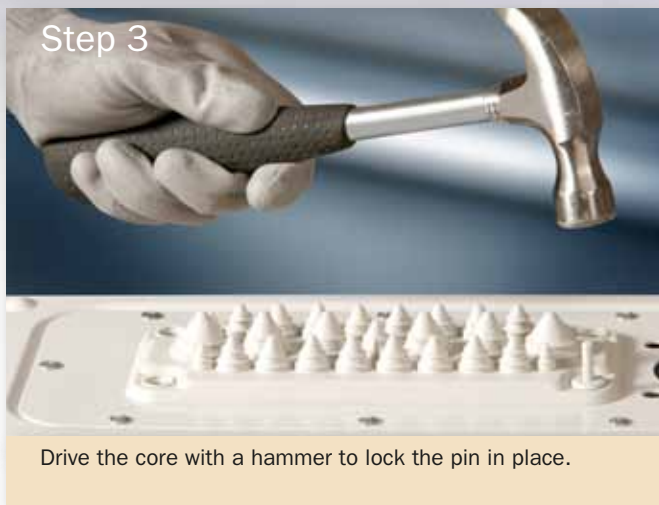
## IP65-series

Type	Width (A)	Lenght (B)	Height (C)	Depth 1 (D)	Depth 2 (E)
MC 3	214	82	40	19	27
MC 25	216	84	27	15	21
MC 35	216	84	31	17	22

## IP55 / IP54-series

Type	Width (A)	Lenght (B)	Height (C)	Depth 1 (D)	Depth 2 (E)
MC 10	216	84	48	45	12
MC 16	216	84	31	14	22
MB 4	138	48	32	32	7
LMC 14	222	92	52	52	10
LMC 25	222	92	30	30	10
LMC 51	222	92	30	30	10

# Assembly





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